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St. Paul's Hospital Millennium Medical College

ST. PAUL'S HOSPITAL MILLENNIUM MEDICAL COLLEGE

**PREVALENCE OF KNOWN RISK FACTORS IN WOMEN
DIAGNOSED WITH BREAST CANCER AT BLACK LION
HOSPITAL**

A RESEARCH THESIS TO BE SUBMITTED TO THE DEPARTMENT OF
PUBLIC HEALTH, SPHMMC, IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF DOCTOR OF MEDICINE

OCTOBER 3,2017

ADDDIS ABABA, ETHIOPIA

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PREVALENCE OF KNOWN RISK FACTORS IN WOMEN DIAGNOSED WITH BREAST CANCER AT BLACK LION HOSPITAL

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SUMMARY

Background: Breast cancer is the most wide spread cancer globally and predominantly affects the lobules (milk producing glands) and milk ducts of breast which carry milk to the nipples.

In 2012, an estimated 14.1 million new cancer cases and 8.2 million cancer-related deaths occurred. An estimate of 231,840 new cases of breast cancer are diagnosed in women in 2015 and in 2016, it is estimated that among U.S. women there will be 246,660 new cases of breast cancer.

Non-modifiable risk factors (factors cannot be changed) for breast cancer include gender, advancing age, genetic factor, family history and race. Modifiable risk factors (factors that can be controlled) include the number of children given birth to, birth control, hormone therapy, breastfeeding, alcohol use, tobacco smoke, overweight or obesity and physical activity.

Objectives: To determine the prevalence of known risk factors among women diagnosed with breast cancer and admitted to Oncology unit of Black Lion Hospital from January 2014- January 2015.

Methodology: One-year retrospective study was conducted using medical records of patients at Black lion Hospital of Oncology unit.

All women diagnosed with new cases of breast cancer and admitted to Oncology unit from January 2014- January 2015 were included in the study.

All patients' records admitted to Oncology unit of Black Lion Hospital between January 2014- January 2015 were retrieved using guiding questionnaire from patient card. Data was entered using EPI-INFO version 6, and analyzed using SPSS statistical software.

Result: Out of 205 new cases of breast cancer, 31.2% of patients belonged to 30-39 years of age, 28.3% of patients belonged to 40-49 years of age. Most of the cases (75.6%) belong to married women, substantial number of the patients (35.1%) did not belong to any working class (house wives) and most of the patients attended primary school (28.8%). Majority of the patients (38.5%) have four or three children and 13.7% of patients had family history of breast cancer and 2.4% of patients were found smokers and 5.9% of patients has history of Alcohol Intake. Most cases of breast cancer belonged to stage III and IV (i.e., 42% and 31.7%).

Conclusion and Recommendation

The peak age of prevalence of breast cancer was the 4th and 5th decade (30-49 years) and most cases of breast cancer belonged to stage III and IV disease. For effective treatment, a focus is needed on identifying risk factors that may be amenable to intervention and for there to be educational campaigns about the importance of early detection.

ACRONYMS AND ABBREVIATIONS

ACS	American cancer society
AJCC	American Joint Committee on Cancer
WHO	World Health Organization's
TNM	Tumor, Node, and Metastasis
HIV/AIDS	Human Immunodeficiency Virus
TAH	Tikur Anbessa Hospital

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1. Introduction

1.1. Background

Cancer is a group of diseases characterized by the uncontrolled growth and spread of abnormal cells. If the spread is not controlled, it can result in death. Breast cancer is the most wide spread cancer globally and predominantly affects the lobules (milk producing glands) and milk ducts of breast which carry milk to the nipples (1).

In 2012, an estimated 14.1 million new cancer cases and 8.2 million cancer-related deaths occurred(2). One of the most commonly diagnosed cancers worldwide was breast cancer which accounts 1.7 million (11.9%) of the total and it is increasing particularly in developing countries where the majority of cases are diagnosed in late stages (3). 231,840 new cases of breast cancer are diagnosed in women in 2015 and in 2016, it is estimated that among U.S. women there will be 246,660 new cases of breast cancer. (2)

Breast cancer is considered to be the most common malignancy in women. Its prevalence data indicate that one million new cases are reported each year in the world and it accounts for nearly 18% of all female cancers. (2)

According to ACS, non-modifiable risk factors (factors cannot be changed) for breast cancer include gender, advancing age, genetic factor, family history and race. Modifiable risk factors (factors that can be controlled) include the number of children given birth to, birth control, hormone therapy, breastfeeding, alcohol use, tobacco smoke, overweight or obesity and physical activity. (1)

The American Joint Committee on Cancer (AJCC) has designated staging of breast cancer by TNM (tumor, node, and metastasis) system. (1)

- Stage I represents tumor ≤ 2.0 cm in greatest dimension(T1), no nodal involvement(N0) and no metastases(M0).
- Stage II represents tumor $> 2.0 \leq 5$ cm(T2), ipsilateral axillary lymph node (N1) and no metastasis (M0).
- Stage III represents tumor > 5 cm (T3), ipsilateral axillary lymph nodes fixed to each other or other structures (N2) and no metastasis (M0).
- Stage IV represents any tumor size, any lymph node status and metastasis (M1).

1.2. Statement of the problem

From an estimated 12 million new cases and 7.6 million deaths in 2008, the incidence of cancer worldwide is expected to rise to 26.4 million with 17 million deaths by 2030. Most of these new cases of cancer are expected to occur in the developing world, particularly India and China (4). Current data suggest that cancer kills more people than HIV/AIDS, tuberculosis and malaria combined, but this overall picture hides significant variations in incidence in different parts of the world (4).

Breast cancer is the most common cancer in women worldwide and the second most common cancer overall (2). It is a leading cause of cancer death in less developed countries and the second leading cause of cancer death in American women, exceeded only by lung cancer(2).

Epidemiologists have documented many risk factors for the development of breast cancer. Exposure to exogenous hormones as oral contraceptives, hormone replacement therapy (7) and dietary fat intake (8,9) result in an increase in the risk of breast cancer. Despite recognition of all these risk factors, about 70% of females who develop breast cancer do not have identifiable risk factors (5). However, the most significant risk factors for breast cancer are gender (being a woman) and age (with most cases developing in women after menopause (10-12). In countries around the world, preventable risk factors for breast cancer such as physical inactivity and excessive alcohol consumption as well as cultural factors are important to consider (9).

In some African countries, for example, there may be a belief that breast cancer is caused by social misbehavior such as oral or nipple contact, or woman wearing dirty clothing or putting money inside her bra.(6) Also, there is a belief that once a woman is diagnosed with breast cancer, she may be divorced by her husband and possibly rejected by the community, or that following a breast cancer diagnosis her breast will be cut off and she will die.(6) As a result of misconceptions and unfounded beliefs, women may tend to hide their breast cancer symptoms at the early stages when treatment is most likely to be effective (6). The above reasons and others like changing in life styles and lack of clinical advances to combat the disease, especially in developing countries, leads the trend of the disease to increase from year to year (2).

Therefore, this study is aimed to assess the prevalence of known risk factors of breast cancer among women diagnosed with breast cancer at Black Lion Hospital surgical department from January 2014-15.

1.3. Justification of the study

The essence of this research is to determine the prevalence of known risk factors like early menarche, late menopause, socio economic, reproductive and demographic factors, among women diagnosed with breast cancer at Black Lion Hospital, as little information exists in this regard and to offer suggestions about some measures to put in place to control the disease and reduce its morbidity and mortality.

It can help the government to give health education to the society on the most common risk factors that can lead a woman to develop breast cancer. Since Black Lion Hospital is the most common referral center from different side of the country in relation to breast cancer. It can also be used by researchers as a source of information or for literature review because little information exists in this regard.

2. Literature Review

2.1 Global

Globally, breast cancer, due to its high prevalence, has emerged as 2nd most common cancer in the world and signifies 9% of universal cancer burden (13). It is affecting 1.38 Million individual globally every year (13).

In western industrialized societies breast cancer usually upsets women living who are between the ages of 35 and 70 but it can also hit young women(14). The quantum and frequency of breast cancer is quite high in Western Europe and lowest in Eastern and Middle Africa, with approximately five-time difference globally (14). The highest incidence rate among the countries of European Union in 2008 was estimated around 145 cases per 100,000 in Belgium and 57 cases per 100,000 in Greece (15).

Among Asian countries especially in Pakistani population there has been a shocking escalation in the prevalence of breast cancer. There were reports that breast cancer accounts for 34.6% of all female cancers(16).The prevalence of breast cancer in Pakistan is 2.5 times greater than bordering countries; Iran and India, reflecting the highest frequency of breast cancer for any Asian population, after Jews in Israel(16). During 1993-1997, in China, the frequency of breast cancer was rated at 27.2 per 100000 in urban Shanghai whereas in rural area like Qidong, it was just 11.2 per 100000 (17).

In India in 2013, the most common age for breast cancer is between 50 to 54 years of age group(16). More than seven to twelve years of education is a significant risk factor and the non vegetarian diet was also observed an important risk factor(16). Age at menarche, age at first child birth and abortion reported significant risk for breast cancer(16).

The study conducted in Brazil in 2010 shows that the mean age for breast cancer development is 53 years(17). Many (76.1%) of them reported they had never consumed alcohol, and only 13% mentioned they smoked cigarettes(17). The mean age when their menopause started was 47 years and their menarche 13 years(17). Only 6.8% had never been pregnant and 2.3% of the women reported that their mother has or had breast cancer and 3.9% mentioned they had a sister with breast cancer(17).

2.2 In Africa

In sub-Saharan Africa, breast cancer is responsible for one in four diagnosed cancers and one in five cancer deaths in women (14). Despite its emerging public health importance, incidence rates are still generally low in Africa, presumably below 35 per 100,000 women in most countries(14). Precise incidence figures in Africa, however, are lacking given the absence of cancer registration in most countries. Recent data estimate that in 2012, 94,000 women developed breast cancer and 48,000 died from it in sub-Saharan Africa(18).

Across sub-Saharan Africa, there are only four population-based registries (Kampala, Uganda; Harare, Zimbabwe; Blantyre, Malawi, and PROMEC, South Africa) cited in volume X of the World Health Organization's (WHO) Cancer in Five Continents (19). In Zimbabwe, a 4.5% annual increase in breast cancer incidence over the period 1991–2010 has been noted (19). Two of the registries (the Gambia and Mali) reported the greatest rate of increase for women under age 55 years but time trends may have been influenced by reporting problems(19). In the two registries that have contributed to Cancer in Five Continents over an extended period of time (Uganda and Zimbabwe), the largest increases in incidence over time were seen among the post-menopausal age groups(19).

There is substantial variation in estimated breast cancer incidence across different African regions. Estimates of age-standardized incidence rates (per 100,000 women) are 30.4 in eastern Africa, 26.8 in middle Africa, 38.6 in western Africa, and 38.9 in southern Africa (19).

The average age of diagnosis of breast cancers among African women tends to be young, with estimates that a majority of cancers develop among women 50 years or younger a considerably younger age than seen in Caucasian populations(20).

A study conducted in Sub Saharan Africa in 2015 shows that a greater proportion of breast cancers occur among premenopausal women as compared to elsewhere, which may reflect unique risk factors(21). Multiparity was a risk factor for breast cancers diagnosed prior to 45 years of age, but an apparent protective factor for later onset cancers(21). Age at first birth was noted to be a risk factor and late menarche to be a risk factor in postmenopausal women(21). A strong inverse relation of breastfeeding to breast cancer risk has been noted, with risk decreasing 7% for every 12 months of breastfeeding(21). Higher socioeconomic status (as measured by such factors as education, income and housing) has been linked with higher breast cancer risks(21).

2.3. In Ethiopia

In the years 1995 to 1999, 137 histologically confirmed breast cancer patients underwent surgery at Tikur Anbessa Hospital (TAH), Addis Ababa. Of these, the records of 125 cases were retrieved and analyzed(22). The majority (55.2%) of the patients were in the 30-49 age group. Only 5% were 25 years old or below. The age for females ranged between 20 and 80 years with a mean of 42.4 ± 11.9 . In males the ages ranged from 37 to 80 years with a median 55.8 ± 13.3 . Out of 112 females, 13.4% and 70.5% were under the age of 30 and 50 years, respectively. Most patients were premenopausal women. The median parity was 4 ± 2 but 18.1% were young nulliparous women. Majority of cases were Amhara by ethnicity and Christian(22).

Over a period of sixteen years, 1997-2012, more than 50 cancer types, a total of 16,622 new cases were registered in Tikur Anbessa Hospital (TAH), Addis Ababa . Out of this, 3460 (prevalence=20.8%) were new cases of breast cancer and more than 70% of the cases were diagnosed below 50 years of age (23).

3. Objectives of the study

General objective

To determine the prevalence of known risk factors among women diagnosed with breast cancer and admitted at Black Lion Hospital from January 2014-2015.

Specific objectives

- To determine the prevalence of known risk factors among women diagnosed with breast cancer and admitted to Black Lion Hospital Oncology unit from January 2014-15.
- To determine the prevalence of the stage of the cancer among women diagnosed with breast cancer and admitted to Black Lion Hospital Oncology unit from January 2014-15.

4. Methodology

4.1. Study area and period

The study was conducted at Black Lion Hospital of Oncology unit. Black lion Hospital is a large referral teaching hospital, under the administration of Addis Ababa University, located in Addis Ababa, Ethiopia. It has divisions such as internal medicine, surgery, gynecology and obstetrics, pediatrics, radiotherapy, adult oncology, pediatric oncology /hematology, nuclear medicine, psychiatry, laboratory, orthopedics, pharmacy etc. The hospital gives diagnostic and treatment service for about 370,000-400,000 patients per year. The data was collected from January 2014-15.

4.2. Study Design

One-year retrospective cross sectional study was conducted from medical records of women attended Black Lion Hospital from January 2014-15.

4.3. Source population

All women attended Oncology unit from January 2014- January 2015.

4.4. Study Population

All women diagnosed with breast cancer and admitted to Oncology unit from January 2014- January 2015.

4.5. Sample Size and Sampling Procedure

All women diagnosed with breast cancer and admitted to Oncology unit from January 2014- January 2015 were included.

4.6. Variables of the study

Dependent variable

- Status of Breast cancer

Independent variables

- age at diagnosis
- religion
- ethnicity
- residence
- marital status
- educational status
- occupation
- age at menarche
- age at menopause
- child bearing history or parity
- family history of breast cancer
- cancer stage at diagnosis
- smoking
- alcohol intake

4.7. Data Collection Procedures

In this retrospective study, the case records of women diagnosed with breast cancer and admitted in Oncology unit of Black Lion Hospital between January 2014- January 2015 were retrieved using data extraction format from patient card.

4.8. Data Quality Control

The data extraction format from patient card was pre-tested 4 days before the actual data collection days. As a result of the pretest necessary corrections was made to some of the questions of the data extraction format.

At the end of each data collection day the data was checked whether recorded information makes sense to ensure the quality of data collected. Besides this, the data was carefully entered and thoroughly cleaned before the commencement of the analysis.

4.9. Data processing and analysis

Frequencies of different variables was computed for description as appropriate. Data was entered using EPI-INFO version 6 and analyzed using SPSS statistical program.

4.10. Operational Definitions

- Reproductive factor include child bearing history or parity.
- Alcohol intake reflects three or more drink (one bottle of beer) per day
- Smoking reflects ≥ 20 pack years

4.11. Ethical Considerations

This study obtains ethical clearance from Department of Public Health, St Paul Hospital MMC, Ethical committee. Official letter was written to Black Lion Hospital including the purpose of the study and other related issues and all the information collected from the patient record were kept confidential and only be used for the research purpose.

4.12. Dissemination of Results

Findings of the study will be submitted to Department of Public Health of St Paul Hospital MMC. It will also be communicated to Black Lion Hospital and publication will also be considered.

7.RESULTS

A. Sociodemographic characteristics of the respondents

Over a period of one year, between January 2014- January 2015, about 205 new cases of breast cancer patients are admitted to Black Lion Hospital of Oncology unit.

Table 1: Breast Cancer patient's distribution by Sociodemographic characteristics at Black Lion Hospital from January 2014-15.

Sociodemographic characteristics of the respondents	Total	Percentage (%)
Age at Diagnosis		
<20	3	1.5
20-29	21	10.2
30-39	64	31.2
40-49	58	28.3
50-59	33	16.1
60-69	18	8.8
>=70	8	3.9
Total	205	100.0
Religion		
Orthodox	90	43.9
Protestant	53	25.9
Catholic	16	7.8
Muslim	46	22.4
Total	205	100.0
Ethnicity		
Amhara	55	26.8
Oromo	90	43.9
Tigre	20	9.8
Gurage	10	4.9
Other	30	14.6
Total	205	100.0
Residence		
Urban	122	59.5
Rural	83	40.5
Total	205	100.0

Marital Status		
Single	22	10.7
Married	155	75.6
Divorced(separated)	20	9.8
Widowed	8	3.9
Total	205	100.0
Occupation		
Student	6	2.9
House wife	72	35.1
Gov't \Private organization employee	66	32.2
Merchant	45	22.0
House maid	5	2.4
Daily laborer	11	5.4
Total	205	100.0
Educational Status		
Illiterate	17	8.3
Read & write	47	22.9
Primary	59	28.8
Secondary	44	21.5
Above secondary	38	18.5
Total	205	100.0

The age at diagnosis of breast cancer was divided into seven age groups. Out of 205 women diagnosed with breast cancer, 1.5% of patients belonged to <20 years of age, 10.2% of patients belonged to 20-29 years of age, 31.2% of patients belonged to 30-39 years of age, 28.3% of patients belonged to 40-49 years of age, 16.1% of patients belonged to 50-59 years of age, 8.8% of patients belonged to 60-69 years of age and 3.9% of patients belonged to ≥70 years of age.

Out of 205 women diagnosed with breast cancer 43.9% are Orthodox, 25.9% are Protestant, 7.8% are Catholic and the rest 22.4% are Muslim.

Out of 205 women diagnosed with breast cancer, most of them or 43.9% are Oromo, 26.8% are Amhara, 9.8% are Tigre, 4.9% are Gurage and the rest 14.6% belongs to other types of ethnicity.

The data indicated that 59.5% of breast cancer women belonged to urban area and the rest (40.5%) belonged to rural areas.

Regarding marital status of the breast cancer patients, most of the cases (75.6%) belong to married women. Only 10.7% of cases are unmarried or single.

The data reflected that a substantial number of the patients (35.1%) did not belong to any working class (house wives) and the smallest number of patients are house maids.

The data reflected that most of the patients attended primary school (28.8%), can read and write (22.9%) and attended secondary school (21.5%).

B. Female Physiological and Reproductive Factors

Out of 205 patients, majority of the women (75.6%) experienced their first menarche at 12 years or older where as 24.4% of patients underwent menstrual periods at less than 12 years and 4.9% of the cases reached menopause at or below the age of 45 years but a considerable number of cases (52.2%) had their menopause after 45 years.

Table 2: Breast Cancer patient's distribution based on their Physiological and Reproductive Factors at Black Lion Hospital from January 2014-15.

Female Physiological and Reproductive Factors	Total	Percentage (%)
Age at Menarche		
<12yrs	50	24.4
>=12yrs	155	75.6
Total	205	100.0
Age at Menopause		
Not yet in menopause	88	42.9
<=45yrs	10	4.9
>45yrs	107	52.2
Total	205	100.0
Parity		
0	27	13.2
1-2	65	31.7
3-4	79	38.5
>=5	34	16.6
Total	205	100.0

when the data was examined with relation to Parity, it was found that 13.2% of patient did not bear children. Most of them (38.5%) have three or four children.

C. Breast Cancer History

About 13.7% of patients had family history of breast cancer where as 86.3% of the patients were suffered from the breast cancer without any personal and family history of any type of cancer.

Table 3: Breast Cancer patients' distribution by Family History of Breast Cancer at Black Lion Hospital from January 2014-15.

Family History of Breast Cancer	Total	Percentage (%)
Present	28	13.7
Absent	177	86.3
Total	205	100.0

D. Life Style Habits

Only 2.4% of patients were found smokers and 5.9% of patients has history of Alcohol Intake.

The majority of patients (97.6%) were non-smokers and 94.1% of patients has no history of Alcohol Intake.

Table 4: Breast Cancer patient's distribution based on their Life Style Habits at Black Lion Hospital from January 2014-15.

Life Style Habits	Total	Percentage (%)
Smoking		
Yes	5	2.4
No	200	97.6
Total	205	100.0
Alcohol Intake		
Yes	12	5.9
No	193	94.1
Total	205	100.0

E. Cancer Stage at Diagnosis

All of the patients were categorized with respect to cancer stages. A negligible number of cases were diagnosed at stage 1 whereas most cases of breast cancer belonged to stage III and IV (i.e., 42% and 31.7%). A substantial number (22%) of cases were identified at stage II.

Table 5: Breast Cancer patient's distribution by Cancer Stage at Diagnosis at Black Lion Hospital from January 2014-15.

Cancer Stage at Diagnosis	Total	Percentage (%)
Stage 1	9	4.4
stage 2	45	22
stage 3	86	42
stage 4	65	31.7
Total	205	100.0

8. Discussion

Over a period of one year, between January 2014- January 2015, about 205 new cases of breast cancer patients are admitted to Black Lion Hospital of Oncology unit.

The peak age of prevalence of breast cancer in this study was the 4th and 5th decade (30-49 years) which accounts for 60% of all cases and that supports the reports from Kenya and South Africa (24), but lower than reports from Norway and among the Philippines which have 6th and 8th decade respectively (25,26). In developed countries, more than two third of breast cancer cases are diagnosed in women aged 50 years and older (27), but in contrast, in this study more than 70% of the cases were diagnosed below 50 years of age which is almost similar in other developing countries like Sudan (74%), Libya (71%), and Ghana (54.2%) and which is also similar to the study conducted in Tikur Anbessa Hospital ,Over a period of sixteen years, 1997-2012, more than 70% of the cases of breast cancer were diagnosed below 50 years of age(23).

Residential area has been cited as a risk factor in the development of breast cancer. The study showed that 59.5% of the patients belonged to urban areas and rest of the patients were living in rural places. The number of cases in other regions of the country depends on their distance from Addis Ababa; the more far the region, the less the number of cases, because the patients may not get the opportunity to go and diagnosed. Those patients who are relatively near to the hospital, such as patients in Addis Ababa, Oromia, and Amhara, are able to go the hospital and diagnosed. But, those patients who are far from the hospital are not able to go the hospital easily due to many reasons like transportation cost, accommodation, job and family related cases, etc.

Study conducted in South Africa showed that place of living influences patients' decision to get early treatment or to evade the suggested medical remedies for cancer because people from rural places still incline to apply native ways of treatment (28).

Marital Status itself does not indicate being risk of breast cancer as majority of patients (75.6%) in the study were married but the patients who did not get married at right age are likely to become victim of breast cancer (29).

Development of breast cancer has been linked with income(Occupation) and education level of women in literature because it determines life style behavior and area of living. About (2.4%) of patients are house maids and 8.3% are illiterate which is near to Californian patients where 9% of the patients were marked as "lower middle class" (30).

Majority (75.6%) of the patients experienced their first menarche at an age of 12 years and older. Women who saw menarche at younger age (=12 years) have high risk of developing breast cancer since prolonged menstrual history multiplies woman contact to estrogen (31).

In this study 75.6% of patients had their menarche at 12yrs or older which is comparable to the data of Northwest Ethiopian women whose age at menarche was 15 ± 1 year (32). This indicate that African women had menarche at older ages. (33). This suggests that interaction between genetic and environmental factors determine the age at menarche (34).

Contrary to the menarche, women who reach menopause after 50 years of age are more prone to develop breast cancer because of long exposure to estrogens (35). The study indicated that 52.2%

women experienced menopause after the age of 45 years and this is comparable with the data of African Americans women who underwent menopause at older age (36).

Majority of the patients (38.5%) have four or three children. These results are in agreement with the notion that multi-parity decreases endogenous estrogen levels and hence ceases the level of risk (33) while nulli-parity augment the level of prolactin which amplify the risk for breast cancer (33). Risk for breast cancer diminishes for females who underwent delivery process for three or more times, while having few children increases risk (30).

Women with family history of cancer has more tendency to develop cancer but in this study majority of the patients (86.3%) did not have any relatives diagnosed with cancer. Only 13.7% of the patients have family history of cancer. This is similar to the study conducted in sub-Saharan Africa where the proportion of women reporting a family history was quite low, most likely reflecting that diagnostic information is often not widely discussed with patients or their families (33). But these findings are contrary to the study conducted in India, where 85.0% patients had relatives with breast cancer (37).

It is reported that there is a link between smoking and breast cancer and it is observed that presentation of breast cancer occurs earlier in passive and chain smokers as compared to nonsmokers (38). In this study Alcohol intake and Smoking history are less frequent risk factor as only 2.4% of patients were found smokers and 5.9% of patients has history of Alcohol Intake. The majority of patients (97.6%) were non-smokers and 94.1% of patients has no history of Alcohol Intake. This is similar to the study conducted in Sub-Saharan Africa, that smoking and alcohol intake are less frequent risk factors for development of breast cancer in non-African populations (33).

A negligible number of cases were diagnosed at stage 1 whereas most cases of breast cancer belonged to stage III and IV (i.e., 42% and 31.7%). A substantial number (22%) of cases were identified at stage II. This is similar to the study conducted in Sub-Saharan Africa that 70% of patients diagnosed with stage III tumor (33) and also the study conducted by Tessema Ersumo at Black Lion hospital showed that 76% of patients had advanced disease (Stages III and IV) at presentation (22).

9. Strength and Limitations of The Study

Strength

The study is new in its kind so that it will be a valuable base line data to know the risk factors of breast cancer so that mortality from it will be decreased.

This study can generate valid base line information for the one who needs to conduct another assessment.

Limitations

Lack of similar studies hindered further comparison of the results with other studies.

There were difficulties of getting some of the risk factors of breast cancer like breast feeding from the patient cards.

As it is retrospective study, it was difficult to know the knowledge gaps between patients on breast cancer.

10. conclusion

- The peak age of prevalence of breast cancer was the 4th and 5th decade (30-49 years). Most of the cases of breast cancer belong to married women, they are housewives and attended primary school.
- Majority of the patients have four or three children.
- Majority of the patients have no family history of breast cancer, smoking and alcohol intake history.
- Most cases of breast cancer belonged to stage III and IV disease.

11. Recommendation

With limited opportunities for effective treatment, a focus is needed on

- For the society: Identifying risk factors that may be amenable to intervention so that mortality from breast cancer can be decreased.
- For the government:
 - It will also be essential to understand reasons why women delay seeking care after the onset of symptoms and for there to be educational campaigns about the importance of early detection. Therefore, there is the need to step up activities through government organizations, NGOs, screening programs and trainings such as mammography, clinical and self-examination, to control breast cancer in the country.
 - In addition, it will be important to open breast cancer diagnosing centers in each region of the country in order to know the number of cases, which will be affected by being undiagnosed due to farness to the diagnosing centre.
- For Researchers: Additional researches on breast cancer post treatment survival rate, on risk factors assessment, patient quality of life and others are recommended in future.

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Annexes

Check list from the card or medical record review

A. Socio-Demographic factor

1. Age at diagnosis	1.<20 2.20-29 3.30-39 4.40-49 5.50-59 6.60-69 7.>=70
2. Religion	1. orthodox 2. Protestant 3. Catholic 4. Muslim 5. Other
3. Ethnicity	1. Amhara 2. Oromo 3. Tigre 4. Gurage 5. Other
4. Residence	1. Urban 2. Rural
5. Marital Status	1. Single 2. Married 3. Divorced(separated) 4. Widowed
6. Educational Status	1. Illiterate 2. Read and write 3. Primary 4. Secondary 5. Above Secondary
7. Occupation	1. Student 2. Housewife 3. Government/Private organization employee 4. Merchant 5. House maid 6. Daily laborer 7. other

B. Female physiological and reproductive factors

8. Age at menarche	1. <12yrs 2. ≥12yrs
9. Age at menopause	1. Not yet in menopause 2. ≤45yrs 3. >45yrs
10. Parity	1. 0(Nulliparous) 2. 1-2 3. 3-4 4. ≥5

C. Breast Cancer history

11. Family history of breast cancer	1. present 2. Absent
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D. Life style habits

12. Smoking	1. Yes 2. No
13. Alcohol intake	1. Yes 2. No

E. Cancer Stage at Diagnosis

14. cancer stage at diagnosis	1. Stage I 2. Stage II 3. Stage III 4. Stage IV
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