

# Determinants of Delayed Presentation in Breast Cancer

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## ABSTRACT

**Objective:** To find out the factors which influence delayed presentation of breast cancer.

**Study design:** A prospective study.

**Place and duration of study:** The study was conducted in the department of surgery at Allied Hospital Faisalabad for a period of one year from 01-11-2008 to 30-11-2009.

**Patients and methods:** With an informed consent, study was conducted on 75 patients of breast cancer who presented late in Allied Hospital Faisalabad for their treatment. Diagnosis of breast cancer in all the patients was established by tissue biopsy. Every patient was interviewed on a structured questionnaire to find out the determinants of delayed presentation from the date of first symptom recognition to the start of treatment.

**Results:** Extent of delayed presentation in our study ranged from 3 to 18 months with mean duration of 8 months. Patient delay showed a major influence on delayed presentation and its determinants were painless lump breast, negative family history of breast cancer, negative history of benign breast disease, increasing age above 40 years, lack of awareness about breast cancer, poor economic class, psychosocial and cultural beliefs, rural background,

number of siblings 4 or above, lack of female doctors and illiteracy. Pre-hospital system delay showed a minor attribution to delayed presentation and it was associated with delayed or non-referral to consultants, mal-treatment by health care providers other than breast surgeons, false negative/misinterpretation of mammograms and false negative results of fine needle aspiration cytology. Locally advanced breast cancer (LABC/Stage III) was found in 62.7% patients, while, 12% patients had metastatic breast cancer (MBC/Stage IV). Rest of the 25.33% patients had early breast cancer (EBC/stage I&II). Delay of more than 6 months was found in 48 (64%) patients and out of them 60% had advance stage, while only 4% patients were observed in stage II (EBC). Delay of 3 to 6 months was noted in 27 (36%) patients and among them 3 (4%), 13 (17.3%) and 11(14.7%) patients had stages I, II and III respectively.

**Conclusion:** Delayed presentation of breast cancer is mainly attributed to patient delay rather than the system delay and longer delays in presentation adversely influence the stage of breast cancer.

**Keywords:** Breast cancer, delayed presentation, patient delay, system delay, determinants

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## INTRODUCTION

Breast cancer is more likely to be treated successfully with a better quality of life in initial stages. Early presentation has a better survival rate. Advance breast cancer and its high mortality are seen with delay in diagnosis and treatment<sup>1</sup>. Third world breast cancer is characterized by late presentation, advance stage of disease with a worse biologic behavior and occurrence relatively at a younger age than that reported in western literature<sup>2</sup>. Breast cancer is the commonest female malignancy all over the world including Pakistan and a 2<sup>nd</sup> leading cause of death from cancer in female population due to late presentation and advance stage of disease<sup>3</sup>. It has been commonly

assumed that late diagnosis is due to lack of knowledge about breast cancer and deficient coverage of screening programs in the population. Multiple factors like psychosocial and cultural beliefs, non-availability of treatment facilities, illiteracy, poverty, lack of awareness about breast cancer and fear of surgery are believed to be responsible for this late presentation. However, literature from developing countries has a very little contribution in research work for the reasons behind delayed presentation of female breast cancer<sup>4,5,6,7</sup>.

Allied Hospital is a tertiary care teaching hospital affiliated with Punjab Medical College Faisalabad. It

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provides medical facilities not only to the population of district Faisalabad but also drains the patients from the remote districts of Punjab. Up till now, no study has been conducted in Allied Hospital Faisalabad regarding determinants of delayed presentation in breast cancer. Hence, it was considered that a critical study is needed to determine the factors which influence the delay in presentation of breast cancer in our set up.

It is our hypothesis that the cultural effects, psychosocial beliefs and lack of awareness about breast cancer in our population play a major role in delayed presentation. To analyze our hypothesis, this study was planned to find out the factors which may influence delayed presentation of breast cancer in our population. Understanding the determinants of delayed presentation in our population is important for the development of effective and targeted health intervention programs. This critical study will not only contribute to the existing knowledge on this topic but will also help us to suggest, develop and establish the national health policies for early detection and successful treatment of breast cancer.

#### **AIMS AND OBJECTIVES**

1. To find out the extent and nature of delayed presentation in breast cancer.
2. To determine the factors which influence delayed presentation of breast cancer.
3. To determine the impact of delayed presentation on stage of breast cancer.

#### **PATIENTS AND METHODS**

This prospective study was conducted in Allied Hospital Faisalabad from November 1<sup>st</sup>, 2008 to November 30<sup>th</sup>, 2009 on a group of patients who had primary breast cancer and presented late for their conventional treatment. All the patients were managed by a joint collaboration of surgery and oncology departments. As per inclusion and exclusion criteria, every patient was interviewed on a preformed questionnaire following her breast surgery or first course of chemotherapy / radiotherapy. All the patients were intimated about the purpose of research questionnaire for their consent and participation in study.

Data was collected regarding the dates of first symptom recognition, first medical consultation and date of presentation in Allied Hospital Faisalabad to find out the extent and nature of delay. Socio-

demographic and medical factors included in study were age, educational level, residential place, economic status, marital status, number of children, awareness about breast cancer, psychosocial and cultural beliefs, patient's attitude towards health and determinants of system delay. The data concerning clinical status of disease was related to family history of breast cancer, history of benign breast disease, nature of first symptom, tumor size, lymph node status and stage of disease.

**Inclusion criteria:** Following patients were included in the study.

- Patients with late presentation of primary breast cancer, confirmed on histopathology.
- Only those patients who consented for interview on a structured questionnaire.

**Exclusion criteria:** Following patients were excluded from the study.

- Patients with unreliable data, either they were not sure of the date of first symptom recognition or could not recall the date of presentation to breast surgeon or health care provider.
- Patients who had not agreed and consented to participate in the study.
- Patients with recurrent breast cancer.
- Male patients with breast cancer.

#### **Operational definitions**

**Late presentation or patient delay :** Three months or more elapsed time between discovery of first symptom and a visit to a physician<sup>1,7</sup>.

**System / Doctor / provider Delay:** Time elapsed for more than one month between the initial medical consultation and the beginning of definitive treatment<sup>1,7</sup>.

**Age of patients:** Patients were divided into groups and their mean age was calculated.

**Evaluation and Diagnosis:** All the patients underwent tripple assessment and the diagnosis of breast cancer was established by tissue biopsy. Additional investigations like liver function tests, X-rays and bone scan etc. were advised in relevant cases who had clinical features of advanced disease. After tissue diagnosis, the patients were staged as per TNM staging to start the standard treatment of breast cancer<sup>8</sup>.

**Statistical Analysis:** The data was analyzed by calculating the number and percentage of patients in whom determinants of delayed presentation of breast cancer were found.

## RESULTS

According to inclusion and exclusion criteria, 75 patients were included in study. Age of the patients ranged from 25 to 72 years with their mean age 46 years. Forty eight (64%) patients had their age 40 years or above at presentation. Age groups of patients are shown in Table-1

Extent of delayed presentation ranged from 3 to 18 months with mean duration of 8 months. Most of the patients had multiple reasons for their delayed presentation. Patient delay as a sole reason for late presentation was found in 59 (78.7%) patients while in rest of the 16 (21.3%) patients, system delay played a contributory role in addition to patient factors. Major

proportion of patients (62.7%) had stage III at presentation, while, the others 3 (4%), 16 (21.3%), and 9(12%) patients were found in stage I, II, and IV respectively. Impact of delayed presentation on the stage of breast cancer is shown in table-2 while, the determinants of delayed presentation along with their characteristics are shown in table-3

**Table 1:**

**Age Distribution of Patients**

Sr. No.	Age groups	Patients		
		No.	%age	
1	21-30 Years	8	10.7 %	
2	31-40 Years	19	25.3 %	
3	41-50 Years	29	38.7 %	
4	51-60 Years	16	21.3 %	
5	61-70 Years and above	3	4 %	

**Table 2:**

**Impact of Delayed Presentation on the Stage of Brest Cancer**

Extent of delay (months)	Patients in association with extent of delayed presentation		Patients in association with extent of delayed presentation and stage of breast cancer		
	No.	%age	stage	No.	%age
3-6 months	27	36 %	I	3	4 %
			II	13	17.3 %
			III	11	14.7 %
			IV	0	0 %
7-9 months	25	33.3 %	I	0	0 %
			II	3	4 %
			III	22	29.3 %
			IV	0	0 %
10-12 months	16	21.3 %	I	0	0 %
			II	0	0 %
			III	11	14.7 %
			IV	5	6.7 %
13-18 months	7	9.3 %	I	0	0 %
			II	0	0 %
			III	3	4 %
			IV	4	5.3 %

**Table 3:**  
**Determinates of Delayed Presentation in Breast Cancer**

Sr. No.	Factors with their characteristics		Patients	
			No.	%age
1	Residential location	Urban	32	42.7 %
		Rural	43	57.3 %
2	Educational status	Illiterate	32	42.7 %
		Primary	22	29.3 %
		Secondary	15	20 %
		Higher secondary	6	8 %
3	Economic status	Good	22	29.3 %
		Poor	53	70.7 %
4	Marital status	Married	67	89.3 %
		Widow	5	6.7 %
		Divorced	2	2.7 %
		Unmarried	1	1.3 %
5	Number of children	Nil	7	9.3 %
		1-3	28	37.3 %
		≥4	40	53.3 %
6	First symptom of breast cancer	Painless lump breast	64	85.3 %
		Others (Nipple discharge, skin changes, etc)	18	24 %
7	Family history for breast cancer	Positive	3	4 %
		Negative	72	96 %
8	History of benign breast disease	Positive	8	10.7 %
		Negative	67	89.3 %
9	Non-awareness about breast cancer	Risk factors	56	74.7 %
		Initial symptoms	36	48 %
		Self examination	68	90.7 %
		Screening mammography	67	89.3 %
		Treatment	66	88 %
10	Health care factors	Non-serious health care attitude	23	30.7 %
		Hesitation to disclose symptoms	22	29.3 %
		Lack of female doctor	36	48 %
		Use of unconventional therapies.	48	64 %
		Fear of surgical treatment.	40	53.3 %
		Fear of loosing breast by surgery	45	60 %
11	Psychosocial and cultural beliefs	No danger if lumps are asymptomatic	54	72 %
		Prays to God for cure of cancer.	51	68 %
		Surgery causes cancer to spread	16	21.3 %
		Breast cancer is a cureless disease.	18	24 %
12	Factors related to Pre-hospital system delay or Medical errors	Maltreatment as benign breast disease	16	21.3 %
		Delayed / non-referral to consultants	15	20 %
		False negative results of mammograms	12	16 %
		False negative results of FNAC	9	12 %

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## DISCUSSION

Despite having access to screening programs, more than 75% of breast cancer patients consider to consult when symptoms appear. Breast cancer in low- and middle-income countries (LMC) is mostly detected at later stages than in high-income countries. Observations from literature have shown that about 14 - 19% women with breast cancer in developed countries had late presentation, while the figures from developing countries are much higher as in Iran and Peru (42.5% and 67% respectively)<sup>9</sup>. A differential study on breast cancer patients in Punjab, Pakistan has shown late presentation in 25% and 36% patients at Institute of Nuclear Medicine and Oncology Lahore (INMOL) and Shaukat Khanum Memorial Cancer Hospital (SKMCH) respectively in comparison to 10% or less reported in international literature<sup>10</sup>. Determinants of delayed presentation given in literature vary from place to place due to demographic factors, psychosocial and cultural beliefs, lack of awareness about breast cancer, attitudes towards health care utilization and standards of health care provision<sup>3,4,11,12,13</sup>.

In our study, mean age of the patients remained 46 years. Sixty four (85.33%) patients had their age in 4<sup>th</sup> to 6<sup>th</sup> decades of life with a major proportion in 5<sup>th</sup> decade. About two third (64%) patients were 40 years or above. Most of the studies in literature have not linked a significant association between age and delayed presentation except few ones in which old age had influenced delayed presentation<sup>13-19</sup>. As, it is evident in our study and some studies of literature as well, therefore, it is considerable that increasing age (old age) has a significant contributory role in delayed presentation of breast cancer<sup>20,21</sup>.

Painless lump, as initial symptom of breast cancer was responded by 85.3% patients in our study and appeared a significant determinant of delayed presentation. Painless lump breast and its association with delayed presentation reported in literature is 93.8% in Iran<sup>1</sup>, 80.4% in Columbia<sup>9</sup>, 52.5%, 83.8% and 93% Pakistan<sup>4,11,13</sup>, 87.9% in India<sup>15</sup> and 64% in Germany<sup>17</sup>. The association of late presentation with painless lump breast shown in our study and reported in literature is mainly under the influence of fundamental social and cultural beliefs of the regional populations in the world that the painless or asymptomatic lumps have no danger to life till the appearance of other symptoms like skin

ulceration/edema, peau d'orange, nipple discharge or bleeding and inversion of nipple etc.

Our study showed late presentation in 96% and 89.3% patients who had negative history of breast cancer and any benign breast respectively in their families. Figures of late presentation due to negative family history of breast cancer given in international and local literature are 85.4% in Iran<sup>1</sup>, 90% in a study for third world countries<sup>2</sup>, 88.03% and 95.30% in Pakistan<sup>11,14</sup> and up to 100% in India<sup>15</sup>. Similarly, influence of negative history of benign breast disease on delayed presentation affected 79.2% patients in an Iranian study<sup>1</sup>. But, on the other hand, a German study has not shown any association between negative history of benign breast disease and late presentation<sup>17</sup>. In accordance with results of our study and that of literature for the significance and influence of these factors, predictions are linked with the lack of concepts and discrimination between symptoms of breast cancer and benign breast diseases.

Another important determinant of delayed presentation in our study was lack of awareness about breast cancer. Lack of awareness influenced delayed presentation in 74.7%, 48%, 89.3%, 90.7% and 88% patients for the risk factors, initial symptoms, screening mammography, self breast examination and treatment of breast cancer respectively in our study. Another local study has shown negative response about the knowledge of risk factors, breast self examination and screening of breast cancer in 65%, 60.1% and 95.1% patients respectively<sup>12</sup>. While, the results of different studies conducted in Nigeria, India and Iran for the knowledge, attitude and screening practices of women about breast cancer revealed that most of the patients had late presentation, as they do not know about the risk factors of breast cancer. Majority of women did not carry out breast self- examination and screening mammography because either they had never heard about them or did not know how and where to carry out. The respondents preferred herbal medications for the treatment of breast cancer, when they were asked about their knowledge for the treatment of breast cancer, as over half of them had no awareness about the standard treatment<sup>2,21,22,23</sup>. Similar results are found regarding the knowledge and beliefs of older women from some western women populations who had delayed presentation of breast cancer<sup>24</sup>. Keeping in view the results of our study and that of literature, lack of awareness about breast cancer is established an

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important and a significant determinant of late presentation.

Poor economic status, rural background and illiteracy influenced delayed presentation in 70.7%, 57.3% and 42.7% patients respectively in our study. A local study for late presentation of breast cancer has given the influence of illiteracy on late presentation only in 7.2% patients<sup>4</sup>. The difference in proportion of patients between our study and other local study is probably due to different literacy rates between two regional populations. An Indian study had shown late presentation in 62.8% and 89.9% patients who had rural background and poor socioeconomic class respectively<sup>15</sup>. When reviewed in literature, influence of these factors on late presentation is more commonly observed in developing countries than the developed nations<sup>1,2,6,7,21,25</sup>. It is predicted from our study and other studies in literature that poverty has a significant influence on late presentation particularly in those patients who had rural background because they cannot afford the expenditures of education, transport, medical consultation and treatment of breast cancer.

Late presentation due to lack of female doctors in the local vicinity was observed in 48% patients in our study, as they responded that females in their families preferred to be examined by female doctors. Similarly, this factor affected 46% patients in another local study<sup>4</sup>. Literature has not given a significant importance to this factor, as most of the literature on delayed presentation is from western world while the influence of this factor is mainly observed in societies which have conservative nature, like our set up. The influence of this factor on delayed presentation in our set up is associated with hesitation of female patients to expose their breast in front of male doctors, particularly, in illiterate and rural population.

No danger if breast lumps are asymptomatic and praying to God for the cure of cancer were the psychosocial factors which influenced delayed presentation in 72% and 68% patients respectively in our study. Use of unconventional therapies affected delayed presentation in 64% patients in our study while, in another local study, this factor influenced over half of patients<sup>13</sup>. Similarly, fear of loosing breast by surgery and fear of surgical treatment affected late presentation in 60% and 53.3% patients respectively in our study while, these figures were 33% and 48.2% respectively in another local study<sup>4</sup>. Other psychosocial factors which showed less significance on delayed presentation in our study were non serious

attitude to seek medical advice, hesitation to disclose symptoms to anyone, cancer is cureless disease and surgery promotes spread of cancer. Different studies in literature, particularly from developing countries has reported similar observations, regarding the impact of these factors on late presentation of breast cancer<sup>2,5,6</sup>. Influence of these psychosocial factors on late presentation of breast cancer is more common in Asian and third world countries as compared to westerns due to different religious, psychosocial and cultural beliefs between these social set ups<sup>5,6,7,9,23,26</sup>.

In our study, 89.3% females were married and holding their families while, the remaining patients were either widows, divorced or unmarried. More than half, 53.3% patients, were multi-parous and their siblings 4 or above. Delayed presentation was observed in 47.9% women who had multi-parity in a study conducted in Iran<sup>1</sup>. Different studies in literature have revealed that breast cancer patients mainly belong to married group<sup>2,3,21</sup>. It is evident not only in our study but in literature as well that the major proportion of breast cancer patients belong to married group. However, married status itself has no definitive influence on delayed presentation, but, predictions are made that it is the multi-parity which influence delayed presentation, particularly in those women who have their siblings 4 or above and they have to lead a busy life due to family, social and earning problems especially in our third world countries<sup>9</sup>.

Pre hospital system delay in our study affected delayed presentation due to mal-treatment as benign breast disease by primary health care providers and delayed or non-referral to breast surgeons in 21.3% and 20% patients respectively. On the other hand false negative mammograms and false negative FNAC findings influenced 16% and 12% patients respectively in our study. Literature has reported system delay due to maltreatment in 30% cases<sup>17</sup>, delayed or non-referral in 15% and 20% patients<sup>17,26</sup>, misinformation of mammograms in 7-30% patients<sup>17,27,28</sup> and false negative results of FNAC in 5- 35% patients<sup>29</sup>. Most of the patients in our study who had late presentation due to system delay were found in younger age group. Benign breast diseases most commonly affect young females and mammographic features of malignancy are better interpreted in middle and old age groups. Therefore, it is predicted that the system delay in these patients was related to misinterpretation of clinical features and ultrasonic / mammographic findings of malignancy by the primary health care providers and

that could be prevented or reduced by a timely referral of these patients to breast surgeons and carrying out tissue biopsy in doubtful cases.

In our study, delayed presentation expressed a worse impact on the stage of breast cancer, as about three fourth (74.7%) patients were found in advance stages (LABC in 62.7% and MBC in 12% patients) while, only one fourth (25.3%) patients had early breast cancer (4% and 21.3% patients in stages I & II respectively. National and international literature, particularly from third world countries, has revealed similar observations about the impact of delayed presentation on the stage of breast cancer<sup>1,2,4,9,11,13,17,20</sup>.

## CONCLUSION

Delayed presentation of female breast cancer has a strong and significant attribution to patient delay with a minor contributory role of system delay and longer delays have a worse impact on the stage of breast cancer.

## RECOMMENDATIONS

National health care programs should be launched for public awareness and early primary detection of breast cancer by screening mammography in all the females above the age of 40 years, while, refresher courses should be introduced to primary health care providers for early secondary detection of breast cancer and its timely treatment.

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