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RELATIONSHIP BETWEEN BREAST CANCER LITERACY AND AWARENESS ABOUT BREAST SELF-EXAMINATION AMONG FEMALE STUDENTS IN PUNJAB, PAKISTAN

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ABSTRACT

Pakistan has the highest incidence rate of breast cancer in Asia. Pakistani women are at an increased risk of developing breast cancer. This risk necessitates breast cancer health education and literacy for women. Women who are educated about the disease and have positive healthcare seeking behaviors can timely diagnose this disease. This can significantly reduce the mortality rate of breast cancer and the national burden of this disease. This study aims to conduct an empirical study to assess breast cancer literacy and attitude towards breast self-examination (BSE) among females studying at university level in Pakistan. For this purpose, a cross sectional survey was conducted in different universities of Multan, Lahore and Rawalpindi and 857 female students successfully completed the survey. Breast cancer literacy was measured through two constructs; knowledge about the symptoms of breast cancer and awareness about the risk factors of breast cancer. The respondents were also asked about the knowledge of BSE and the procedure of performing BSE. This study concluded that female university students had higher level of knowledge about the symptoms of breast cancer. The findings indicate that almost two-thirds of respondents replied that they had never performed BSE. More than half of the respondents also wanted to learn about BSE. The results indicate that there was a significant relationship (x^2 =5.633, p<.05) between knowledge about the symptoms of breast cancer and performing BSE at your own. Thus, there is a need to arrange workshops or seminars for female university students to train them on BSE.

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INTRODUCTION

The prevalence of breast cancer is increasing every year and is becoming the leading cause of mortality for female cancer patients. According to the World Health Organization, 2.3 million women were diagnosed with breast cancer in 2020, with 670,000 deaths (WHO, 2022). In the United States, a woman's

lifetime risk of being diagnosed with invasive breast cancer has increased since 1975 (DeSantis & Siegel, 2021). Till 2022, 4.1 million women were living with a history of breast cancer in the United States. Four percent of these women have metastatic cancer, and more than half were diagnosed with early-stage cancers (I-III) when they were first examined (Gallicchio et al., 2022). Similarly, one out of every eight women in North America and Western Europe is diagnosed with breast cancer, and one out of every thirty women dies from this disease (Okobia et al., 2006). These statistics clearly indicate that breast cancer is prevalent in every part of the world and affects both developed and developing nations (Dündar et al., 2006).

Breast cancer has emerged as a major health concern for Pakistani women as well. In Pakistan, 109 women die due to breast cancer every single day. A matter of grave concern is the fact that breast cancer accounts for more than 40,000 deaths each year, in addition to the 90,000 new cases that are diagnosed each year (Pink Ribbon, 2022). However, this information is insufficient as there is no national cancer registration system in the country (Noreen et al., 2015).

Breast cancer morbidity and mortality are primarily caused by a lack of knowledge about the symptoms and risk factors. The majority of Pakistani women are unaware of the disease's prevalence and severity. Our country also lacks health-care services, such as breast cancer screening. Only 9.5% of Pakistani female urban and 4.8% of Pakistani female rural populations undergo clinical screening due to a lack of resources and knowledge about breast cancer and its screening methods (Ahmed et al., 2018). Younger women, particularly those of childbearing age, have a faster progression of breast cancer than older women, resulting in a significantly lower survival rate (Rosenberg & Levy-Schwartz, 2003). This increase in mortality is primarily due to late diagnosis, which is caused by a lack of breast cancer knowledge and awareness (Karayurt, Özmen & Çetinkaya, 2008). Early breast cancer detection leads to more effective treatment, which improves prognosis and lowers mortality rates (Elmore et al., 2005).

In comparison to western nations, Asia still has a lower prevalence of breast cancer (Ahmadian & Samah, 2012). However, the proportional contribution to the global burden of breast cancer continues to rise in Asia. Pakistan has the highest incidence rate of breast cancer in Asia (Fitzmaurice et al., 2017). It is estimated that the incidence of breast cancer will rise from about 23.1% in 2020 to 60.7% in 2025. In comparison to 2020, the number of breast cancer cases diagnosed in younger women (30–34 years) will rise from 70.7% to 130.6% in 2025 (Zaheer et al., 2019). Besides these estimated numbers, there is no official record available at the state level because Pakistan does not have national disease registry system (Hanif et al., 2015). Thus, serious efforts are needed to bring awareness among the masses about the prevalence of this disease in Pakistan.

Multiple factors contribute to the high incidence rate of breast cancer (Khan et al., 2021). Knowledge about the symptoms of breast cancer is one of the leading factors (Sarwar & Saqib, 2017). The majority of Pakistani women are unaware of breast cancer symptoms, which contributes to the high prevalence of the disease (Soomro et al., 2018). Even young female university students are unaware of the disease's

early warning signs. (21) Hussain et al. (2021) conducted a national survey with female university students to investigate the level of awareness about breast cancer. They surveyed 774 participants through an online self-administered questionnaire. They found that Pakistani university students were poorly aware of breast cancer's signs and symptoms. According to their study, only one third of the respondents considered painless and palpable breast lump, painless mass under the armpit, and bleeding or discharge from the nipple as the early warning signs of breast cancer. In another study, Noreen et al. (2015) compared the knowledge and awareness of medical and non-medical university students studying at various universities in south Punjab. Their results reveal that non-medical university students had insufficient knowledge of breast cancer symptoms. Similar findings were also reported by Khokar, Qureshi and Mahmood (2011) in their study conducted with the students of higher education enrolled in different institutions in Lahore. Rasoolm et al. (2019) also noted that the university students did not recognize early warning signs of this deadly disease and did not consider it as life threating disease. It can be concluded that the majority of young and educated women do not have knowledge of early warning signs of breast cancer (Rafique, Waseem, & Sheerin, 2018; Masood et al., 2016). However, more empirical studies are needed to understand the factors behind this low level of knowledge among Pakistani women.

Aside from the ongoing rise in breast cancer cases, the majority of Pakistani women are still unaware of BSE (Khalid et al., 2018; Ahmed et al., 2018). BSE is inexpensive, simple, and does not necessitate specialized equipment or hospital visit. Furthermore, performing BSE on a regular basis accustoms women to the normal appearance and feel of their breasts, allowing them to detect any changes in their breasts as soon as they appear (American Cancer Society, 2008). Women can detect early symptoms and diagnose any malignancy on their own if they know how to perform BSE (Siapush & Singh, 2002). Therefore, BSE awareness and adherence pave the way for later-life clinical examination for breast cancer early detection (Rosenberg, & Levy-Schwartz, 2003). BSE practice becomes more valuable for Pakistani women as c health-care facilities, such as Mammography, are costly and limited (Heartfile, 2006). BSE awareness is not well documented in Pakistan, and when it is reported, the results are poor (Kiani et al., 2021). In addition, there is paucity of information about the factors that restrict women to perform BSE. Therefore, there is need to conduct an empirical investigate to investigate socio-cultural factors affecting adoption of BSE.

Pakistani women are at an increased risk of developing breast cancer. This risk necessitates breast cancer health education and literacy for women. Women who are educated about the disease and have positive healthcare seeking behaviors can timely diagnose this disease. This can significantly reduce the mortality rate of breast cancer and the national burden of this disease. Studies indicate that Pakistani young women have a greater chance of getting this type of cancer in their lifetime as compared to elderly women. This study aims to conduct an empirical study to assess breast cancer literacy and attitude towards BSE among females studying at university level in Pakistan.

MATERIAL AND METHODS

A cross-sectional survey was conducted in different universities of Multan, Lahore and Rawalpindi. 857 female students successfully completed the survey. The students were reached out following the purposive sampling technique. The students who were pursuing the degree in medical education were excluded from this study. The researchers took the informed consent before the data collection from the respondents. The students were asked to provide information about their age, monthly family income, living area, level of education and marital status. Breast cancer literacy was measured through two constructs; knowledge about the symptoms of breast cancer and awareness about the risk factors of breast cancer. The respondents were asked to identify early warning signs as symptoms of breast factors. Similarly, the respondents were asked to identify about the possible risk factors of breast cancer. Two questions were asked about BSE. The respondents were asked about the knowledge of BSE and the procedure of performing of BSE.

RESULTS

Of the 857 respondents, less than half of the respondents (27.2%) were enrolled in the BS (1-4th semester) while majority of the respondents (66.5%) were in BS (5TH-8TH). The participation of unmarried respondents was higher (87.7%) as compared to married respondents (10.9%). With regard to the place of residence, the majority (n = 624, 72.8 %) of respondents was living in urban area and 233 (27.2 %) respondents were living in rural areas. The average age of respondents was within 18 to 25 years. This study highlighted that average family income of respondents was up to 50,000 PKR, representing middle income families.

Table 1: *Socio-demographic characteristics of the respondents*

Variables	Frequency	Percent
Income		
Up to 50000	441	51.5
51000 to 100000	208	24.3
101000 to 150000	104	12.1
151000 to 200000	41	4.8
201000 to 250000	23	2.7
Above than 250000	40	4.7
Education		
BS (1-4th Semester)	233	27.2
BS (5TH- 8TH Semester)	570	66.5
MS and PhD	54	6.3
Living Area		
Rural	233	27.2
Urban	624	72.8
Marital Status		

Married	93	10.9
Unmarried	752	87.7
Separated/ Widow	12	1.4
Age		
18-25	757	88.3
26-35	59	6.9
36-45	33	3.9
46 and above	8	0.9

Table 2 summarizes respondent's awareness about the symptoms of breast cancer. The most common breast cancer symptoms were lumping or thickening of the nipple or breast skin (74.7%), lump or pain in the armpit (73.5%), change in shape of the breast (68%), lump in the breast without pain (65.2%), swelling of all or part of a breast (66.6%), redness or change in skin texture (62%), and constant itching in breast skin (60.4%). In addition, more than half of the respondents recognized warmth of one breast and change in the nipple shape as symptoms of breast cancer.

Table 2: *Knowledge about the symptoms of breast cancer*

Symptoms	Frequency	Percent
Lumping or thickening of the nipple or breast skin		
No	217	25.3
Yes	640	74.7
Swelling of all or part of a breast		
No	286	33.4
Yes	571	66.6
Change in breast shape		
No	274	32.0
Yes	583	68.0
Skin dimpling		
No	434	50.6
Yes	423	49.4
Lump or pain in the armpit		
No	227	26.5
Yes	630	73.5
Redness or change in skin texture		
No	320	37.3
Yes	537	62.7
Constantly itching breast skin		
No	339	39.6
Yes	518	60.4
Nipple discharge other than breast milk		

No	361	42.1
Yes	496	57.9
Nipple retraction (turning inward)		
No	441	51.5
Yes	416	48.5
Change in how the nipple looks		
No	359	41.9
Yes	498	58.1
Change in the direction of the nipple		
No	481	56.1
Yes	376	43.9
The warmth of one breast		
No	403	47.0
Yes	454	53.0
Lump in the breast without pain		
No	298	34.8
Yes	559	65.2

The main risk factors for the prevalence of breast cancer (Table 3) were family history of breast cancer (73%), exposure to toxic substances in food and water (68.5%), past history of breast lumps (64.6%), prior radiation to the chest or face area, and lack of physical activity (62.3%). They also acknowledged smoking and drinking alcohol (61%), age (58.5%), eating unhealthy food (58.9%), hormone therapy (52.5%), and dense breast (50.5%) as possible risk factors of breast cancer.

Table 3: Awareness about risk factors of breast cancer

Factors	Frequency	Percent
Age		
No	356	41.5
Yes	501	58.5
Dense Breast		
No	424	49.5
Yes	433	50.5
Early age of first period		
No	546	63.7
Yes	311	36.3
Hormone Therapy		
No	407	47.5
Yes	450	52.5
Under Weight		
No	456	53.2

Yes	401	46.8
Obesity		
No	504	58.8
Yes	353	41.2
Past history of breast lumps		
No	303	35.4
Yes	554	64.6
Family history of breast cancer		
No	231	27.0
Yes	626	73.0
Lack of physical activity		
No	323	37.7
Yes	534	62.3
Prior radiation to chest or face area		
No	311	36.3
Yes	546	63.7
No breastfeeding after having children		
No	381	44.5
Yes	476	55.5
Eating unhealthy food		
No	352	41.1
Yes	505	58.9
Smoking and drinking alcohol		
No	329	38.4
Yes	528	61.6
Exposure to toxic material in food and water		
No	270	31.5
Yes	587	68.5

BSE is a critical factor in the timely detection of breast cancer at earlier stages. In this study, the author asked the respondents that had they ever performed BSE. Almost two-thirds (63.2%) respondents replied that they had never performed BSE. More than half of the respondents (54.8%) also wanted to learn BSE.

Table 4: *Attitude towards BSE*

Variables	Frequency	Percent
Have you ever performed BSE		
No	542	63.2
Yes	315	36.8
You want to learn BSE		
No	101	11.8

Yes	470	54.8
Maybe	286	33.4

Table 4: *Association between attitude towards BSE and knowledge about the symptoms of breast cancer*

You have ever performed BSE	Knowledge about the symptoms of breast cancer		Total
	Low	High	
No	239	298	537
Yes	116	204	320
Total	355	502	857
	(x^2 =5.633, p<.05)		

Chi-square test was conducted to see the relationship between knowledge about the symptoms of breast cancer and performing BSE at your own. The results indicate that there was a significant relationship (x^2 =5.633, p<.05) between knowledge about the symptoms of breast cancer and performing BSE at your own.

CONCLUSION

The study found that young female university students had higher level of breast cancer literacy. Breast cancer literacy was assessed through knowledge of the symptoms of breast cancer and awareness about the risk factors of breast cancer. This study concluded that female university study had higher level of knowledge about the symptoms of breast cancer. They identified lumping or thickening of the nipple or breast skin (74.7%), lump or pain in the armpit (73.5%), change in shape of the breast (68%), lump in the breast without pain (65.2%), swelling of all or part of a breast (66.6%), redness or change in skin texture (62%), and constant itching in breast skin (60.4%) as the most common symptoms of breast cancer. Moreover, they identified family history of breast cancer (73%), exposure to toxic substances in food and water (68.5%), past history of breast lumps (64.6%), prior radiation to the chest or face area, and lack of physical activity (62.3%) as main risk factors for breast cancer. The findings indicate that almost two-thirds (63.2%) of respondents replied that they had never performed BSE. More than half of the respondents (54.8%) also wanted to learn about BSE. Based on these findings, it can be concluded that female university students were aware of early warning signs of breast cancer and possible risk factors. However, they did not know how to perform BSE, but they wanted to learn it. Therefore, there is a need to arrange workshops or seminars for female university students to train them on BSE.

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