

Causes Leading to Delayed Presentation among Newly Diagnosed Breast Cancer Patients Visiting the Oncology Department of Jinnah Postgraduate Medical Centre, Karachi, Pakistan

Munazza Anwer¹*, Ghulam Haider¹, Nudrat Jameel¹ and Asma Kiran Saif¹

¹Department of Oncology, Jinnah Postgraduate Medical Centre, Karachi, Pakistan

ABSTRACT

Background: Breast cancer is one of the most significant global health challenges and remains the most frequently diagnosed cancer worldwide. Delayed presentation due to various reasons is a major concern and often leads to diagnosis at advanced stages of the disease, resulting in poor prognosis.

Objective: To evaluate the causes leading to delayed presentation among newly diagnosed breast cancer patients visiting the Oncology Department of Jinnah Postgraduate Medical Centre (JPMC) in Karachi, Pakistan.

Methods: A descriptive cross-sectional study was conducted in the Department of Oncology at JPMC from May 2025 to January 2026. Female patients aged 18-70 years visiting outpatient clinics were included. The presentation delay was defined as the interval from the onset of the first breast-related symptom to the patient's first presentation to a doctor. A period of 3 months or more between symptom onset and the initial medical visit was defined as delayed presentation.

Results: A total of 200 patients were studied with an average age of 48.5±11.4 years. Most patients were from rural areas (74%) and had stage III-IV disease (73.5%). Poor knowledge about breast cancer was the most commonly reported cause of delayed presentation (79%), followed by financial constraints (65.5%), limited access to healthcare facilities (41.5%), use of alternative medicine (34%), cultural or religious beliefs (31.5%), and shyness in consulting male physicians (21%).

Conclusion: The findings suggest that poor knowledge about breast cancer, financial barriers, and limited healthcare accessibility are the leading causes of delayed presentation among breast cancer patients. Cultural or religious beliefs, reliance on alternative medicine, and reluctance to consult male physicians also contribute to delays in seeking medical care. These findings highlight the need for targeted interventions focusing on increasing breast cancer awareness, improving access to healthcare services, and addressing socioeconomic and cultural barriers to encourage earlier presentation and improve patient outcomes.

Keywords: Breast cancer, delayed presentation, health-seeking behavior, malignancy, oncology.

INTRODUCTION

Breast cancer continues to be a significant focus in global health as it is the most frequently diagnosed cancer globally, with an estimated 2.26 million new cases in 2020 [1]. It is also a leading cause of cancer-related deaths amongst women in the world. More than half of all breast cancer cases in 2020 and about two-thirds of breast cancer deaths were in the less developed regions, and this means that breast cancer is not exclusive to high-income nations [2]. Pakistan has one of the highest burdens of breast cancer among the Asian countries, where one in nine women is at risk of developing the disease in their lifetime. Pakistan has recorded 34,066 new cases of breast cancer in 2018 alone [3], which highlights the pressing nature of the issue as a risk to the population.

The increase in the rate of breast cancer in Pakistan is caused by various factors, which include genetic

predisposition, hormonal influences, lifestyle factors such as diet and physical inactivity, and the lack of early diagnostic facilities and health care services [4]. Despite the high incidence rates, the absence of a structured national screening program is a major setback to early detection. Also, poor compliance with routine self-examinations of the breast and lack of awareness regarding breast cancer symptoms are contributing factors to the delay in presentation. A lack of pooled data is also a hindrance to these problems since there is no extensive National Cancer Registry to be able to measure the extent of incidence and mortality of breast cancer on a national scale [5, 6].

Awareness has been considered an essential component in improving breast cancer outcomes, as noted by the World Health Organization [7]. Timely medical consultation and early detection are strongly associated with better prognosis and survival. Nevertheless, in Pakistan, a lot of women only seek healthcare services when symptoms become severe or persistent, leading to delayed diagnosis and treatment at more advanced stages of the disease [8, 9]. This pattern

*Corresponding author: Munazza Anwer, Department of Oncology, Jinnah Postgraduate Medical Centre, Karachi, Pakistan.

Email: munazzaanwer321@gmail.com

Received: February 25, 2026; Revised: March 04, 2026; Accepted: March 07, 2026

DOI: <https://doi.org/10.37184/lnjcc.2789-0112.7.18>

reflects a broader trend observed in many low- and middle income countries where the delay in presentation is one of the major barriers to effective management of breast cancer.

Several studies have been conducted to determine the reasons behind the delayed presentation of breast cancer patients. According to a study by Baig *et al.*, the majority of patients (41%) reported lack of knowledge about breast cancer as a significant reason, and 32.6% reported insufficient healthcare services. Purdah is a cultural and religious factor that was observed in 6.7% of cases, and the fear of receiving a cancer diagnosis was attributed to 10.1% [6]. A second study conducted in northern Pakistan demonstrated that 39.1% of patients presented late. In this group, 40.7% had first used alternative medicines, 25.2% had given financial constraints or reduced resources, 10.6% had given shyness or embarrassment as a reason, and 6.5% had put off seeking healthcare for miscellaneous reasons [10]. These results suggest that delayed presentation is multi-factorial, involving patient-related, cultural, religious, socioeconomic, and health system factors.

Delayed presentation is not unique problem to Pakistan. In other low- and middle-income countries worldwide, research findings also indicate that inadequate breast cancer knowledge, limited financial resources, lack of access to health care, and dependence on alternative medicine are consistently associated with late presentation [11]. Cultural beliefs and individual factors, such as shyness, fear, and stigma, further exacerbate these delays. Moreover, cancer stage, grade, and lymph node involvement are also associated with delayed presentation [12, 13]. Taken together, these findings highlight the need to address the problem by increasing breast cancer awareness, improving access to diagnostic and treatment services, and dealing with sociocultural and financial barriers to timely treatment. Jinnah Postgraduate Medical Centre is a large public-sector institution in Karachi. People from different backgrounds visit this institution, and understanding the causes of delayed presentation at this institution may help identify misconceptions and healthcare system barriers in Karachi that hinder timely presentation. Thus, we conducted the current study to evaluate the causes leading to delayed presentation among newly diagnosed breast cancer patients visiting the oncology department of Jinnah Postgraduate Medical Centre (JPMC), Karachi, Pakistan.

METHODOLOGY

This descriptive cross-sectional research was conducted in the Departments of Oncology at JPMC during May 2025 to January 2026. The study received formal ethical approval from the Institutional Review Board (NO.F.2-

81/2025-GENL/267JPMC). The study also adhered to STROBE guidelines.

Female patients aged 18-70 years visiting outpatient clinics for the first time and later confirmed with the diagnosis of breast cancer were included. Patients with a diagnosis of breast lumps other than breast cancer, like cysts, mastitis, mammary duct ectasia, and patients with cognitive impairment unable to report history clearly were excluded. Referred patients of other facilities were also excluded.

The WHO sample size calculator was used to determine the sample size, using a 40.7% frequency for the use of alternative medicines [10], with a 95% confidence interval and a 7% margin of error. The estimated sample size was 190. The study subjects were recruited using a nonprobability, consecutive sampling method.

The sample was enrolled in the study by approaching patients who reported to the outpatient clinic with signs and symptoms related to breast cancer, and this was the first clinic visit of the patient. On arrival, each patient was informed of the aim of the research, and those who provided written informed consent were enrolled in the study. The first evaluation was conducted through an in-depth interview to record sociodemographic features, the emergence and development of symptoms, and healthcare-seeking behavior. After consultation, the assigned data collectors examined possible factors behind delayed presentation, including breast cancer knowledge, alternative medicine use, financial constraints, healthcare access, cultural/religious beliefs, and psychological or personal factors such as shyness or embarrassment in consulting male physicians. To establish a definite diagnosis of breast cancer, physical examination and relevant investigations were advised.

The term presentation delay was used to describe the duration in months between the onset of the initial breast-related symptom and the patient's first visit to a doctor. In cases where patients were unable to remember the exact dates, some approximate period of time in months was first noted. To enhance accuracy, the patients were encouraged to associate such events with major personal or cultural events, such as their birthdays or those of loved ones, or religious holidays. In cases where only one month was reported, additional investigation was conducted to determine the exact day or its proximity to any significant event, enabling the closest approximation. Delayed presentation was defined as a period of 3 months or more between the onset of symptoms and the initial medical visit. Knowledge of breast cancer was assessed using 4 questions. The first question evaluated if patients had ever heard of the term breast cancer, the second was related to its symptoms, the third item was about risk factors, and the fourth

question asked about diagnostic modalities. Those who had ever heard of breast cancer and knew at least one symptom and risk factor were considered to have adequate knowledge.

Statistical analysis was performed using SPSS version 27 to enter the data. Frequency and percentage were used to summarize categorical variables. Nominal variables were summarized as means and standard deviations, and normality was assessed using the Shapiro-Wilk test. The data were presented in tabular and graphical form as appropriate. The chi-square or Fisher's exact test was applied to compare patients' features with the causes of delay. A p-value < 0.05 was deemed statistically significant.

RESULTS

Summary of Sociodemographic and Clinical Features

A total of 200 patients were studied. Table 1 summarizes the sociodemographic and clinical features of the patients. The average age of patients was 48.5±11.4 years, with a range of 26-70 years. The majority had low socioeconomic status (63%) and were illiterate (57%). Nearly all the patients were married (95.5%), and did not report a family history of breast cancer (80%). The majority of the participants lived in rural areas (74%). On presentation, patients were mostly in stage III (51%), followed by stage II (23.5%) and stage IV (22.5%). The proportion of patients in stage I was very small (3%).

Table 1: Summary of sociodemographic and clinical characteristics of the study participants.

Variables	Categories	Frequency	Percentage
Age	26-29 years	5	2.5
	30-39 years	38	19
	40-49 years	64	32
	50-59 years	55	27.5
	60 years or above	38	19
Socioeconomics tatus	Low	126	63
	Middle	74	37
Education	Illiterate	114	57
	Literate	86	43
Marital status	Single	9	4.5
	Married	191	95.5
Family history of BC	No	160	80
	Yes	40	20
Residence	Urban	52	26
	Rural	148	74
Stage	I	6	3
	II	47	23.5
	III	102	51
	IV	45	22.5

Distribution of Causes Leading to Delayed Presentation

Fig. (1) shows the distribution of causes of delayed presentation. The most common factor was poor

knowledge (79%, 95% CI: 73.3%-84.6%). Nearly two-thirds of patients (65.5%, 95% CI: 58.9%-72.1%) reported financial problems, and 41.5% (95% CI: 34.6%-48.3%) reported restricted access to healthcare facilities. Alternative medicine was also reported to be used by 34% (95% CI: 27.4%-40.5%) of patients, and cultural or religious belief-related factors were reported to have delays in 31.5% (95% CI: 25.1%-37.9%) of the patients. Nearly one-fifth (21%; 95% CI: 15.4%-26.6%) of patients reported feeling shy or embarrassed about seeking medical attention from male physicians.

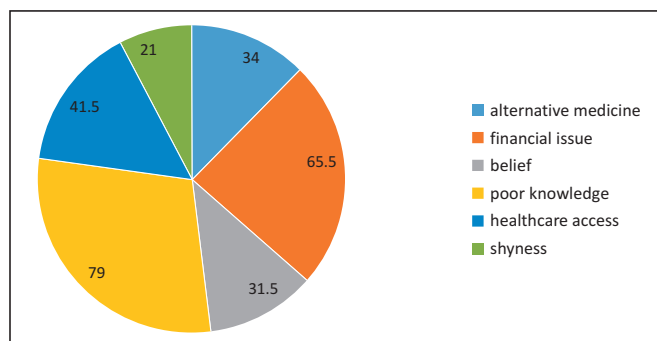


Fig. (1): Distribution of causes of delayed patient presentation.

Comparison of Patients' Features with Causes Leading to Delayed Presentation

Table 2 presents the comparison between the patients' features and causes of delayed presentation among breast cancer patients. There were no significant differences in cause frequency across age groups.

Patients with low socioeconomic status were much more likely to report alternative medicine use (p=0.002), financial burden (p<0.001), cultural or religious factors (p=0.021), lack of knowledge (p=0.002), and problems with health care access (p<0.001). There was no significant difference in the frequency of shyness in consulting male physicians between the low and middle socioeconomic status (p=0.361).

Uneducated patients were found to be highly likely to use alternative medicine (p=0.029), had financial reasons (p<0.001), cultural or religious misbeliefs (p=0.005), lack of knowledge (p<0.001), and access to healthcare (p=0.026). Shyness in consulting male physicians was not related to education (p=0.303).

Lack of knowledge was more frequently reported in patients who had no family history of breast cancer (p=0.004). Other causes did not significantly differ based on family history of breast cancer.

Patients from rural areas were more likely to use alternative medicine (p=0.013), having financial reasons (p=0.019), lack of knowledge (p=0.019), access to healthcare (p<0.001), and shyness in consulting male physicians as reasons (p=0.044).

Table 2: Comparison of patients' features with causes of delayed presentation in breast cancer patients.

Variables	Groups	Alternative Medicine	Financial Issues	Beliefs	Lack of Knowledge	Healthcare Access	Shyness
Age	26-29 years	3(4.4)	3(2.3)	0(0)	5(3.2)	4(4.8)	2(4.8)
	30-39 years	17(25)	31(23.7)	14(22.2)	29(18.4)	15(18.1)	9(21.4)
	40-49 years	22(32.4)	43(32.8)	22(34.9)	50(31.6)	30(36.1)	14(33.3)
	50-59 years	18(26.5)	32(24.4)	19(30.2)	40(25.3)	21(25.3)	8(19)
	60 years and above	8(11.8)	22(16.8)	8(12.7)	34(21.5)	13(15.7)	9(21.4)
	p-value	0.175	†0.119	†0.293	†0.281	†0.316	†0.506
Socioeconomic status	Low	53(77.9)	108(82.4)	47(74.6)	108(68.4)	64(77.1)	29(69)
	Middle	15(22.1)	23(17.6)	16(25.4)	50(31.6)	19(22.9)	13(31)
	p-value	*0.002	**<0.001	*0.021	**0.002	**<0.001	0.361
Education	Educated	22(32.4)	41(31.3)	18(28.6)	57(36.1)	28(33.7)	21(50)
	Uneducated	46(67.6)	90(68.7)	45(71.4)	101(63.9)	55(66.3)	21(50)
	p-value	*0.029	**<0.001	**0.005	*<0.001	*0.026	0.303
Marital status	Unmarried	5(7.4)	7(5.3)	3(4.8)	8(5.1)	2(2.4)	4(9.5)
	Married	63(92.6)	124(94.7)	60(95.2)	150(94.9)	81(97.6)	38(90.5)
	p-value	†0.278	†0.721	†1.000	†0.688	†0.310	†0.095
Family history of BC	No	55(80.9)	101(77.1)	49(77.8)	133(84.2)	70(84.3)	33(78.6)
	Yes	13(19.1)	30(22.9)	14(22.2)	25(15.8)	13(15.7)	9(21.4)
	p-value	0.823	0.158	0.594	**0.004	0.196	0.795
Residence	Urban	43(63.2)	85(64.9)	43(68.3)	111(70.3)	42(50.6)	26(61.9)
	Rural	25(36.8)	46(35.1)	20(31.7)	47(29.7)	41(49.4)	16(38.1)
	p-value	*0.013	**<0.001	0.209	*0.019	**<0.001	*0.044
Stage	I	0(0)	2(1.5)	0(0)	5(3.2)	2(2.4)	1(2.4)
	II	14(20.6)	26(19.8)	6(9.5)	35(22.2)	16(19.3)	7(16.7)
	III	30(44.1)	68(51.9)	35(55.6)	80(50.6)	41(49.4)	24(57.1)
	IV	24(35.3)	35(26.7)	22(34.9)	38(24.1)	24(28.9)	10(23.8)
	p-value	**0.009	*0.042	**†<0.001	†0.700	†0.279	†0.678

Data is presented as n(%), †Fisher-exact test is reported, *Significant at $p < 0.05$, **Significant at $p < 0.01$

Frequency of alternative medicine showed a significant linear trend with increasing stage ($p=0.009$), whereas financial issues ($p=0.042$) and lack of knowledge were significantly higher in stage-III-IV patients ($p < 0.001$). The frequency of other causes did not differ across disease stages.

DISCUSSION

Late diagnosis of breast cancer is a complex issue, especially in low and middle-income nations, and is influenced by a combination of patient-related, sociocultural, and health system factors. The current investigation was to investigate the reasons behind delayed presentation among breast cancer patients reporting to JPMC, and found out that poor knowledge (79%) was the most common reason, next came financial issues (65.5%), access to healthcare (41.5%), use of alternative medicine (34%), belief-based factors (31.5%), and shyness in consulting male physicians (21%). These results are mostly in line with the regional and international literature, with only minor differences in the size of some of these causes [11-14].

The predominant factor contributing to delayed presentation in our study was poor knowledge, evident in almost 4 out of 5 patients. This is consistent with the results of a Pakistani study by Tabassum *et al.* [11], which found it to be the reason for late presentation in 47.4%

and the most prevalent cause of late presentation. Likewise, a study conducted in Iraq [12] reported gaps in the recognition of the symptoms of breast cancer, especially those that were less evident signs, like the changes in the size of the breast or any abnormalities on the nipples, which showed that insufficient knowledge about these symptoms leads to the delay in seeking healthcare. There was also similar evidence led by a Bangladeshi study where the majority of the patients who did not attend or did not report a painless lump tended to take it lightly, and this also led to late diagnosis [13]. All these findings support the idea that the lack of knowledge and misunderstanding of symptoms continue to be key factors that lead to delays in a variety of settings.

The second most prevalent cause in our study (65.5%), was financial constraints, which was significantly higher than in other studies. For example, Tabassum *et al.* [11] reported financial barriers in 38.6% of patients, whereas another Pakistani study [14] reported it in 34.8%. Conversely, a Moroccan study found that only 2.9% of the respondents had financial issues [15], which may be due to variations in healthcare financing systems and access. The observed increase in burden could be explained by socioeconomic differences and out-of-pocket healthcare spending, which are common in Pakistan and can be a major barrier to timely medical consultation.

Another reason that was evident in our findings was access to healthcare (41.5%). Tabassum *et al.* [11] reported that 29.8% of patients had access to healthcare services. In contrast, a Moroccan study has indicated a high proportion of patients (39.6%) lived more than 60 kilometers away from formalized care facilities, which are characterized by geographic barriers [15]. Similarly, a study carried out in Pakistan showed that 20.9% of patients delayed seeking care due to hospital inaccessibility [14]. These results suggest that barriers to timely presentation, such as distance, transportation, and limited availability of specialized services, are critical factors that cause delays in diagnosis, especially in resource-constrained settings.

In our study, 34% of patients reported using alternative medicine, comparable to 43.9% in Tabassum *et al.*'s study [11] and 30.3% in the Bangladeshi study [13]. Patients usually seek the attention of traditional or non-medical practitioners first, thus delaying diagnosis and treatment. A Moroccan study also reported that 8% of patients used traditional medicine as their initial choice of management, with a mean delay of approximately 3 months [15]. Likewise studies conducted in Nigeria [16] and Indonesia [17] have identified the use of herbal preparations and non-medical advice as major contributors to delay. The findings highlight the persistent influence of traditional healing practices and the need for community-level awareness interventions.

In this study, cultural or religious beliefs were reported by 31.5% of patients. This is higher than the 7% reported in the Pakistani study by Tabassum *et al.* [11] and comparable to the findings from Nigeria [16], where belief in spiritual healing and alternative therapies was observed in 32.3% and 22% of patients, respectively. Cultural attitudes and beliefs about cancer, including fatalistic perceptions, tend to discourage early medical consultation. Similarly, a Chinese integrative review also highlighted the role of cultural beliefs, personality traits, and social factors in shaping health-seeking behavior. These factors may be deeply rooted and therefore require culturally sensitive interventions [18].

In our study, 21% of patients reported being shy about consulting male physicians, which is higher than previous reported rates: 10.5% by Tabassum *et al.* [11] and 4.6% by another Pakistani study [14]. Similar findings were observed in an Indian study [19], in which embarrassment regarding breast examination, especially when male physicians were involved, contributed to delayed presentation. Sociocultural norms, modesty, and stigma associated with breast-related symptoms that hinder timely healthcare seeking are still present among women in the South Asian region [20].

It is noticeable that the proportions of the various causes of delayed presentation varied across studies. This variation may be attributed to differences in populations, healthcare settings, sample sizes and cultural/religious beliefs. However, overall, the categories of causes identified in this study are consistent with global evidence suggesting that delayed breast cancer presentation is multi-factorial, involving a combination of lack of knowledge, socioeconomic factors, cultural or religious beliefs, and healthcare system-related barriers. Nevertheless, the relatively high proportions of poor knowledge and financial barriers found in the current study indicate that targeted interventions should be implemented at the local level. Public health strategies should focus on raising awareness of breast cancer symptoms, encouraging early screening, improving access to healthcare facilities, and addressing financial barriers through policy level measures.

This study has some limitations. To begin with, it was conducted at a single tertiary care center, which may limit the generalizability of the findings. Second, the data were self-reported and were therefore susceptible to recall and reporting bias, particularly for sensitive variables such as beliefs and shyness. Third, a cross-sectional design does not allow causal inference. Fourth, there may be recall bias in reporting the reasons for delayed presentation. Despite these shortcomings, the study offers significant information on the key determinants that cause late presentation of breast cancer in a resource-limited setting.

CONCLUSION

The study concludes that poor knowledge about breast cancer, financial barriers, and limited healthcare accessibility are the leading causes of delayed presentation among breast cancer patients. Cultural or religious beliefs, reliance on alternative medicine, and reluctance to consult male physicians also contribute to delays in seeking medical care. These findings highlight the need for targeted interventions focusing on increasing breast cancer awareness, improving access to healthcare services, and addressing socioeconomic and cultural barriers to encourage earlier presentation and improve patient outcomes. Further larger multi-center studies are suggested to confirm the findings of the current study.

ETHICS APPROVAL

The study received formal approval from the Institutional Review Board (No. F.2-81/2025-GENL/267JPMC). All procedures performed in studies involving human participants were conducted in accordance with the ethical standards of the institutional and/or national research committee and the Helsinki Declaration.

CONSENT FOR PUBLICATION

Written informed consent was sought from patients before their enrolment into the study.

AVAILABILITY OF DATA

The collected data are presented within the manuscript.

FUNDING

None.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

ACKNOWLEDGEMENTS

Declared none.

AUTHORS' CONTRIBUTION

MA conceptualized the study. MA and GH designed the study protocol. MA and NJ were involved in drafting the manuscript. AKS collected the data, conducted the analysis, and wrote the results. GH critically reviewed and revised the initial draft.

REFERENCES

- Wilkinson L, Gathani T. Understanding breast cancer as a global health concern. *Br J Radiol* 2022; 95(1130): 20211033. DOI: <https://doi.org/10.1259/bjr.20211033>
- Sung H, Ferlay J, Siegel RL, Laversanne M, Soerjomataram I, Jemal A, *et al.* Global cancer statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin* 2021; 71(3): 209-49. DOI: <https://doi.org/10.3322/caac.21660>.
- Khan NH, Duan SF, Wu DD, Ji XY. Better reporting and awareness campaigns needed for breast cancer in Pakistani women. *Cancer Manag Res* 2021; 13: 2125-9. DOI: <https://doi.org/10.2147/cmar.s270671>
- Zaheer S, Shah N, Maqbool SA, Soomro NM. Estimates of past and future time trends in age-specific breast cancer incidence among women in Karachi, Pakistan: 2004-2025. *BMC Public Health* 2019; 19: 1-9. DOI: <https://doi.org/10.1186/s12889-019-7330-z>
- Polishwala S, Patankar S. The Assessment and comparison of the knowledge of breast self-examination and breast carcinoma among health care workers and the general population in an urban setting. *Cureus* 2023; 15(3): e36592. DOI: <https://doi.org/10.7759/cureus.36592>
- Baig M, Sohail I, Altaf HN, Altaf OS. Factors influencing delayed presentation of breast cancer at a tertiary care hospital in Pakistan. *Cancer Rep* 2019; 2(1): e1141. DOI: <https://doi.org/10.1002/cnr2.1141>
- Afaya A, Japiong M, Konlan KD, Salia SM. Factors associated with awareness of breast cancer among women of reproductive age in Lesotho: a national population-based cross-sectional survey. *BMC Public Health* 2023; 23(1): 621. DOI: <https://doi.org/10.1186/s12889-023-15443-y>
- Shamsi U, Khan S, Azam I, Usman S, Maqbool A, Gill T, *et al.* Patient delay in breast cancer diagnosis in two hospitals in Karachi, Pakistan: preventive and life-saving measures needed. *JCO Glob Oncol* 2020; 6: 873-83. DOI: <https://doi.org/10.1200/go.20.00034>
- Romanoff A, Constant TH, Johnson KM, Guadamos MC, Vega AM, Zunt J, *et al.* Association of previous clinical breast examination with reduced delays and earlier-stage breast cancer diagnosis among women in Peru. *JAMA Oncol* 2017; 3(11): 1563-7. DOI: <https://doi.org/10.1001/jamaoncol.2017.1023>
- Khan MA, Hanif S, Iqbal S, Shahzad MF, Shafique S, Khan MT. Presentation delay in breast cancer patients and its association with sociodemographic factors in North Pakistan. *Chinese J Cancer Res* 2015; 27(3): 288. DOI: <https://doi.org/10.3978/j.issn.1000-9604.2015.04.11>
- Tabassum R, Buttari Q, Fatima T. Frequency and factors influencing delayed presentation of breast cancer. *Res Med Sci Rev* 2024; 2(3): 1574-80.
- Abdulkareem AA, Ghalib HA, Rashaan MI. Factors causing delayed presentations of breast cancer among female patients in Sulaimani Governorate, Kurdistan region, Iraq. *BMC Women Health* 2023; 23(1): 612. DOI: <https://doi.org/10.1186/s12905-023-02656-x>
- Ferdause J, Ahmed N, Rahman L, Aain KR, Ferdausi FA, Kadir AS, *et al.* Understanding diagnostic delays among newly diagnosed breast cancer patients at a tertiary cancer care centre in a low-middle-income country like Bangladesh. *Medicine* 2025; 104(10): e41775.
- Gul P, Gul P, Shama J, Gul K, Tanzila P. The dilemma of delayed presentation in breast cancer: A perspective from the Radiology department of a developing country of Asia. *Int J Commun Med Public Health* 2019; 6(8): 3223.
- Mohammed S, Karima B, Mohamed-Yassir E, Abdelilah M, Hajar T, Nadia TJ. Determinants of diagnosis delay in a sample of breast cancer patients from the Mohammed VI Centre for Cancer Treatment. *Asian Pac J Cancer Prev* 2025; 26(10): 3865.
- Ibrahim NA, Oludara MA. Sociodemographic factors and reasons associated with delay in breast cancer presentation: A study in Nigerian women. *Breast* 2012; 21(3): 416-8. DOI: <https://doi.org/10.1016/j.breast.2012.02.006>
- Hutajulu SH, Prabandari YS, Bintoro BS, Wiranata JA, Widiastuti M, Suryani ND, *et al.* Delays in the presentation and diagnosis of women with breast cancer in Yogyakarta, Indonesia: A retrospective observational study. *PLoS One* 2022; 17(1): e0262468. DOI: <https://doi.org/10.1371/journal.pone.0262468>
- An J, Hershberger PE, Ferrans CE. Delayed presentation, diagnosis, and treatment of breast cancer among Chinese women: An integrative literature review. *Cancer Nurs* 2023; 46(3): 217-32.
- Kumar A, Bhagabaty SM, Tripathy JP, Selvaraj K, Purkayastha J, Singh R. Delays in diagnosis and treatment of breast cancer and the pathways of care: A mixed methods study from a tertiary cancer centre in North East India. *Asian Pac J Cancer Prev* 2019; 20(12): 3711-21. DOI: <https://doi.org/10.31557/APJCP.2019.20.12.3711>
- Hamid F, Roy T. Unveiling sociocultural barriers to breast cancer awareness among the South Asian population: Case study of Bangladesh and West Bengal, India. *JMIR Hum Factors*. 2025; 12: e53969. DOI: <https://doi.org/10.2196/53969>