Knowledge Level on Breast Cancer and Breast Self-Examination (BSE) Practice Among Female University Students

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ABSTRACT

Introduction: Breast cancer is the most common cancer affecting women in Malaysia and therefore, it is important to recognize the early signs and symptoms of breast cancer. In addition, breast self-examination (BSE) also has been suggested as a valuable technique for the early diagnosis of breast cancer. Therefore, this study aimed to assess the level of knowledge on breast cancer and breast self-examination (BSE); and determine the practice of BSE among female student in International Islamic University Malaysia (IIUM), Kuantan, Pahang.

Methods: A quantitative cross-sectional study with stratified random sampling method was conducted among 245 female students in IIUM Kuantan Campus, from April to May 2021. Data were gathered by using Google Forms platform which was available in English Language and were distributed to female undergraduate students. The questionnaire was adapted from three sets of questionnaires, Nimir et al., (2014), Erdem and Toktas (2016) and Tewabe and Mekuria (2019). Data analysis was done by using SPSS version 23.0.

Results: Majority of the participants (98.0%) have high knowledge regarding the knowledge on risk factors, signs and symptoms of breast cancer and breast self-examination (BSE). The result also showed that 31.0% participants never performed BSE. Most of them reported that the reasons that they do not perform BSE are due to lack of knowledge (35.1%), forgetfulness (33.9%) and negligence (21.6%). Around 36.3% participants reported that they do not know the technique that use to perform BSE.

Conclusion: Participants having high knowledge on breast cancer and BSE; however, the practice of BSE is still lacking. Therefore, BSE need to be more educate and promote its practice among young women for early detection of breast cancer and its prevention.

Keywords: Knowledge, Risk factor, Sign, Symptom, Practice, Breast cancer, Breast self-examination, Female.

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INTRODUCTION

Breast cancer is a common cancer among women in both developed and developing countries and it is reported that breast cancer is the most prominent cancer affecting women in Malaysia (1). It is very important for every woman to know about breast cancer and the signs and symptoms that may lead to breast cancer development. In Malaysia, about 1 in 19 women is at risk of breast cancer, compared to 1 in 8 at risk in Europe and the United States. However, the survival rate among Malay women is much lower which is 49% compared to 89% in Europe and the United States. Hence, in Malaysia, fewer women diagnosed with breast cancer, however, the mortality rate due to this condition is higher (2). This might be due to the late diagnose of the cancer as the survival rates depend on the stage of the cancer detected. Therefore, the need for prevention and early detection of breast cancer is very pivotal.

Hence, breast self-examination (BSE) has been suggested as a valuable technique for the early diagnosis of breast cancer. BSE is a routine examination that should be done every month to physically check for any lumps or other changes on the breast, such as swelling and scaling of the breast and discharge from the nipple (3). It is because BSE contains two important components while doing which are looking and feeling. Therefore, women will be aware of what is the normal condition of their breast and be able to recognize and detect any changes that happened immediately because of these components. In fact, many breast cancers are discovered by the women themselves during intentional or incidental self-breast examination (4). In addition, the percentage of breast cancer detected at stage I and II was 56.9% in Malaysia (5), which manifest that early detection is feasible and therefore, it is very important for a woman to be able to do BSE as a monthly routine (6).

The BSE is a simple method that took only 10 minutes per session and can be perform in front of the mirror or lying on the bed to examine the breast condition every month. Hence, BSE is encouraged to perform regularly with the purpose that women will be more familiar with their breast condition and potentially making them aware of their breast problems, thus

medical advice and treatment can be seek earlier (6). Besides that, it is very crucial for the women to have adequate knowledge regarding the signs and symptoms of breast cancer and the correct practice of BSE as the women can detect any early signs of breast cancer and the prevention of it. Inadequate knowledge regarding breast cancer and BSE will lead to poor practice. Moreover, the women who have good knowledge about BSE but do not apply the knowledge and practice of it, will cause the purpose of BSE as a tool for early detection of breast cancer would not be achieved (7). Hence, this study will determine the level of knowledge on breast cancer and BSE; and the practice of BSE among female students in International Islamic University Malaysia (IIUM), Kuantan Campus.

METHODS

This study was conducted using a quantitative with descriptive cross-sectional study design between April to May 2021, which involved 245 female undergraduate students of IIUM Kuantan Campus, Pahang. The participants were from different faculties including Kulliyyah of Nursing, Kulliyyah of Science, Kulliyyah of Allied Health Science, Kulliyyah of Pharmacy, Kulliyyah of Medicine and Kulliyyah of Dentistry. The Raosoft sample size calculator was used in this study, with the 5% margin error, 90% confidence interval, 2495 of total population size and 50% response rate. Thus, the required minimum sample size for this study was 245 participants. The inclusion criteria were full time undergraduate and postgraduate female students of IIUM Kuantan. The exclusion criteria were female students who are below than 18 years old and who refused to participate in the study.

The questionnaire used in this study consists of four sections, Part A consists of question related to socio-demographic data of participants which include age, lifestyle, onset of menarche and family history on breast cancer; Part B consists of questions related to knowledge on the risk factors, signs and symptoms of breast cancer; Part C consists of questions related to knowledge on breast self-examination (BSE) and part D consists of questions related to practice on BSE. The questionnaire for part A, B, C and D were taken from three research papers which entitle "Knowledge, attitudes,

and behaviours about breast self-examination and mammography among female primary healthcare workers in DiyarbakJr, Turkey" (8), "Knowledge and practice of breast self-examination among undergraduate student in Bahir Dar University, North-West Ethiopia, 2016: A cross-sectional study" (9) and "Knowledge and practice of breast self-examination among students in a private higher learning institution in Malaysia" (10). The researcher utilized Google Form survey to distribute the final questionnaire which was available in English Language only.

Ethical approvals were obtained from Kulliyyah of Nursing Postgraduates Research Committee (KNPGRC) and IIUM Research Committee (IREC) with approval number of IREC 2021-KON/41 prior to data collection. Each participant was provided with information sheet about the objectives and confidentiality of this study prior to obtaining the consent to participate in this research. All the participants were assured that the information given to the researcher were protected as confidential and solely for academic purposes. Furthermore, the participants have right to withdraw from the study at any time.

Data Analysis

Data was analyses using Statistical Package for Social Science (SPSS) version 23.0. Descriptive statistical test was used to measure the frequency and percentage of variable.

RESULTS

Table 1 depicts that 89.4% and 10.6% participants started their period at the age younger and older than 15 years old, respectively. Around 20.8% participants have family history of cancer, with 13.1% participants are having family history of breast cancer. Some of the participants reported of having irregular menstrual period (20.4%) and 3.3% participants reported having personal history of breast problems.

Level of knowledge on risk factors and sign and symptoms of breast cancer

Based on **Table 2**, there are 65.3% and 58.0% participants do not agree that working class women and larger breast, respectively are the risk factors of breast cancer.

Table 1: Sociodemographic data of participants (n=245)

Item	Variable	Frequency (n)	Percentage (%)
Age	20 years old	36	14.7
	21 years old	56	22.9
	22 years old	44	18.0
	23 years old	61	24.9
	24 years old	29	11.8
	Above 25 years old	19	7.8
Race	Malay	234	95.5
	Chinese	4	1.6
	Indian	0	0.0
	Others	7	2.9
Kulliyyah	Kulliyyah of Nursing	108	44.1
	Kulliyyah of Medicine	32	13.1
	Kulliyyah of Pharmacy	46	18.8
	Kulliyyah of Allied Health Science	25	10.2
	Kulliyyah of Science	26	10.6
	Kulliyyah of Dentistry	8	3.3
Current year of study	Year 1	51	20.8
	Year 2	45	18.4
	Year 3	49	20.0
	Year 4	80	32.7
	Year 5	20	8.2

How old were you when you started your period?	Younger than 15 years	219	89.4
	15 or older	26	10.6
Marital status	Married	0	0
	Single	245	100.0
	Divorced	0	0
	Widow	0	0
Family history of cancer	Yes	51	20.8
	No	194	79.2
Smoking	Yes	6	2.4
	No	239	97.6
Regular exercise	Yes	96	39.2
	No	149	60.8
Is your menstrual period regular?	Yes	195	79.6
	No	50	20.4
Personal history of breast problems	Yes	8	3.3
	No	237	96.7
Do your family have history of breast cancer?	Yes	32	13.1
	No	213	86.9
First-degree relatives' history of breast cancer	Yes	8	3.3
	No	237	96.7
Second-degree relatives' history of breast cancer	Yes	30	12.2
	No	215	87.8

Table 2: Frequency and percentage of knowledge about risk factors and sign and symptoms of breast cancer (n=245)

Item	Variable	Frequency (n)	Percentage (%)
Increase in age	Yes	215	87.8
	No	30	12.2
High fat diet	Yes	197	80.4
	No	48	19.6
Smoking	Yes	209	85.3
	No	36	14.7
Working class women	Yes	85	34.7
	No	160	65.3
Alcohol consumption	Yes	202	82.4
	No	43	17.6
First child at late age	Yes	143	58.4
	No	102	41.6
Early onset of menarche	Yes	129	52.7
	No	116	47.3
Late menopause	Yes	127	51.8
	No	118	48.2
Stress	Yes	190	77.6
	No	55	22.4
Larger breast	Yes	103	42.0
	No	142	58.0

Lump in the breast	Yes	238	97.1
	No	7	2.9
Discharge from the breast	Yes	237	96.7
	No	8	3.3
Pain or soreness in the breast	Yes	233	95.1
	No	12	4.9
Change in size of breast	Yes	214	87.3
	No	31	12.7
Discoloration/dimpling of the breast	Yes	235	95.9
	No	10	4.1
Ulceration of the breast	Yes	231	94.3
	No	14	5.7
Weight loss	Yes	188	76.7
	No	57	23.3
Changes in the shapes of breast	Yes	223	91.0
	No	22	9.0
Inversion/pulling in of nipple	Yes	205	83.7
	No	40	16.3
Swelling/enlargement of breast	Yes	238	97.1
	No	7	2.9
Lump under armpit	Yes	229	93.5
	No	16	6.5
Scaling/dry skin in nipple region	Yes	194	79.2
	No	51	20.8

Table 3 demonstrated the level of knowledge on risk factors and signs and symptoms of breast cancer with majority of the participants (98.0%) having above average level of knowledge.

Table 3: Level of knowledge on risk factors and sign and symptoms of breast cancer (n=245)

Level of knowledge	Frequency (n)	Percentage (%)
Below average (0-11)	5	2.0
Above average (12-22)	240	98.0

Level of knowledge on breast self-examination (BSE)

According to **Table 4**, 77.1% participants reported that BSE is performed by the technique of palpate with palm and minimum of 3 fingers and 5.3% reported that BSE is performed by palpate using a finger only.

However, there are 17.6% participants reported that they do not know how to perform BSE.

Table 5 demonstrated the level of knowledge on BSE among female students in IIUM Kuantan. The findings shows that majority of the participants (98.0%) having above average level of knowledge regarding BSE.

Table 4: Frequency and percentage of knowledge on breast self-examination (BSE) (n=245)

Item	Variables	Frequency (n)	Percentage (%)
Have you ever heard of breast cancer?	Yes	241	98.4
	No	4	1.6
Have you ever heard of BSE?	Yes	228	93.1
	No	17	6.9
BSE is necessary	Yes	244	99.6
	No	1	0.4
Breast cancer can be detected early	Yes	240	98.0
	No	5	2.0
Early detection can improve the chance of survival	Yes	240	98.0
	No	5	2.0
How is a BSE done?	Palpate with one finger	13	5.3
	Palpate with palm and minimum 3 fingers	189	77.1
	I do not know	43	17.6

Table 5: Level of knowledge on breast self-examination (BSE) (n=245)

Level of knowledge	Frequency (n)	Percentage (%)
Below average (0-3)	5	2.0
Above average (4-6)	240	98.0

Practice on breast self-examination (BSE)

The finding in **Table 6** showed that 31.0% participants had never performed BSE before and the main reasons for it are lack of knowledge (35.1%), forgetfulness (33.9%) and negligence (21.6%). Majority of the participants only perform BSE sometimes or when comes to mind (65.3%). Around 26.1% participants perform BSE once in their life and 8.6% participants perform BSE regularly for every month. About 18.8% and 36.3% participants reported that they do not know what they need to look for while performing BSE and the technique that use to perform BSE, respectively. There are 9.4% participants reported that have discover a lump during performing BSE and majority of them reported consulting a doctor as the immediate result (73.9%).

Table 6: Frequency and percentage of practice on breast self-examination (BSE) (n=245)

Items	Variables	Frequency (n)	Percentage (%)
Have you ever performed BSE?	Yes	169	69.0
	No	76	31.0
Reasons for not performing BSE	Negligence	53	21.6
	Forgetfulness	83	33.9
	Lack of knowledge	86	35.1
	Others	23	9.4
How often do you perform BSE?	Once in my life	64	26.1
	Sometimes/when it comes to mind	160	65.3
	Regularly, every month	21	8.6

When did you start BSE?	Age < 20	75	30.6
	Age 20	48	19.6
	Age > 20	122	49.8
When do you perform BSE?	Before menstruation	32	13.1
	During menstruation	17	6.9
	After menstruation	75	30.6
	When there is a complaint	75	30.6
	Others	46	18.8
What are you looking for while performing BSE?	Change in the colour of the skin	3	1.2
	Shape and size of breast(mass)	44	18.0
	Direction of nipples and discharge from nipples	12	4.9
	All	140	57.1
	I do not know	46	18.8
Which technique are you using during BSE?	Vertical strip technique	5	2.0
	Circular technique	94	38.4
	Wedge technique	1	0.4
	All	56	22.9
	I do not know	89	36.3
Have you ever discovered a lump?	Yes	23	9.4
	No	222	90.6
What was your immediate action?	Consult relative	51	20.8
	Consult to a doctor	181	73.9
	Use traditional medicine	3	1.2
	Goes to prayer house	10	4.1
Have you had breast exam by a doctor?	Yes	31	12.7
	No	214	87.3
Have you ever had mammography?	Yes	13	5.3
	No	232	94.7
Do you take oral contraceptive drug or hormone replacement therapy?	Yes	9	3.7
	No	236	96.3

DISCUSSION

Menarche is the occurrence of first menstrual period in a female adolescent and occurs when the uterine endometrial lining that occurs during the ovulation do not fertilise. It occurs approximately every 28 days for the women. The average age of onset of menarche is 12.4 years and it may difference with ethnic or racial background. However, the study also reported that the menarche generally considered early if it occurs before 9 years old and late if it occurs at or after 15 years old (11). In Asia, the mean menarche age was reported to be 12.4 years in Hong Kong, 12.6 years in Japan and 12.5 years in Thailand and 12.3 years in Malaysia. This study also revealed that the median age of menarche of non-Malay adolescent was earlier than Malay adolescent (12). Majority of the participants in this current study reported to have their period before the age of 15 years old (89.4%). The adolescent that had their menarche less than 9 years old or more than 16 years old have been associated with the increased risk to get chronic health disorders such as cardiovascular disease, type 2 diabetes, breast cancer and endometrial cancer. Breast cancer commonly affect the adolescent that have early age at menarche. This may happen due to the length of time between menarche and menopause, which provides a crude indicator of lifetime oestrogen exposure that may lead to the disease development (13).

Another important indicator for women's health is the regularity of menstruation cycle.

There are no clear association between irregular menstrual pattern and breast cancer risk, however, women who consistently reported irregular cycles at ages 18 to 22 had a non-significant 35.0% increased risk of developing breast cancer. The study also reported that benign breast cancer is usually characterised by irregular menstrual cycles and is more common happened during the menopause. It is also reported that the irregular cycles will cause cystic disease in the breasts and ovaries (14). In this study, majority of the participants having regular menstrual cycle (79.6%), however there 20.4% participants reported not having regular menstrual cycle. Other important risk factor for breast cancer is family history with 13.0% to 19.0% of women diagnosed with breast cancer have an affected first-degree relative (15). Participants in this study reported of having family history of breast cancer (13.1%) with 3.3% are first-degree relative and 12.2% are second-degree relative.

The risk factors for breast cancer that has been identified are age at menarche, age at first full term pregnancy, parity, age at menopause, obesity, number of menstrual cycles, hormone replacement therapy, early oral contraceptive use, breast size, preeclampsia, breast density, physical activity, night shift work, radiation exposure, tobacco use, alcohol use, and family history (14). Moreover, another study demonstrated that age at menarche, and age at first baby birth, smoking and family history of cancer were significant risk factors associated with development of breast cancer among women in Afghanistan (16). Previous study also reported that age is the most important known risk factor for breast cancer because the age more than 50 years was associated with the incidence rate of breast cancer. High fat diet is also the risk factors of developing breast cancer especially with the increase in total consumption of meat. Active smoking in postmenopausal women and prenatal smoking are also associated with an increased risk of developing breast cancer. In addition, spouses' exposure to passive smoking is a risk factor for developing breast cancer. The working-class women also associated with an increased moderate risk of developing breast cancer and this connection is stronger in women who have been working for more than 20 years. The working women that need to do overnight work will have direct exposure to artificial light

at night that cause the level of melatonin to be reduced and thereby, increase the risk of developing breast cancer (17).

The results of the European Prospective Investigation into Cancer and Nutrition (EPIC) that time of alcohol consumption able to affect the risk of developing breast cancer and the risk of developing breast cancer is higher among those who consume alcohol before the first full-term pregnancy. The first child at the late age may associated with an increased risk of developing breast cancer. The findings of the study also indicated that younger age during menarche increases the risk of breast cancer by two times. Other than that, the age of menopause over 50 years is associated with an increased risk of breast cancer. The family history of breast cancer is also one of the major risk factors that has been mentioned in various studies. The larger breast has high amount of total dense tissue in the breast has been described as an independent risk factor for breast cancer (17). Participants in this current study have knowledge that increase in age (87.8%), high fat diet (80.4%), smoking (85.3%), alcohol consumption (82.4%), stress (77.6%) first child at late age (58.4%), early onset of menarche (52.7%) and late menopause (51.8%) are some of the risk factors of breast cancer. However, there are participants who do not know that working class women (65.3%) and larger breast (41.8%) are also the risk factors of breast cancer.

There are few common signs and symptoms that will experience by the women diagnosed with breast cancer with breast lump as the most common symptom, recorded in about four-fifths of all women (83.0%). The next most reported presenting symptoms were nipple abnormalities that included the inversion or pulling of nipple and scaling at the nipple region. The women diagnosed with breast cancer may experience breast pain or soreness, changes in size and shape of breast and swelling of their breast. Their breast skin also may get abnormalities such as discoloration, dimpling, ulceration and discharge from the breast. The women may also have weight loss as the signs and symptoms of breast cancer (18). In this present study, majority of the participants agreed that lump in the breast (97.1%), discharge from the breast (96.7%), pain or soreness in the breast (95.1%), change in size

of breast (87.3%), discoloration or dimpling of the breast (95.9%), ulceration of the breast (94.3%), weight loss (76.7%), changes in the shapes of breast (91.0%), inversion or pulling in of nipple (83.7%), swelling or enlargement of breast (97.1%), lump under armpit (93.5%) and scaling or dry skin in nipple region (79.2%) are the symptoms of breast cancer.

In this study, most of the participants (98.0%) have high level of knowledge on risk factors and signs and symptoms of breast cancer. Moreover, the study that have been done in university in North-West Ethiopia among health science undergraduate students also reported that 85.3% participants also have good knowledge on risk factors and 75.3% participants have good knowledge on signs and symptoms of breast cancer which may contributed by their background in the health science study (9). In contrast, another study that conducted among women in India between 18 to 55 years old revealed that only 49.0% participants aware on the risk factors, signs and symptoms of breast cancer (19). Therefore, in this study, it is clearly shown that majority of the students have good knowledge on the risk factors, signs and symptom of breast cancer because of the background study of the participants which is health sciences students. Although majority of the participants in this study have good level of knowledge regarding the risk factors, signs and symptoms of breast cancer, there are only few participants that aware the risk factors of breast cancer are working class women (34.7%) and larger breast (42.0%). The study among health science undergraduate students in Nigeria also revealed that the participants do not aware that working class women (42.1%) and larger breast (37.9%) are also the risk factors of breast cancer (9).

Most of the students (98.4%) have heard about breast cancer and 93.1% have heard about BSE. This is clearly indicated that the participants are aware regarding the breast cancer and BSE. A study conducted among Malaysian women in housing areas that located in two states which are Selangor and Penang reported that majority of the participants have heard about breast cancer (88.8%) and BSE (78.4%) (20). Furthermore, the study from a university in Malaysia also reported that 86.5% participants had heard or read about breast cancer and

95.5% participants reported having knowledge about BSE (21). In this present study, majority of the students agreed that BSE is necessary (99.6%) and early detection of breast cancer can improve the chance of survival among the patients (98.0%). There are 77.1% participants know the correct technique to perform BSE which is by using the techniques of palpation with their palm and using minimum 3 finger while performing BSE, which might be due to the study background of the students in the health sciences field. However, 17.6% participants reported of not knowing how to perform BSE which is quite alarming. Limited knowledge about the realities of breast cancer, lack of knowledge about the importance of BSE and how it is performed are some of the main barriers for not practicing BSE (22).

The practice on BSE is very importance because it is an early effective diagnostic method in detecting breast cancer which are very simple, low cost and do not need any tool with only around 5 minutes to be done (23). BSE is very importance as it will make women familiar with both the appearance and the feel of their breasts and to help women to detect any changes in their breasts as early as possible. The women who practice BSE monthly with the right technique are capable to detect a lump in the early stage of the cancer development and the early diagnosis has been reported to influence early treatment and yield a better survival rate (23). BSE can be performed every month during the 5 to 7 days after the end of menstruation and menopause women can perform BSE on the same date for every month. According to the guidelines by Malaysia's Ministry of Health (2019), BSE can be performed by doing the inspection for both breast in front of the mirror with the upper part of the body exposed for inspection of any changes on the shape, size, nipple, and the skin dimpling at the breast area. Then, the breast needs to be palpate with three fingers without lifting the hands by using the methods of circular, vertical strips, and pie wedge (24).

The findings of this study revealed that majority of the participants (69.0%) participants have performed BSE (69.0%) and only 8.6% performed BSE regularly for every month. Previous study conducted among women in Malaysia reported that only 48% participants practiced BSE and 47.2% participants practiced

BSE on monthly basis (20). Another study that has been conducted among female primary healthcare workers in Turkey also revealed that 92.6% of the participants performed BSE, but there are only 30.1% participants who performed BSE regularly (8). This clearly shows that the participant performing BSE is still low even with high level of knowledge regarding the breast cancer and BSE.

In this study, most of the participants reported that the reasons for not performing BSE are lack of knowledge (35.1%), forgetfulness (33.9%) and negligence (21.6%). Another study conducted among female primary healthcare worker in Turkey reported that the main reasons for not doing BSE was mainly due to negligence (60.8%), forgetfulness (23.5%) and followed by lack of knowledge (14.7%) (8). Moreover, the findings indicate that only 30.6 % participants aware that they need to perform BSE after menstruation and meanwhile, 30.6 % participants reported that they only perform BSE when there are any complaints. In addition, some participants reported that they use circular technique (38.4%) meanwhile some of the participants reported that they used vertical strip (2.0%) and wedge technique (0.4%). Only 22.9% participants knew that they need to use all techniques in performing BSE. However, 36.3% participants reported of not knowing which technique used to perform BSE which can be a concern. This manifest that the participants of this study do not aware with the right technique of performing BSE. Another study among health science undergraduate students in Nigeria also reported that the highest percentage for the technique of performing BSE is circular technique (36.7%) (9).

Majority of the participants aware that they need to look for changes in the colour of the skin, shape and size of the breast, direction, and discharge from the nipple (57.1%). However, there are still some of participants that do not know what they need to look while performing BSE (18.8%). Previous study also reported 68.3% participants know what they need to look while performing BSE and 5.8% participants reported do not know what they need look (9). The findings in this study also showed that some of the participants have found lump while doing the BSE (9.4%) and 12.7% participants have experienced of breast examination by the doctors. It indicates that the

participants are able to practice BSE with the right technique as they able to find the lump by themselves. The participants are also aware that BSE is very important tool that they can use as the early detection of breast cancer.

Although most of the participants reported consulting a doctor as the immediate action upon discovering a lump (73.9%), there are some participants that will consult their relatives as their immediate action upon discovery of the lump (20.8%) and 4.1% reported that they choose to go to the prayer house. There are also 1.2% participants reported that they will use the traditional medicine. Similarly, previous study also reported that some of the participants choose to consult relative if they found a lump (28.0%) meanwhile only minority choose to use traditional medicines and goes to prayer house as their action upon discovering a lump in their breast (9). The actions might happen due to the lack of information regarding the symptoms that they have and followed by the fear to the treatment when consulting doctors. The utilization of traditional medicine for treatment may lead by uncomfortable feeling to discuss on the medical problems and fear of lacking in confidentiality in handling health information (17). The individuals may also fear of possible misdiagnosis and lack of time to see a physician as their reasons for using the traditional medicines. Despite that, if a women discovered a lump in her breast, it is very important for the women to go consult with the doctors instead of consulting relative or use traditional medicine which may worsen the symptoms. This is because doctors will be able to clarify the breast changes as most breast lumps are only benign (23).

CONCLUSION

The finding from this study demonstrated the high level of knowledge regarding breast cancer and BSE among the female students in IIUM Kuantan. Despite that, the practice of BSE is still low in terms of the regularity of it and the correct technique to perform it. Therefore, it is recommended to create awareness on how to perform BSE and its importance to ensure that the young women will be able to practice BSE regularly. Consequently, the detection of breast cancer can be diagnosed earlier and thus, have a greater chance of survival.

CONFLICT OF INTEREST

The authors have no conflict of interest to declare with regard to this work.

REFERENCES

1. Kumaran, M. (2020). Breast Cancer Awareness 2020 | DTAP Clinics Malaysia. DTAP Clinic @Kuala Lumpur. Retrieved from https://drtanandpartners.com.my/breast-cancer-awareness-malaysia/.

2. Abdullah, N. A., Wan Mahiyuddin, W. R., Muhammad, N. A., Ali, Z. M., Ibrahim, L., Ibrahim Tamim, N. S., Mustafa, A. N., & Kamaluddin, M. A. (2013). Survival rate of breast cancer patients in Malaysia: a population-based study. Asian Pacific journal of cancer prevention: APJCP, 14(8): 4591–4594. https://doi.org/10.7314/apjcp.2013.14.8.4591

3. International Agency for Research on Cancer. (2020). Breast digital atlas - Breast Self-Examination (BSE). Retrieved from https://screening.iarc.fr/breastselfexamination.php

4. Henderson, J., Duffee, D., & Ferguson, T. (2020). Breast Examination Techniques. Ncbi.nlm.nih.gov. Retrieved from https://www.ncbi.nlm.nih.gov/books/NBK459179/

5. Azizah AM, Nor Saleha IT, Noor Hashimah A, Asmah ZA, Mastulu W. (2019). Malaysian National Cancer Registry Report 2012–2016. Retrieved from: https://www.moh.gov.my/moh/resources/Penerbitan/Laporan/Umum/2012-2016%20(MNCRR)/MNCR_2012-2016_FINAL_(PUBLISHED_2019).pdf

6. Breast Cancer Welfare Association. (2020). How To Do BSE? Look and Feel Technique - Breast Cancer Welfare Association. Retrieved from https://www.breastcancer.org.my/about-breast-cancer/being-breast-aware/how-to-do-bse-look-and-feel-technique/

7. Raja Gopal, R., Md Isa, Z., Daud, W., Nurumal, M., & Syed Zakaria, S. (2014). Knowledge, attitude and practice of breast self- examination among nurses in tertiary hospitals in Malaysia. Malaysian Journal of Public Health Medicine, 14(3): 54-62.

8. Erdem, Ö., & Toktaş, İ. (2016). Knowledge, Attitudes, and Behaviors about Breast Self-Examination and Mammography among Female Primary Healthcare Workers in Diyarbakır, Turkey. BioMed research international, 2016, 6490156: 1-6. https://doi.org/10.1155/2016/6490156

9. Tewabe, T., & Mekuria, Z. (2019). Knowledge and practice of breast self-examination among undergraduate student in Bahir Dar University, North-West Ethiopia, 2016: A cross-sectional study. Journal of Public Health In Africa, 10(805): 31-34. https://doi.org/10.4081/jphia.2019.805

10. Nimir, A. R., Al-Dubai, S. A., Alshagga, M, A., & Saliem, A. M. (2014). Knowledge and practice of breast self-examination among students in a private higher learning institution in Malaysia. Malaysian Journal of Public Health Medicine, 14 (3): 47-53.

11. Lacroix, A. E., Gondal, H., & Langaker, M. D. (2021). Physiology, Menarche. StatPearls (Internet). Treasure Island (FL): StatPearls Pubslising. Retrieved from https://www.ncbi.nlm.nih.gov/books/NBK470216/#_article-24954_s11_

12. Zainuddin, A. A., Siti Nazirah, M. S., Lee, M. W., Kamaruzaman, S. A. R., Goh, K. S., Saiful Islam, A. H., et al. (2018). The Puberty Profile of Female Adolescents in Cheras, Malaysia. Journal of Health and Translational Medicine, 21(2): 64-69.

13. Pal, L., & Taylor, H. S. (2018). Role in Reproductive Biology and Reproductive Dysfunction in Women. Academic Press, 783-795.

14. Olsson, H. L., & Olsson, M. L. (2020). The Menstrual Cycle and Risk of Breast

Cancer: A Review. Frontiers in oncology, 10(21): 1-4. https://doi.org/10.3389/fonc.2020.00 021

15. Shiyanbola, O. O., Arao, R. F., Miglioretti, D. L., Sprague, B. L., Hampton, J. M., Stout, N. K., Kerlikowske, K., Braithwaite, D., Buist, D., Egan, K. M., Newcomb, P. A., & Trentham-Dietz, A. (2017). Emerging Trends in Family History of Breast Cancer and Associated Risk. Cancer epidemiology, biomarkers & prevention: a publication of the American Association for Cancer Research, cosponsored by the American Society of Preventive Oncology, 26(12), 1753–1760. https://doi.org/10.1158/1055-9965.EPI-17-0531

16. Baset, Z., Abdul-Ghafar, J., Parpio, Y. N., & Haidary, A. M. (2021). Risk factors of breast cancer among patients in a tertiary care hospital in Afghanistan: a case control study. BMC Cancer, 21(71): 1-9.

17. Momenimovahed, Z., & Salehiniya, H. (2019). Epidemiological characteristics of and risk factors for breast cancer in the world. Breast cancer (Dove Medical Press), 11, 151–164. Retrieved from https://doi.org/10.2147/BCTT.S1760 70

18. Koo, M. M., Wagner, C. v., Abel, G. A., McPhail, S., Rubin, G. P., & Lyratzopoulos, G. (2017). Typical and atypical presenting symptoms of breast cancer and their associations with diagnostic intervals: Evidence from a national audit of cancer diagnosis. National Center for Biotechnology Information, U.S. National Library of Medicine, 140–146.

19. Prusty, R. K., Begum, S., Patil, A., Naik, D. D., Pimple, S., & Mishra, G. (2020). Knowledge of symptoms and risk factors of breast cancer among women: a community-based study in a low socio-economic area of Mumbai, India. BMC women's health, 20(106): 1-12. Retrieved from https://doi.org/10.1186/s12905-020-00967-x

20. Al-Naggar, R. A., Bobryshev, Y. V., & Al-Jashamy, K. (2012). Practice of Breast Self-Examination Among Women in Malaysia. Asian Pacific Journal of Cancer Prevention, 13(8): 3829-3833.

21. Akhtari-Zavare, M., Juni, M. H., Said, S. M., & Ismail, I. Z. (2013). Beliefs and behavior of Malaysia undergraduate female students in a public university toward breast self-examination practice. Asian Pacific journal of cancer prevention: APJCP, 14(1): 57–61. https://doi.org/10.7314/apjcp.2013.1 4.1.57

22. Birhane, K., Alemayehu, M., Anawte, B., Gebremariyam, G., Daniel, R., Addis, S., Worke, T., Mohammed, A., & Negash, W. (2017). Practices of Breast Self-Examination and Associated Factors among Female Debre Berhan University Students. International journal of breast cancer, 2017, 8026297: 1-6. https://doi.org/10.1155/2017/802629 7

23. Ayed, A., Eqtait, F., Harazneh, L., Fashafsheh, I., Nazzal, S., & Talahmeh, B. et al. (2015). Breast Self-Examination in Terms of Knowledge, Attitude, and Practice among Nursing Students of Arab American University/Jenin. Journal of Education and Practice, 6(4): 37-47.

24. Ministry of Health, Malaysia (2017). Early detection of common cancers module for health care providers. (p. 1). Putrajaya: early detection of common cancers module for health care providers. Retrieved from https://www.moh.gov.my/moh/reso urces/Penerbitan/Rujukan/NCD/Ka nser/EARLY%20DETECTION%20OF %20COMMON%20CANCERS%20MO DULE%20FOR%20HEALTH%20CAR E%20PROVIDERS.pdf