

Original article

Knowledge, attitude and practice towards breast cancer and its early detection measures among female students of Rift Valley University, Gullele campus, Addis Ababa, Ethiopia

Mahteme Bekele*, Osman Emam and Mesrach Ayalew

*Saint Paul's Hospital Millennium Medical College

*Corresponding author: mahtemebekele@gmail.com, Cell phone: +251923794505, P o Box 1271

Abstract

Introduction: Globally cancer is among the top leading causes of death. Breast cancer is the most common cancer in women worldwide. Health education and communication have been found to promote health-seeking behavioral change with sufficient utilization and compliance to breast cancer prevention and screening strategies.

Objective: This study was designed to assess knowledge, attitude and practice regarding breast cancer and its early detection measures among female students of Rift Valley University.

Method: A cross-sectional study design was used to select 310 study participants randomly. Self-administered questionnaires were used to collect information. The collected data were entered into SPSS version 20. Simple statistics such as frequencies, means, and standard deviations, binary and logistic regression were done as appropriate.

Result: A total of 310 study participants participated in the study, of these, only 2.8% of them had good knowledge about risk factors, signs and symptoms and early detection measures of breast cancer and 59.2% had a positive attitude towards breast cancer early detection measures. About 29.4% of the study participants had done breast self-examinations, from these only 6.8% of them practiced monthly. Level of education of the participant, parents' occupation and program of enrolment were statistically significant association knowledge. Students whose parents' occupation is health-related are more likely to practice breast self-examination than others with Adjusted odds ratio 7.654 (1.92, 16.12) (95% CI).

Conclusion: The finding of this study revealed that study participants have poor knowledge of risk factors, early detection measures and early warning signs of breast cancer. Improving women's awareness and practice mainly through health education should be given emphasis.

Keywords: Breast cancer, Cancer prevention, Knowledge about breast cancer, breast cancer early detection

Introduction

Breast cancer is the most common cancer in women worldwide. The incidence of breast cancer is on the rise with report of 1.7 million new cases in the year 2012. The incidence varies across continent and countries with the highest being in the United States and Canada and the lowest rate recorded in Asia. The GLOBACAN registry revealed breast cancer as the most frequent diagnosed cancer in women in 140 countries worldwide. Even if the incidence rate remains highest in more developed regions, the mortality is relatively much higher in less developed countries due to lack of early detection and access to treatment facilities (Parkin et al. 2001; WHO 2014; Seif and Aziz 2000). Reports from South Africa, Uganda and Nigeria showed that breast cancer is among the leading cancer in women. This is also true in Ethiopia where breast cancer is the leading cancer in women followed by cervical cancer.

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 (Seif and Aziz 2000; ECA 2008; Parkin 1994, Karayurt et al. 2008).

The key strategy in reducing breast cancer-related mortality, improving breast cancer outcome and survival is screening to early detect and manage breast cancer. This is very important because an excellent prognosis is directly associated with the stage at which the tumor is initially detected and how localized the lesion is. Early diagnosis usually results in successful treatment before metastasis and signifies a better outcome (Parkin 1994). Recommended preventive techniques to reduce breast cancer morbidity and mortality include breast self-examination (BSE), clinical breast examination (CBE), and mammography. CBE and mammography require a hospital visit and specialized equipment and expertise whereas BSE is an inexpensive tool that can be carried out by women themselves (Karayurt et al. 2008).

Even though BSE is a simple, quick, and cost-free procedure, the practice of BSE is low and varies in

different countries. Several reasons like lack of time, lack of self-confidence in their ability to perform the technique correctly, fear of possible discovery of a lump, and embarrassment associated with manipulation of the breast have been cited as reasons for not practicing BSE (Karayurt et al. 2008).

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 to yield a better survival rate (Petro-Nustas and Mikhail 2002).

Health education and communication have been found to promote health-seeking behavioral change with sufficient utilization and compliance to breast cancer prevention and screening strategies. However, adequate research was not done in the study area and awareness about breast cancer among Ethiopian women is not well documented. This paper, therefore, attempts to assess the level of knowledge and attitude towards breast cancer and practice of self-breast examination among female students of Rift Valley University, Gullele Campus.

Materials and Methods

The study was conducted at Rift Valley University College (Gullele campus) which is one of the private teaching institutions in Ethiopia. Previously its official name was Rift valley University College and was renamed “Rift Valley University” in 2014. Gullele campus has five undergraduate programs or departments, two postgraduate programs and a total of 5125 undergraduate students, out of which 1650 were females.

The study design is an institution based cross-sectional study concerning KAP of breast cancer and its early detection measures among female undergraduate students of Rift Valley University. The study was conducted from January 8 to March 15, 2017. The study population was regular year 1-4 undergraduate female students who were randomly selected from the department of computer science, Marketing, Business administration, Accounting and Management. The study campus (Gullele campus) is stratified into five departments and the sample was distributed to each department using the probability proportional to their size or number of female students. Finally, the study participants were selected randomly from those departments. Data were collected using self-administered questionnaires and then checked for completeness, accuracy, and consistency by investigators, after collecting the data every day. The collected data entered into SPSS

version 20 for analysis. Simple descriptive statistics such as frequency and mean were done. Knowledge, attitude and practice of students towards breast cancer are the dependent variables of this study. It is said Poor knowledge for those who answered $\leq 50.0\%$ of knowledge question; Satisfactory knowledge for those who answered $51.0\% - 70.0\%$ of knowledge questions; Good knowledge for those who answered $(>70.0\%)$ of knowledge questions; Positive attitude for a score above the mean and Negative attitude for a score below the mean. In this study, practice refers to the actual application of breast self-examination in early detection of breast cancer.

Bivariate analysis was done to determine the relationship between independent and outcome variables. The variables included in the multivariate logistic regression were variables with $p\text{-value} \leq 0.2$ on the bivariate analysis. Multivariate logistic regression was used to assess the relationship between independent variables with outcome variables and to control confounding effect. The result of the final model expressed in terms of Odd Ratio (OR) and 95% confidence intervals (CI) and statistical significance will be declared, if the $P\text{-value}$ is ≤ 0.05 .

The ethical approval and clearance letter of permission was obtained from St. Paul’s Hospital Millennium Medical College (SPHMMC) IRB before data collection; informed consent was obtained from all study participants before collecting data.

Results

A total of 310 of study participants involved in this research making a response rate of 94%. Nearly half (48.8%) of the participants were aged (20-25). More than half (65.6%) of them were single and Orthodox Christian (52.3%) in religion. Only a few of them had parents with health-related occupation; only 3.5% of them had a family history of breast cancer and 4.1% of them had a personal history of breast mass (Table).

Regarding the study participants’ knowledge, about risk factors for breast cancer (58.4%) of them mentioned smoking as a risk factor, followed by a high-fat diet (47.2%). Overall, 1.1%, 6% and 92.8% of the study participants have good, satisfactory and poor knowledge about risk factors for breast cancer. About 67.5% of the study participants mentioned breast lump as a sign of breast cancer followed by pain in the breast (65%). Overall, 19.1%, 21% and 59.9% of the study participants have good, satisfactory and poor knowledge about signs and symptoms of breast cancer.

Table 1: Socio-demographic characteristics of under graduate regular female students of Rift Valley University

Variable	Description	Frequency	%
Age	<20	75	23.4
	20-25	157	48.8
	26-30	62	19.4
	>30	16	5.0
Educational status	Year 1	98	30.6
	Year 2	74	23.1
	Year 3	73	22.8
	Year 4	65	20.0
Marital status	Single	210	65.6
	Engaged	67	20.9
	Married	26	8.1
	Divorced	7	2.2
Mother's occupation	Health related	38	11.9
	Non health related	272	88.1
Father's occupation	Health related	15	4.7
	Non health related	295	95.3
History of breast mass	Yes	13	4.1
	No	297	95.9
Family history of breast cancer	Yes	11	3.5
	No	299	96.5
Religion	Orthodox	162	52.3
	Muslim	45	14.5
	Protestant	100	32.3

In terms of means of diagnosis, CBE was the most common means of detecting breast cancer, mentioned by 250 (78.1%) of the participants, followed by

ultrasound and SBE. Regarding their practice, 103(32.2%) of the participants reported that they know how to perform self-breast examination. Similarly, the/a small number of the participants correctly identified the recommended frequency and age to start SBE. Overall 3.1%, 12.6% and 84.4% of the study participants have good, satisfactory and poor knowledge about early detection measures of breast cancer (Table 2).

Concerning to the knowledge score, 1.1%, 19.1% and 3.1% of the participants were classified as having Good knowledge (>70.0%) on the risk factors, early warning signs of breast cancer and early detection measures respectively.

Forty-five percent of the study participants had a positive attitude toward breast cancer and its early detection measures. Nearly half of the 51.2% of study participants agree that any young woman can acquire breast carcinoma. 243 (76%) agreed on self-breast examination doesn't cause harm and 36% of them agreed upon undergoing mastectomy if necessary.

Less than one third (29.4%) of the study participants have done BSE before and 70.6% of them have not ever done BSE at all. The largest proportion (78%) of the study participants did BSE occasionally and 6(6.38%) monthly. Of the participants who practiced SBE 37 (39%) started practicing SBE at the age of 20-25Years. The most common reason for not practicing SBE mentioned by the study participants was not having breast problem 91 (28.4%) followed by not knowing how to do SBE 51 (23.6%).

Table 2: Attitude towards breast cancer among under graduate regular female students of Rift Valley University

Variables	Agree n(%)	Strongly Agree n(%)	Neither Agree Nor Disagree n(%)	Disagree n(%)	Strongly Disagree n(%)
Breast cancer is a curable disease	33(10)	101(31.6)	58(18.1)	79(24.7)	39(12.2)
Long time Survival (> 5 year) after breast cancer is rare	48(15)	68(21.3)	66(20.6)	102(31.9)	26(8.1)
Breast cancer is highly prevalent and is a leading cause of deaths amongst all malignancies (cancers) in Ethiopia	32(10)	159(49.7)	70(21.9)	45(14.1)	4(1.3)
Any young woman including you can develop breast cancer	17(5.3)	147(45.9)	105(32.8)	36(11.3)	5(1.6)
Breast cancer cannot be transmitted from person to person	46(14.4)	82(25.6)	123(38.4)	42(13.1)	17(5.3)
Screening/self-breast examination helps in prevention of breast cancer	37(11.6)	160 (50)	79(24.7)	33(10.3)	1(0.3)
Self-breast examination causes no harm	101(31.4)	142(44.4)	42(13.5)	21(6.6)	4(1.3)
One should undergo mastectomy(surgical removal of breast) if necessary	16(5)	100(31.3)	110(34.4)	66(20.6)	18(5.6)

In this study significant association found between educational status, parents' occupation, history of breast mass, family history of breast cancer and overall study participants of the respondents. Regarding breast examination practice statistically significant association found between educational status, parents' occupation, knowledge level of breast cancer, the attitude of study participants and their practice of early detection measures. As the students' year of study increases their practice of BSE also increased. Students whose parents' occupation is health-related are more likely to practice BSE than others with AOR (95%CI) 7.654 (1.92, 16.12).

Table 3: Practice of early detection measures of under graduate regular female students of Rift Valley University

Variables		Frequency	Percent (%)
Do you practice BSE (Breast Self-Examination)	No	216	70.6
	Yes	94	29.4
If yes, then how often you practice Breast self-Examination?	Weekly	3	3.19
	Monthly	6	6.38
	Once in 3 month	12	12.77
	Occasionally	73	77.66
At what age you started practicing BSE (Breast Self-Examination)	At <20	15	15.96
	At 20-25	37	39.36
	At 26-30	30	31.9
	At 31-35	12	12.7
	At >35 of age	0	0.00
If you don't practice SBE regularly (monthly) then what are the reasons? One can answer more than one. (Skip those who practice regularly, once in a month)	I don't have breast problem	91	28.4
	I don't think It's necessary	43	19.9
	I don't feel comfortable doing this	3	0.9
	I don't know how to do that	51	23.6
	I haven't just decided	27	12.5
	Too frequent to practice	3	0.9
	It may be painful	2	0.6
	I'm afraid that it may reveal breast cancer	3	0.9
What would motivate you to practice BSE?	Health education about BSE by mass media	84	29.6
	Having history of breast mass	70	21.9
	knowing someone with breast cancer	20	6.3
	Having family history of breast cancer	41	12.8
Have you ever done your breast examination by any Doctor? (Clinical Breast Examination)	No	264	82.5
	Yes	46	14.4
(If not,)Why are you reluctant to participate in CBE (Clinical Breast Examination)?	I am Concerned about extra money	18	6.8
	I am Concerned about extra time	16	6.1
	Fear of outcome	14	5.3
	I am too young to participate	13	4.9
	I have no symptom of breast cancer	121	46.0
	No one recommended	54	20.5
	I am not sure about its benefit	27	10.3

Table 4: Factors affecting knowledge and BSE of Rift Valley University students

Characteristics		Knowledge		Odds Ratio	
		Satisfactory-Good	poor	COR(95%CI)	AOR(95%CI)
Year of study	1 st year	3(4.05)	71(95.95)	1	1
	2 nd year	14(14.14)	85(85.86)	3.34(1.56, 8.29)	3.73 (1.69, 8.37)
	3 rd year	7(10.8)	58(89.2)	8.57(3.66,25.78)	9.45(2.64, 21.76)
	4 th year	40(62.5)	24(37.5)	10.63(4.22, 26.07)	10.6(3.01, 23.29)
Family history of breast cancer	No	47(16.2)	243(83.3)	1	1
	Yes	14(70.0)	6(30.0)	12.06(4.22, 26.07)	11.08(1.86, 65.84)
Attitude of study participants	Negative	35(26.5)	97(73.5)	1	1
	Positive	74(41.6)	104(58.4)	3.97(0.92, 6.68)	1.839(0.21, 2.78)
Parents' occupation	Non-Health related	49(18.01)	223(81.99)	1	1
	Health related	16(42.10)	22(57.90)	9.01(3.98, 25.99)	5.16(1.02, 11.98)
Personal history of breast mass	No	55(18.5)	242(81.5)	1	1
	Yes	10(77.0)	3(23.0)	14.67(8.33, 31.77)	2.04 (0.46, 10.39)
Practice BSE					
Year of study	No				
	1 st year	62(83.78)	12(16.22)	1	1
	2 nd year	79(79.79)	20(20.21)	1.31(0.42,4.76)	0.88(0.01, 4.12)
	3 rd year	52(71.23)	21(28.77)	1.46(0.48,4.98)	1.01 (0.15, 7.12)
Knowledge Score	4 th year	23(35.93)	41(64.70)	6.46(1.98,22.13)	5.04 (0.80, 10.20)
	Poor	195(79.59)	50(20.41)	1	1
	Satisfactory	19(39.58)	29(60.42)	5.95(1.77, 20.99)	3.70 (0.68, 19.67)
	Good	2(11.76)	15(88.24)	29.25(4.99,170.11)	28.63 (4.87, 168.37)
Attitude toward breast cancer	Negative	130(95.5)	6(4.5)	1	1
	Positive	129(74.14)	45(25.86)	7.55(2.52, 24.67)	2.75(0.59, 12.87)
Parents occupation	Non Health related	208(76.47)	64(23.53)	1	1
	Health related	8(21.05)	30(78.95)	12.18(4.88, 29.59)	7.654(1.92,16.12)
Personal history of breast mass	No	214(72.05)	83(27.95)	1	1
	Yes	2(15.38)	11(84.62)	14.18(6.98, 32.11)	12.11(2.99, 28.79)

Those study participants who have good knowledge about risk factors, signs and symptoms and early detection measures are more likely to practice BSE than those with satisfactory and poor knowledge. Study participants who had a positive attitude toward breast cancer and its early detection measures were more likely to BSE than who has a negative attitude (Table 4).

Discussion

The finding of this study showed that study participants with good knowledge score for risk factors, early detections measures and warning signs of breast cancer was low. This is lower than other similar studies conducted among female university students in Malaysia, Iraq, and Nigeria (Hadi et al. 2010; Alwan et al. 2012; Isara and Ojedokun 2011). It is also lower than a study conducted among female students of Adama Science and Technology University, School of Health Science, Assela town, Ethiopia (Segni et al. 2016). This could be due to the effect of the study population which involved health science students having better knowledge than the students on which this study is performed. But it was similar with the findings of a study done among female students at Mekelle University, which showed that study participants with good knowledge score for risk factors, early detection measures and warning signs of breast cancer was 1.4%, 3.6% and 22.1% respectively (Hailu et al. 2014). This overwhelmingly poor knowledge score of female students may be explained by the notion that though this disease poses a serious burden to the public, the healthcare system didn't give enough emphasis on the prevention and early detection of the disease.

Regarding the knowledge of participant about early warning signs of breast cancer, this study showed that pain and lump in the breast were the most common warning signs of breast cancer mentioned whereas dimpling of the breast and lump under armpit were mentioned by few unlike to the findings from Malaysia and Jeddah (Hadi et al. 2010; Milaat 2000). The finding of this study indicated that study participants had better awareness of CBE than SBE; which is higher than evidence from Ibadan, Nigeria (Oluwatosin and Oladepo 2006). It reveals a potential pitfall in educating women about breast cancer screening. It is necessary to educate them on the differences as well as the respective role of breast cancer screening procedures/ modalities and the associated guidelines. It is foreseeable that if women perceive BSE to be equivalent to CBE, they may decide not to visit a medical provider under the assumption that the BSE alone is adequate screening. However, a higher proportion of respondents of this study failed to recognize SBE as a means for early detection of breast cancer. In contrary to the finding

from Nigeria (Oluwatosin and Oladepo 2006). This study reported that 46.3% of the study participants did not know self-breast examination as an early detection method of breast cancer. However, this finding was higher than evidence from Nigeria in which only 6.4% of the study participants identified BSE as a/the detection mechanism (Kayode et al. 2005). Despite slight variations among studies, the knowledge of study participants about BSE is poor. This implies that information, education and communication works are very limited. This finding also showed that the recommended breast self-examination once a month is not popular in an environment where there is no active national screening program.

This study reported that among those who know breast self-examination only 12.5% and 11.9% of the participants know the recommended age when SBE should start and the frequency of SBE respectively. This is by far lower than report from Nigeria, and Angola (Alwan et al. 2012; Oluwatosin and Oladepo 2006; Sambanje 2012). The finding of this study also showed that a significant proportion of 70.6% of the study participants reported that they have never practiced self-breast examination. This was almost in line with evidence from Malaysia, Iraq, Abuja and Ibadan Nigeria (Hadi et al. 2010; Alwan, Al-Attar and Tawfeeq 2012; Isara and Ojedokun 2011; Gwarzo et al. 2009). But it is higher than a study done in Enugu, Nigeria (Virginia 2012). This low level of Breast self-examination practice may be attributed to the notion that chronic diseases like breast cancer are not getting due attention at all levels of the health care system. In line with study from Nigeria and Malaysian (Virginia 2012; Redhwan and Al-Naggar 2011). The finding of this study showed that the major reason participants mentioned as a barrier to practicing breast self-examination was lack of knowledge on how to perform.

Conclusions

The finding of this study revealed that study participants has poor knowledge of risk factors, early detection measures and early warning signs of breast cancer. Nearly half of the participants have a positive attitude towards breast cancer early detection measures. Moreover, less than one-third of the study participants have practiced self and clinical breast examination. Not having breast problems and lack of knowledge of how to perform were the main reasons mentioned by the majority of the participants for not practicing breast self-examination. The country's public health sector and other concerned body should give attention to this issue and improve women's awareness and practice mainly through health education using mass media and other possible means.

Conflict of interest: The authors declared that they do not have conflict of interest

Acknowledgment

The authors are grateful for the unreserved support and help rendered from Rift Valley University, Gullele Campus administrative staff.

References

- Alwan NAS, Al-Attar WM & Tawfeeq FN (2012). Knowledge, attitude and practice regarding breast cancer and breast self-examination among a sample of the educated population in Iraq. *Eastern Mediterranean Health Journal*, 18(4):339.
- D. Maxwell DP, Freddie B, Jacques F & Paola P (2001). Globocan Cancer Incidence, Mortality and Prevalence Worldwide. *International Journal of Cancer*, 94:153–156. doi:10.4172/2161-0932.1000368
- Ethiopian Cancer Association (2008). Fight against tobacco to reduce the risk of cancer through anti-tobacco youth clubs in Ethiopia. Available at: <http://www.yeeca.org/Projects.htm>.
- Gwarzo UMD, Sabitu K & Idris SH (2009). Knowledge and practice of breast self-examination among female undergraduate students of Ahmadu Bello University Zaria, Northwestern Nigeria. *Annals of African Medicine*, 8(1):3-4.
- Hadi MA, Hassali MA, Shafie AA & Awaisu A (2010). Evaluation of breast cancer awareness among female university students in Malaysia. *Pharmacy Practice (Internet)* 8(1):2934.
- Isara AR & Ojedokun CI (2011). Knowledge of breast cancer and practice of breast self-examination among female senior secondary school students in Abuja, Nigeria. *J Prev Med Hyg*, 52:186–190.
- Karayurt O, Ozmen D & Cetinkaya AC (2008). Awareness of breast cancer risk factors and practice of breast self-examination among high school students in Turkey. *BMC Public Health*, 8(359):1-8.
- Kayode FO, Akande TM & Osagbemi GK (2005). Knowledge, attitude and practice of breast self-examination among female secondary school teachers in Ilorin, Nigeria. *European Journal of Scientific Research*, 10(3):43-45.
- Martha NS (2012). Breast cancer knowledge and awareness among university students in Angola. *Pan African Medical Journal*, 11:70.
- Milaat WA (2000). Knowledge of secondary-school female students on breast cancer and breast self-examination in Jeddah, Saudi Arabia. *Eastern Mediterranean Health Journal*, 6:338-343.
- Okolie UV (2012). Breast self-examination among female undergraduates in Enugu, Southeast Nigeria. *International Journal of Nursing and Midwifery*, 4(1):1-7.
- Oluwatosin OA & Oladepo O (2006). Knowledge of breast cancer and its early detection measures among rural women in Akinyele Local Government Area, Ibadan, Nigeria. *BMC Cancer*, 6(271):1-6.
- Parkin DM (1994) Cancer in developing countries. *Trends in Cancer Incidence and Mortality Cancer Surveys*, 19(20):519 – 555.
- Petro-Nustas W & Mikhail BI (2002). Factors associated with breast self-examination among Jordanian women. *Public Health Nursing*, 19:263-271.
- Redhwan A & Al-Naggar (2011). Practice and barriers toward breast self-examination among young Malaysian Women. *Asian Pacific Journal of Cancer Prevention*, 12(1):1174-75.
- Segni MT, Tadesse DM, Amdemichael R & Demissie HF (2016). Breast self-examination: Knowledge, attitude, and practice among female Health Science students at Adama Science and Technology University, Ethiopia. *GynecolObstet (Sunnyvale)*, 6:368.
- Seif NY & Aziz MA (2000). Effects of breast self-examination training program on knowledge, attitude and practice of a group of working women. *Journal of the Egyptian Nat Cancer Inst*, 12(2):105-115.
- Tesfay H, Hailemariam B, Desta H & Haftu B (2014). Knowledge of breast cancer and its early detection measures among female students, in Mekelle University, Tigray Region, Ethiopia. *Science Journal of Clinical Medicine*, 3(4):57-64. doi: 10.11648/j.sjcm.20140304.11
- World health organization (2014). Breast cancer: prevention and control. WHO Available at: <http://www.who.int/entity/cancer/detection/en/>