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Breast Cancer Awareness and Practice of Breast Self-Examination among Female Medical Students in Haramaya University, Harar, Ethiopia

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Abstract

Breast cancer is the commonest life-threatening cancer in women worldwide. Regular self breast examination is a novel method for early detection of this cancer which in turn may improve the prospects for long-term survival. We conducted a study to assess the knowledge, attitudes and practice regarding Breast Self-Examination (BSE) in female medical students of the College of Health and Medical Sciences at Haramaya University. A cross sectional study was carried out in 126 female medical students from first year to internship of their medical study. Data were collected using a pre-tested structured self-administered quantitative questionnaire. All the participants had good knowledge about breast cancer and 95% of the participants believed that BSE can be an important tool for early detection of this cancer. About 85% participants agreed that early breast cancer detection improves survival. And 65% of students knew all three breast cancer screening methods viz. BSE, Clinical Breast Examination (CBE) and mammography. When it came to practice it was observed that 77% of the study participants have never done BSE, the main reasons behind this were, I don't have any problem (28.8%), forgetfulness (17.5%), and due to fear of detecting abnormality (16.4%). We conclude that despite of the adequate knowledge of BSE and breast cancer, the actual practice of BSE was very low (23%) among the medical students. We recommended that public awareness on the importance of BSE be intensified using the mass media and other means. Further studies are needed to explore what intervention could be best used to improve the uptake and practice of BSE and other methods for early breast cancer detection.

Keywords: Breast cancer awareness, breast self examination, early detection, Ethiopia

Background

Breast cancer is a major life-threatening public health problem of great global concern^[1,2]. Increase in the incidence of this disease is being observed in both industrialized and developing countries. Breast cancer is the most prevailing cause of cancer morbidity and mortality among women in most parts of the world^[3]. It is the leading type of cancer in women^[4] and is the most common cancer among women in many parts of Africa^[5]. The emergence of breast disease and the subsequent development of cancer tend to be more aggressive in young women compared with breast cancer progression in the older population. Young age at diagnosis correlates with worse prognosis and

defines a subset of breast cancers with shared patterns of gene expression. The high mortality rate among young women is mainly due to lack of breast cancer awareness ^[6].

Early discovery of breast lumps through breast self-examination (BSE) is important for the prevention and early detection of this disease. Young women aged 20-29 years with breast cancer experienced mortality rate of 72.4% from the diseases ^[7]. Early detection of breast cancer plays an important role in decreasing its morbidity and mortality ^[8]. Though BSE is one of the inexpensive and easy screening methods for early detection of breast cancer ^[9,10], however, women in developing countries do not perform BSE for various reasons ^[11]. Most advanced techniques for early detection is not readily available to most of the women in Sub Saharan Africa ^[12,13]. BSE is appealing as a routine screening method because the examination has no financial cost (apart from the initial instruction sessions), and can be conducted in private ^[14]. Most studies on the effectiveness of BSE have been observational. These studies suggest that women are more likely to find their breast tumors themselves, the tumors tend to be smaller and that these women have an increased survival ^[15].

The evidence of primary cancer prevention is slowly growing; its strategies cannot yet be implemented in clinical prevention programs, therefore, secondary prevention and early detection of cancer remains the main focus for reducing breast cancer mortality. The early detection and diagnosis rate of breast cancer is considerably low among Ethiopian women compared to women in Western countries ^[16]. This fact reflects the lack of awareness of breast cancer as well as low cancer detection and prevention activities among Ethiopian women. Therefore, many women miss early detection and treatment opportunities due to lack of information, knowledge, and awareness of breast cancer, as well as cancer screening practices ^[17]. Although there is no cancer registry in Ethiopia, clinical records from Black Lion Hospital Radiotherapy center, Addis Ababa, indicates that among the top 10 cancers seen there, carcinoma of the cervix and breast ranks number one and two, respectively. An international survey showed poor awareness of risk factors for breast cancer among university students from 23 countries, compared to older women ^[18]. Hence, a study was undertaken to assess the knowledge, attitude and practice of BSE among female undergraduate medical students of Haramaya University, Ethiopia.

Methodology

Ethical considerations: Prior ethical and administrative approval was obtained from the authorities of College of Health and Medical Sciences, Haramaya University, for conducting this study.

Study design and setting: A cross-sectional study was done using a pre-tested structured self-administered quantitative questionnaire in the College of Health and Medical Sciences campus at Haramaya University, Ethiopia during September 2013.

Harar is situated about 500 km east of Addis Ababa. The College of Health and Medical Sciences in Harar established in 1996, is an integral part of Haramaya University, Ethiopia. The college is organized in to three schools: Medicine, Pharmacy and Nursing & Midwifery. The college is having a specialized university teaching hospital with more than 200 academic staffs. The college is offering various health and medical sciences programs like Medicine, Pharmacy, Health Officer, Medical Laboratory Sciences, Environmental Health, General Nursing, Midwifery, Psychiatry Nursing etc. Currently, more than 4000 students (females 21%) from Ethiopia and other

African countries are enrolled in various programs. The university teaching hospital and other health centers including private hospitals in Harar do not have any oncology unit. Except minor surgical treatment depending on the type and stage of cancer no other treatment like radiation therapy is possible here. Most of the cancer patients are therefore, referred to Black Lion Hospital, Addis Ababa for further treatment.

Study population, sampling and participants: The target population comprised of female students from various years of their medicine study. To be eligible for this study the students have to be aged 18 or more. Students who showed interest were approached. Informed verbal consent was obtained from the study participants after telling the objective of the study. Confidentiality and privacy were protected for the collected data from the study participants.

Data collection, variables and measurements: A standard questionnaire was used to collect data. This questionnaire had three sections: Socio-demographic characteristics, knowledge and impression of BSE, and a section on knowledge about breast cancer. The questionnaire was self-administrated: consenting participants were given printed copies of the questionnaire and allowed time to fill their response at their will and convenience, and in a private, confidential setting. Participant then returned these questionnaires anonymously. The questionnaires were self-administered so as to limit bias and allow for forthright responses from participants.

Data management and statistical analysis: Data from the questionnaire were entered into a spread-sheet and analyzed using Microsoft Excel. Based on the purely descriptive nature of the study we described continuous variable such as age using means and standard deviations, and categorical variable such as the frequency of yes, no response using their frequencies and the percentages.

Results

Study participants: The characteristics of the 126 students who participated in this study are summarised in **Table 1**. The students were aged between 18-25 years and approximately (94.44%) were single. The ratio of Christian students was more (56.34%) as compared to the Muslim students. Ethnicity of the participants was Oromo 56(44.44%), Amhara 27(21.42%), Tigrey 23(18.25%), and Gurage 20(15.87%), respectively.

Participants' knowledge, practice and perception on breast self-examination: Nearly all the participants (95.23%) had previous heard about BSE (**Table 2**). The awareness level of BSE among students was quite high (87.3%). Most of the students got first information about BSE through lecture (53.96%), television (26.98%), and radio (8.73%), respectively. About 87% of the students knew how to perform BSE and 91% of students agreed that BSE is important. However, despite good knowledge of BSE as many as 77% of the students had never performed it. The chief reasons for this were as follows: have no signs or symptoms (28.8%); forgetfulness (17%); fear of detecting some abnormality (16.4%); lack of privacy (15.4%). Some of the participants (11.3%) were not aware exactly how is BSE done and 10.3% of the participant did not comment anything on why they did not do BSE. Despite knowledge about BSE, about 10.3% of students had absolutely no idea about the frequency of BSE, however, 50% of the students agreed that it should be conducted monthly. Out of the 23% of students who had done BSE, 16 (55.1%) don't exactly remember how often they have done it; 8 (27.5%) practiced it yearly, one responder (3.44%) has done BSE less than 3 times in last 12 months, 4 (13.79%) more than 3 times in the last 12 months.

Twelve (41.37%) of the study respondents started to perform BSE at the age of 20 years, followed by 7 (24.13%) at the age of 21, 6 (20.68%) at the age of 18 years, 4(13.79%) at the age of 22 years.

Participant' knowledge and perception on breast cancer: All the participants had knowledge of the existence of breast cancer (**Table 3**). About 60% students believed that breast cancer is curable and 85.7% participants agreed that early detection improves survival. Almost 93.6% of students agreed that BSE can be an important tool for early detection for breast cancer. For early detection of breast cancer 77.7% participants stated that palpable lump in the breasts should be looked for, followed by nipple discharge 7.1%, breast discolouration 9.5%, and change in size of the breast 3.17%. Sixty five (51.5%) of the participants said appropriate timing to do SBE is few days before menses, where as 34 (26.9%) believed that SBE should be done few days after menses. However, almost 65% of stated that BSE, clinical breast examination and mammogram can detect breast cancer. Almost all the respondents 115(91.26%) wanted more information on BSE & breast cancer and wanted to receive more training and education about BSE.

The participants were asked 12 important risk factors and the responses were recorded as yes or no. More than 80 % of the participants had very good knowledge of all the risk factors. Most of the participants indicated that family history (96.82%) and exposure to radiation and hazardous chemicals (95.23%) are the two most important risk factors for breast cancer. The other major risk factors identified were early menarche (87.3%), age (86.5%), smoking (85.9%), hormone replacement therapy (83.3%), having first child after 30 years of age (82.5%), never breast feeding (80.9%), respectively. Oral contraceptive pills use was not identified as risk factors by most of the participants (88%). Option was also given to the participants to write any other factor that they thought may cause breast cancer. It was interesting to note that three participants indicated God's curse and two believed that witchcraft can cause breast cancer. Both these 5 students were from the first year of their study. Another 7 participants indicated breast cancer can be caused due to consumption of genetically modified food.

Discussion

Breast cancer is one of the most frequently occurring cancers among Ethiopian women ^[1]. Impediment in diagnosis and treatment of this disease decreases survival rates ^[19]. The present investigation indicates that although a majority of students know about breast cancer, however, few (23%) actually practiced BSE. There was a wide gap between knowledge and practice among female medical students regarding BSE. Our findings are in concordance to those of other studies reported from Africa ^[21, 22, 23, 24]. In a similar study Parsa et al. ^[25], reported that 90% of the Malaysian women teachers heard about BSE, however, only 19% stated that they performed BSE on a regular monthly basis. Similar results were also reported among adolescent girls in Colombo, Sri Lanka ^[26]. Moreover, only 26.9% of the study participants in our study knew the appropriate time to do BSE i.e., few days after menses. These findings are similar with previous studies investigating awareness and knowledge of breast cancer and practices of breast self examination among women and university students in Saudi Arabia ^[27, 28, 29].

In a descriptive cross sectional study among secondary school female teachers in Ilorin, Nigeria it was observed that 54.8% of the respondents had done BSE ^[30]. However, in another Nigerian study with 221 female students aged 16-18 years at Ahmadu Bello University Zaria, indicated that though 87.7% of the participants had heard of BSE,

however, only 19% of them practiced it monthly ^[24]. A study done in Cameroon ^[31] with fairly educated subjects indicated that nearly three quarters (74.17%) of participants had previously heard about BSE and almost 60% practiced it. Our results on breast cancer awareness are similar to the results obtained in Malaysian undergraduate female students ^[32] and Saudi females ^[33]. Almost all the students in the present study have heard about SBE and 93% agreed that it may help in early detection of breast cancer. The awareness level of our students regarding SBE seems to be higher than that of females in Yemen ^[34], and Nigeria ^[35]. However, our study participants were medical students and as expected the awareness level regarding BSE and breast cancer was good.

Most of the student participants in the present study had never done SBE, which is consistent with earlier study done in Addis Ababa university where only 27% participant perform BSE ^[36]. In a recent study by Azage et al. ^[37] to identify factors associated with BSE among health extension workers (HEW) in Northwest Ethiopia, it was found that 37% of HEWs had never practiced BSE and 14.4% practiced it regularly. The three main reasons for not doing regular BSE were no breast problem (53.2%), not knowing the technique of BSE (30.6%), and not knowing the importance of BSE (21.4%). In the present study we observe that the reason for not doing BSE was mainly due to not have any problems (28.8%); followed by forgetfulness (17.5%) and fear of detecting breast abnormality (16.4%). Most of the students in this study did not perform BSE despite having knowledge which was contrary to the reported studies from Yemen ^[34] and Ajman, U.A.E. ^[37], where maximum participants mentioned lack of knowledge about technique of BSE as a barrier.

As expected, all the participants in this study had heard about breast cancer. Most of the participants in this study had awareness that early detection improves survival which was comparable with studies conducted in Nigeria ^[30, 22]. From our study results it was clear that 97% of the participants knew about methods of early detection of breast cancer which is little higher (85.5%) than the Nigerian study ^[38]. Regarding the source of knowledge about SBE, 54% of the students in this study have heard of BSE through lectures which was higher than that reported (44.7%) in Yemen ^[34]. Apart from class lectures, television (TV) and radio together (35.7%) were also important media in spreading awareness on breast cancer. Similar results were observed in Malaysia, where TV and radio (38.2%) were their main sources of information ^[39].

This study indicated that majority of students knew about the various breast cancer screening methods. Almost 65% knew all the three methods viz. BSE, CBE and mammography. However, only 4% identified BSE, 16.6% CBE and 11.9% mammography as screening method, respectively. This is comparable with the earlier study done in St. Pauls hospital in Addis Ababa ^[40]. Most of the study participants have positive attitude towards BSE and wanted more information on breast cancer screening method.

In the present study the overall perception regarding various risk factors of breast cancer was found to be good in the medical students. In similar studies done in India ^[41] and Pakistan ^[42] medical students were found to have good knowledge about the risk factors on breast cancer. It was also observed that the knowledge on breast cancer increased as the students progressed to advanced levels of their medical training ^[41] and with specific intervention ^[43].

Conclusion

Overall our findings indicate that the practice of BSE while perceived as being important is not frequently practiced by the students of our institute. However, this study provides important baseline information regarding the knowledge, attitude & practice of early detection of breast cancer among female students in Haramaya University. BSE can play an important role in place like Harar where resources are inadequate (mammography is not available in our institute) for early breast cancer detection. Moreover, affordability of costly technologies is also an issue, as most of the people here are poor. To fight breast cancer effectively early detection through SBE is the most suitable option. Hence, there is urgent need for intervention to intensify the existing cancer awareness and cancer detection programs. Effective health education campaigns will be needed to elucidate the risk factors and prevention of breast cancer not only to our students studying medicine, but also lay public at large. Further studies are needed to explore what intervention could be best used to improve the uptake and practice of BSE and other methods for early breast cancer detection.

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Table 1 Characteristic of 126 female medical students who responded to survey on Breast Self- examination and Breast Cancer

Characteristic	Level	Frequency	%
Age (years)	18-19	48	38.09
	20-21	46	36.50
	> 22	32	25.39
Marital Status	Single	119	94.44
	Married	07	5.56
Religion	Christian	71	56.34
	Muslim	55	43.65
Ethnicity	Oromo	56	44.44
	Amara	27	21.42
	Tigrey	23	18.25
	Guraga	20	15.87
Residence	Urban	70	55.55
	Rural	56	44.45
Year of Study	First	11	08.73
	Second	34	26.98
	Third	31	24.60
	Fourth	26	20.63
	Intern	24	19.04

Table 2 Knowledge, practice and perceived importance of breast self-examination in 126 female medical students

Knowledge/Practice	Response	Frequency	%
Ever heard about BSE	Yes	120	95.23
	No	06	4.76
How do you know about BSE	Lecture	68	53.96
	Television	34	26.98
	Radio	11	08.73
	Health worker/friend	03	02.38
	Internet	04	03.17
	No response	06	04.76
Overall Awareness on BSE	Not aware	06	04.76
	Partially aware	10	07.93
	Substantially aware	110	87.30
How is BSE done	One finger palpation	16	12.69
	Palm & 3 finger palpation	94	76.60
	Don't know	16	12.69
At what age BSE should be done	< 20 years	15	11.90
	20 – 40 years	76	60.31
	41 – 60 years	18	14.28
	>60 years	07	05.55
	Don't know	10	07.93
Frequency of BSE	Monthly	64	50.79
	Every 3 months	38	30.15
	Every 6 months	08	06.34
	Once a year	03	02.38
	No idea	13	10.31
Impression on importance of BSE	Important	115	91.26
	Not important	02	01.58
	No response	06	04.76
Have you ever perform BSE	Yes	29	23.01
	No	97	76.98
Reasons for not perform BSE	Don't know how to do	11	11.34
	Lack of Privacy	15	15.46
	Forgetfulness	17	17.52
	Have no symptoms	28	28.86
	Fear of detecting anomaly	16	16.49
	No specific comment	10	10.30

Table 3 Knowledge and perceived importance of breast cancer in 126 female medical students

Knowledge	Response	Frequency	%
Heard about Breast cancer	Yes	126	100
	BSE in detection of Breast cancer		
	Important	118	93.65
	Not important	08	06.34
Breast cancer is curable	Yes	75	59.52
	No	43	34.12
	Don't know	08	06.34
Early signs of Breast cancer	Lump in breast	98	77.77
	Nipple discharge	09	07.14
	Discolouration	12	09.52
	Change in breast size	04	03.17
	Don't know	03	02.38
Method of Breast cancer detection	Breast self-examination	05	03.96
	Clinical breast examination	21	16.66
	Mammogram	15	11.90
	All the above methods	82	65.07
	Don't know	03	02.38
Appropriate time of BSE for early detection of Breast cancer	Few days before menses	65	51.58
	Few days after menses	34	26.98
	During menses	08	06.34
	No specific time	12	09.52
	Don't know	07	05.55
Perceived Risk factors for Breast cancer	Family history	122	96.82
	Early menarche	110	87.30
	Radiation/hazardous chemical exposure	120	95.23
	Advance age	109	86.50
	Overweight after menopause	97	76.98
	HRT	105	83.33
	Alcohol	85	67.46
	Smoking	107	85.98
	Pregnancy after 30 years	104	82.53
	Prolonged use of oral Contraceptives	15	11.90
	Sedentary lifestyle	70	55.55
	Never Breast feeding	102	80.95
	Others*	12	09.52

HRT - Hormone replacement therapy; * Others – God's curse, witchcraft, genetic modified food consumption