ASSESSMENT OF KNOWLEDGE IN DELAYED DIAGNOSIS OF PATIETNS SUFFERING FROM BREAST CANCER IN PESHAWAR

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ABSTRACT

BACKGROUND: Breast cancer is when breast cells mutate and become cancerous cells that multiply and form tumors. Delay diagnosis increases mortality rate and poor prognosis.

OBJECTIVE: The aim was to study awareness regarding delayed diagnosis in breast cancer patients and seeking prompt medical consultation in case of any breast abnormalities such as mass, cyst or pain is the most effective preventive measure.

METHODOLOGY: A cross-sectional study was conducted at the Institute of Radiotherapy and Nuclear Medicine in Peshawar from December 2020 to August 2021. Data was collected non-probability convenience sampling technique through a pre-structured questionnaire. The inclusion criteria included the female patients diagnosed with breast cancer aged 20 to 70 years who were admitted to the Institute of Radiotherapy and Nuclear Medicine. Moreover, the data was analyzed through SPSS version 26. The sample size was calculated through the OpenEpi calculator with a 95 % confidence interval and a 5% margin of error. The Chi-square was applied the association was significant and P-value was < 0.05.

RESULTS: The total number of participants was N=226, the maximum participants (n=81, 35.8%) were in the fourth decade of life, followed by the (n=50, 22.1%) in the third decade. Lack of awareness caused a delay with n=92, 40.7% were unaware of their symptoms. A maximum number of participants n=90(40.4%) had taken more than 12 weeks to visit the doctor after encountering their first symptom. There was a strong association between the presentation of diagnosis and time interval with a p-value of 0.013. The significance of the study was to aware the women regarding the early symptoms of breast cancer and prevention.

CONCLUSION:The finding of the study showed that delayed diagnoses were because lack of awareness and unavailability of health care services.

KEY WORDS: Awareness, Breast cancer, Delay, Diagnosis, Factors, Radiotherapy, Suffering.

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INTRODUCTION:

Breast cancer is a disease of uncontrolled growth of cells in the breast, which often develop in the breast's fatty and connective tissues, most commonly in the lobules, which are milk-producing glands.[1] It is a major public health problem it is the most common cancer worldwide. Every year, one out of ten new cancer cases is diagnosed in women. It is also the leading cause of mortality in women worldwide. It is the second most common cancer after lung cancer. It affects both developed and under-developing countries.[2] The prevalence in developed countries is 55 % of the burden and the rates in developing countries are continually increasing. According to the Global Agency Research study, 11.6 % of cancer cases were reported in 18.1 million populations in 2018. In 2018, the age-standardized rate of breast cancer was diagnosed at 46.3/per 100,000. The rate in developed countries was 75.2 %, while the rate in developing countries was 32.8 %.[3] Breast cancer mostly affects 40% of those suffering now above 65, and this group accounts for nearly 60% of all breast cancer deaths. Breast cancer is usually expected to occur at a rate of 1/53 before the age of 49, rising to 1/43 for those aged 50–59 and 1/23 for those aged 60–69 years ago.[4,5] In Europe, 8-10% of women and half of the USA women were over 65 years old in 2005, and are known to be affected by breast cancer due to high life expectancy. These Asian countries have the lowest prevalence rate[6] Young women in Pakistan were more prone to developing breast cancer than women in the West, where the disease usually occurs after

the age of 60 years.[7,8] The age group of BC incidence in Pakistan females is around 50.1/100,000 per year.[9] Many factors delay the diagnosis of breast cancer, Lack of diagnostic resources, a lack of time to visit the doctor for timely follow-up, belief in spiritual healing, lack of education, lack of awareness, early-stage understanding of disease development, social-cultural factors that have not constructed to timely visit the doctor for a checkup, and lack of diagnostic resources are some factors to delay the Patient's breast cancer diagnosis.[10] Numerous factors, such as educational level, a lack of resources, and others, can contribute to the delayed discovery of breast cancer. Lack of understanding and information about the illness, its symptoms, and reproductive difficulties, as well as insufficient availability of mammography and breast cancer screening programs, all contribute to the issue. Ionizing radiation's damaging effects, a weakened immune system and the host's sensitivity are further considerations.[11]

Typically, there are two kinds of breast cancer detection delays (DL): (a) patient delay (PD), which refers to the period between first having symptoms and seeing a doctor, and (b) system delay (SD), which refers to the period of first consultation and definitive diagnosis or treatment. In developing countries such as Pakistan, females at higher risk of complications do not seek medical attention promptly. Pakistan's healthcare infrastructure is in poor condition, with rural residents losing access to basic healthcare facilities and screening services. Inadequate knowledge of the disease exacerbates the issue. Women are often unable to recognize their symptoms and are guided unrecognized by the false perception that a painful mass is benign.[12] Breast cancer is treated with surgery, chemotherapy, and radiation treatment. Mammography and biopsy have traditionally been used to create diagnoses in our country. To improve patient satisfaction, long diagnostic wait times can be reduced. Biopsies, appointments, surgeries, and patient-perceived long stays are just a few reasons for the system's delays in treating breast cancer.[13] These study's key objectives were to identify the demographic profile, to find out the reason for the delay in the diagnosis of breast cancer, and to know the health-seeking behavior of females regarding breast cancer.

METHODOLOGY:

This cross-sectional study was conducted at the Institute of Radiotherapy and Nuclear Medicine in Peshawar, Pakistan. The period of the study was from December 2020 to August 2021, despite that data collection was started through a pre-structured questionnaire after approval of the ethical review board of Khyber Medical University Peshawar, Pakistan. The author of the questionnaire was contacted through email and he gave his permission to use the questionnaire. The first section of the questionnaire asked about the patient's various demographics). The second section explains (the patient's related factors). Data was collected through a Non-probability convenience sampling technique. The sample size was calculated through an open-Epi calculator, confidence interval and margin of error were kept at 95% and 5% respectively Female patients aged 20 to 70 years who were admitted to the wards, were provided doctor follow-up, and arrived for day-care chemotherapy with the diagnosis of breast cancer diagnosis permitted to be included in the study. All the women who suffer from breast cancer aged less than 20 years and above & more than 70 years and Patients from Afghanistan who were diagnosed with breast cancer and are receiving chemotherapy are excluded. Patients with mental illnesses, male breast cancer, and others who refused to consent to data collection were also excluded. The data was analyzed through SPSS version 26. The data is interpreted as numbers and percentages or as means $\pm$ standard deviations. The P-value > 0.05 is considered there be no association and the P-value < 0.05 means there is an association.

The ethical approval No. KMU/ethics/2021/0295 was taken from KMU-IPHSS Ethical Board on 18/2/2021.

RESULTS

DEMOGRAPHICS

Table 1 shows the total of N=226 participants in which the maximum (n=81) participants were in the fourth decade of life, followed by the number of participants (n=50) in the third decade. The frequency of married participants was 194 while that of illiterate was 121. The frequency of participants belonging to a rural area was 120. Of 114 participants had a middle economic level and the maximum number of participants (n=156) were homemakers. See Table 1 for details.

Table 1: Demographics of study participants

		Count	Column N %
Age	<20	6	2.7%
	20-29	9	4.0%
	30-39	50	22.1%
	40-49	81	35.8%
	50-59	45	19.9%
	60-70	35	15.5%
Marital status	Married	194	85.8%
	Unmarried	15	6.6%
	Divorced	12	5.3%
	Widowed	5	2.2%
Education level	Illiterate	121	53.5%
	primary o middle	36	15.9%
	metric or intermediate	57	25.2%
	Bachelor	12	5.3%
Residential area	Urban	67	29.6%
	Suburban	34	15.0%
	Rural	120	53.1%
	sub rural	5	2.2%
Economic level	Poor	88	39.6%
	Middle	114	51.4%
	Upper	20	9.0%
Job profile	Housewife	156	69.0%
	unemployed	39	17.3%
	Employed	31	13.7%
	Business	0	.0%

Table 2 shows the association between the first symptom and the time interval was cheek by chi-square test. P-values less than 0.05 were considered significantly associated. The P-value also suggests that there is a significant association between education levels and residential with time for visiting health care facilities, the association was not significant between the economic level of the subjects and time for visits to the health care facilities Association between first symptom and time interval delay

Table 2: Mode of detection of tumor among participants.

		The time between a visit to the doctor and the first symptom								
Demographic variable		**<1 week**	**1-2 weeks**	**2-4 weeks**	**4-6 weeks**	**6-8 weeks**	**8-10 weeks**	**10-12 weeks**	**>12 weeks**	**P-VALUE**
Age	<20	.0%	.0%	.0%	.0%	33.3%	.0%	.0%	66.7%	
	20-29	.0%	33.3%	.0%	.0%	22.2%	.0%	44.4%	.0%	
	30-39	6.1%	12.2%	18.4%	6.1%	12.2%	6.1%	4.1%	34.7%	0.000
	40-49	2.5%	16.0%	7.4%	7.4%	17.3%	9.9%	3.7%	35.8%	
	50-59	7.0%	7.0%	9.3%	.0%	20.9%	9.3%	7.0%	39.5%	
	60-70	8.6%	5.7%	.0%	5.7%	14.3%	.0%	.0%	65.7%	

marital status	Married	5.8%	13.1%	8.4%	5.8%	16.8%	6.3%	4.7%	39.3%	
	unmarried	.0%	13.3%	13.3%	.0%	26.7%	6.7%	20.0%	20.0%	
	Divorced	.0%	.0%	8.3%	.0%	8.3%	16.7%	.0%	66.7%	0.348
	Widowed	.0%	.0%	.0%	.0%	20.0%	.0%	.0%	80.0%	
education level	Illiterate	4.2%	11.8%	6.7%	2.5%	16.0%	3.4%	3.4%	52.1%	
	primary o middle	.0%	25.7%	8.6%	5.7%	17.1%	11.4%	8.6%	22.9%	
	metric or intermediate	7.0%	1.8%	12.3%	7.0%	22.8%	8.8%	8.8%	31.6%	0.001
	Bachelor or masters	16.7%	25.0%	8.3%	16.7%	Bachelor	16.7%	.0%	16.7%	
residential area	Urban	6.0%	16.4%	7.5%	.0%	13.4%	10.4%	4.5%	41.8%	
	suburban	.0%	suburban	3.2%	12.9%	22.6%	6.5%	19.4%	16.1%	
	Rural	5.8%	6.7%	10.8%	5.8%	17.5%	5.0%	2.5%	45.8%	
	sub rural	.0%	40.0%	.0%	.0%	20.0%	.0%	.0%	40.0%	0.003
Economic level	Poor	4.6%	10.3%	3.4%	5.7%	20.7%	4.6%	9.2%	41.4%	
	Middle	4.4%	14.2%	11.5%	5.3%	12.4%	8.0%	3.5%	40.7%	
	upper	10.0%	10.0%	5.0%	.0%	30.0%	5.0%	.0%	40.0%	0.296
job profile	housewife	5.2%	15.7%	4.6%	2.6%	14.4%	3.9%	5.9%	47.7%	
	unemployed	7.7%	2.6%	17.9%	5.1%	17.9%	12.8%	7.7%	28.2%	
	Employed	.0%	6.5%	16.1%	16.1%	29.0%	12.9%	.0%	19.4%	0.000
	Business	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	

The maximum number (n=202) of participants have self-detected the changes in the breast that are suggestive of breast cancer, followed by the patients (n=21) who have done medical check-ups, while only a few (n=3) have gone through the process of mammography. There was a strong association between the mode of detection of the tumor and time to visit the doctor and the first symptom with a p-value of 0.013.

Table 3: Mode of detection of tumor among participants

	Frequency	Percent	Valid Percent	Cumulative Percent	P-value
Medical check-up	21	9.3	9.3	9.3	
During mammography	3	1.3	1.3	10.6	0.013
Self-detected	202	89.4	89.4	100.0	
Total	226	100.0	100.0		

REASONS FOR DELAY OF BREAST EXAMINATION

Table 4 shows the Reasons for the delay of breast examination Whenever it comes to breast examination, many reasons come into play that cause a delay in diagnosis of BC that have worse health consequences. Almost all the reasons had a significant association with each other that contributed to the occurrence of breast cancer with a p-value less than 0.05 and 95%CI as tested by the chi-square test. See Table 4 for details.

Table 4: Reasons for the delay of breast examination

	REASON FOR DELAY	FREQUENCY	PERCENTAGE %	P-VALUE
	poor economic status	26	11.5%	0.000
	lack of awareness	73	32.3%	
	lack of diagnostic resources	23	10.2%	
	social culture	27	11.9%	
	other	77	34.1%	

SYSTEM-RELATED FACTORS THAT CAUSE DELAY IN BREAST CANCER DIAGNOSIS:

Table 5 shows several reasons a system-related factor that causes a delay in breast cancer diagnosis that was divided into eight different stages that are as follows. It is stage 1 of the diagnostic and treatment process. 213 out of 226 participants had applied to this stage after more than 12 weeks of time duration of symptom appearance. It is stage two of the diagnosis and treatment process. Out of 226 participants, 211 had applied to this stage while 15 had not applied. 30.9% of participants had undergone this stage after 12 weeks of symptom appearance. It is stage three of the diagnosis and treatment process. Out of 226 participants, 224 had applied to this stage. A total of 154 (68.8%) participants had undergone this stage after more than 12 weeks of the duration of symptom appearance. This is the fourth stage of the diagnosis and treatment process. Only 171 participants have applied to this stage. Out of 171 participants, 114 have undergone this stage after more than 12 weeks of symptom appearance. This is stage five of the typical diagnosis and treatment process of breast cancer. All of the participants have applied to this stage. A total of 62 (27.4%) have undergone this stage after 6 to 8 weeks of symptom appearance. This is stage six of the diagnosis and treatment process of breast cancer. Out of 226 participants, 218 have applied to this stage. Maximum (n=157) participants have undergone this stage after more than 12 weeks of symptom appearance. This is stage seven of the diagnosis and treatment process of breast cancer. Out of 226 participants, 220 have applied to this stage and only a few (n=6) have not applied. Among those 220 participants, 114 have undergone this stage after 1 to 2 weeks of symptom appearance. This is the last stage of the whole process. All participants have undergone this stage after the symptom appearance. See Table 6 for details.

Table 5: System-related factors that cause a delay in BC diagnosis

		Registering with a primary care facility or hospital for a doctor's appointment	The first presentation of the symptoms to a medical professional	First examination by an oncologist	Mammography	Second examination by an oncologist	Breast biopsy	Biopsy examination results
Not applies		13	15	4	54	0	6	6
		5.8%	6.6%	1.8%	23.9%	.0%	2.7%	2.7%
<1weeks		14	10	5	2	5	6	22
		6.2%	4.4%	2.2%	.9%	2.2%	2.7%	9.7%
1-2 weeks		13	5	4	7	4	3	114
		5.8%	2.2%	1.8%	3.1%	1.8%	1.3%	50.4%
2-4 weeks		25	14	4	5	12	4	83
		11.1%	6.2%	1.8%	2.2%	5.3%	1.8%	36.7%
4-6 weeks		33	21	13	10	49	10	0
		14.6%	9.3%	5.8%	4.4%	21.7%	4.4%	.0%
6-8 weeks		43	37	13	14	62	15	0
		19.0%	16.4%	5.8%	6.2%	27.4%	6.6%	.0%
8-10 weeks		23	31	16	6	47	7	0
		10.2%	13.7%	7.1%	2.7%	20.8%	3.1%	.0%
10-12 weeks		9	28	12	15	16	18	0
		4.0%	12.4%	5.3%	6.6%	7.1%	8.0%	.0%
> 12 weeks		53	65	154	113	31	157	1
		23.5%	28.8%	68.4%	50.0%	13.7%	69.5%	.4%

DISCUSSION

diagnosis of breast cancer. Several reports have shown a relationship between different factors like age, time for the visit, lack of awareness, and lack of accessibility to medical personnel which causes a delay in the examination, diagnosis, and treatment process of breast cancer.[14] The current study found factors associated with the delay of a breast cancer diagnosis. The study recruited a total of 226 participants from IRNUM Hospital Peshawar. Many participants (35.8%) were in the fourth decade of life. 37.2% of participants were in stage three of breast cancer. Maximum participants have undergone their diagnostic and treatment process after more than 12 weeks of symptom appearance. The results of the study were in contrast to the study of Karla et al in which young age (less than 40 years) women were diagnosed with breast cancer. The similarity found between Karla's and the current study was that the delay for the diagnosis of breast cancer was the same 60% of the patients had no access to a medical professional so that the symptoms would have access on time. The results of the study showed that most (73.6%) of the participants had self-detected the changes in the breast which was also in line with the current study.[15,16] Previous studies done by Whatever et al, Partridge et al, et al, have also reported the same as in the current study that a maximum number of participants had delayed time intervals for visiting the doctor after the first symptom appearance as well as had no access to a medical personal with a p-value less than 0.001.[17] The conflicting point in their study was that the participants diagnosed with breast cancer in their study were at a young age (less than 40 years). Further, their studies have highlighted that there are no proper referral routes for women with BC and that's why they visit private sector hospitals which are assorted in quality than public systems for the screening and evaluation of BC symptoms. The study also reported that there was a significant relationship (p-value less than 0001) between delay time and the clinical stage of BC which made the condition worse.[18,19]The study of CB Souza et al showed that 71% of the participants in their study were afraid of talking about BC symptoms similar to the current study and believed that a miracle would happen to cure them. As well as the study also showed that a delayed time interval between diagnosis and treatment was associated with advanced stages of the disease with a p-value of 0.03. The study reported that elderly women of the 60 to 69 age group were having BC symptoms which were in contrast to the conducted study in which BC symptoms were more emergent in 40 to 45 age group patients.[20]

In developing countries, data gathering regarding BC symptoms is a complex task and the main cause is the incomplete filling of questionnaires due to a shortage of materials and human resources which in turn causes fewer referrals to the public sector hospital for diagnosis and treatment. Some studies have reported that this can also increase the risk of the advancement of the disease. Also, the aged women have less access to monitoring programs which also contributes to the last stages (stages III and IV) of the disease and poor prognosis.[21] The study of Unger et al showed that the advanced stage of BC was associated with long time intervals that were similar to the present study with a p-value less than 0.05, the main reason for which is the inability of patients to access the proper and quality health care organizations. Furthermore, the study describes that most (83.0%) of the patients were in stage III of BC and the reason for this was the same patients are having barriers to accessing quality care.[22,23] A study conducted by RK et al showed that patients' BC symptoms were associated with the advanced clinical stage (stage III) with a p-value less than 0.03 and described that patients had limited access to public sector hospitals. Patients visit private sector hospitals and paying for it becomes difficult for them that's why the diagnostic and treatment process has ceased.[24] Another study conducted by Ozmen et al highlighted that the first symptoms observed by BC patients were breast lump (75.2%) followed by pain (13.8%) and that (67%) of patients detected the symptoms by themselves as well as patients first consultancy was done by surgeons which were in line to the present study. While the maximum number of patients in the study of Ozmen were in stage I which was in contrast to the present study in which the maximum number of patients were in stage III. Also, the delay time interval was the same as in the current study which is greater than 12 weeks.[25] A study conducted by Sonia et al showed that an increased time interval between the first symptom appearance and diagnosis and treatment process was associated (with a p-value less than 0.01) with the advanced stage of the disease. The study reported that patients had their first consultation in a private-sector hospital after that they were referred to the public sector for the screening program. This lapse of time between referring a patient from one hospital to another also causes a delay in the diagnosis of BC which makes the condition worse.[26] Memon and Malik et al reported in their studies that lack of awareness was one of the contributing factors causing a delay in the diagnosis of BC. The majority of the women did not pay attention to the symptoms and believed that their symptoms would resolve spontaneously. Another study also reported the same findings that lack of awareness regarding BC symptoms, lack of accessibility to quality health care institutes, low socioeconomic background, loss of referral infrastructure, and use of alternative medications cause a delay in diagnosis and treatment process.[27, 28] According to prior studies, things like shyness, religiosity, moral limits, and the lack of female specialists in the region might all contribute to delays in breast cancer diagnosis. Women frequently hold important positions in various societies and prioritize family responsibilities over their health, which adds to the difficulties they face in terms of their health.[29,30] The existing literature was mostly in line with the present study with few in contrast. It was evident from the literature that most females have a lack of awareness and quality health care organizations and or medical professionals which causes a delay in the diagnosis and treatment of breast cancer which results in worse consequences.

CONCLUSION

The study concluded that many patients were unaware of their breast cancer were afraid of it and had limited resources to visit a doctor. Maximum participants disagreed upon checking their breasts regularly. There was a strong association between the demographic profile of patients and delay in the diagnosis of breast cancer as well as there was a significant association between the different factors of self-detection of breast cancer symptoms and reasons for the delay of breast examination.

Conflict of interest

In this research study, there was no conflict of interest.

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and Planning of the research A. Conception
B. Acquisition of data/participation in designing methodology
C. Interpretation, analysis and discussion
D. Review of the manuscript