

## Knowledge, Attitudes and Practices Regarding Breast Self-Examination among Female Undergraduate Students in the Faculty of Applied Medical Sciences at Umm Al-Qura University

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**Abstract: Background:** Breast cancer appears to be a major global health problem of both the developing and developed countries. Cancer is a Pan societal problem that affects two thirds of the world populations, whereas among them breast cancer is the most common cancer diagnosed in women. It is the second leading cause of death in women worldwide. **The aim** of this study was to assess the level of knowledge, attitudes and practices regarding breast self-examination (BSE) among female undergraduate students in the Faculty of Applied Medical Sciences at Umm Al-Qura University. **Subjects and methods:** A cross sectional survey was carried out in the Faculty of Applied Medical Sciences at Umm Al-Qura University. A convenient samples composed of 110 female students at fourth year were recruited in the study. A Self-Administrated Questionnaire that designed by the researchers and Breast Self-Examination Attitudes Assessment Sheet were used to collect the data. **Results:** The present study showed that laboratories medicine department students were the most informative students about breast cancer and breast self-examination, meanwhile regarding the students' practices, it was found that more than two thirds of the students reported or demonstrated that BSE is done by palpate the breast with the palm and tip of three middle fingers of the hand in clinical nutrition, health administration and laboratories medicine departments were 82%, 74% and 72% respectively. There were statistically significant differences among the students in the three departments in the total score regarding their attitudes where F.test = 3.315 and p- value =0.04. Meanwhile, students in nutrition department had highest scores on their attitudes compared with students in the other two departments. **Conclusion:** The level of students' awareness regarding breast cancer and breast self-examination was high among laboratories medicine students and the majority of students in health administration department frequently performed BSE but incorrect techniques. Positive students' attitudes toward BSE were appearing in clinical nutrition department compared to the other two departments. **Recommendation:** There is a need to create awareness about the importance of BSE among medical health students for improving their practices.

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**Key Words:** Breast Cancer, Breast Self-Examination (BSE).

### 1. Introduction

Cancers in all form are responsible for about 12 percent of deaths throughout the world <sup>(1, 2)</sup>. Globally, Breast cancer is the most common cancer in women and the second leading cause of death from cancer among them <sup>(3, 4)</sup>. Prognosis and survival rates of breast cancer are better in developed countries due to early diagnosis and treatment <sup>(5)</sup>. Breast Health Global Initiative (BHGI) proposes that breast cancer awareness and breast self-examination (BSE) as a means of early breast cancer detection in developing countries <sup>(6)</sup>.

In socioeconomic setup the only feasible solution to promote early detection of breast cancer is to create 'breast cancer awareness' among female populations. Apart from lack of knowledge, it is equally important to consider other social and cultural barriers which delay help seeking. <sup>(7)</sup> When

the level of knowledge, attitudes and practices of female populations towards breast cancer were studied, it was found that 65% of female physicians and 70% of nurses were believed that BSE is unnecessary; therefore the need to evaluate breast cancer awareness, attitudes and practices among female students who are going to be the future health personnel is necessary and recommended <sup>(8)</sup>. Higher education and socioeconomically status increase practice of BSE.31 Age is also an important predictor for BSE. Young women practice more BSE than older women <sup>(9)</sup>

According to the National Cancer Registry in 2005, the total number of all reported cancer cases was 7761 among Saudis and 2453 among expatriates <sup>(10)</sup>. During the same year, 52% of male and 34% of female patients over the age of 59 years were diagnosed, while this age group accounted for only

5.2% of the Saudi populations. Breast cancer is the most frequent cancer among females, which accounted for 21% of all cancer sites. Despite its relatively low incidence in Saudi Arabia, breast cancer has been the most common cancer among Saudi females for the past 12 consecutive years<sup>(10)</sup>. In Saudi Arabia; few studies have been carried out to assess awareness towards risk factors of breast cancer with inherent methodological limitations<sup>(11)</sup>. Therefore, it is important to determine the level of knowledge regarding the BSE as well as the attitudes and practices among women to recognize their acceptance, beliefs and the magnitude of current practices. Hence, it will help the healthcare professionals and planners to modify, emphasis, strength and select the best and more effective health education program and breast awareness campaigns pertaining to BSE.

#### **Significance of the study:**

Early diagnosis is important for effective treatment and long term survival in breast cancer. Preventive behavior is essential for reducing cancer mortality. Knowledge also plays an important role in improvement of health seeking behavior. Medical students are not only future health care providers but also represent the responsible and educated mass of the populations. Lay peoples are dependent on the advice and motivation of the health professionals. Assessing the medical students' knowledge, attitudes and practices can help in setting a standard and compare the knowledge and attitudes in the general lower educated group and also indicates what level of knowledge that could be expected in the general lower educated group<sup>(12)</sup>.

Therefore, to educate the women about the warning signs and strive for improvement of health seeking behavior by making them aware is an important step to decrease the high mortality rate from breast cancer. In this regard, different professions like health professionals, media, academic teachers and leaders can play a vital role to educate people.

#### **Aim of the study:**

It was to assess the level of knowledge, attitudes and practices regarding breast self-examination (BSE) among female undergraduate students in the Faculty of Applied Medical Sciences at Umm Al-Qura University.

#### **Research Question**

Dose the undergraduate female students in the Faculty of Applied Medical Sciences at Umm Al-Qura University have satisfactory Knowledge, positive attitudes and good or well practices regarding breast cancer and BSE?

## **2. Subjects and Methods:**

### **Research design:**

Cross sectional survey was used for the current study.

### **Research settings:**

The study was conducted in the departments of (Clinical Nutrition, Health administration and Laboratories Medicine) Faculty of Applied Medical sciences at Umm Al-Qura University.

### **Research Subjects:**

Convenient sample composed of 110 of undergraduate female students at the fourth year were recruited in the study.

### **Tools of data collection:**

Tools of data collection used in this study were consisted of:

**A- A Self-Administered Questionnaire:** It was designed by the researchers. It composed of three parts as the following:

**Part 1:** Students' socio- demographic characteristics as regards their age in years, nationality marital status of each participant....etc.

**Part 2:** It was concerned with students' knowledge regarding breast cancer and breast self-examination.

**Part 3:** It was concerned with students' practices regarding breast cancer and breast self-examination.

### **Scoring System**

Answers obtained from the students related to knowledge and practices were scored and calculated. According to the answers, their responses were evaluated using the model key answer sheet prepared by the researchers. Each question was ranged from 0-1 grade. Whereas, correct and complete answer scored 1 grade and score zero for incorrect, incomplete answer and unknown response. The total score level of the questionnaire for knowledge and practices was 40 grades (the first 20 grades were for students' knowledge and equal 100% when the total students' score level for knowledge was above 60% is considered satisfactory knowledge, while below 60% was considered unsatisfactory knowledge and the other 20 grades were for students' practices equal 100% when the total students' score level for practice was above 60% is considered good practice, while below 60% was considered poor practice).

### **B-Breast Self- Examination Attitudes Assessment Sheet:** It was adopted from (Demirkiran et al 2007)<sup>(13)</sup>.

It was used to measure the students' attitudes towards BSE. It consists of 20 statements classified as follows five dimensions, the importance of the BSE (4 items) the fear of breast cancer (4 items)

positive attitude to BSE (6 items), avoidance of BSE (4 items) and breast cancer risk perceptions (2 items). All statements were scored on a scale from (0 - 3), whereas, students' responses with strongly agree scored (3), agree scored (2), disagree scored (1) and strongly disagree scored (Zero). Whereas, the total attitude score was 60 scores. Regarding the total score was 6 divided into two categories as the following: (Scores from (30 -60) referred to positive attitudes while Scores from (0 - <30) referred to negative attitudes).

#### **Tools' Validity:**

Study tools were submitted to a panel of academic nursing experts in the field to test the content validity, modifications were carried out according to the panel's judgment on clarity of sentences and the appropriateness of the content.

#### **Operational design:**

##### **Preparatory phase:**

A review of the past, current, local & international related literature covering all aspects of the study using available books, journals articles and magazines was done to get acquainted with the research problem and develop the study tool and guided the researchers in tools preparation process used in the study.

##### **A. pilot study:**

A pilot study was carried out on 10% of students at the previously mentioned settings to test the study tool for its clarity, validity and time required to fill the tool. The necessary modifications were done through omission of unneeded or repeated questions and improved prior to data collection according to the pilot study results. The students included in the pilot study were excluded from the study subjects.

##### **B. procedure:**

An official permission was obtained to conduct the study. The researchers were hold a meeting with the students in each department to introduce themselves and briefly explained the nature and the purpose of the study to the approached ones who full fill the inclusion criteria in the sample and each meeting took about 10-15 minutes. All students were informed that their participation is voluntary. After obtaining the orally acceptance of students to participate in the study, the researchers provided them an overview and clarification about the assessment sheet question. The Self -Administered Questionnaire and the Breast Self- Examination Attitudes Assessment Sheet were distributed to each student. Also, the required explanations and clarifications were done according to the students' questions. Ask the students to fill the questionnaire

and return it when they finished. The data collection lasted over two weeks starting from 15/11/2012 and end at 7/12/2012.

#### **Ethical considerations and Human Rights:**

- The aim of the study was explained to the all participants.
- Obtaining a voluntary acceptance of the study subjects to participate in the study.
- Needed permissions were obtained through the appropriate channels.
- Code number for each participant was applied to protect their confidentiality rights of their personal data.

#### **Administrative design:**

An official approval to conduct the study was obtained from the director of Faculty of Nursing to the director of Faculty of Applied Medical Sciences, at Umm Al-Qura University to the department of the previously mentioned study settings to collect the data.

#### **Statistical analysis:**

Data was collected, coded, tabulated and analyzed using the numbers and percentage distribution, statistical analysis. Proper statistical test were used to estimate the statistical significant differences. A significant P. value will considered when .P. value was < 0.05 and highly significant when P. value was <0.01.

### **3. Results**

The results of this study are presented under the following three heading demographic descriptions of the students, students' knowledge about breast cancer and breast self-examination, students' attitudes and practices.

As shows in table (1) that, more than three quarters of the sample are single in the three departments, where 84% of the students in health administration department are single. Similarly, 84.62% of the students in the laboratories medicine department and 78.3% of the students in the clinical nutrition department are single. As regards family history of breast cancer, this table shows that the majority of the students in the three departments have no experience with breast cancer in their families. The percentages are very close to each other, whereas the students in the three departments are homogenous regarding family history with breast cancer.

Table (2): Shows those laboratories medicine department students are the most informative students about breast cancer and breast self - examination. Also, the majority of the students in three departments are assuring that breast cancer is

common in the Saudi community and early detection improves the chances of survival.

Regarding the students' sources of information about breast cancer, figure (1) illustrates that the newspapers are the most common source for information for the students across the three departments, whereas 85% of the students in both health administration and laboratories medicine departments compared to 96% clinical nutrition department students have their information about breast cancer from newspapers. In addition to peer group is the second source for the information for them about breast cancer; in which nearly three quarters of students (77%, 71%) in health administration and Laboratories medicine departments respectively compared to 96% of the students in the clinical nutrition department depended on peer group to know information about breast cancer.

Table (3): Shows that 63%, 36% and 62% of students in clinical nutrition, health administration and Laboratories medicine departments reports that only female should perform BSE respectively. On the other hand, 37%, 64% and 36% of students in the clinical nutrition, health administration and Laboratories medicine departments are emphasize that both male and females should perform BSE respectively. As regards to appropriate age to perform BSE this table shows that 89%, 72% and 74% of students in the clinical nutrition department students, health administration and laboratories medicine departments are shows that age greater than or equal 18 is the appropriate age to perform BSE respectively. Also among the students in the three departments the results indicates that more than two thirds of students are agree that BSE should be performed weekly.

Table (4): Reveals that there are differences among students in the three departments regarding signs and symptoms of breast cancer; from the perspectives of 36% health administration department students that change in shape and size of the breast are the most common signs and symptoms, compared with the perspective of 28% and 37% students in the laboratories medicine and clinical nutrition departments that moving mass or lump is the most common sign of breast cancer respectively. Additionally, half of students (52%) in clinical nutrition department believe that abnormal swelling of the breast is the most common sign of breast cancer.

As shows in table (5) that, students' knowledge regarding risk factors of breast cancer are displayed in this table, the students in the three departments agree that the family history, increasing age, and

history of the breast cancer are the most risk factors of breast cancer, while the students are not sure that the early menarche, late menopause, obesity and smoking are considered as risk factors of breast cancer.

As shows in table (6) that, the students' in the three departments agree on the importance of the BSE in the early detection of breast cancer. Also the students in clinical nutrition and laboratories medicine departments have a higher fear from breast cancer. There are a highly statistically significant differences among the students in the three departments regarding the avoidance of BSE where F. test = 6.32 and  $p=0.003$ . Whereas, students in the health administration department are less avoided to the BSE compared to Laboratories medicine and clinical nutrition departments' students. As regards to the breast cancer risk perceptions this table indicates that students in the clinical nutrition department have highest scores (5.09) compared to 4.12 and 4.38 students in the health administration and Laboratories departments respectively. However this difference is statistically significant at F. test = 4.20 and  $p=0.01$ .

As shows in table (7) that, the majority of health administration department students (92%) are the most students who frequently perform BSE. The result also indicates that most of students (95.5%) in the clinical nutrition department perform BSE in the morning. Also, most of the students (95.5% and 94%) perform BSE between the 7th & 10th days after menstruation in the clinical nutrition and laboratories medicine departments respectively. In addition, nearly three quarters (82%, 74% and 72%) of students believes that BSE is done by palpation the breast with palm and tip of three middle fingers in the clinical nutrition, health administration and Laboratories medicine departments respectively. As regards the pattern used for BSE, it is found that 72%, 68% and 61% of students in the laboratories medicine, clinical nutrition and health administration department's reports that BSE pattern begins at the nipple, moving in larger and larger circle, this pattern cover the whole breast.

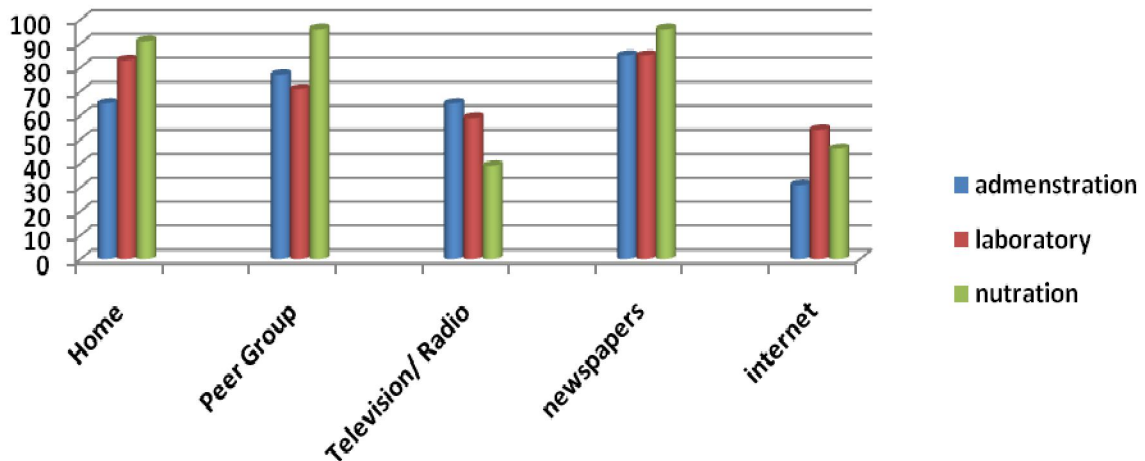
As shows in table (8) that, there are statistically significant differences among the students in the three departments regarding their attitudes' total score (F. test = 3.31 and  $p=0.04$ ), where students in the nutrition department have highest scores on their attitudes compared with students in the other two departments. On the other hand, there are not statistically significant differences among students in the three departments in relation to their knowledge and practices.

**Table (1): Distribution of the students' according to their socio- demographic characteristics**

Items	Clinical Nutrition No.( 46 )		Health Administration No.( 25 )		Laboratories Medicine No.( 39 )		Total	
	No.	%	No.	%	No.	%	No.	%
<b>Marital status</b>								
• Single	36	78.3	21	84	33	84.62	90	81.81
• Married	10	21.7	4	16	6	15.38	20	18.19
<b>Family history</b>								
• Yes	5	10.9	6	24	10	25.64	21	19.10
• No	41	89.1	19	76	29	74.36	89	80.90
<b>Family relation</b>								
• Grandmother	1	20	2	33.33	0	0	3	2.73
• Mother	0	0	1	16.66	1	10	2	1.82
• Aunt	4	80	3	50	9	90	16	14.55

**Table (2): Distribution of students according to their knowledge regarding breast cancer and breast self-examination**

Items	Freq.	Clinical Nutrition No.( 46 )		Health administration No.( 25 )		Laboratories medicine No.(39 )	
		Yes	No	Yes	No	Yes	No
• Have you heard about breast cancer?	No. %	38 83	8 17	22 88	3 12	39 100	0 0
• Is it common in this community?	No. %	44 96	2 4	24 96	1 4	36 92	3 8
• Can it be detected early?	No. %	39 85	7 15	22 88	3 12	36 92	3 8
• Can early detection improve chances of survival?	No. %	45 98	1 2	25 100	0 0	38 97	1 3
• Have you heard about breast self-examination (BSE)?	No. %	35 76	11 24	20 80	5 20	35 90	4 10



**Figure (1): Distribution of students according to their sources of information about breast cancer across the three departments**



**Table (3): Distribution of students according to their knowledge regarding BSE**

Items	Clinical Nutrition No.( 46 )		Health Administration No.( 25 )		Laboratories Medicine No.( 39 )	
	No.	%	No.	%	No.	%
<b>Who should perform BSE?</b>						
□ Male only	0	0	0	0	1	2
□ Female only	29	63	9	36	24	62
□ Both Male and Female	17	37	16	64	14	36
<b>At what age should BSE begin?</b>						
□ <18 years	5	11	7	28	10	26
□ ≥18 years	41	89	18	72	29	74
<b>How many times you should perform BSE?</b>						
□ Daily	2	5	4	16	1	3
□ Weekly	37	80	20	80	27	69
□ Monthly	7	1	1	4	11	28

**Table (4): Distribution of the students according to their knowledge regarding signs and symptoms of breast cancer as reported by them**

Signs and Symptoms of breast cancer #	Clinical Nutrition No.( 46 )		Health Administration No.( 25 )		Laboratories Medicine No.( 39 )	
	No.	%	No.	%	No.	%
• Change in shape and size of breast	5	11	9	36	3	7.8
• Pain in the breast during examination	14	30	5	20	6	15
• Abnormal swelling.	24	52	6	24	7	18
• Redness of skin.	4	9	3	12	8	20.5
• Leanness of nipples.	2	4	3	12	0	0
• Nipples secretions other than breast milk.	7	15	3	12	7	18
• Hardness of breast skin.	1	2	3	12	3	7.8
• Moving Mass or lump.	17	37	4	16	11	28
• Nodule.	0	0	0	0	5	13
• Lymph node under the arm.	1	2	0	0	2	5

# Multiple response questions

**Table (5): Distribution of the students according to their Knowledge regarding the risk Factors of breast Cancer**

Risk factors #	No. & %	Clinical Nutrition No.( 46 )			Health Administration No.( 25 )			Laboratories Medicine No.( 39 )		
		Yes	No	Not Sure	Yes	No	Not Sure	Yes	No	Not Sure
Increasing Age	N	40	3	3	20	3	2	30	0	9
	%	87	6.5	6.5	80	12	8	77	0	23
Family History	N	42	2	2	19	3	3	38	0	1
	%	91	4	4	76	12	12	97	0	3
Early Menarche	N	9	10	27	10	4	11	12	9	18
	%	20	22	59	40	16	44	31	23	46
Late Menopause	N	18	6	22	10	4	11	18	6	15
	%	39	13	48	40	16	44	46	15	39
Obesity	N	24	5	17	10	5	10	18	9	12
	%	52	11	37	40	20	40	46	23	31
History for Breast Cancer	N	35	0	11	17	5	3	37	0	2
	%	76	0	24	68	20	12	95	0	5
Smoking	N	28	5	13	11	8	6	23	7	9
	%	61	11	28	44	32	24	59	18	23

# Multiple response questions

**Table (6): Total mean score of attitudes dimensions among students in the three departments**

Attitudes	Clinical Nutrition No.( 46 )		Health Administration No.( 25 )		Laboratories Medicine No.(39 )		F. Test	Sig.
	X	+SD	X	+SD	X	+SD		
• The Importance of the BSE.	9.83	1.96	10.38	1.74	10.28	1.74	0.96	0.38
• Fear of Breast Cancer.	12.36	2.27	11.58	2.70	12.35	2.66	0.92	0.40
• Positive Attitude to BSE.	18.68	2.84	18.38	3.37	19.15	2.89	0.60	0.55
• Avoidance of BSE	10.30	2.31	8.38	2.35	10.33	2.55	6.32	*0.00
• Breast cancer risk perceptions	4.38	1.63	4.12	1.42	5.09	1.41	4.20	*0.01

\*Sig.  $P \leq 0.05$ **Table (7): Distribution of students in the three departments regarding their practices for BSE**

ITEMS	Clinical Nutrition No.( 46 )		Health Administration No.( 25 )		Laboratories Medicine No.( 39 )	
	No.	%	No.	%	No.	%
<b>Have You performed BSE before?</b>						
• Yes	18	46	23	92	22	48
• No	21	54	2	8	24	52
<b>When was the last time you Performed BSE?</b>						
• One week ago.	5	28	4	17.4	2	9
• Three to six month.	7	39	7	30.5	19	86
• Seven to twelve months.	6	33	12	52.1	1	5
<b>What time do you normally perform BSE?</b>						
• Morning	10	55.5	11	44	21	95.5
• Afternoon	5	28	4	16	1	4.5
• Evening	3	16.5	10	40	0	0
<b>When you perform it:</b>						
• Before the menstruation.	1	6	8	35	1	4.5
• Between the 7th -10th day after the menstruation.	17	94	15	65	21	95.5
<b>Where do you usually perform BSE?</b>						
• In front of mirror.	11	61	14	61	16	73
• Lying on the bed.	3	17	8	35	4	18
• In the bathroom.	4	22	1	4	2	9
<b>If perform in front of mirror what you should look for:</b>						
• Breasts their usual size, shape, and color.	6	33	5	22	5	23
• Breasts that are evenly shaped without visible distortion or swelling.	0	0	1	4	1	4.5
• Fluid coming out of one or both nipples.	0	0	3	13	1	4.5
• All of the above.	12	67	14	61	15	68
<b>How is BSE done?</b>						
• Palpate with one finger.	5	28	2	9	1	4.5
• Palpate with palm and minimum of three fingers.	13	72	17	74	18	82
• Anyhow.	0	0	4	17	3	13.5
<b>Which pattern to be sure that you cover the whole breast?</b>						
• Begin at the nipple, moving in larger and larger circles until you reach the outer edge of the breast.	13	72	14	61	15	68
• Move your fingers up and down.	3	17	3	13	3	14
• By any way.	2	11	6	26	4	18

**Table (8): The differences among the three departments' students regarding their Knowledge, Attitudes and Practices toward BSE**

Items	Clinical Nutrition No.( 46 )		Health Administration No.( 25 )		Laboratories Medicine No.(39 )		F. Test	Sig.
	X	+SD	X	+SD	X	+SD		
Knowledge	12.34	2.05	12	2.86	12.02	2.11	0.24	0.78
Attitudes	55.56	6.14	52.85	6.24	56.88	6.51	3.31	*0.04
Practices	6.56	1.38	6.40	1.45	6.33	1.44	0.13	0.87

\*Sig. P ≤0.05

#### 4. Discussion

Breast self-examination is one of the vital screening techniques for early detection of breast lumps, especially cancer of the breast, thus knowledge and consistent practice could protect women from severe morbidity and mortality due to breast cancer. The procedure though simple, non-invasive requiring little time, can only be practiced with the right attitude to sustain it and achieve the desired goal. The aim of the current study was to assess the level of knowledge, attitudes and practices regarding breast self - examination (BSE) among female undergraduate students in the Faculty of Applied Medical Sciences at Umm Al-Qura University.

The results of the current study indicated that the mean age groups was 21 years of female students in the three departments are very close, this can motivate them and instill in them the preventive health behavior for practicing BSE regularly. Besides, being a part of a health care provider's team, they can disseminate information to patients as well as family and friends. In addition, more than three quarters of the sample in the three departments are single; also the majority of them have no experience regarding breast cancer in their families. These results are accordance with the results done by **Çavdar et al (2007)**<sup>(8)</sup> they reported that the age of the respondents is ranged from 15 years to 26 years and above with the mean age group as 21 years. In a study from Egypt, age was found to be a significant predictor of BSE. Younger women tended to practice BSE than the older women.

In relation to the students' knowledge regarding breast cancer and breast self-examination, the results of present study showed that laboratories medicine department students are the most informative students about breast cancer and breast self-examination, this was expected as they have had series of lectures related to breast cancer and may have been due to their specialty. **Doshi et al (2012)**<sup>(14)</sup> Assessed breast self-examination knowledge, attitude, and practice among female dental students and they found that the total mean knowledge score was  $14.22 \pm 8.04$ , meanwhile the fourth year students have the maximum mean score ( $19.98 \pm 3.68$ ). While, **Karayurt et al (2008)**<sup>(15)</sup> reported that knowledge regarding BSE was not sufficient among the adolescent in Turkey where

13.2% only have knowledge about appropriate time for BSE, 21.8% know regarding the frequency of BSE and 26.6% know on the correct procedure of BSE. Similar finding was also discovered by other researchers in their studies<sup>(16)</sup>.

Study done by **Akhigbe et al (2009)**<sup>(17)</sup> who concluded that female health workers who are expected to act as role models and educate the public had poor knowledge of risk factors for breast cancer and practice of breast cancer screening. There is very urgent need for regular update courses for health workers concerning breast cancer education including screening methods. Results by **Kiguli- Malwadde, et al (2010)**<sup>(18)</sup> indicated that only few women were aware of the high incidence of breast cancer and more than half of the women did not know about the risk factors for breast cancer and knowledge about the methods of investigation of breast cancer Only 29.8% of Jordan nurses knew that in some women being overweight may increase the risk of breast cancer, and only 35.0% recognized that cancer was more common in 65-year-old women than in 40-year-old women<sup>(19)</sup>. The analysis of the study done by **Abdul Hadi et al (2010)**<sup>(20)</sup> who showed that the Indians had significantly less knowledgeable in all three knowledge domains, including general knowledge, breast cancer risk factors, symptoms and screening tests.

As regards to the sources of the students' information about breast cancer across the three departments, the present study showed that newspapers are the most common source for information about breast cancer followed by peer group. The media played a significant role in the determination of better knowledge level, therefore important effort should be intensified in using these media to create breast cancer awareness and emphasize the importance of early detection as this appears to be better media to reach a wider audience. This was in accordance with a study carried out by **Yan (2009)**<sup>(21)</sup> who pointed out that mass media, such as newspaper and television, was the major information source of breast cancer, also the primary source of information was the television/radio in the study done by **Çavdar ,et al. (2007)**<sup>(8)</sup>. While the majority of the respondents in the earlier studies from



Saudi Arabia indicated that listing television / radio were the best source of information for cancer<sup>(22, 23)</sup>. Additionally, other study was carried out in Saudi Arabia and founded that only 18.7% of the women practiced BSE but 69.7% of women had never heard about BSE<sup>(23)</sup>.

In fact, it was reported that the knowledge regarding BSE also was not sufficient among the adolescent in Turkey where 13.2% only have knowledge about appropriate time for BSE, 21.8% know the frequency of BSE and 26.6% know the correct procedure of BSE<sup>(15)</sup>. Result of the study done by **Dündar et al. (2006)**<sup>(24)</sup> revealed that only 56.1% of them had sufficient knowledge of breast cancer, half of whom had acquired the information from health professionals. Nearly 40% of the study group reported their main source of information on breast cancer was obtained from TV/radio, this finding indicates the advocacy of TV/radio. This study group consisted of under educated housewives, to whom TV/radio is readily available which makes it an important information source. It is a considerable finding that health professionals are a relatively poor information source accounting for only 23.4% of the group.

As regards to signs and symptoms of breast cancer, the results of the current study revealed that change in shape and size of the breast are the most common signs and symptoms as stated by more than one third of the health administration department students, while more than one quarter of laboratories medicine and clinical nutrition students reported that moving mass or lump is the most common sign of breast cancer. This could be due to decrease community awareness regarding the importance of periodical and frequent BSE in addition to lack of practices to BSE.

Results done by **Parsaa P. and Kandiah M. (2005)**<sup>(25)</sup> indicated that pain was the most common breast problem identified. Majority of the women had a misperception, that pain is the first sign of cancer. Other studies in Iran and in the United States have reported similar observations (**Powe et al. 2005**)<sup>(26)</sup>. Pain is usually a late sign of breast cancer and this misperception could serve as a barrier to participation in early diagnostic testing or treatment as the women may not associate the presence of a lump as a possible cancer if it were painless.

Regarding the students' knowledge in the three departments about breast cancer risk factors, the present study indicated that more than two thirds of students were agreed that the family history, increasing age, and history of the breast cancer is the most risk factors for breast cancer, however they were not sure that the early menarche and late menopause, obesity and smoking are risk factors for breast cancer.

This results was consistent with the study done by **Abdul Hadi et al (2010)**<sup>(20)</sup> who reported that more than two thirds of the study participants acknowledged family history, old age and cigarette smoking as potential risk factors for breast cancer. Thirty five percent Pakistani nurses had good knowledge related to breast cancer risk factors<sup>(27)</sup>.

The most reported risk factor was non breast feeding (52.7%) followed by the use of female sex hormones (38.6 %), positive family history of breast cancer and repeated exposure of the breast to radiation came next (22.1 % and 17.8 % respectively) (**Dandash et al 2007**)<sup>(28)</sup>. Accordingly, this may be attributed to that women with a family history or a previous breast problem over estimated their perceived risk level than women without these risk factors. **Parsaa P. and Kandiah M., (2005)**<sup>(25)</sup> stated that the majority of our respondents believed that having large breasts is a risk factor for breast cancer; in contrast to the observation made by **Powe et al (2005)**<sup>(26)</sup> where 86% of the women were sure that large breasts is not a risk factor . (**Dandash et al 2007**)<sup>(28)</sup> they concluded that knowledge scores on breast cancer were measured at low level, the most detective factor of better knowledge level is higher income, the most known method of cancer breast screening among participants was BSE, however the majority never practiced it and knowing a friend or a non relative breast cancer case and better knowledge level were the strongest factors associated with BSE.

In assessing the students' practices for BSE, it was found that majority of students in the health administration department were practice BSE as compared to less than half of the students in the other two departments. However, most of students were frequently performing BSE and reported that they practice it, but with wrong technique was detected in their responses. They asserted that they examined their breasts anytime they felt like. This was erroneous because BSE can only be practiced with the right attitude. It should be done at the same stage of the woman's menstrual cycle, related to the normal fluctuations of hormones that can cause changes in the breasts. The most commonly recommended time is just after the end of menstruation, because the breasts are less likely to be swollen and tender at this time (**Dandash et al 2007**)<sup>(28)</sup>.

Despite little number of students was practice BSE , it was shown that the majority of them performed BSE between the 7th -10th day after the menstruation with more than two thirds of the students across three departments use their palm and the tip of three fingers to palpate the wholly breast. Also, nearly one quarter of the respondents reported that BSE should be performed daily or weekly, meanwhile half of them reported that BSE should be performed

monthly and very few of them stated that BSE should be carried out yearly. Additionally, most of the respondents were knew how to perform BSE correctly. **Salaudeen and Musa (2009)**<sup>(29)</sup> reported that practice of BSE is not done or done wrongly by many respondents because of the knowledge gaps on what to do. Again, this revealed that although many respondents are aware of BSE, the necessary information in the practice of it is lacking. Practices of BSE were better in women with history of a breast problem or history of a visit to the gynecologist (**Parsaa P. and Kandiah M. 2005**)<sup>(25)</sup>.

In order to function as effective promoters of breast cancer control through early detection, health workers must possess not only the relevant knowledge but also the appropriate attitude and belief concerning the disease and its early detection. Our findings concerning the attitude toward screening programs were encouraging BSE. The attitudinal questions measured important concepts in cancer control, such as, beliefs about the importance of early detection and prevention of cancer and fear of the disease, avoidance of BSE and breast cancer risk perception.

Statistically significant differences were found among the students in the three departments in the total score on their attitudes, where F. test = 3.315 and  $p=0.04$  in favor of clinical nutrition students; they have highest scores on their attitudes compared with students in the other two departments. **Çavdar et al. (2007)**<sup>(8)</sup> reported that most female physicians and nurses (65% and 70% respectively) believed that BSE was unnecessary; therefore the need to evaluate breast cancer awareness, attitude and practice among female students who are going to be our future health personnel is very important.

According to the results of the study carried out by **Bassey et al (2011)**<sup>(30)</sup> about BSE that attitude of the nursing students was satisfactory as 98.5% deemed the practice of breast self-examination necessary and 84.3% claimed to have carried it out before, primarily to examine their breasts. It was however surprising, following the nature of their training, that some of the nursing students did not. Attitude seems to be good in the higher proportion of respondents (73.3%). This is an indicator of positive medical help-seeking behavior among the respondents especially pertaining to the high mean score for the item 'all women should do BSE' 'poor preference to seek traditional healers, The participants had a positive attitude toward cancer education, which is encouraged in another study conducted in Brazil by **Brito et al (2011)**<sup>(31)</sup> who correlates with the above in terms of attitude. A significant percentage (88.24%) of teachers had good attitude regarding breast examination which was consistent with a study conducted in Malaysia where 77.3% had good attitude (**Rosmawati N. 2010**)<sup>(32)</sup>.

### Conclusion:

The level of undergraduate female students' awareness regarding breast cancer and breast self-examination was high among laboratories medicine department students. Majority of health administration department students frequently perform BSE but with wrong techniques of practices were detected in their responses. Positive attitudes toward BSE were appeared in clinical nutrition department students compared to the other two departments.

### Recommendations:

#### The current study recommended the following:

1. There is need to create awareness about the importance of BSE among medical health students for improving their practices.
2. Screening methods for breast cancer should be included in the curricula of health professionals for empowering them to take up the challenge of breast cancer detection.
3. Further studies should be done to address the knowledge gaps on breast cancer and breast self-examination, so that positive attitudes can be developed by the young adults towards breast self-examination.
4. The need for educational programs as a tool for improving the current knowledge, practices and attitudes of breast self-examination, to assist in early breast cancer detection as well as reducing late breast cancer presentation.

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