

Research Article

Delayed Presentation to the Hospital and Its Contributing Factors Among Patients with Breast Cancer in Harar, Eastern Ethiopia: A Facility-based Cross-sectional Study

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Abstract

Background: Breast cancer has remained as a major cause of death and a growing public health challenge in developing countries. Nevertheless, there is a paucity of research evidence on breast cancer patients' presentation and contributing factors for the delay in Eastern Ethiopia. Hence, this study aimed to assess delay in presentation and contributing factors among patients with breast cancer who visited Oncology Unit at tertiary Hospital in Harar, Eastern Ethiopia. **Methods:** An institution-based cross-sectional study was conducted with newly diagnosed breast cancer patients at the Oncology Units of Hiwot-Fana Comprehensive Specialized University Hospital from January 2022 to June 2023. Data were collected from July 5 to October 30, 2023, using a structured tool, and entered into SPSS version 26 for cleaning and analysis. Descriptive statistics were applied to compute the socio-demographic and clinical characteristics of the patients. Logistic regression was carried out to examine factors associated with patient delay in presentation. AOR at a 95% confidence interval and P-value <0.05 was used to declare a significant association. **Results:** From the total of 206 patients included in the study, 98.5% of them were females and 1.5% were males with the median age of 43 years. Three-fourth (76.7%) of the study participants were presented after 3 months of experiencing sign and symptoms which ranged from 3-15 months and a median time of presentation was 6 months. Of these, 84% of the patients diagnosed advanced-stage breast cancer. among Being residents of rural setting of Ethiopia (AOR=7.63; 95% CI=1.97-29.44), being illiterate (AOR=5.23; 95% CI=1.05-26.18), having a painless lump (AOR=6.83; 95% CI=1.85-25.14), travel distance ≥ 5 km from the Hospital (AOR=4.08; 95% CI=1.06-15.78), and having history of traditional medicine use (AOR=4.53; 95% CI=1.02-20.22) were the factors contributing to delayed presentation to the Oncology Unit or Hospital. Patients who have ever heard of breast cancer were less likely to delay in presentation (AOR=0.13; 95% CI=0.04-0.44). **Conclusion:** Breast cancer patients delayed presentation was found to be common in Eastern Ethiopia. Patients lived in rural area, illiterate, having a painless lump, far distance from health facility, have not ever heard about breast cancer, and rely on traditional medicine were associated with delays in presentation. Therefore, concerned stakeholders should strengthen awareness creation to minimize the dalliance of the patients in seeking health care.

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Received: 14 December 2025; **Accepted:** 25 December 2025; **Published:** 19 January 2026



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Keywords

Breast Cancer, Patient Delay, Contributing Factors, Harar, Ethiopia

1. Background

Globally, Cancer is a major non-communicable disease with a high public health burden and is one of the leading causes of death. Nearly 10 million deaths reported in 2020 [1]. Breast cancer is the leading cancers cases followed by lung, colorectal, and prostate cancers which accounts for about 2.26 million cases and the most common type of cancer that affects mostly women [2]. Almost half of breast cancer cases and deaths occur in low- and middle-income countries (LMICs) [3], and Africa has the highest breast cancer mortality rate in the world and a rising incidence [4].

In Ethiopia, breast cancer is a serious health problem with an increased incidence and high mortality, which accounts for about 20.9%-30.2% new cases of all malignancies [3, 5]. It has become the most prevalent tumor among women with an estimated incidence rate ranged from 23-43 cases per 100,000 women with an upward increase in trend [5, 6].

Despite the efforts to ensure access to oncologic care, late-stage presentation and advanced stage diagnosis are the common barriers to breast cancer care and support in LMICs mainly in sub-Saharan Africa that negatively impact the patients' survival [7-16]. Furthermore, lack of knowledge, negative symptom interpretation, beliefs in traditional medicine, lack of trust, aging and poor access to healthcare were some of the factors contribute to patients' delay in breast cancer diagnosis Africa, specifically women [7, 14, 17, 18].

The fact that Ethiopia has limited oncology units with only three radiotherapy centers serving more than 110 million population of the country, which is inaccessible to the majority of the rural population in which our study area is one of those Oncology centers [11, 19-21]. Delays in the presentation in some studies in Ethiopia are attributed to living in rural residence, being illiterate, long travel distances (>5km), having a painless lump, and use of traditional treatment options [1, 22, 23, 31]. However, there was no similar study done in Eastern Ethiopia and the factors for patient delay in presentations to health facilities. Therefore, this study aimed to assess the delay in presentation and contributing factors in patients with breast cancer at Hiwot-Fana Comprehensive Specialized University Hospital, (HFCSH) Oncology Center, Harar, Eastern Ethiopia.

2. Methods

2.1. Study Design and Setting

An institution-based cross-sectional study was conducted

among newly diagnosed Breast cancer patients at Hiwot Fana Comprehensive Specialized University Hospital (HFCSUH), Oncology Unit in Harar, Eastern Ethiopia from July 5, 2023, to October 30, 2023. HFCSUH is located in the oldest and most historic city in Ethiopia, the city of Harar. It is the capital city of the Harari Regional State (HRS) which is located 526 kilometers (km) from the capital Addis Ababa. There are five hospitals in Harari Region. Those are two public Hospitals, Harar Federal Police Hospital, and one private Hospital, eight Health Centers, and 28 health posts. There are more than 15 private clinics serving the people of the state (FMOH 2020). Hiwot Fana Comprehensive Specialized Hospital provides comprehensive referral services for more than 5.8 million populations in the Eastern Ethiopia. It has four main departments; Surgery Internal Medicine, Gynecology and Obstetrics; and Pediatric. It offers different specialty and subspecialty training programs in Surgery, Internal Medicine, Obstetrics and Gynecology, Pediatrics, Emergency and critical medicine, Anesthesiology, Orthopedics, Gynecology Oncology, Feto-maternal and Uro-gynecology. The Oncology Center started working in February 2020. Besides chemotherapy, the oncology unit is giving radiation therapy, which is the only center in eastern Ethiopia. Surgery department is one of the four major departments of the hospital.

2.2. Participants and Sampling Technique

All patients with breast cancer who had pathologically confirmed disease and complete medical records from January 1, 2022, to June 30, 2023, were included in the study. But medical records of patients identified with incomplete or lost records and those who had no visit during the data collection period were excluded from the study. Among the total 375 breast cancer patients seen at the oncology units of HFCSH and registered since its start (February 2020 to June 2023), 223 patients were newly diagnosed breast cancer patients from January 1, 2022 to June 30, 2023. Of these 206 participants who visited the oncology unit during the data collection period and fulfilled the inclusion criteria were enrolled in the study using convenience sampling method.

2.3. Data Collection Methods

Data were collected using a structured questionnaire adapted from a similar literature in Ethiopia [1]. Then the

adapted data collection questionnaire and checklist were reviewed and approved by two consultant surgeons. The questionnaire and checklist comprised of patients' sociodemographic information behavioral characteristics, reproductive and medical history, diagnostic journey, stage and grade of cancer, tumor size, and axillary node status and treatment modalities. The data collection tool was digitalized for computer assisted personal interview (CAPI) using google form. Data were captured from direct patient interviews and review of their medical records. The patients were retrospectively asked about their diagnostic journey from the initial complaint until the first health facility visit. To maintain the quality of data, the questionnaire was pretested on 5% of breast cancer patients, and appropriate corrections. The data was collected by 4 clinical Nurses, 3 Medical Doctors, and 4 surgical residents through an interview and review of breast cancer patients' medical records. Training was given to the data collectors and supervisors about data collection, interviewing, and research ethics. Continuous monitoring and supervision were done by the principal investigator for completeness and clarification of the data. Then, the collected data were reviewed and questionnaires with errors were returned to the data collectors for correction.

2.4. Measurement of Outcome and Exposure

Breast cancer: is considered when the biopsy confirmed diagnosis of malignant tumors in the breast. Stage of breast cancer: stage of the cancer according to AJCC (American Joint Committee for Cancer) 7th edition. Cancer staging is important in diagnosis to give appropriate management. Breast cancer staging is based on TNM classification; T stands for tumor size, N for lymph node involvement, and M for metastasis depending on methods [24]. The details are presented as an additional file (*see supplementary file; Table S1*). On the other hand, advanced (late) stage is the 3rd or 4th stage of breast cancer [12, 25], and the rest are early stage (I & II breast cancers) [12, 25]. Patient delay: is the time defined from a patient first becoming aware of symptoms until their first medical consultation or visit [26]. Furthermore, delay to presentation of more than 3 months, short patient delay if less than 3 months are considered as long patient delays [1, 26]. Patient delay may be diagnostic delay which is the time from the initial health facility visit to pathologic confirmation of cancer, delays more than 1 month are considered diagnostic delays [22], and/or healthcare provider's (HCP) delay: The time between the patient's first presentation to the health care provider (HCP) and the final referral by HCP to the cancer diagnostic center. A period of seven days or less is defined as a "short HCP delay" and >7 days is referred to as "a long HCP delay" [23].

Long-distance traveling: traveling ≥ 5 km to get to a primary healthcare facility [1]. Traditional treatment options are patients using any method of therapy and products not in-

cluded in conventional modern medicine (traditional medicine, and traditional and religious practices).

2.5. Data Processing and Analysis

Collected data using smartphone was downloaded into Excel Spreadsheet and exported to Statistical Package for Social Science (SPSS) version 26 for data cleaning and analysis. The descriptive analysis method was applied to compute frequencies, percentages, mean, median, and standard deviations (SD); and inferential analysis was carried-out with Logistic regression analysis. Crude Odd Ratio (COR) and Adjusted Odd Ratio (AOR) along with a 95% Confidence interval (CI) were calculated. All variables with a p-value of < 0.25 were included in multivariate logistic regression analysis to control for confounders [27]. The variables selected with the backward selection method and significant association were considered significant at a 95% confidence interval and p-value less than 5%.

3. Results

3.1. Socio-demographic and Behavioral Characteristics of Study Participants

From the total of 206 study participants with 100% response rate, 203 (98.5%) were females and 3 (1.5%) were males, making an M: F ratio of 1: 68. The age of the participants ranged from 20 to 84 years with the median age being 43 (IQR=36-52) years. Of all participants, 122 (59.2%) were illiterate, 183 (88.8%) were married and 73 (35.4%) were housewives. Regarding the residency, 144 (69.9%) study participants reside in rural communities from which 171 (83%) of the participants reported that it takes more than 5km from their home to the Hospital (Table 1).

Table 1. Socio-Demographic Characteristics of Patients with Breast Cancer in Hiwot Fana Specialized Hospital (HFCSH), 2023 (n=206).

Variable	Categories	n	%
Age (year)	<40	68	33
	≥ 40	138	67
Sex	Female	203	98.5
	Male	3	1.5
Religion	Orthodox	69	33.5
	Muslim	106	51.5
	Protestant	23	11.2
	Catholic	7	3.4
	Others*	1	0.5

Variable	Categories	n	%
Marital status	Married	183	88.8
	Single	11	5.3
	Divorced	5	2.4
	Widowed	7	3.4
Residence	Urban	62	30.1
	Rural	144	69.9
Region	Harari	35	17.0
	Oromiya	85	41.3
	Dire Dawa	64	31.1
	Somalia	22	10.7
Educational status	Illiterate	122	59.2
	Able to read & write	25	12.1
	Primary education completed	25	12.1
	Secondary education completed	9	4.4
Occupation	Tertiary and above	25	12.1
	Housewife	73	35.4
	Private employee	56	27.2
	Government employee	36	17.5
	Farmer	38	18.4
	Other**	3	1.5
Distance to nearby a health facility	<5 km	103	50.0
	≥5 km	103	50.0

Note: * Adventist, ** Retired, n= total number of patients

More than half of Breast Cancer patients 131 (63.6%) had not heard about the disease before they presented to a health facility, and 65 (31.6%) used traditional treatment options before their health facility visits. More than half of the women 117 (57.6%) were premenopausal and 168 (82.8%) had already given birth, 3 (1.5%) were pregnant during the diagnosis of breast cancer. About 13 (6.3%) cases had a history of benign breast conditions like abscess, fibroadenoma, and cysts, 9 (4.4%) participants smoked cigarettes, and 7 (3.4%) used to drink alcohol. Five of the patients had a family history of breast cancer and 6 (2.9%) of the participants had another type of cancer (Table 2).

Table 2. Behavioral and Reproductive Characteristics of Patients with Breast Cancer in Hiwot Fana Specialized Hospital (HFCSH), 2023, (n=206).

Variable Category		n	%
Menopausal status (n=203)	Premenopausal	117	57.6
	Post-menopausal	86	42.4
Have given birth (n=203)	Yes	168	82.8
	No	35	17.2
Contraceptive use (n=203)	Yes	85	41.9
	No	118	58.1
Pregnancy (n=203)	Yes	3	1.5
	No	200	98.5
Family history of any type of cancer	Yes	6	2.9
	No	200	97.1
Family history of breast cancer	Yes	5	2.4
	No	201	97.6
Smoking	Yes	9	4.4
	No	197	95.6
Alcohol use	Yes	7	3.4
	No	199	96.6
Traditional treatment use	Yes	65	31.6
	No	141	68.4
Ever heard of breast cancer	Yes	75	36.4
	No	131	63.6
Any breast problem before	Yes	13	6.3
	No	193	93.7

3.2. Clinical and Tumor Characteristics of Breast Cancer Patients

Out of 36 (17.5%) participants with breast cancer who had comorbidity, 6 (2.9%) were living with HIV, 10 (4.9%) were diabetic, and 22 (10.7%) had hypertension. Only a few numbers 12 (5.9%) of women had a clinical breast examination, and only two of five patients who had a family history of breast cancer had performed breast self-examination. A significant number of patients 159 (77.2%) had a painless breast lump at first presentation. Nearly all 194 (94.2%) recognized the first symptom incidentally. Three-fourth (76.7%, n=158) breast cancer patients had prolonged patient delay of more than 3 months prior to Hospital presentation after detection of the illness. The median (IQR) time taken to visit a healthcare provider after recognition of the first symptom was 6 (3-15) months. Half of the patients 103 (50%) have a long diagnostic

(delay interval). The reasons given by patients for seeking healthcare late were lack of awareness about early signs of breast cancer 182 (88.3%), use of traditional treatment options first 65 (31.6%), relating symptoms to other medical

conditions 155 (75%), financial constraints 116 (56.3%), and belief that breast cancer has no medical treatment 6 (2.9%) (Table 3).

Table 3. Clinical Characteristics of Patients with Breast Cancer in Hiwot Fana Specialized Hospital (HFCSH), 2023, (n=206).

Variables	Category	n	%
Comorbidities	Yes	36	17.5
	No	170	82.5
	Hypertension	22	10.7
	Diabetes Mellitus	10	4.9
Type of comorbidity	Asthma	2	1.0
	Heart disease	3	1.5
	HIV	6	2.9
	Painful breast	27	13.1
Presenting chief complaint	Painless Breast lump	159	77.2
	Dimpling/skin change	21	10.2
	Nipple discharge	18	8.7
	Lump in armpit	19	9.2
Breast self-examination (n=203)	Yes	12	5.9
	No	191	94.1
Clinical breast examination (n=203)	Yes	12	5.9
	No	191	94.1
Screening mammography, (n=203)	Yes	9	4.4
	No	194	95.6
	Accidentally	194	94.2
Method of detection of symptoms	During breastfeeding	4	1.9
	During Breast self-examination	6	2.9
	Other*	2	1.0
Duration of presenting complaint	<3 month	48	23.3
	≥3 month	158	76.7
Patient's reason for the late presentation	Lack of awareness about early symptoms	182	88.3
	Relating symptoms with other medical problems	155	75.2
	Belief that breast cancer has no medical treatment	6	2.9
	Use of traditional and spiritual treatment options	65	31.6
	Financial problems	116	56.3
	Fear of surgery (loss of breast)	15	7.3

Note: * pain, discharge appears (become symptomatic).

More than three-fourths of the patients 173 (84%) were late-stage (III and IV) at diagnosis from this 125 (60.7%) were

stage III, and 48 (23.3%) were stage IV. Only 2 (1%) were diagnosed with stage I and 31 (15%) were stage II at first presentation (Figure 1). More than half (158, 76.7%) of the patients had a tumor size of more than 5 cm at presentation (Figure 2). The median (IQR) tumor size at diagnosis was 7 (5-12) cm. A significantly large proportion of the patients (179, 86.9%) had presented with a tumor that involved the axillary lymph nodes (Figure 3). One-fourth of the patients 48 (23.3%) had metastatic diseases to other body sites (Figure 4).

Figure 1: Stage at diagnosis of Breast cancer patients in Hiwot Fana Specialized Hospital, 2023 (n=206). Figure 2: Tumor size at diagnosis of Breast cancer patients in Hiwot Fana Specialized Hospital, 2023. Figure 3: N (Lymph Node) status at diagnosis of Breast cancer patients in Hiwot Fana Specialized Hospital, 2023. Figure 4: Metastatic status at diagnosis of Breast cancer patients in Hiwot Fana Specialized Hospital, 2023.

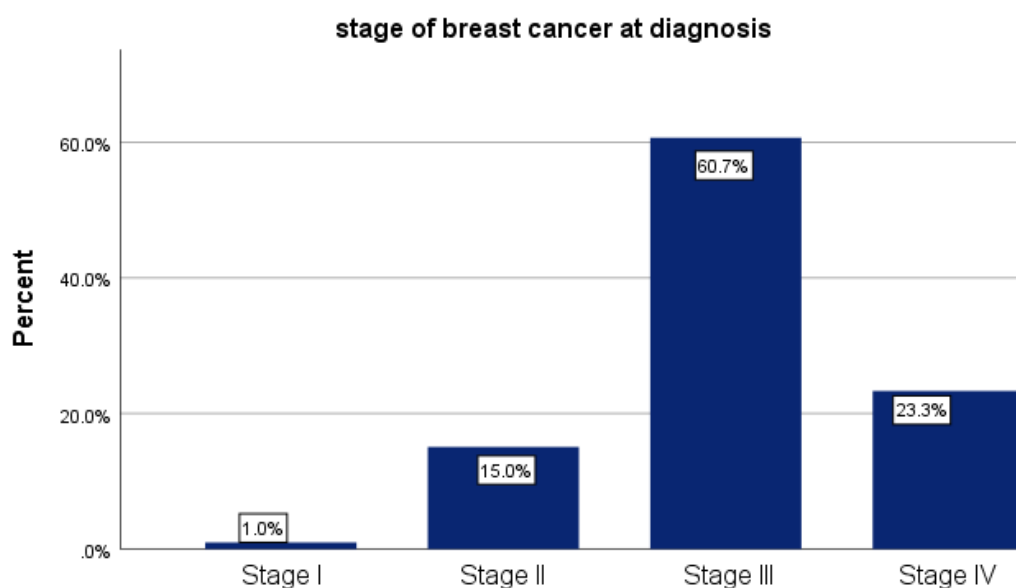


Figure 1. Stage at Diagnosis of Breast Cancer Patients in Hiwot Fana Specialized Hospital, 2023 (n=206).

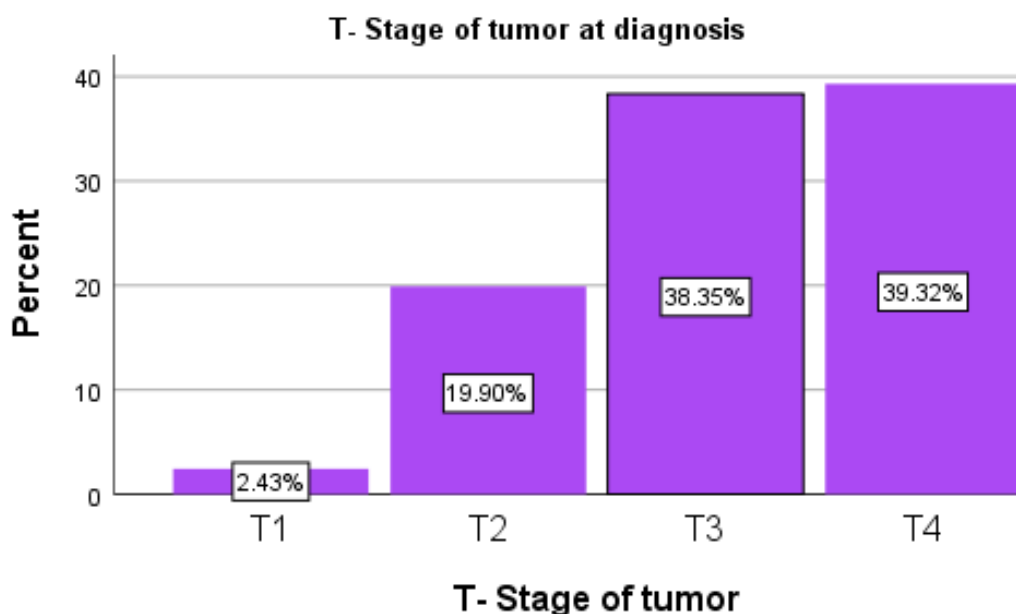


Figure 2. Tumor Size at Diagnosis of Breast Cancer Patients in Hiwot Fana Specialized Hospital, 2023.

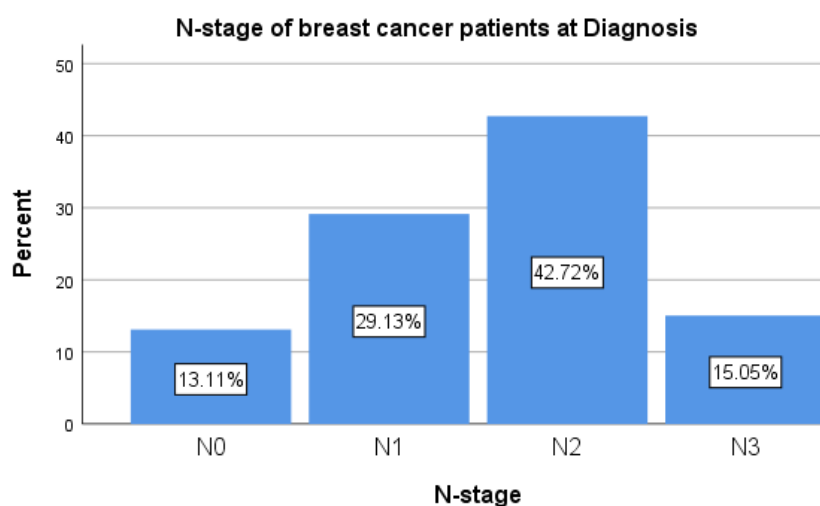


Figure 3. N (Lymph Node) Status at Diagnosis of Breast Cancer Patients in Hiwot Fana Specialized Hospital, 2023.

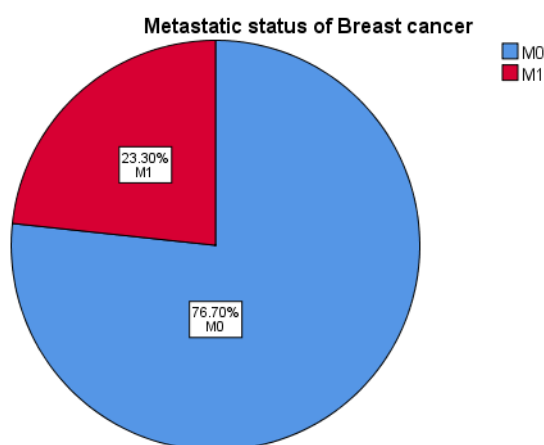


Figure 4. Metastatic Status at Diagnosis of Breast Cancer Patients in Hiwot Fana Specialized Hospital, 2023.

More than half 110 (53.4%) breast cancers occurred on the left side, 93 (45.1%) on the right, and 3 (1.5%) patients had bilateral breast cancer at diagnosis. Histopathology results showed that about 195 (94.7%) of study participants have invasive carcinoma of which 185 (89.8%) had invasive ductal carcinoma and Lobular carcinoma was found only on 11 (5.3%) patients; and 11 (5.3%) had noninvasive carcinomas

(like ductal or lobular carcinoma in-situ, phyllodes tumors). Similarly, 60 (29.1%) of patients harbor poorly differentiated invasive carcinoma (grade III tumor) and 58 (28.2%) had moderately differentiated invasive carcinoma (grade II tumor), 43 (20.9%) of patients had well-differentiated tumor (Table 4).

Table 4. Tumor Characteristics of Breast Cancer Patients in Hiwot Fana Specialized Hospital (HFCSH), 2023, (n=206).

Characteristics	Categories	n	%
Histologic differentiation of tumor	Non-invasive carcinoma	11	5.3
	Invasive carcinoma	195	94.7
Axillary lymph node status	Positive	179	86.9
	Negative	27	13.1
Site of tumor	Right	93	45.1
	Left	110	53.4

Characteristics	Categories	n	%
Metastasis to other body site	Bilateral	3	1.5
	Yes	48	23.3
	No	158	76.7
Type of tumor	Ductal	185	89.8
	Lobular	11	5.3
	Other*	10	4.9
Tumor size (in cm)	<5cm	48	23.3
	≥5cm	158	76.7
Tumor grade	Grade I	43	20.9
	Grade II	58	28.2
	Grade III	60	29.1
	Unknown	45	21.8
Treatment started	Yes	190	92.2
	No	16	7.8
Type of treatment given	Surgery alone	9	4.4
	Chemotherapy alone	72	35.0
	Combination** & Hormonal therapy	24	11.7
	Combination & other***	3	1.5

Note: * inflammatory breast cancer, Phylloides tumor, and mixed tumors. ** chemotherapy plus surgery *** Radiotherapy and treatments for other systemic diseases for underlying diseases.

Abbreviation: IQR= interquartile range.

3.3. Predictors of Breast Cancer Patients' Delay to Seek Care

Patients who were from rural residences were 7.6 times more likely to delay presentation (patient delay) than urban residences (AOR=7.63; 95% CI=1.97-29.44). Illiterate participants were approximately 5.23 times more likely to be delayed at presentation than those who had tertiary and above educational levels (AOR=5.23; 95% CI=1.05–26.18). Patients who had presented with a painless lump were approximately 6.8 times more likely to be presented late than patients

who had no lump at presentation (AOR=6.83; 95% CI=1.85–25.14). A travel distance to the nearby health facility ≥5 km was also associated with late presentation of patients with breast cancer (AOR=4.08; 95% CI=1.06–15.78). The odds of patients with breast cancer who had ever heard of breast cancer were 87% less likely to delay to seek care than their counterparts (AOR=0.13; 95% CI=0.04–0.44). In addition, women who had used traditional treatment were 4.5 times more likely to present late (AOR=4.53; 95% CI=1.02–20.22) to the health facility, while women who did not use any traditional treatment were less likely to delay medical care) (Table 5).

Table 5. Multivariable Logistic Regression Analysis of Factors Associated with Patient Delay of Breast Cancer at HFCSH, 2023 (n=206).

Characteristics	Patient delay		COR (95% CI)	AOR (95% CI)	P value
	≥3 Months	<3 Months			
Residence					
Urban	42 (67.7%)	20 (32.3%)	1	1	0.003*

Characteristics	Patient delay		COR (95% CI)	AOR (95% CI)	P value
	≥3 Months	<3 Months			
Rural	116 (80.6%)	28 (19.4%)	1.97 (1.06-3.87)	7.63 (1.97-29.44)	
Distance from home to health facility					
<5km	62 (60.2%)	41 (39.8%)	1	1	0.041*
≥5km	96 (93.2%)	7 (6.8%)	9.06 (3.82-21.49)	4.08 (1.06-15.78)	
Educational status					
Illiterate	113 (92.6%)	9 (7.4%)	7.06 (2.4- 20.4)	5.23 (1.05-26.18)	0.044*
Able to read & write	13 (52%)	12 (48%)	0.60 (0.19-1.89)	0.44 (0.08-2.29)	0.328
Primary education completed	13 (52%)	12 (48%)	0.60 (0.19-1.89)	0.53 (0.09-3.16)	0.483
Secondary education completed	3 (33.3%)	6 (66.7%)	0.28 (0.05-1.45)	0.34 (0.04-3.28)	0.354
Tertiary and above	16 (64%)	9 (36%)	1	1	1
Use of traditional treatment options					
Yes	61 (93.8%)	4 (6.2%)	6.91 (2.36-20.21)	4.53 (1.02-20.22)	0.048*
No	97 (68.8%)	44 (31.2%)	1	1	
Ever heard of breast cancer					
Yes	38 (50.6%)	37 (48.4%)	0.094 (0.04-0.20)	0.13 (0.04-0.44)	0.001*
No	120 (91.6%)	11 (8.4%)	1	1	
Swelling in the axilla/armpit					
Yes	11 (57.9%)	8 (42.1%)	0.374 (0.14-0.99)	1.65 (0.26-10.54)	0.597
No	147 (78.6%)	40 (21.4%)	1	1	
Painless breast lump					
Yes	139 (87.4%)	20 (12.6%)	10 (4.84-21.63)	6.83 (1.85-25.14)	0.004*
No	19 (40.4%)	28 (59.6%)	1	1	
Dimpling in the Breast					
Yes	8 (30%)	13 (62%)	0.14 (0.05-0.37)	0.18 (0.03-1.14)	0.068
No	150 (81%)	35 (19%)	1	1	
Size of the mass (cm)					
<5 cm	30 (62.5%)	18 (37.5%)	1	1	0.181
≥5 cm	128 (81%)	30 (19%)	2.56 (1.26-5.19)	2.20 (0.69-7.01)	

Note: * statistically significant at $p < 0.05$. AOR= adjusted odds ratio, COR= crude odds ratio.

4. Discussion

This study assessed the delay and contributing factors among patients with breast cancer who had a follow up at Hiwot Fana Comprehensive Specialized Hospital, the only radiotherapy center in Eastern Ethiopia. Patient delay in presentation and advanced stage at diagnosis was found to be significantly high among breast cancer patients. large proportions

(84%) of study participants were presented at an advanced stage which was also high in studies in Northeast and West Ethiopia [1, 23]. In addition, the proportion of patient delay accounts for 76.7% which is similar to a study in North West Ethiopia (75.7%) [1] but is higher than studies in North East Ethiopia (50.5%) [23] and, Pakistan (39%) [28], and South Africa [13]. however, lower than other studies in Senegal [29], Tanzania [30], and Nigeria [10]. The difference might be due to the difference in sample size of the studies, awareness of

breast cancer, and social and cultural behavior of participants. Besides this, 85.5% of the patients with delayed presentation were diagnosed with advanced stages of Breast cancer at presentation.

This finding is in line with other studies in Central, Southern and Northwest Ethiopia [20, 21, 30]; and also, South Africa [32] and Morocco [33]. The median time of delay was 6 months, which is higher than those found in multi-health facilities in Addis Ababa (1 month) [22] and North East Ethiopia [23] which is 4 months. Similarly, in China, (50 days) [7], Egypt (2.3 months) [34], and other studies conducted in sub-Saharan countries like Rwanda [35] (150 days) had shorter patient delays. However, it was shorter than studies in Northwest Ethiopia [1] (8 months), Nigeria (17 months), and Libya (7.5 months) [10, 12]. These differences may reflect differences in the study participants' residence and improvement in patients' awareness through time. In addition, in this study, a large proportion of participants with breast cancer have not had enough awareness about the symptoms before their diagnosis, resulting in delayed patient presentation to seek treatment.

Our study showed that rural residents, being illiterate, distance ≥ 5 km to a health facility, ever heard of breast cancer, having a painless lump, and visiting a traditional healer were significantly associated with patient delay in the multivariable logistic regression. Breast cancer patients who had never attended any education (illiterate) and Rural residents were 5.2 and 7.6 times high likely to delay than women who were tertiary and above education level and urban residents, respectively. Similar findings have also been reported in the north-east and West Ethiopia [1, 23, 31], Pakistan [28], and Morocco [33]. Participants who are illiterate and reside in rural areas have no access to health information, health education, and sociocultural impacts on health-seeking behaviors as a result they will not have enough awareness and knowledge about the disease symptoms and severity. These findings suggest that there is a need to improve awareness of breast cancer symptoms and early detection, as well as to provide better access to healthcare services for rural residents.

Participants who traveled a distance of ≥ 5 km to a health facility were 4 times delayed in presentation than those who traveled < 5 km. This finding is consistent with studies in South Africa [13], Morocco [33], and North West and East Ethiopia [1, 23]. This might be explained by patients who have difficulty with transportation to nearby health centers and referral hospitals, to get appropriate diagnoses, which in turn results in delayed presentation. A Patient whoever having heard of breast cancer before symptom recognition is 87% less likely to delay. On the other way, a study in Addis Ababa showed that patients who never have heard of breast cancer before symptom recognition were more likely to delay visiting health facilities. We found that patients who had visited a traditional healer before seeking medical treatment were 4.5 times more likely to delay than their counterparts. It affects

patients' decision to seek timely medical care and most patients delay coming to the health facility leading to worsening of symptoms and advanced stage. Similarly, findings in North East Ethiopia [23], Addis Ababa, Ethiopia [22], Libya [36], and Rwanda [35] also show that the main reason given by the patients for their delays was having tried traditional medicine first. Moreover, studies showed that the use of traditional treatment options is common in Eastern Ethiopia [37]. A substantially higher number of patients had painless lumps and typically recognized a lump at some point. Most participants also dismissed the lump, at first, as there was nothing to be concerned with. We found that having a painless lump was 6.6 times more likely to delay than their counterparts. This is higher than the study in Northwest Ethiopia [1].

5. Strengths and Limitations of the Study

Cross-sectional study design may lead to specific results. Secondary data collected from charts were not completely documented, and there was difficulty in interpreting patients' records. The sample size was small, which made it difficult to see the significance of some of the statistics. The cross-sectional nature of the study also limits the cause-effect relationship and recall, and social desirability bias related to not remembering the exact date of their first symptom recognition which could limit the validity of the results. There may be also information bias due to the language barrier. However, these limitations were addressed by giving training to the data collectors to minimize recall and social desirability bias among participants. Moreover, the exceptionally high response rate lowers the risk of bias, and the cross-sectional nature of the study makes it cost-effective, with no need for follow-up.

6. Conclusions

Delayed presentation with advanced-stage breast cancer was found to be common in Eastern Ethiopia. Having a painless lump, illiteracy, traveling a distance of more than 5 km to the health facility, rural residence, and visiting a traditional healer were the main factors contributing to the delay in presentation to a health facility after recognition of the first symptom. Patients who have heard about breast cancer were less likely to delay. We suggested that concerned stakeholders should develop programs to work on breast cancer awareness. Early detection of symptoms and referral to specialized centers where adequate investigation is available to diagnose early and start treatment so that the disease will be cured or at least reduce the mortality.

Abbreviations

AOR Adjusted Odds Ratio

AJCC	American Joint Committee for Cancer
CI	Confidence Interval
COR	Crude Odds Ratio
IQR	Interquartile Range
LMICs	Low- and Middle-Income Countries
SPSS	Statistical Package for Social Sciences
WHO	World Health Organization

Supplementary Material

The supplementary material can be accessed at <https://doi.org/10.11648/j.mls.20260201.12>

Acknowledgments

We would like to extend our kindest regards to the study participants, data collectors, supervisors and staff of the hospital. We would also like to express our gratitude to Haramaya University, College of Health and Medical Sciences for providing minimal financial support. We also take this opportunity to sincerely express our gratitude to our colleagues and friends for their tremendous help in materializing this study.

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Funding

This study was financially supported by Haramaya University, and the funder had no technical role in the study selection, data collection, analysis, conclusion, and interpretation of the finding. These were the role of the principal investigator (lead author), and co-authors.

Data Availability Statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Conflicts of Interest

Authors have no competing interest.

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