

Impact of Breast Cancer in Tigray, Northern Ethiopia: Retrospective e-HMIS Data Base Review and Analysis

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Abstract

Background: Breast cancer is an emerging non-communicable disease in Ethiopia. The aim of the study was to assess the impact of breast cancer in Tigray, Northern Ethiopia.

Methods: Retrospective secondary data were scanned from health management information system data base (e-HMIS) at Tigray Regional Health Bureau from 2011-2017. Data abstraction and analysis were conducted from June to July 2018. Scanned data were filtered in Excel- sheet and exported to SPSS version 21 for further statistical analysis. Finally, descriptive statistics were used to display finding of impact of breast cancer in terms of its morbidity and mortality rate using table and line graph.

Results: A total of 4630 cancer cases were registered during the study period. Of which, 1250 (26.9%) were new cases of breast cancer. high proportion of breast cancer morbidity and mortality was observed in age category of 15 years of age and above in both men and women. Over all breast cancer mortality was 2.3% during the study period. The trend of breast cancer morbidity was picked by nearly half and its mortality rate by 12.7% in year 2017 when compared with base line data in 2011.

Conclusion: The study finding revealed that high breast cancer morbidity and mortality trend were observed. This high impact might result additional burden causing maternal illness and death in addition to communicable disease. Therefore, other systematic studies needed to identify its indigenous predictors for initiating appropriate interventions efficiently.

Keywords: Breast cancer; Impact; Morbidity; Mortality; Tigray region; Northern Ethiopia

Introduction

Cancer is one of the major non-communicable diseases and an emerging public health issue. About 14.1 million new cancer cases and 8.2 million deaths occurred in 2012 worldwide [1]. Breast cancer is the most-frequently diagnosed cancer and the leading cause of cancer death among females worldwide, with an estimated 1.7 million cases and 521,900 deaths in 2012 [2]. Breast cancer alone accounts for 25% of all cancer cases and 15% of all cancer deaths among females [3]. More-developed countries account for about one-half of all breast cancer cases and 38% of deaths [1-3].

A significant increase in breast cancer incidence is reported in most Sub-Saharan Africa countries suggesting an increasing public health problem in a continent with existing infrastructures having been developed mainly for maternal, child health and infectious diseases [2,3].

In Ethiopia, a comprehensive cancer registration and population-based measurement [4] indicated that breast cancer is becoming the most prevalent (30.2%) illness among women in Ethiopia replacing cervical cancer (13.4%) [5].

Widespread urbanization, fast-growing and aging population due to an increase in life expectancy, changing patterns of reproductive and environmental risks factors, obesity, decreased physical activity are among the salient factors implicated in the steady rise in breast cancer incidence [3,4].

In response to this, the Ethiopian government has recently launched a national cancer control plan including breast cancer. The plan set ambitious objectives to expand a range of preventive interventions, screening tests for early detection, and diagnosis and treatment, with

provision of chemotherapy, surgery, radiotherapy, and palliative cares to scale-up of interventions in Ethiopia including the study regional state [5,6].

Even though, various interventions were implemented in the past in the study region, data were scares that indicate its impact. Therefore; the essence of this study is to illustrate the impact of breast cancer in terms of its morbidity and mortality among women attending public health facilities in Tigray.

Methods

Study settings and period

The study was conducted in Tigray, Northern Ethiopia, 802km from Addis Ababa, from June to July 2018. According to the 2007 national census, the projected total population in the region is estimated as 5.3 Million. Of which, 51% are females [7]. Accordingly, the region composed of seven administrative zones further divided in to 52 districts. Of which, 12 of them were urban. The health system composed of three-tier including Specialized Hospitals (1), General Hospitals (15),

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Primary Hospitals (22), Health Centers (202) and 712 Health Posts at community level (712) [8].

Study design and population

Retrospective secondary data scanning and analysis were conducted

from Tigray Regional Health Bureau e-HMIS data base unit. All cancer cases diagnosed, recorded, and reported from inpatient department from August 2011 to September 2017 were included in the study. No data were excluded since all were complete and readable. A total of 1520 breast cancer cases were abstracted, scanned and analyzed.

Age category	Morbidity		Age category	Mortality	
	Male (N=137)	Female (N=1088)		Male (N=1)	Female (N=24)
	n (%)	n (%)		n (%)	n (%)
≤4	5 (3.6)	4 (0.4)	≤4	0 (0)	0 (0)
5-14	7 (5.1)	10 (0.9)	5-14	0 (0)	2 (8)
≥15	125 (91.3)	1074 (98.7)	≥15	1 (100)	22 (92)

Table 1: Impact of breast cancer by age level and sex in Tigray, Northern Ethiopia.

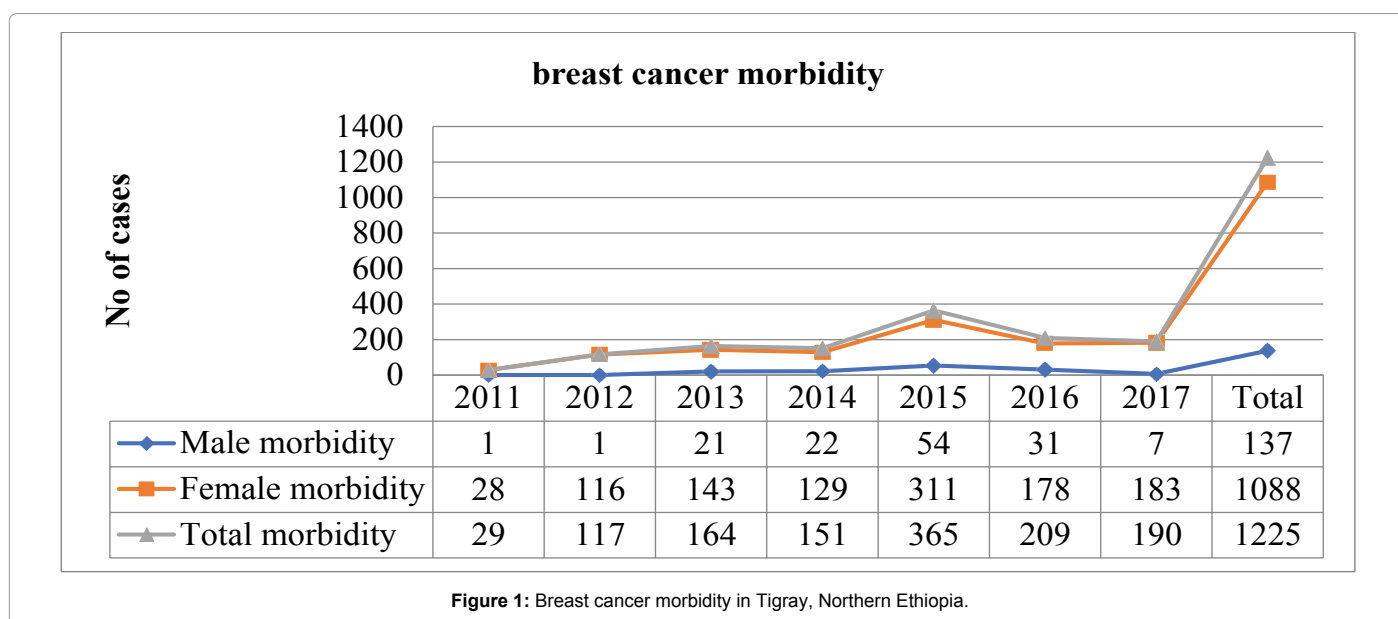


Figure 1: Breast cancer morbidity in Tigray, Northern Ethiopia.

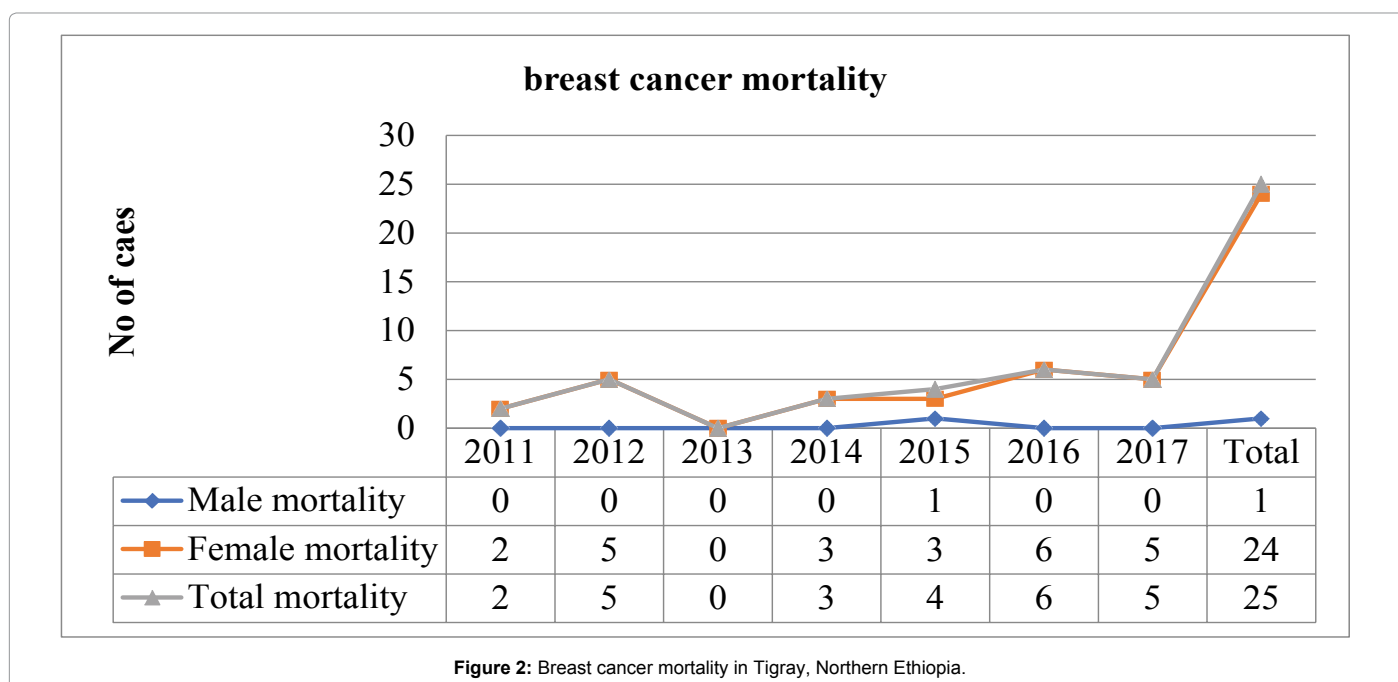


Figure 2: Breast cancer mortality in Tigray, Northern Ethiopia.

Data collection, handling and analysis

Illegible data were scanned by health experts from Tigray Regional Health Bureau from e-HMIS data base in line with the regional HMIS reporting format [9]. Abstracted data were filtered and documented in to Excel sheet for checking its consistency and reliability and validity. Filtered data finally transported to SPSS version 21 for statistical analysis. Descriptive statistics were used to display the results of impact of breast cancer in terms of its morbidity and mortality rate using table and line graph.

Results

A total of 4630 cancer cases were scanned. Of which, 1250 (26.9%) were new cases of breast cancer with 0.5 % mortality rate (Table 1).

Cancer morbidity

High proportion of breast cancer was diagnosed in females. Regarding its morbidity with respect to age category, its morbidity was 0.7% in ≤ 4 years of age, 1.5% from 5-14 years of age, and 97.8 ≥ 15 years of age respectively. The ratio of its morbidity among male to female was approximated to 1/7.9. Similarly, its morbidity trend was increased almost by half in 2017 when compared with its counterpart in 2011 (Figure 1).

Cancer mortality

In similar context to its morbidity, breast cancer mortality was higher in females than males. Of which, 8% of its mortality rate was observed in age category of 5-14 years of age and the remaining in 15 years of age and more. Similarly, its mortality trend increased by 12.5% in 2017 in reference with 2011 (Figure 2).

Discussion

The study revealed that breast cancer morbidity and mortality were found high (Figures 1 and 2). Its morbidity was high when compared with the national breast cancer projections (29.9%, 20.8%) [10,11] at country level in Ethiopia and similar with an evidence. The discrepancy between the former two findings might be inclusion of large amount of sample size at national level and variation of breast cancer morbidity among different regions at country level was different. Accordingly, breast cancer morbidity was high in females as M: F (1:7.9) ratio which is almost similar from evidences reported in [12,13] of Norway and Phillipine (1:80), in terms of sex where cancer occurs more in women. However, it was lower when compared two findings among women. The difference might be poor recoding and reporting system in developing countries like Ethiopia [9]. Regarding age category, its morbidity and mortality was high among patents 15 years of age and more. Similarly, reported from [11] of Ethiopia, [14,15] of Nigeria and Thailand. But, it was in contrast with an evidence from [16,17] in which more than two third of breast cancer cases were diagnosed in women aged from 50 years and older as reported from [18] in Sudan, and Libya. The difference might be their awareness on health life style that protect exposure to cancer. For instance, alcoholic drink not commonly practiced in Sudan and Libya in which high alcoholic consumption is predicting factor for the emergence of non-communicable disease [19].

The trend of breast cancer had been increasing with similar pattern to the national level [11]. This might be due to improved health seeking behavior and health service quality. Especially, women encouraged to be screened for breast cancer during their routine maternity visit in health facilities [6]. Similarly, awareness creation advocacies has been implemented at community level through health extension workers so

as to achieve national targets for preventing breast cancer as stated in a National Cancer Control Plan 2015/2016-2019/2020 [4,6,8].

With similar context to breast cancer morbidity, its mortality trend was increasing (Figure 2). The trend of mortality rate was lower than its counterpart in Figure 1. The reason might be due to gradual change of people's behavior on preventing non-communicable disease which lead prolonged time of its complication to death [20]. For instance, Ministry of Health of Ethiopia [6] advocate people to perform mass physical exercise monthly every Sunday in traffic free roads to maximize people awareness in preventing non-communicable disease. Similarly, conducting mass counseling and screening of breast cancer at facility level for women might enable women them an early care before its complication to death [8].

Finding from this study will impact other new systematic studies by providing base line information as the first regional projection of breast cancer morbidity and mortality. It might also used as an evidence for program implementers and funders for future resource allocation and early intervention initiation [21].

Conclusion

The trend of breast cancer morbidity and mortality has been increasing. This alarmingly increasing trend might result additional burden causing maternal illness and death in addition to other competing causes due to communicable disease. Program implementers and funders should give attention in this emerging public health problem. Other systematic studies also needed to identify its indigenous predictors for implementing appropriate interventions. Findings from this study may also support other similar regional studies as base line information.

Limitation of the Study

The study limitation might be a problem of recording in age category since patients less than 4 years of age were reported as breast cancer cases which is not common. There might be also miss classification of cases since most of them were diagnosed clinically.

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Conflict of Interest

Authors declared no conflict of interest since NM is directorate director of Public Health Research and Emergency Management Directorate.

Budget

No budget was allocated for this work.

Author Contribution

KF, conceived and designed the study; AA, data acquisition; KF, data analysis, writing first manuscript draft: KF, AA, NM, review and editing the manuscript: NM, language revision.

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