Assessment of knowledge and practice of breast self-examination among young women in tertiary education: Addis Ababa, Ethiopia.

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Research article

Keywords: Breast cancer, Breast cancer self-examination, Knowledge, Practice, Ethiopia.

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Abstract

Abstract Background: Breast cancer is the top cancer in women both in the developed and the developing world. The Addis Ababa Cancer registry reported that breast cancer accounts for 34% of all female cancer cases. Many deaths can be avoided if the cancer can be detected and treated early. Practice of breast self-examination is a convenient, no-cost tool that can be used on a regular basis for detecting breast illness at an early stage. Therefore, this study sought to assess the knowledge and practice of BSE among young females at Addis Ababa, Ethiopia. **Methods:** Institutional based cross sectional study was conducted on the total sample size of 381 females using self-administered questionnaire adapted from other studies. The data were entered using Epi-data software version 4.1.1 and then exported to SPSS version 24 for further statistical analysis. The study analysis was done by descriptive and inferential statistics: namely frequency, mean, student t-test, ANOVA, linear & logistic regression. **Results:** Majority of the participants were single (85.2%), orthodox Christian (67%), and grew up in urban (77.7%) with mean age of 20.84 years. The majority (94.1%) of the participants had no any family history of breast cancer. Almost half (52.5%) of the respondents had heard about breast cancer self-examination, while the media were the main source of information. The study revealed that only as little as 47 (13.1%) respondents did appropriate BSE, while two third of the females not practicing BSE reported that the reasons were, they didn't know how to do it, forgetfulness, and didn't have any breast problem. In addition, the females' previous information about BSE makes the greatest unique contribution to explaining the BSE knowledge level. Moreover, the study indicates that the more age and knowledge the females have, the more likely it is that they will report practicing BSE. **Conclusion:** Further implementations are needed in addressing young females, making awareness and advocacy campaigns about BSE in order to increase early diagnosis of breast cancer which raises the chances for successful treatment in Ethiopia. **Key words:** Breast cancer, Breast cancer self-examination, Knowledge, Practice, Ethiopia.

Introduction

Globally, breast cancer is the leading cancer related disease both in morbidity and mortality among women, affecting about 2.1 million annually and over half million died in 2018 at estimation [1]. According to global estimates of cancer prevalence [2] in 2008 there is a considerably higher cancer prevalence in women in Sub-Saharan Africa where the male to female ratio was 0.6. Moreover, while breast cancer rates are higher among women in more developed regions, rates are increasing in nearly every region internationally, including Ethiopia [3].

For the reason of scarce data compilation, the accurate occurrence rate of breast cancer in Ethiopia is unclear [4]. However, according to a study done in black lion specialized hospital, among 16,622 new cancer cases registered, 3460 (21%) were breast cancer new cases indicating about 216 cases annually [5, 6]. Breast cancer cases are among the top prevalent case (31.5%), followed by cervical cancer, which accounts for 14% among women [7].

The prevalence of breast cancer is increasing as a result of rising of senior citizens and unsafe behaviors like: eating risky foods, obesity, and using harmful substances [8, 9]. Moreover, the occurrence is mounting in the unindustrialized nations as a result of rising lifespan, urbanization and embracing of western lifestyles [8]. Although early detection remains the cornerstone of breast cancer control in order to improve outcome and survival, in low- and middle-income countries breast cancer is diagnosed in very late stages [9]. Generous commitment on public education about the breast cancer screening & detection types, including the timely diagnosis, would save several women's lives [9].

WHO recommends developing nations those suffering the dual saddle of cervical and breast cancer to implement economical and inexpensive interventions to confront these greatly preventable diseases [10]. BSE is a suitable and cheap means that can be implemented on a regular basis. A country with inadequate resource facilities and poor health systems ought to promote early diagnosis programs based on breast self-exam, awareness of early signs and symptoms and prompt referral to diagnosis and treatment [11].

In Ethiopia, the screening and diagnosis of breast cancer has not been supported by contemporary laboratory examinations in numerous healthcare facilities [12]. For this reason, in least developed countries like Ethiopia, BSE would be an alternative method to prevent and control breast cancer morbidities and mortalities, even though mammography is the finest screening technique. Hence, the researcher conducted this study to assess the knowledge and practice of BSE among young women at Addis Ababa, Ethiopia.

Methods

Study design and setting: Institutional based cross sectional study was conducted in Addis Ababa University in 2018. The University was established in 1950 and at present has fourteen campuses. Thirteen of these were situated in Addis Ababa, and one is located in Bishoftu about 45 kilometers away from the capital. There were a total of 50,534 enrolled students in 2018, among which 16,249 were female students by then.

Sampling technique and procedure: The actual sample size for the study was determined using single population proportion formula by assuming 5% marginal error and 95% confidence interval and the prevalence was taken from other study conducted in the Northern part of the country (38). Accordingly, the study was conducted on the total sample size of 381 females, including the 10% non-response rate. Moreover, the simple random sampling technique was used to select the study participants.

Measurements: Data was collected using pre-tested structured questionnaire adapted from other studies [12-16] to assess women's knowledge and practice about BSE. The content of the questionnaire comprised: 9 socio-demographic characteristics items, 6 history & information about breast cancer items, 28 knowledge of breast self-examination items, and 8 practice of breast self-examination items.

Data analysis and processing: The collected data was entered into and cleared using Epi-data software version 4.1.1 and then exported to SPSS version 24 for further statistical analysis. Data analysis involved

descriptive statistics, including frequency, percentage, mean and standard deviations. The inferential statistics: student t-test, ANOVA, and linear regression analysis was used to examine the association between knowledge of BSE and independent variables.

Bivariate analysis was used to look for association between predictors and practice of BSE. Multivariable logistic regression analysis was used to control for confounding and to see for the impact of variables of interest on the outcome variable. The magnitude of the association between the different independent variables in relation to dependent was measured using 95% confidence interval (CI) and p-values below 0.05 was considered as statistically significant.

Operational Definitions

BSE Knowledge: The respondents’ BSE knowledge score was assessed by the 28-items knowledge questionnaire. The total score was computed out of 100 which can range from 0 to 100. A higher score indicated better knowledge.

BSE practice: A participant who performed BSE at least once in a month consistently was considered as properly doing breast examination [11].

Ethical consideration: An ethical approval was obtained from Research and Ethics Committee (REC) of Addis Ababa University, College of Health Sciences. The official letter of cooperation was written to all selected colleges. Consent was obtained from those who met the inclusion criteria and agreed to participate. Confidentiality of information and privacy of participants was assured for all the information provided.

Results

The study included 358 participants, their distributions by age, marital status, religion, place of grew up, family education, study year and family history of breast cancer are shown in Table 1; which displayed that the respondents’ mean age 20.84 years, the majority of the participants are single (85.2%), orthodox Christian (67%), and grew up in urban (77.7%).

Table 1: Sociodemographic characteristics of study participants on assessment of knowledge and practice of BSE among young female, Addis Ababa, Ethiopia. (n=358).

Variable	Category	N	%
Age (years)	Mean	20.84	
Marital status	Single	305	85.2
	Married	33	9.2
	Others	20	5.6
Religion	Orthodox Christian	240	67
	Protestant Christian	70	19.6
	Muslim	26	7.3
	Others	22	6.1
Place of grew up	Urban	278	77.7
	Rural	80	22.3
Father education	Below secondary school	130	36.3
	Secondary and above	228	63.7
Mother education	Below secondary school	180	50.3
	Secondary and above	178	49.7
Study year	1 st year	98	27.4
	2 nd year	89	24.9
	3 rd year	89	24.9
	4 th year	82	22.9

Respondents' information about BSE

In this study, the majority (94.1%) of the participants had no any family history of breast cancer. Among the participants who had family history of breast cancer, the large number (76.2%) of respondents reported that they had extended family history while the rest 23.8% stated nuclear family history. Amid the 358 participants, only 10 (2.8%) reported personal history of breast cancer. Almost half (52.5%) of the respondents had heard about breast cancer self-examination, amongst which mass media was the commonest (55.5%) source of information, followed by health care providers and friends, 29.2% and 15.3% respectively.

Moreover, 48% of the participants know the types of breast cancer screening methods, among which slightly above half (55.2%) of them stated BSE, followed by clinical breast examination and mammography, 27.9% and 16.9% respectively.

Practice of BSE

Among the respondents studied, 88(22.9%) have ever performed BSE, however only 47(13.1%) did appropriate BSE (figure 1). Concerning the reason why performing the BSE, nearly half 46.4% of them described for the purpose of early detection and treatment, 16.7% stated recommended by health provider, 15.5% reported due to fear of developing breast cancer, 11.9% indicated fear of family history, and the 9.5% specified different causes like previous breast problem.

In this study, the large number (90.5%) of the respondents indicated that they started practicing BSE before celebrating 25th years of age, whereas 8.3% did BSE between 25 & 30 years of age and the rest 1.2% practiced between 31 and 35 years of age. Moreover, 38.1% of the females practiced BSE when it comes to their mind, 35.7% two to three days after session of menstruation, 15.5% any time during the month, and 4.7% of them did few days before menses and the day they begun hormone replacement therapy.

Regarding the reason why participants didn't perform the BSE, 24.6% reported that they didn't know how to do it, 24.3% stated due to forgetfulness, and 22.8% of them mentioned that they didn't have any breast problem (figure 2).

Factors associated with assessment of knowledge and practice of BSE

Table 2 shows the effect of a number of factors done by multiple linear regression to predict extent of BSE knowledge. R square statistic in the model describes 53% of the variance, and the maximum value for Cook's distance is 0.058, suggesting no major problems. After the variance explained by all other variables in the model is controlled, with a standardized beta value of 0.45, the females' previous information about BSE makes the greatest unique contribution to explaining the knowledge level, particularly participants those received health information from health care providers and friends. Furthermore, study year and having exposer with someone suffering from breast cancer were significant predictors of the degree of BSE knowledge.

Table 2: Factors associated with assessment of knowledge of BSE among young female, Addis Ababa, Ethiopia (n=358).

Variables	Standardized Coefficients (B)	P-value	95.0% Confidence Interval for B		Collinearity Statistics	
			Lower Bound	Upper Bound	Tolerance	VIF
Place of grew up	-0.018	0.685	-1.514	0.996	0.696	1.437
Family history of breast cancer	-0.018	0.638	-2.370	1.454	0.942	1.061
Know someone suffering with breast cancer	-0.083	0.033	-2.455	-0.101	0.903	1.107
Heard about BSE	-0.450	0.000	-6.924	-3.908	0.335	2.983
Father education	0.020	0.701	-1.015	1.509	0.516	1.937
Mother education	0.007	0.884	-1.067	1.238	0.573	1.746
Information source from health professional	0.226	0.000	2.165	5.076	0.635	1.574
Information source from friends	0.170	0.000	1.931	5.212	0.868	1.152
Information source from media	0.031	0.573	-0.993	1.793	0.447	2.235
Study year	0.107	0.006	0.375	2.193	0.923	1.083

Table 3 demonstrate logistic regression with a dichotomous dependent variable to assess the impact of a set of predictors on a BSE practice. Consequently, the major factors influencing the participants' BSE practice are: age and knowledge about BSE. Place of grew up, family history of breast cancer, information sources about BSE, year of study and marital status did not contribute significantly to the model. Moreover, the study indicates that the more age and knowledge the females have, the more likely it is that they will report practicing BSE.

Table 3: Factors associated with assessment of practice of BSE among young female, Addis Ababa, Ethiopia (n=358).

Variable	Practice BSE n (%)		COR (95% CI)	AOR(95%CI)
	Yes	No		
Age	20.84[18-30] <i>Mean [R]</i>		1.32(1.13-1.55)*	1.4(1.1-1.8)*
Place of grew up				
Urban	42	236	0.38(0.14-0.98)*	0.32-0.09-1.1)
Rural	5	75	1	1
Knowledge of BSE	10.8[0-26] <i>Mean [R]</i>		1.3(1.23-1.45)*	1.34(1.1-1.64)*
Family history of breast cancer				
Yes	8	13	0.21(0.08-0.55)*	0.32(0.1-1.04)
No	39	298	1	1
Health care provider as information source				
Yes	21	40	5.5(2.82-10.63)*	1.87(0.7-4.82)
No	26	271	1	1
Know someone with breast cancer				
Yes	15	52	0.43(0.22-0.85)*	0.65(0.28-1.55)
No	32	259	1	1

Note: * refers to P-value <0.05

Discussion

The American Cancer Society and other leading cancer agencies recommended monthly practice of BSE [11, 17]. However, this study indicated that a quarter participants have ever performed BSE, nonetheless as little as 47(13.1%) females implemented regular BSE. This finding supports the other researches done in Ethiopia which described a small number of the participants had performed BSE [12, 13, 18, 19]. In addition, a study conducted in Malaysia, Tamil Nadu, Cameroon, Iran and Nigeria indicated comparable findings [14, 20-24]. On the other hand, the study conducted in Northern and southern Ethiopia found that 37% and 45.6% of the participants had practiced BSE respectively, which is slightly higher than the current study and the reason could be due to the health workers were the study population in the previous

studies [25, 26]. Furthermore, another studies conducted in Iraq and Ghana reported 48.3% and 80% respondents practiced BSE respectively, which is in contrary to the present study [27, 28].

The study revealed that half of the participants had heard about BSE. This is in line with studies done in Ethiopia and Nigeria that showed nearly similar findings [19, 21, 29]. An analysis done on BSE among women in developing countries reported also nearly three quarters of participants had previously heard about BSE [30]. In contrast, the study done on predictors of BSE among female teachers in Ethiopia revealed only 16.5 % participants ever heard about BSE [13]. Moreover, the finding is also in contrary with the studies done in Iraq and Ghana which indicated that the very large number of participants had heard of BSE [27, 28].

This study revealed that only 5.9% of the participants had a family history of breast cancer. The figure is in line with the study done in central Ethiopia [29]. On the other hand, the studies done in Malaysia, Iraq, United Arab Emirates and Saudi showed slightly higher breast cancer family history, which indicated 15%, 14%, 9.2%, 11% respectively [20, 31-33].

Regarding the sources of information about BSE, the majority mentioned mass media was the commonest source of information in the current study. This confirmed the other study done in the country which revealed the main source of information was mass media [29], additionally research conducted in Ghana, Iraq and Saudi also found out the main source of information being mass media [27, 28, 33].

As stated by literatures, the best time to do a monthly self-breast exam is about 3 to 5 days after period starts [11]. In the current study, as many as 38.1% of the females practiced BSE when it comes to their mind, and a third of them two to three days after session of menstruation. Contrarily, slightly improved result from Ghana described that when respondents were asked on the appropriate time for performing BSE, more than half stated that the appropriate time to perform BSW is some days after menstruation, and a quarter stated that there is no particular time to perform BSE [28]. Furthermore, a study done in Cameroon indicated as little as 10 (7%) participants knew the appropriate time to perform a BSE is few days after menstruation [24].

The majority stated the reason for performing BSE was for the purpose of early detection and treatment, followed by health provider recommendation, fear of developing breast cancer, family history, and the previous breast problem. Likewise, the finding from Malaysia is closely in agreement with this study as the majority identified the reason was to check their breast regularly, accompanied by family and personal history [20]. Moreover, the greatest reason for not practicing BSE was lack of knowledge of how to perform the technique correctly, then forgetfulness and didn't have any breast problem. This is in agreement with the studies done in Ethiopia, Iran and Iraq, [12, 23, 25, 27, 29].

Significant knowledge insufficiencies can have a detrimental effect on the education of women on screening and early detection practices [34]. In the current study, knowledge about BSE was found to be the major predictor for practice of BSE, after confounding factors being controlled for. This outcome maintains the investigation conducted by Birhane, Mamo [13] on predictors of breast self –

examination among female teachers in Ethiopia. In addition, this finding is consistent with the study done in Iran [23].

Besides, the present study showed that age was statistically associated with the practice of BSE. A study done on barriers to BSE practice among Malaysian female students reported consistent result with this study [20]. Likewise, a study done in Iran on need for greater women awareness of warning signs and effective breast screening methods revealed matching result [23]. However, there was no significant association between practice of BSE and selected variables, which is parallel with other study finding [32].

With regarding to the associated factors of knowledge about BSE, acquaintance to someone suffering with breast cancer, had heard about BSE, and advanced study year were statistically associated to BSE knowledge. This finding confirmed the study done in Ethiopia which indicated as the year of stay in the University increases the knowledge about cancer increases [12]. Moreover, a significant association were found between academic levels with knowledge of students regarding breast cancer self-examination. This is in line with the study done by Kumarasamy, Veerakumar [22] in Tamil Nadu which was found to be significantly associated with educational attainment.

Conclusion

Though it has not been shown that BSE alone can accurately determine the presence of breast cancer, practice of BSE is one of the important ways for detecting breast illness at an early stage. However, there was inadequate practice of BSE among the young women. Over all, further implementations are needed in addressing young females, making awareness and advocacy campaigns about BSE in order to increase early diagnosis of breast cancer which rises the chances for successful treatment in Ethiopia.

The study instrument was comprehensive, pretested and modified before actual data collection. The data was double entered and validated using latest EpiData entry client before analysis. However, since the findings are restricted to a sample of female university students, thus limiting their generalizability to the whole country. Knowledge and practice of BSE could be considerably lower in communities having more diversified female population and living in remote areas in the country. The research may also be limited by the fact that these were based on participants self-report thus the estimate of knowledge concerning how to perform a BSE may be an overestimate.

Abbreviations

ANOVA: Analysis of variance

AOR: Adjusted odds ratio

BSE: Breast self-examination

CI: confidence interval

COR: Crude odds ratio

REC: Research and Ethics Committee

SPSS: Statistical Package for the Social Sciences

VIF: Variance inflation factor

WHO: World health organization

Declarations

Ethics approval and consent to participate: Detail stated in the methods part.

Consent for publication: Not applicable

Availability of data and material: The datasets used and analyzed during the current study are available from the author on reasonable request.

Competing interests: The author declare that there is no competing interests.

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Figures

Figure 1

BSE practice done among young female, Addis Ababa, Ethiopia (n=358).

Figure 2

Reasons for why did not practiced BSE among young female, Addis Ababa, Ethiopia (n=358).