

Awareness about breast cancer risk factor and breast self-examination among female students at Taif university

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ABSTRACT

The aim of this research is to determine the level of understanding of risk factors, signs symptoms, and breast self-examination for breast cancer. A cross-sectional survey was used by female students at Taif university in Saudi Arabia. The target demographic was female undergraduate students aged between 18-25. The data collection was performed using an online questionnaire between January 2020 and February 2020. The questionnaire consisted of three sections: demographic details of the participants, knowledge of and experience of BSE and knowledge of breast cancer, its risk factors, and information source. Data was analyzed by descriptive statistics and chi-square research carried out by Pearson.

The result of this study indicates that participants who knew the proper way to self-examine the breast were (56.9%), while (43.1%) did not. The majority of the sample (77%) did not do breast self-examination, the highest reason was that they didn't know the way (29.6%), while (28.8%) didn't care. (75.5%) thought that the best time for a breast self-examination was 5 days after menstruation ended. Knowledge of risk factors; the family history factor was the highest (72.2%) and incomplete pregnancy period was the lowest (85.6%). The major source of being informed about breast cancer was awareness campaigns (55.23%), followed by social media (51.67%). From the previous results we concluded that knowledge about BSE was relatively good, while breast cancer risk factor awareness was relatively low, so increasing the awareness through social media and awareness campaigns is essential for early detection and treatment of breast cancer.

Keywords: Breast cancer, Risk factors, Breast Self-Examination (BSE), Taif University

Introduction

In Saudi Arabia, breast cancer is considered as one of the most dangerous causes of decease among women [1-3]. Most young women in Saudi Arabia have little information about breast cancer risk factors and breast self-examination [4]. More than ten thousand cases of breast cancer were newly diagnosed among Saudi women in 2020 [5].

The outbreak of breast cancer in Saudi women is 21.8%. The new Saudi women's cancer-related mortality survey found breast cancer to be the ninth main cause of death [4, 6]. Al-Qahtani estimates that the second most prevalent malignancy

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among Saudi women is breast cancer [7]. Ibrahim *et al.* reported that breast cancer rates are expected to increase in Saudi Arabia over the next few decades as the population rises and ages. In Saudi Arabia, about 930 new cases of breast cancer are diagnosed each year, according to the King Faisal Specialist Hospital and Research Centre's Saudi Cancer Registry. In 2010, 1,473 (27.4 percent) of Saudi Arabia's 5,378 cancer diagnoses were for breast cancer, making it the most prevalent newly diagnosed cancer among women [8, 9].

An important aspect of ensuring early intervention treatment is the early detection of breast cancer. Therefore, early diagnosis will decrease the death rate and boost the success of the operation. Several factors, including insufficient knowledge of risk factors for breast cancer, are due to late detection of the disease [10].

Altering or avoiding key risk factors and applying evidence-based prevention strategies can prevent between 30% and 50% of cancer deaths. Prevention also is the foremost effective strategy for the control of cancer [11]. Many young Saudi women in Saudi Arabia have little information of risk factors for breast cancer including family background, hormonal treatment, no breastfeeding, and menarche age [12]. Young university students with ample awareness of risk factors can help reduce the occurrence of breast cancer, improving the likelihood of survival in themselves and their families [13].

Techniques used for early breast cancer diagnosis are Breast Self-Examination (BSE), clinical breast examination, and mammography; (BSE) is a check-up performed by a woman at home to search for changes or complications that affect the breast tissue. BSE is still suggested as a general approach to enhance breast health awareness and thus potentially allows early diagnosis of any abnormalities as it is safe, painless, and easy to perform [14, 15].

The purpose of this study was to determine the knowledge and level of awareness of female students in Taif University about risk factors of breast cancer and the awareness of breast self-examination.

Materials and Methods

Study Design, Sampling, and Population

A cross-sectional study was designed to examine breast cancer awareness, breast cancer risk factors, and BSE among female students at KSA's Taif University. The target group was female undergraduate students aged between 18-25 years. Female students younger than 18 and older than 25 years of age were excluded from the analysis, the sample size was determined using the Steven K. Thompson equation for sample size calculation as 478 female students were allocated using a purposeful sampling approach to female students who accepted to take part in the research. 800 responses were obtained in total.

Data Collection

For this study, a questionnaire was built based on the questionnaires applied in similar earlier researches carried out in KSA (2019) as displayed in **Table 1**.

The questionnaire consisted of three sections: (Section 1); demographic details of the participants (Section 2); knowledge of and BSE practice (Section 3); awareness of breast cancer, its risk factors, 2 and information source.

Table 1. The Study Questionnaire

Section 1: Demographic details of the participants	
	Age
	Marital status
Section 2: Knowledge of and BSE practice	
	Do you know the proper way to self-examine the breast?
	When did you do your last breast self-examination? If your answer never why?
	Are you ready to do a regular breast self-examination?
	Do you think self-examination helps detect breast cancer early?
	When is the best time for a breast self-examination?
Section 3: Awareness of breast cancer, its risk factors, and information source	
	Do you think that family history (genetics) has a role in breast cancer?
	Do you think that radiotherapy has a role in breast cancer?
	Do think that hormone therapy has a role in breast cancer?
	Do you think that the use of deodorant products has a role in breast cancer?
	Do you think that smoking has a role in breast cancer?
	Do you think that lack of physical activity has a role in breast cancer?
	Do you think that extra weight has a role in breast cancer?
	Do you think that pregnancy after the age of 30 has a role in breast cancer?
	Do you think that not breast feed a child has a role in breast cancer?
	Do you think that an incomplete pregnancy period has a role in breast cancer?
	Do you think that breast cancer is related to wearing bras for long hours?
	Do you think that cosmetic breast implant is related to breast cancer?
	Do you think that high-density breast tissue can be related to breast cancer?
	Do you think that menopause at a later age can be related to breast cancer?
	What is the source from which you identified the disease?
	How do you rate the general awareness of society about breast cancer?
	What is your suggestion to increase the knowledge about breast cancer risk factors and breast self-examination?

It was between January and February 2020 that the data was collected, and included gathered demographic details (age, marital status). Twelve questions were asked to examine the awareness of risk factors of the participants and Eight questions regarding BSE knowledge. Subjects that responded thirteen or more than these 26 questions correctly were deemed informed; the participants who responded twelve or fewer questions correctly were regarded unfunded. The last section of the questionnaire evaluated the information of subjects about the aim of BSE, what is the source from which you identified the disease, e.g., "Voluntary programs, "social media," when BSE must be done (i.e., "before menstrual period, "any time"),

what are your recommendations for raising awareness of the risk reality of breast cancer?

BSE. BSE. Additionally, this segment examined whether subjects did BSE, why they did not perform BSE, how much BSE was done (for those who performed BSE), and whether subjects were sure that changes were observed in their breasts.

Data Analysis

Data was structured, coded, and tabulated after data collection and analyzed by SPSS version 25 (IBM Corp. Armonk, NY, USA), and Microsoft Office Excel. The statistical analysis contained descriptive statistics and chi-square studies carried out by Pearson. The significance was set at $p\text{-value} < 0.05$.

Ethical Considerations

Ethical approval was taken from the University of Taif Research Ethics Committee No. (41). Taking part in this research was free will, and approval was taken from all students who accepted to participate utilizing an online questionnaire. Participants obtained a fact sheet and a complete description of the study's intent. We were told their involvement would be anonymous, and there would be no compilation of information identifying them. All the collected data is kept secret and used only for study goals.

Results and Discussion

Characteristics of the Participants

Totally, 478 female students took part in the present research; all female students were from 15 to 25 years old, 443 (92.7%) were single, 31 (6.5%) were married, while 4 (0.8%), had another marital status (Table 2).

Table 2. Participants' Demographic Characteristics

Demographic characteristics	N	%
Age, years		
15 to 25 years	478	100.0
Marital status		
Single	443	92.7
Married	31	6.5
Other	4	0.8

Knowledge about Breast Cancer

The major origin of being informed about breast cancer was awareness campaigns with (55.23%), followed by social media such as Facebook, Twitter, and Instagram with (51.67%), followed by health professionals with 25.10%, followed by family and friends with 20.92% and finally books and magazines with 10.88% (Figure 1).

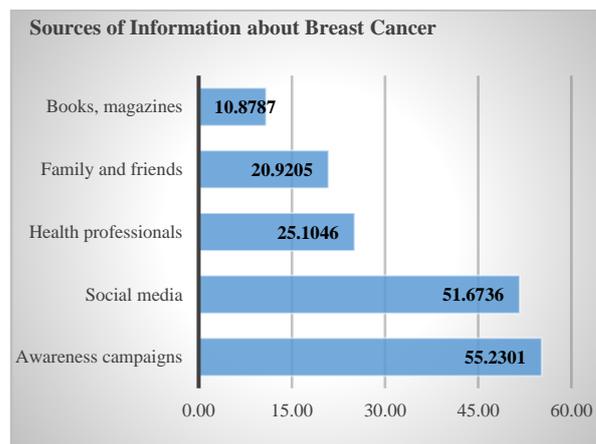


Figure 1. Sources of Information about Breast Cancer

As presented in Table 3, The highest percentage of participants 272 (56.9%) knew the proper way to self-examine the breast, while (43.1%) didn't. The majority of sample 368 (77%) did not do breast self-examination, the highest reason was that they did not know the way for 109 (29.6%) participants, while 106 (28.8%) did not care (Figure 2).

Table 3. Knowledge about Breast Cancer

Questions	Answers	N	%
Do you know the proper way to self-examine the breast?	No	206	43.1
	Yes	272	56.9
Are you ready to do a regular breast self-examination?	No	110	23.0
	Yes	368	77.0
Do you think self-examination helps detect breast cancer early?	No	50	10.5
	Yes	424	89.5
How do you rate the general awareness of society about breast cancer?	Little	81	16.9
	Medium	341	71.3
	Big	56	11.7
When is the best time for a breast self-examination?	5 days before menstruation	79	16.5
	During menstruation	38	7.9
	5 days after menstruation ends	361	75.5

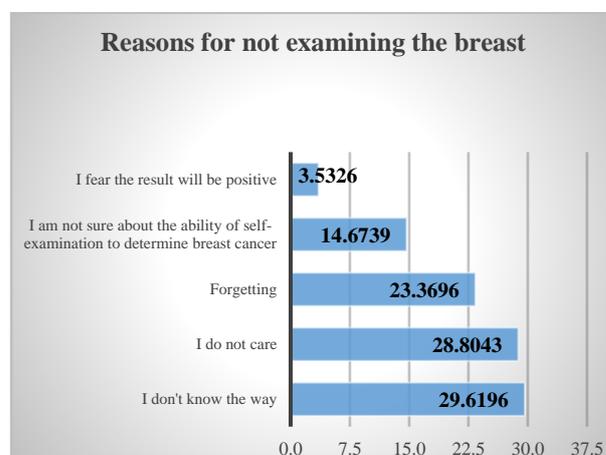


Figure 2. Reasons for Not Examining the Breast

368 (77%) were ready to do a regular breast self-examination; 424 (88.7%) thought that self-examination helped to diagnose breast cancer immediately, and 361 (75.5%) thought that the

best time for a breast self-examination was 5 days after menstruation ends. Finally, 341 (71.3%) rated the general awareness of society about breast cancer by medium.

Awareness of Breast Cancer Risk Factors, Signs/Symptoms, and Breast Self-examination

Factors most generally detected were a family background of breast cancer (72.2%), followed by (70.5%) for a cosmetic breast implant, followed by (66.9%) for smoking, (63%) for radiotherapy, (62.6%) for hormone therapy (Table 4).

Table 4. Awareness of Breast Cancer Risk Factors, Signs/Symptoms, and Breast Self-examination

Questions	Answers	N	%
Does family history (genetics) play a role in breast cancer?	No	133	27.8
	Yes	345	72.2
Does radiotherapy play a role in breast cancer?	No	177	37.0
	Yes	301	63.0
Does hormone therapy play a role in breast cancer?	No	179	37.4
	Yes	299	62.6
Does the use of deodorant products play a role in breast cancer?	No	298	62.3
	Yes	180	37.7
Does smoking play a role in breast cancer?	No	158	33.1
	Yes	320	66.9
Does lack of physical activity play a role in breast cancer?	No	228	47.7
	Yes	250	52.3
Does extra weight play a role in breast cancer?	No	228	47.7
	Yes	250	52.3
Does pregnancy after the age of 30 play a role in breast cancer?	No	335	70.1
	Yes	143	29.9
Do you know that absence of breastfeeding can lead to breast cancer?	No	194	40.6
	Yes	284	59.4
Does an incomplete pregnancy period play a role in breast cancer?	No	409	85.6
	Yes	69	14.4
Is wearing bras for long hours related to breast cancer?	No	307	64.2
	Yes	171	35.8
Is cosmetic breast implant-related to breast cancer?	No	141	29.5
	Yes	337	70.5
Are high-density breast tissue related to breast cancer?	No	231	48.3
	Yes	247	51.7
Is menopause at a later age-related to breast cancer?	No	304	63.6
	Yes	174	36.4

Association between Knowledge and Risk Factors for Breast Cancer

Chi-Square results show that there is a significant association with p -value < 0.05 , between the knowledge of the proper way to self-examine the breast and five of the risk factors: family history, hormone therapy, pregnancy age, absence of breastfeeding, and menopause age. The results also indicate that the higher is the knowledge of the way of breast examination, the more is the knowledge about risk factors for breast cancer. Otherwise, there is no significant association between

knowledge and other risk factors ($p > 0.05$) as displayed in Table 5.

Table 5. Association between Knowledge and Risk Factors for Breast Cancer

	Do you know the proper way to self-examine the breast?		Total	Chi-Square	P-value
	No	Yes			
Does family history (genetics) play a role in breast cancer?	No	77	56	133	16.456 0.000**
	Yes	129	216	345	
Does radiotherapy play a role in breast cancer?	No	82	95	177	1.197 0.159
	Yes	124	177	301	
Does hormone therapy play a role in breast cancer?	No	93	86	179	9.158 0.002**
	Yes	113	186	299	
Does the use of deodorant products play a role in breast cancer?	No	128	170	298	0.007 0.505
	Yes	78	102	180	
Does smoking play a role in breast cancer?	No	68	90	158	0.000 0.533
	Yes	138	182	320	
Does lack of physical activity play a role in breast cancer?	No	100	128	228	0.104 0.409
	Yes	106	144	250	
Does extra weight play a role in breast cancer?	No	107	121	228	2.612 0.064
	Yes	99	151	250	
Does pregnancy after the age of 30 play a role in breast cancer?	No	160	175	335	9.937 0.001**
	Yes	46	97	143	
Do you know that absence of breastfeeding can lead to breast cancer?	No	103	91	194	13.305 0.000**
	Yes	103	181	284	
Does an incomplete pregnancy period play a role in breast cancer?	No	176	233	409	0.005 0.523
	Yes	30	39	69	
Is wearing bras for long hours related to breast cancer?	No	140	167	307	2.198 0.083
	Yes	66	105	171	
Is cosmetic breast implant-related to breast cancer?	No	56	85	141	0.932 0.194
	Yes	150	187	337	
Is high-density breast tissue related to breast cancer?	No	101	130	231	0.072 0.430
	Yes	105	142	247	
Is menopause at a later age-related to breast cancer?	No	143	161	304	5.295 0.013*
	Yes	63	111	174	

*: Significant at .05; **: Significant at .01

Breast cancer is the utmost prevalent form of cancer among KS A women. Women in the KSA are expected to develop this disease, ten years sooner than women in the West. The knowledge of breast cancer includes the information about risk factors related to the disease as well as being conversant in the concept of screening [16].

Breast cancer knowledge and routine practice of BSE promote early diagnosis of breast cancer, thereby enhancing survivance opportunities and improving health outcomes [11].

Numerated researches have investigated breast cancer and BSE awareness among KSA university female students, and this research has been conducted among TAIF University female students. Our analysis offers valuable perspectives that will help resolve this information gap. We concluded that the majority of subjects (55.23 percent) had heard of breast cancer, the most popular source of information being awareness campaigns.

In this study, approximately 50% of the participants were familiar with breast cancer risk factors. The most usually reported risk factor was breast cancer family history (72.2 percent), followed by surgical breast-implant (70.5 percent), smoking (66.9 percent), radiotherapy (63 percent), and hormone therapy (62.6 percent).

A remarkable outcome in our sample was that few (23 percent) participants had BSE, and most of them seldom had BSE. The two most common reasons given by our study participants for not carrying out BSE were

"I don't know the way" and "I don't care."

A promising result of this research was that most students accepted to increase knowledge of breast cancer and BSE, with common awareness-raising approaches being free university-based training courses and more overall awareness campaigns.

In previous research, Ravichandran *et al.* (2011) revealed that more than two-

thirds of Saudi Arabian participants said they were unaware of any risk factors for breast cancer, and about two-thirds (65.2 percent) said unhealthy diet (19 percent), family history (9.7 percent), and emission

(9.5 percent) were risk factors for breast cancer [17].

Ghanem *et al.* (2011) reported that more than three-fourths (78 percent) of participants in Morocco believed that the recent consumption of oral contraceptive pills was a risk factor, while 76 percent recognized the

previous history of breast lump formation as a risk factor, and 35 percent believed that early puberty at an advanced age was a risk factor for breast cancer [18].

An investigation on knowledge and awareness among Malaysian women by AlDubai *et al.* (2011) found that 88 percent of respondents identified heredity and family history as risk factors for breast cancer, 67.2% recorded radiation exposure, 65.2% recorded smoking, 56.8% reported alcohol intake and 34.3% attributed breast cancer to underwire bra wearing, amount of births (92 percent), and menarche before age 11 (84.8 percent). According to Malaysian participants, menopause after age 50 (80%), without children (76.4%), child birth after age 30 (76%), aging (64.4%), taking contraceptive pills (66%), obesity (60%), and HRT (54.4%) are not known to be risk factors for breast cancer [19].

Sambanje and Mafuvadze (2012) found that among Angolan women, breast cancer family history was recognized by 55 percent of respondents as the famous risk factor for breast cancer. Food intake high in fat and low in fiber (39%), wearing tight bras (28%),

and getting a breast implant (26%) were identified as risk factors for breast cancer [20].

On the other hand, early puberty (58%), obesity (35%), increased use of oral contraceptives (25%), hormone replacement therapy (1%), and breastfeeding (8%) were not identified by non-medical university students in Angola as risk factors for breast cancer [9].

Conclusion

From the previous results, we concluded that the knowledge about BSE was relatively good, while breast cancer risk factor awareness was relatively low. This issue points to a necessity for immediate intermediations to increase information about breast cancer and BSE among female students at the Taif University. Collations with resembling researches performed in other countries show that the necessity to enhance information about breast cancer among female university students is probably to be pertinent universally. Female university learners must be more informed about breast cancer and patronized to do BSE periodically to find abnormalities in their breasts and diagnose breast cancer at a primary stage. Proper training intermediations, such as optional courses that include key perspectives of women's health, could be significant for female university students. Holding free BSE educational courses can also be an efficient method to increase knowledge. The presenter search created new knowledge and intuition about the awareness level about breast cancer and BSE among university learners, there with providing chances for more investigation. It is suggested that more studies are carried out in this domain using different ages from 18 up to 45 not only female students of Taif University but also female staff members.

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Conflict of interest: None

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