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Original Research Article

Breast Self-Examination in Terms of Knowledge, Attitude, and Practice among Female Laboratory Students in 21 September University for Medical and Applied Sciences

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Abstract

Background: Breast self-examination (BSE) is simple, very low-cost, and noninvasive, with no special material/tool requirements. It is an effective diagnostic method for breast cancer that takes only five minutes to apply.

Aim of the Study: This study aimed to assess the level of BSE knowledge, attitude, and practice among female laboratory students in 21 September University for Medical and Applied Sciences.

Methodology: A descriptive, cross-sectional research method was used for conducting the study on a random sample of 100 female laboratory students selected from 21 September University for Medical and Applied Sciences. Data collected from the participants included their socio-demographic characteristics, knowledge level of BSE, attitude towards BSE, and practice level of BSE via a scale developed by the researchers. A pilot study was carried out to attain the validity of data.

Results: The results disclosed that 15% of the respondents had good overall knowledge of BSE, for which the major source of information about BSE (54.2%) was mass media. The findings also revealed that 75% of the participants had a positive attitude towards BSE, and 4% of them practice BSE every month, consistently. In addition, a significant difference between age and academic level was found in relation to the knowledge of BSE. At the same time, there was a significant difference between overall knowledge and practice of BSE (P=0.000).

Conclusion: The study outcomes unveiled that most female laboratory students at 21 September University for Medical and Applied Sciences have poor knowledge about BSE and do not perform BSE. Mass media is considered an important source of information about BSE to improve awareness among the community.

Keywords: Breast cancer, Breast self-exam, University students

Introduction

Breast cancer is the most common type of cancer among women living in both developed and developing countries and one of the most common causes of death among women in developing countries [1]. According to WHO (2020), breast cancer is the most common type of cancer. Breast cancer is the most common cause of cancer-related deaths among women worldwide [2]. According to the American Cancer Society [3] about 1.3 million women are diagnosed with breast cancer annually and about 465,000 die from the disease. In Western Asia number of new cases of breast cancer in women was 60715 (28.8%) in 2020 [4]. There is an upward trend in the incidence of breast cancer occurrence in developing countries consistent with the adoption of unhealthy Westernized lifestyles such as smoking, physical inactivity, consumption of calorie-dense food, changes in childbearing and breastfeeding, and exogenous hormonal intake [5،6]. Female breast cancer has surpassed lung cancer as the most commonly diagnosed cancer, with an estimated 2.3 million (11.7%). new cases In 2013, (2189) new cancer cases were reported in West Bank, (1127) cases were females (51.5%) and (1062) were males (48.5%) , females (51.5%) and (1062) were males (48.5%). Cancer incidence rate was (79.5) per 100,000 of the population. Breast cancer ranked first, with (401) reported cases (18.3%) from all reported cases. It is the highest among females and focuses on the age group between 20 - 59 [7]. The reported figures by MOH show a remarkable increase in cancer mortality in West Bank 2013 compared with 2007 and 2010, from (10.3%) in 2007 to (10.8%) in 2010. then increases to reach (13.3 %) from the total deaths in West Bank in 2013.

Moreover, breast cancer was the third leading cause of death among cancer mortality (9.1%) [8].

Similarly in Yemen, according to Globocan, the most commonly diagnosed cancer is breast cancer with an estimated 2894 new cases (17.6%) but with a higher mortality rate reach to 1638 (13.5%), compared to the mortality rate in developed countries. Breast cancer is considered the commonest Cancer causes death in Yemen [9]. It is the first of the five most common reported cancers among Yemeni people (16.8%), as well as among Yemeni women (31.6%) [10].and its incidence rate among Yemenis is dramatically growing during the last years [11]. It is also clear from cancer incidence

that issued by the Aden Cancer Center for Research and Registry [12]. Hadramout Cancer Center that Yemeni breast cancer patients like other breast cancer patients in the Arab countries (10) are almost 10 years younger than in the USA and Europe.

It has been estimated that more than 80% of breast cancer are associated with environmental factors that include exposure to contaminants, lifestyle, and diet[8] Although curative treatment for breast cancer is increasingly successful, early detection and treatment are critical in reducing mortality rates among women [2].

The knowledge and attitude towards breast cancer are low, such that the majority of the affected patients present late in the hospital when little or nothing can be done [12]. The three screening methods currently recommended by the American Cancer Society for early detection of breast cancer include clinical breast examination (CBE), mammography, and BSE [4]. BSE is a relatively simple, convenient, non-invasive, minimal-risk, and inexpensive method of early detection recommended for women. Women should begin this routine in their 20s to learn the look and feel of their healthy breasts so that they may report any changes in their breasts to a health expert immediately [5]. BSE allows women to perform the examination independently (i.e., without relying on a health care professional). It is also the only screening method available for women without access to professional health care services, particularly those who lack adequate health insurance [12]. BSE is a simple, very low-cost, noninvasive with no special material/tool requirements; and it is an effective diagnostic method for breast cancer that only takes five minutes to apply [7].

Females in Yemen constitute half of the population. This means that any hazardous agent affects women, mostly affects half of the population. Besides, women in Yemen play a crucial role in the socialization process, so it is very important to put hand in hand to fight against these hazards like breast cancer to get a very healthy present and future generation.

BSE has two-fold purpose: to make women familiar with both the appearance and the feel of their breasts, and to help women detect any changes in their breasts as early as possible. 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 and yield a better survival rate [4].Unfortunately, despite the benefits of regular BSE, few women examine themselves; in fact, a majority does not even know how to do a BSE [13]. It is important to adequately motivate women to regularly carry out BSE to curtail the increasing mortality rate from breast cancer [14]. Regular BSE has been suggested as part of the overall health promotion concept [15]. The practice of BSE can help women to know the structure and composition of their normal breasts, thereby enhancing their sensitivity to detect any abnormality at the earliest time [16]. In many countries, there are cultural attitudes that make women feel uncomfortable receiving information about BSE from male healthcare personnel. In such situations, female laboratory students must have accurate information and positive attitudes about BSE and should perform it regularly by themselves. Therefore, they must be informed in detail about BSE and perform BSE correctly while in college so they can educate patients after graduation [17]. Additionally, laboratory students have a

responsibility to give instructions to other women on how to perform BSE correctly in primary healthcare settings.

Currently, there is no available data about BSE knowledge and practice among Yemeni laboratory students, or whether their education is sufficient to impart accurate information, positive attitudes, and BSE skills. Therefore, the current study aims to investigate the knowledge, attitude, and practice of BSE among female laboratory students at 21 September University for Medical and Applied Sciences. It also seeks to establish a baseline data for further research as well as for new curricular strategies about BSE.

Subjects and Methodology

1. Objectives of the Study

- To examine the knowledge, attitudes, and practice of BSE among female laboratory students at 21 September University for Medical and Applied Sciences.
- To find out if there is any association between students' knowledge of BSE and their socio-demographic characteristics.

2. Research Hypotheses

- There is a significant difference of knowledge on BSE at a level of (α=0.05) and the selected demographic data.
- There is a significant difference at a level of (α=0.05) between the knowledge and practice of BSE.

3. Research Questions

- What is the knowledge, attitudes, and practices of the female laboratory students toward BSE?
- What is the association between the knowledge level of BSE and selected demographic variables?

4. Variables

The independent variables were age, academic year, and family history of breast cancer. The dependent variables included knowledge, attitudes, and practices of palliative care.

5. Operational definitions

BSE: A monthly examination of breasts conducted by women following the five major steps of BSE, which include examining both the breasts for size, shape, color, and contour while looking in front of the mirror with their arms straight, on the hips, and over the head; to palpate or feel the breast both in standing and lying position using the three finger pads.

Knowledge: The facts/condition of knowing something with familiarity gained through experience or association. In this study, knowledge refers to the laboratory students' awareness of BSE as measured by a structured-knowledge questionnaire on BSE.

Laboratory Students: Female students who are studying Laboratory in 21 September University for Medical and Applied Sciences.

6. Study Design

A descriptive, cross-sectional explorative approach was used for conducting the current study.

7. Study Setting

This study was conducted in the Department of Laboratory affiliated to 21 September University for Medical and Applied Sciences

8. Study Period and Place

The study was conducted from 1st April to

31 August, 2022 in 21 September University for Medical and Applied Sciences.

9. Study Sample

A random sample was selected, adopting the systematic approach, where the first name was selected by the blind method and then the procedure was followed in the selection of each second name from the lists of the target participants.

The sample size was calculated (using the Epi info program) as 119 female laboratory students from a population size of 173 in different levels with a confidence level above 95%.

However, due to the constraints of time and resources, only 100 copies of the questionnaire were distributed to the students who agreed to participate in this study.

10. Inclusion Criteria

All female laboratory students at 21 September University for Medical and Applied Sciences showed willingness to participate in the study.

11. Tool of the Study

A self-administrative questionnaire was developed by the researchers to collect the socio-demographic data of the participants, such as age, academic year, family history of breast cancer, information about BSE and Menstrual cycle.

The knowledge part consisted of twenty close-ended questions on breast cancer, and BSE.

Validity and Reliability of the Study

Scoring system

The scoring system of participants' knowledge was done as follows: each question had a group of answer points, and one point was awarded for each correct answer; incorrect or I don't know answer took zero. Correct responses were summed up to get a total knowledge score for each participant. The total score for all questions reached 20 points. The knowledge scores were classified as:

Poor knowledge: less than 50% (the participant score <10 considered poor knowledge).

Fair knowledge: 50 - < 75% (the participant scores 10 – <15 are considered fair knowledge).

Good knowledge: 75% or more (the participant scores 15 and more are considered good knowledge).

The attitude part consisted of 13 items, each item had a group of answer points, 5 points for strongly agree, 4 points for agree, 3 points for uncertain, 2 points for disagree, and one point for strongly disagree.

The practice part consisted of 7 items, each item had a scale of answer points, 5 points for always, 4 points for usually, 3 points for often, 2 points for sometimes, and 1 point for never.

Regarding the tool validity, the questionnaire was refereed and validated by a panel of 5 experts in the academic and health field, who approved it with no further comments.

Pilot Study

In relation to data reliability, a pilot study was made, using similar subjects, the same setting, the same treatment, the same tool of data collection and analysis techniques.

The pilot study was conducted on ten female laboratory students in 21 September University for Medical and Applied Sciences to determine the clarity of questions, effectiveness of instructions, completeness of response sets, time required to complete the questionnaire and success of the data collection technique. Pilot subjects were asked to comment on the applicability and appropriateness (validity) of the questionnaire. All questions were approved to be clear enough with an estimated period of 10 minutes to complete the questionnaire.

Questionnaire Response Rate

The rate of response to the questionnaire was 100% of the total number of female laboratory students participated in this study.

Data analysis

Data were calculated and analyzed using the Statistical Package for Social Sciences (SPSS).

The level of significance (α) was set at 0.05. Descriptive and inferential statistical tests were used.

Ethical Considerations

his study was conducted after obtaining an official license from Family and Community Medicine Department at 21 September University for Medical and Applied Sciences. To maintain the welfare of the participating subjects, the questionnaire was distributed by fifth-year trained female medical students. Several procedures were utilized to protect the participants' rights. An oral verbal consent of the laboratory students was obtained before the administration of the questionnaire. Additionally, the participants were informed of the purpose of the study, and that they had the right to refuse to participate. Moreover, the voluntary nature of participation was emphasized, as well as confidentiality. Furthermore, the participants were told that they could refrain from answering any questions and they could terminate at any time. The anonymity of the participating subjects was maintained at all times

Results

The study targeted female laboratory students in 21 September University for Medical and Applied Sciences; 100 students participated in the study. The results of the statistical analysis are presented in main seven sections. The first section presents the assessment of the baseline characteristics of the targeted sample. The second section presents the assessment of the knowledge level of BSE. The third section focuses on the relationship between the mean of total knowledge of BSE and the examined variables. The fourth section addresses the participants' attitude towards BSE. The fifth section presents the assessment of the participants' level of practicing BSE. The sixth section focuses on the relationship between mean of total knowledge of BSE and age, academic

level, family history of breast cancer, information of BSE. The seventh section is devoted to the relationship between the mean of total knowledge and practice of BSE.

Description of the sample

Table 1: Base-line characteristics of the participants

Parameters		No.	%
Age	18-20 years	57	57
	Above 20 years	43	43
Academic year	First year	44	44
	Second year	27	27
	Third year	15	15
	Fourth year	14	14
Family history of breast cancer	Yes	17	17
	No	83	83
Information of BSE	Yes	59	59
	No	41	41
If yes	Mass-media-TV, Radio, Newspaper	32	54.2
	Contact with health personnel	10	16.9
	Information from relatives	2	3.4
	Other	15	25.4
Menstrual	Regular	80	80
	Irregular	20	20

Table 1 shows that 57% of the participants were within the age range of 18-20 years and 43% of them were within the age range above 20 years. It also shows that 44% of the participants were in 1st year, 27% in 2nd year, 15% in 3rd year, and 14% in 4th year. It can also be seen that 83% of them had not negative family history with breast cancer against 17% who had positive family history. In addition, the results show that 59% of the participants had received information about BSE and while 41% of them had not. The main source of information was mass-media (54.2%) including TV, radio and newspaper, followed by contact with health personnel (16.9%), relatives (3.4%), whereas other sources represented 25.4% of information source. Majority of the respondents (80%) were with regular menstrual cycle.

Level of knowledge about BSE

Table 2: Students' knowledge of BSE

Knowledge of BSE	No.	Percentage
Poor knowledge	45	45%
Fair knowledge	40	40%
Good knowledge	15	15%
Total	**100**	**100%**

Table2 shows that majority of therespondents (45%) had poor knowledge of BSE, while 40% of them had fair knowledge, and15% had good know-ledge about BSE.

Table 3: Students' knowledge level of BSE in terms of the examined variables

Parameter	Poor knowledge	Fair knowledge	Good knowledge	Total
Age				
18-20 year	33%	21%	3%	57%
Above 20 years	12%	19%	12%	43%
Academic level				
First year	28%	16%	0%	44%
Second year	13%	11%	3%	27%
Third year	4%	7%	4%	15%
Fourth year	0%	6%	8%	14%
Family history with breast cancer				
Yes	13%	2%	2%	17%
No	32%	38%	13%	83%
Information of breast self-exam				
Yes	15%	31%	13%	59%
No	27%	12%	2%	41%
Menstrual cycle				
Regular	37%	29%	14%	80%
Irregular	8%	11%	1%	20%

Table 3 discloses majority of students aged between 18-20 years (33.0%) had poor knowledge towards BSE while the majority of age above 20 years (19%) had fair knowledge. It also shows that most of first level and second level students (28% and 13%), respectively, had poor knowledge level of BSE, while many of level three students (7%) and majority of level fours students (8%) had respective fair a nd good knowledge of BSE. It can be observed that around one third of all students who respond yes for information of BSE had fair knowledge. Additionally, more than one third of students with regular menstrual cycle (37%) had poor knowledge of BSE and 29% of them had fair knowledge of BSE.

Attitude Towards BSE

Table 4: Students' attitude towards BSE

No	Items	Strongly disagree	Disagree	Uncertain	Agree	Strongly agree
1	During BSE makes me feel so funny	57%	30%	6%	7%	0%
2	BSE will be embarrassing to me	40%	29%	(8%	19%	4%
3	Doing BSE is wasting the time	73%	24%	3%	0%	0%
4	Doing BSE makes me feeling unpleasant	43%	43%	8%	6%	0%
5	If there is lump, I prefer to get treatment from a traditional healer	40%	30%	15%	9%	6%

No	Items	Strongly disagree	Disagree	Uncertain	Agree	Strongly agree
6	Feel uncomfortable, can't do BSE once in a month	18%	31%	21%	23%	7%
7	All women should do BSE	5%	3%	8%	22%	62%
8	I really care about my breasts	8%	11%	17%	46%	18%
9	I'm not afraid to think about the breast cancer	29%	19%	19%	20%	13%
10	Avoid BSE because I am worries about having breast cancer	48%	21%	9%	16%	6%
11	Interested in doing BSE	21%	23%	33%	17%	6%
12	Always search for information regarding BSE from the internet, magazine, and newspaper	10%	15%	20%	40%	15%
13	Discuss with my friends about BSE	15%	23%	20%	34%	8%

Level of practicing BSE

Table 5: Students' practice level of BSE

No	Items	Never	Sometimes	Often	Usually	Always
1	Do BSE once a month	64%	16%	6%	10%	4%
2	learning the correct method of BSE	45%	17%	9%	15%	14%
3	Parents advise me to do BSE	62%	12%	14%	9%	3%
4	Advise friends to do BSE	45%	18%	15%	10%	12%
5	Discuss the importance of BSE with Friends	45%	22%	13%	9%	11%
6	Have been taught on BSE by health Staff	47%	16%	8%	12%	17%
7	If you notice any breast abnormality, directly go to public health care	24%	6%	12%	10%	48%

Table 5 reveals that majority of the participants (64%) do not perform BSE once a month whereas only 4% of them practice it constantly every month. It also shows that 45% of the participants reported never learning the correct method of BSE and 47% of them mentioned that they have been taught on BSE by health staff. In addition, 48% of the participants reported that they always go to public health care directly if breast abnormality is noticed. Moreover, 62% of the participants reported that their parents never advise them to do BSE and 45% of them never advise their friends to do BSE or discuss its importance with them

Correlation between knowledge towards BSE and the examined variables

Table 6: Correlation between mean of total knowledge and age, academic level, family history of breast cancer and information of BSE

Items	Mean of	N	S.D	F	Sig
Age					
18 -20 years	0.4737	57	0.18830	20.523	0.000
Above 20 years	0.6413	43	0.16559		
Academic level					
First year	0.4250	44	0.19485	17.295	0.000
Second year	0.5750	27	0.13752		
Third year	0.6667	15	0.13715		
Fourth year	0.7250	14	0.06430		
Family history of breast cancer					
Yes	0.4821	17	0.22154	1.564	0.214
No	0.5530	83	0.19181		
Information of BSE					
Yes	0.5958	59	0.15180	12.198	0.001
No	0.4605	41	0.22991		

Table 6 discloses a statistically significant relation between students' age group and academic level with total mean knowledge of BSE (p>0.000). It also shows a statistically significant relation between information of BSE with knowledge of BSE (p>0.001). On the other hand, no statistically significant relation was recorded between total mean knowledge of BSE and family history with breast cancer.

Correlation between knowledge and practice of BSE

Table 7: Correlation between the mean of total knowledge and practice of BSE

Items	Mean of	N	S.D	t.	*P*
Knowledge	0.5428	100	0.19672	19.466	0.000
Practice	2.3402	100	0.99455		

Table 7 reveals a statistically significant relation between knowledge and practice of BSE (p>0.000).

Discussion

Breast cancer is the most common type of cancer in women worldwide. That is why women's awareness of breast cancer is crucial. Accordingly, this study was conducted to evaluate the knowledge, attitudes and practice of BSE among female laboratory students who are going to be the future health personnel. The results revealed that the participants had limited knowledge about BSE; in which around 15.5% of them had good overall knowledge, lower than the results of a study conducted in Iraq, Mosul city (42.7%) [1]. This study was relevant in relation to age group as the participants fall within the age range of university students and emerging their adulthood. They are always eager to find out information about things happening around them hence a

deadly disease like breast cancer should not be strange to them as well as BSE, which has to do with looking out for changes on their own breast. More than one half of students (57%) in the present study aged between 18-20 years old, in comparison to 95.4% of participating students aged between 18-23 in a study conducted at Sharjah University, UAE [18]. Another study conducted in Gaza University, Palestine, revealed that negative family history with breast cancer reported as (75.6%) [19], lower than in the current study (83%). Around two thirds (59%) of the present study participants received information about BSE, which is lower than what was reported in a study made in Al-mukalla city (75.2%) [6]. The major source of information about BSE in this study was mass media (TV and radio) (54.2%). This finding is consistent with a study conducted among female students in Saudi Arabia that showed mass media as the main source of information about BSE for 39.8% of participants [1] and 68.8% in Nigeria [16]. Differently, a study in Sharjah University, UAE, reported social media as the main source of information for 57.2% of participants against 27.7% for mass media [20]. Media represents a main source of information about breast cancer and BSE; therefore, great efforts should be made to invest media to create awareness of breast cancer within the Yemeni community. This will help in emphasizing the importance of early detection of BSE among a large number of people in the community. On the other hand, the minor reported source of information was the relatives of the respondents (3.4%), which is lower than a study conducted among female students in Sharjah University, UAE (22.9%) [20]. This is one of the gaps existing in family life education as parents and care givers have no time to discuss pertinent health issues with their children. It may also be due to the fact that some of the parents have no information or knowledge on some of these topics and as such have little or nothing to discuss. The results also unveiled that less than half of the respondents (45%) had a poor knowledge of BSE that help in early detection of breast cancer. This finding is also in accordance with the study made in Mosul University, Iraq, which reported that 57.3% of participants had poor knowledge of BSE [1]. However, three quarters (75%) of the participants showed positive attitude towards BSE, with no negative attitude reported in the present study. These finding are similar to a study carried out at King Saud University in Saudi Arabia where the attitude of respondents to BSE was good (85.4%) [1]. The current study revealed that only 4.1% of the participants always practice BSE every month and 62.9% of them never performed it. These findings are in disagreement with a study made in Taif, Saudi Arabia, where 17% of respondents reported performing BSE monthly while 39% of them never performed it [9]. A statistically significant relation between age group and academic level with total mean knowledge of BSE (p=0.000) was recorded among the participants of this study. Another study conducted at Lagos Nigeria in Nigeria revealed statistically significant relationship between respondents' overall knowledge and level of study ($p< 0.05$), but no statistically significant relationship between the respondents' overall knowledge and age ($p > 0.05$). This could be attributed to the fact that (71%) of the total sample size in the current study were junior laboratory students (first and second year) who have not received in-depth knowledge of breast cancer yet. Additionally, a statistically significant

relation was found between overall knowledge and practice of BSE (P=0.000), which is similar to the study made in Taif University that revealed a positive correlation between overall knowledge and practice of BSE (P = 0.000) [9]. This illustrates the desire among this population to acquire correct knowledge regarding BSE. This finding also brings to light that if awareness and health education programs are conducted in an intensive and planned form, it might result in positive and healthy practice.

Conclusion

Based on the outcomes of this study, it can be concluded that although there is lack of knowledge about BSE among female laboratory students in 21 September University for Medical and Applied Sciences, their positive attitude towards it is encouraging. Additionally, it has been found that most students participated in this study do not perform BSE. However, there is a statically significant correlation between students' knowledge and practice of BSE.

Based on the findings above, it is recommended to create awareness about the importance of BSE amongst female laboratory students so as to improve its practice in the whole community. Furthermore, public awareness of the importance of BSE should be intensified using mass media, and health service personnel should promote BSE during their contact with female clients. In order to function as effective promoters of breast cancer control through early detection, laboratory students should possess the accurate knowledge and the appropriate attitude and practice concerning the disease and its early detection.

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