## **Original Research Article**

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# Breast cancer and breast self-examination awareness among undergraduate students of the University of Bamenda, Cameroon

Choumessi T. Aphrodite<sup>1\*</sup>, Tchamba T. G. Stephanie<sup>1</sup>, Ngwamenter Geayeal<sup>1</sup>, Atabonkeng E. Philemon<sup>2</sup>

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## \*Correspondence:

Dr. Choumessi T. Aphrodite, E-mail: achoumessi@yahoo.fr

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#### **ABSTRACT**

**Background:** Breast self-examination (BSE) is an individual check-up to identify any health problem in the breast, especially breast cancer. However, though the university is the place of high education, the level of the student knowledge about breast cancer and BSE remains not quite known. This study aimed to identify awareness on breast cancer and BSE among the student population of The University of Bamenda, Cameroon.

**Methods:** A well designed descriptive study was carried out using a structured questionnaire to look at the awareness about breast cancer, its possible risk factors, signs and symptoms as well as the awareness on BSE among the students.

**Results:** Out of the studied population of 255 participants who completed the questionnaire, a good portion (91.76%) of the respondents have heard about breast cancer. Only 38.43% respondents knew some signs and symptoms of breast cancer while 44.31% had an idea of the treatment. The population pointed alcohol consumption and smoking, use of contraceptives and exposure to pesticides as possible risk factors of breast cancer. BSE was practiced by only 23.92% and only 20.39% of the participants suggested a monthly screening frequency. Across age ranges, 20 to 24 years old and 25-29 years old participants had almost 5 times more chances to have heard about BSE than younger people.

**Conclusions:** Summarily, the present study demonstrated that the general had poor knowledge of the signs and symptoms of breast cancer and the BSE practice, though the population aged 20-29 years old has relatively heard about breast cancer and BSE.

Keywords: Awareness, Breast cancer, Breast self-examination, University Bamenda students

### **INTRODUCTION**

Breast cancer is the most frequent malignancy among women and the second most diagnosed in the entire world population. In 2018, breast cancer represented the second most common cancer worldwide in term of incidence, just behind lung cancer.<sup>1</sup> In developing countries including Cameroon, the majority of women diagnosed with breast cancer do not survive because of late diagnosis of the disease.<sup>2</sup> With regards to other types of cancers, breast

cancer is characterized by its occurrence in a visible organ.<sup>3</sup> The 5-year survival rate reached to 85% with early detection whereas later detection decreased the survival rate to 56%.<sup>4</sup> In addition to the inadequate diagnosis and treatment facilities, the low survival rates in less developed countries can be attributed to late detection. Clinical breast examination, mammography and breast self-examination (BSE) are the commonly recommended screening methods for breast cancer detection.<sup>5</sup> However, yearly mammography and clinical

<sup>&</sup>lt;sup>1</sup>Department of Biochemistry, University of Bamenda, Cameroon

<sup>&</sup>lt;sup>2</sup>Department of Disease Control, Ministry of Public Health, Cameroon

breast examination are always not done by women in developing countries as these examinations require hospital visit and specialized equipment and expertise).<sup>6</sup> Many national and international studies recommending new tools or strategies for an early detection of breast cancer. Breast self-examination (BSE) has been considered as one of the best tool for the early detection of cancer. BSE is a simple, quick, suitable and cost-free screening method whereby women examine their breasts regularly to detect any abnormal swelling or lumps in order to seek prompt medical attention.8 Practically, women aged 20 and above should practice BSE monthly, 5 to 7 days after the end of their menstruation. Many women, however, practice BSE either irregularly or not at all. 9,10 Besides women, breast cancer is also prevalent in men, though little attention is shown on the latter sex. A longitudinal study from 2004-2006 and 2010-2011 in Yaounde (Cameroon), showed that breast cancer was the first type of cancer diagnosed among female (32%) with some cases diagnosed in men.<sup>11</sup> Another study on 5 regions in Cameroon (Center, Littoral, West, Northwest and South West) within a period of 10 years showed 2.40% of breast cancer diagnosed in men.<sup>12</sup> Moreover, a recent report also showed high prevalence of new cases breast cancer in both sexes in Cameroon.<sup>13</sup>

Though the university is considered as the place of higher learning, knowledge and practices of BSE have been shown to be low among university students. In a study conducted among female undergraduate students of Ahmadu Bello University Zaria (Nigeria) only 19.0% of them were performing BSE examination monthly.<sup>14</sup> With female students of the University of Buea (Cameroon), though 9.0% knew how to perform BSE, only 3% were carrying out this examination regularly.<sup>15</sup> Therefore, the appropriate knowledge and practice of BSE not only vary within universities, but are still far low to help promote early screening of breast cancer. Moreover, more extensive evaluations of the knowledge and practice of BSE in the higher learning institutes could help create more awareness within this subset of populations who could subsequently positively influence the communities or larger population in the early diagnosis of breast cancer. This study thus aimed at assessing the knowledge on breast cancer and BSE and the practice of BSE among male and female undergraduate students of the University Bamenda, Cameroon.

## **METHODS**

This cross-sectional study was conducted among the students of the Faculty of Science of the University of Bamenda, Northwest Region, Cameroon. It was carried out from the June 2nd to July 31st 2018. The study population was made up of female and male undergraduate students regularly present on campus for their academic activities. The participation to the study was based on the free consent of the student and those refusing to take part were not compelled in anyway. The participants were assured of confidentiality of their

information and those who doubted were assured of anonymity of their identity. What's more, the study received an authorization from the public health authorities in the North West region of Cameroon (Reference N°: 204/ATT/NWR/RDPH). A total 260 participants were recruited in the study according to a random sampling technique.

#### Ouestionnaire administration

After signing the informed consent, the purpose and importance of the study were explained to the participants. Then, they were asked to fill a questionnaire set on the aspects such as knowledge on female and male breast cancer, signs and symptoms of breast cancer, possible risk factors and treatments of breast cancers, knowledge of breast self-examination (BSE), method/procedure for performing BSE, age at which it should be carried out, the frequency in which it should be carried out. Independent variables notably the sociodemographic factors (age, marital status) were recorded.

## Statistical analysis

The data analysis mainly consisted in descriptive statistics and a few statistical tests for qualitative variable, we used frequency tabulations for unvariate analysis and cross-tabulations with Chi-square test for bivariate analysis. The age range below 20 years old was considered as a reference population in comparative analysis.

## **RESULTS**

## Socio-demographic characteristics

Out of the 260 initially recruited participants, 255 gave complete answers to questionnaire, which gives a response rate of 98.07%.

Table 1: Socio-demographic data of the participants.

Variables	Frequency	Percentage
Gender		
Female	158	61.96
Male	97	38.04
Total	255	100.00
Marital status		
Divorced	1	0.39
Married	30	11.76
Single	223	87.45
Widow	1	0.39
Total	255	100.00
Age range		
<20	28	10.98
20-24	157	61.57
25-29	49	19.22
≥30	16	6.27

Table 2: Summary of knowledge about breast cancer.

Yes	emale	1.10	Percentage		
N		148	58.04		
T	Male	86	33.73		
Γ'	emale	10	3.92		
Ever heard of breast cancer No	Male	11	4.31		
Total		255	100.00		
Pearson chi <sup>2</sup> (1)= $1.9971$	Pr=0.158				
Yes		36	14.12		
Ever heard of male breast cancer No		219	85.88		
Total		255	100.00		
F	emale	26	10.20		
Yes	Male	23	9.02		
Knowledge of Alcohol consomption	emale	132	51.76		
and smoking as risk factor of breast No	Male	74	20.02		
Cancer		255	100.00		
Pearson chi <sup>2</sup> (1)= $2.0383$	Pr=0.153				
	Female	30	11.77		
M	Male	16	6.27		
Knowledge of Use of contraceptives as No Fe	Female	128	50.20		
1	Male	81	31.76		
Total		255	100.00		
Pearson $chi^2(1) = 0.2525$	5 Pr=0.615				
Yes F	emale .	19	7.45		
N	Male	11	4.31		
Knowledge of late menopause as risk No Fe	emale	139	54.51		
_	Male	86	33.73		
Total		255	100.00		
Pearson chi <sup>2</sup> (1)= $0.0272$	2 Pr=0.869				
F	Female	5	1.96		
Yes	Male	8	3.14		
Knowledge of the use of Pesticides as	Female	153	60.00		
risk factor of breast cancer  No	Male	89	34.90		
Total		255	100.00		
Pearson $chi^2(1) = 3.2094$	Pearson $chi^2(1) = 3.2094 \text{ Pr} = 0.073$				
Voc. F	emale	6	2.35		
Yes	Male	5	1.96		
Obesity as risk factor of breast cancer No	<sup>7</sup> emale	152	59.61		
Obesity as risk factor of breast cancer No	Male	92	36.08		
Total		255	100.00		
Pearson $chi^2(1) = 0.2682$	Pearson chi <sup>2</sup> (1)= 0.2682 Pr=0.605				
Vec	emale	60	23.53		
Knowledge of signs and symptoms of	Male	38	14.90		
hreast cancer No	emale	98	38.43		
N	Male	59	23.14		
Total		255	100.00		
Pearson $chi^2(1) = 0.0366$					
Yes —	Female	71	27.84		
Vnowledge of breest concer treatment	Male	42	16.47		
(surgery hormonal therapy No	Female	87	34.12		
chemotherapy, radiation therapy)	Male	55	21.57		
Total		255	100.00		
Pearson $chi^2(1) = 0.0653$	Pr=0.798				

The majority of the study population (61.96 %, 158 participants) was made up of females while 38.04% (97 out of 255) were males. Regarding the marital status, 87.45% (223 participants) were single while 11.76% (30 subjects) were married. The socio-demographic data of the respondents is summarized in Table 1.

The age of the participants ranged between 16 to 48 years old. The highest proportion of the participants 61.57% (157 respondents) were between 20-24 years old, followed by 25-29 years old (19.22%, 49 participants), below 20 years old (10.98%, 28 participants) and those  $\geq$ 30 years old (6.27%, 16 participants).

Table 3: Signs and symptoms of breast cancer according to the participants to the study.

Variables	Response	Frequency	Percentage
Knowledge of	Yes	98	38.43
signs and	No	157	61.57
symptoms of breast cancer	Total	255	100.00
Signs and symp	toms of bre	ast cancer	
Breastfeeding baby with one breast		1	1.14
Lumps in breast/ mass growth		43	48.86
Breast pains or painful breast		23	26.14
Strong breast or breast hardening		5	5.68
Nipple discharge		1	1.14
Lost of hair		1	1.14
Breast enlargement/ Swollen breast		9	10.23
Itchy nipples or Pinches in the breast		2	2.27
Still nipple		1	1.14
Change of breast color		1	1.14
Chest and nerve pain	1		1.14
Total	88		100.00

## Knowledge on breast cancer

The majority of the participants (91.77%, 234 respondents) have heard about breast cancer while 8.23% (21 participants) had no knowledge of this health problem (Table 2). Within gender, 93.67% (148 people out of 158) of women and 88.66 % (86 individuals out of 97) had

idea of the breast cancer. For male breast cancer, 14.12% (36 participants) respondents have heard about it.

The participants pointed alcohol consumption and smoking (19.22%, 49 subjects), the use of contraceptive (18.04%, 46 individuals), late menopause (11.76%, 30 individuals), pesticides (5.10%, 13 people) and obesity (4.31%, 11 people respondents) as causes and risk factors of breast cancer. The participants aged 20-24 years old (2.7-time chances, p=0.031) and those older than 30 (4.6time chances, p=0.048) were more aware of the possible risk factors of breast cancer than those younger than 20 years. What's more, only 38,43% (98 among which, 60 women and 38 men) respondents knew some signs and symptoms of breast cancer while 44.31% (113 participants among which 71 women and 42 men) had an idea about possible treatment measures (surgery, hormonal therapy, chemotherapy, radiation therapy) of cancer.

The various signs and symptoms of breast cancer acknowledged by participants are summarized in the table 3. Among the participants, only 38.43% (98 subjects out of 255) respondents had knowledge of signs and symptoms of breast cancer. The highly recorded signs and symptoms were lumps in breast (48.86%, 43 respondents out of 88 answers) and breast pains (26.14%, 23 individuals out of 88 answers). For knowledge of the locally used methods for the management of breast cancer, participants proposed plants and medicinal herbs such as pawpaw leaves, mushroom, corosol, carrot juice, Aloe vera, garlic, Cymbopogon citratus (localy called fever grass). Between gender, there was no significant difference between men (43.3%) and women (44.9%) regarding the knowledge of traditional treatment of breast cancer.

## Knowledge of breast self-examination (BSE)

For breast self-examination, 56.08% (143 respondents) participants have heard about it among which 100 women and 43 men. Only 23.92% (61 subjects) participants were practicing it among which 57 women and 4 men. From this study, 38.61% women (61 of the total female population, 158) have been taught on how to carry out BSE (Table 4). Concerning the frequency, BSE should be practiced daily for 11.37% (29 participants), weekly for 10.20% (26 participants) and monthly for 20.39% (52 respondents) of our study population. 58.04% (148 respondents) participants have no idea of the frequency at which BSE should be carried out. Men were significantly less informed (p=0.002) about the practice of BSE than women (reference group). Concerning the knowledge of BSE according to the participant ages, the more participants were aged, the more they were likely to have heard about BSE. Particularly, those aged between 20 -24 years old and 25-29 years had 4.7 and 5.6 times more chances, respectively to had heard about BSE than those younger than 20 years.

Table 4: Summary of knowledge about Breast self-examination (BSE).

Knowledge	Response	Gender	Frequency	Percentage		
E I LEDGE	Yes	Female	58	22.74		
		Male	54	21.18		
	No	Female	100	39.22		
Ever heard of BSE		Male	43	16.86		
	Total		255	100.0		
	Pearson chi2(1)= 8	.7730 Pr=0.003				
	Yes	Female	101	39.61		
	1 68	Male	93	36.47		
Practice of BSE	No	Female	57	22.35		
Fractice of DSE	No	Male	4	1.57		
	Total		255	100.0		
	Pearson chi2(1)= 33.7163 Pr=0.000					
	Daily		29	11.37		
	Weekly		26	10.20		
Frequency of the practice of BSE	Monthly		52	20.39		
	No idea		148	58.04		
	Total		255	100.0		
	From birth		4	1.57		
Age from which BSE should be carried out	From puberty		106	41.57		
	From 20 years old		18	7.06		
	From 30 years old		1	0.39		
	After menopause		2	0.78		
	No idea		124	48.63		
	Total		255	100.00		

Table 5: Relation between participant age and the practice of BSE.

	Age range	Response	Frequency	Percentage
	Age range<20	Yes	5	17.86
		No	23	82.14
		Total	28	100.00
		Yes	41	26.11
	20-24	No	116	73.89
Dunation of DCE		Total	157	100.00
Practice of BSE 2.		Yes	10	20.41
		No	39	79.59
		Total	49	100.00
>=:	>=30	Yes	3	18.75
		No	13	81.25
		Total	16	100.00

Regarding the frequency of the practice of BSE, the majority (58.04%, 148 people) of the respondents had no idea, but monthly check up standard frequency was known by 20.39% (52 subjects) of the participants. For the age from which BSE be carried out, good portions of the study population either mentioned from puberty (41.57%, 124 individuals) or had no idea (48.63%, 106 people). However, 7.06% (participants) of the respondents knew that it should be done from 20 years old.

## Predictors of breast self-examination

The age of participants and the general knowledge about cancer were good indicators for doing BSE. According to the various age ranges, BSE is much more practiced by participant between 20 to 29 years old. More precisely, 26.11% (41 people out of 157) participants from 20 - 24 years, 20.41% (10 individuals out of 49) aged between 25-29 years, 17.86% (5 people younger than 20 years old) and 18.75% (3 people out of 16) respondents older than 30 have been practicing BSE (Table 5).

The awareness about breast cancer was moderately not significantly associated with practice of BSE with 24.79% (58) participants having heard of breast cancer were practicing BSE (Pearson chi2(1)=1.1675 Pr=0.280). Among the participants, 34.69% (34 out of 98) knew the signs and symptoms of cancer and practice BSE. The knowledge about signs and symptoms of breast cancer significantly increased the chances of practicing BSE (Pearson chi2 (1)=10.1492, Pr=0.001) (Table 6).

Table 6: Association between the knowledge of cancer and the practice of BSE.

	-	No	Yes	Total	
Had ever heard of breast cancer					
	No	18 (85.71%)	176 (75.21%)	194 (76.08%)	
Practice of BSE	Yes	3 (14.29%)	58 (24.79%)	61 (23.92%)	
OI DSE	Total	21 (100%)	234 (100%)	255 (100%)	
		Pearson chi <sup>2</sup>	2(1) = 1.1675	Pr=0.280	
Knowledge of signs and symptoms of breast cancer					
Practice of BSE	No	130 (82.80%)	64 (65.31%)	194 (76.08%)	
	Yes	27 (17.20%)	34 (34.69%)	61 (23.92%)	
	Total	157 (100%)	98 (100%)	255 (100%)	
Pearson chi <sup>2</sup> (1)=10.1492, Pr=0.001					

## **DISCUSSION**

Breast self-examination (BSE) is a checking up and screening technique used by an individual which aims at early detection of breast cancer. It is a simple, very low cost, noninvasive with no need of special equipment. It is an effective method for breast cancer screening which only takes few minutes. <sup>16</sup>

In the present study, breast cancer awareness was high among the study population as 91.76% have heard of breast cancer. The findings also showed a poor knowledge of the practice of BSE with more than half (56.08%) of the respondents though having heard of the practice of BSE had no idea of how often BSE should be carried out. This is comparable to the study carried out by Abay et al in North Ethiopia indicating that 44.5% of the participants to their study have heard about BSE. However, Adetule showed in a study carried out in Senior secondary in Ibadan North Local Government of Oyo State (Nigeria) that up to 97.3% of the study population had heard about BSE. 17,18 The discrepancy of having heard about BSE with the present study could be attributable to the higher implication of mass media in the sensitization of the population against cancer in Nigeria. In fact, Adetule showed that mass media were the actual source of information of their study population about cancer and BSE. Moreover, the nature of the studied population could also be considered in explaining the present findings as men have shown to be relatively less aware of cancer and BSE than female.<sup>18</sup>

In this study, 23.92% of participants were practicing BSE, a figure lower than those obtained among female undergraduates in Owerri, South Eastern (Nigeria) and women in Akatsi South district of Volta region (Ghana) where 32.5% and 27.5%, respectively of the study population were performing BSE. 19,20 In general, the practice of BSE have been shown to be low in African populations, and this illustrates certain negligence of our populations for this essential screening measure of the early detection of breast cancer. In the present study, the more the participants were aged, the more they were likely to have heard about BSE. Particularly, those aged between 20 - 24 years old and 25-29 years old had almost 5 times more chances to have heard about BSE than younger people. Similarly, respondents of the age range 20-24 years old and above 30 years old were significantly more aware than those younger than 20 years on the possible causes and risk factors and signs and symptoms of breast cancer. The practice of BSE as function of age in this study is consistent with the observations of Sani and Naab and Dadzi and Adam who supported than younger women (18 - 30 years) or below age 30 were more likely to have knowledge about BSE. 20,21 We could hypothesize that the highest awareness and practice of BSE could be due to a certain active sexual reproductive age of the females from 20 to 29 years old.

This study indicated a poor knowledge about the frequency and the period of life at which BSE should be practiced as more than half (58.05%) of the participants had no idea of frequency at which BSE should be carried out though 1/5 (20.39%) of the respondents indicated monthly standard checkup frequency. The percentage of the population that could practice BSE on a monthly frequency obtained in this study is higher than the 3% found in similar study carried out among female undergraduate students in the University of Buea in Cameroon.<sup>15</sup> The present findings are however close to those of Tuyen et al who noted that 15.2% of the female textile workers in Vietnam were practicing BSE monthly.<sup>22</sup> It is normally recommended that BSE should be carried out monthly 5 to 7 days after menstruation.<sup>10</sup> Also, the study population showed little knowledge of age from which BSE should be performed with only 7.06% of the of them indicating that BSE should be done as from 20 years as indicated in the literature. 10 Therefore, more education is still to be done to improve the knowledge of the studied population about BSE.

Though our population has relatively heard about breast cancer, only 38.43% and 45.1% of the respondents had knowledge of the signs and symptoms and the risk factors of this disease, respectively. Casmir et al found a quite low knowledge (19.9%) of the risk factors of breast cancer among female undergraduates in Owerri, south eastern Nigeria. <sup>19</sup> On the other hand, Shrestha et al

recorded higher frequency of answers about the signs and symptoms such as growth in breast (82%) and breast enlargement (80%) among reproductive age women from Pancheswor Mahila Jagaran Kendra in Nepal, as compared with the present study.<sup>23</sup> The discrepancies among the knowledge of the studied populations regarding the signs and symptoms of breast cancer could be due to different academic and socio-cultural backgrounds.

#### **CONCLUSION**

Summarily, the present study demonstrated that the general had poor knowledge of the signs and symptoms of breast cancer and the BSE practice, though the population aged 20-29 years old has relatively heard about breast cancer and BSE. There is therefore a necessity to develop more techniques and means to inform and educate the university students and the global population on breast cancer and BSE.

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