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Factors associated to Late Diagnosis of Breast Cancer among women in Public and Private Hospital in Hawassa City, Southern Ethiopia

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LIST OF ABBREVIATIONS/ ACRONYMS

AOR	Adjusted Odds Ratio
BCRF	Breast Cancer Research Foundation
BLH	Black lion hospital
BSE	Breast Self-Examination
CBE	Clinical Breast Examination
CI	Confidence Interval
COR	Crude Odds Ratio
FIGO	International Federation of Gynecology and Obstetrics
FMOH	Federal Ministry Of Health
Gyn	Gynecology
HCP	Health Care Provider's Delay
HURH	Hawassa University Referral Hospital
IARC	International Agency for Cancer Research on Cancer
IUCD	Intra Uterine Device
MCH	Maternal and Childhood Health
OPD	Outpatient Department
OR	Odds Ratio
SNNPR	Southern Nation Nationality and People Region
UNICEF	United Nations Children's Fund
WHO	World Health Organization

ABSTRACT

Introduction: Breast cancer is the most prevalent cancer among women globally and the second commonest cancer overall. In Africa, breast cancer was also the most commonly diagnosed cancer and the second leading cause of death. Ethiopian women typically present for care at a late stage in the disease.

Objective: To assess determinants of late stage diagnosis of patients with breast cancer in public and private Hospital of Hawassa Ethiopia, 2018.

Methodology: A facility based unmatched case control design mixed with qualitative study design conducted with a sample of 310 women who attend in public and private hospital of Hawassa Ethiopia. Random sampling technique used to select (155 cases and 155 controls) in two health facilities while two study facilities were selected using purposive sampling. A pretested structured questionnaire used to collect data and coded to enter into a data based and cleaned for any inconsistencies and missing values using STATA V 14.1 descriptive analysis to know the overall association of explanatory variables by examined by using multivariate logistic regression. Statistical significance declared if the P-value < 0.05.

Result: A total of 310 women involved in the study. The mean age of respondents was 43 years (±8).out of total participants 108(69.7%)controls and 110(71.0%)cases was indicated that lump was the first symptom. After adjustment for important risk factor for late stage diagnosis those women not having formal education (AOR= 4.35, 95% CI (1.61, 11.75), patient delay (AOR= 3.22, 95%CI (1.72, 6.01), health care provider delay(AOR= 2.67, 95%CI (1.47, 4.83) referral delay AOR= 2.25, 95%CI (1.27, 4.00)and total diagnostic delay AOR= 8.03, 95%CI (3.18, 20.28) was associated with late stage diagnosis.

Conclusion and recommendation. Late diagnosis of breast cancer was significantly associated with education, patient delay, health care provider's delay, referral delay and total diagnostic delay. Hence attention should be given on symptom recognition, early diagnosis and treatment of breast cancer.

1. INTRODUCTION

1.1 Background

Breast cancer is one type of cancer, which is a malignant tumor that starts in the cells of the breast. It frequently affects women, but men also can be affected too (1). According to the American Joint Committee on Cancer classification when a woman is diagnosed with breast cancer, tumors range from Stage I to Stage IV, with the latter being the most advanced cancer with the poor prognosis (2).

Breast cancer is the most common cancer in women worldwide, with 1.67 million new cases diagnosed in 2012(3). In low and middle income country most women are present at Stage III and Stage IV tumors on initial diagnosis, which is referred to as late-stage presentation. Stage of breast cancer on presentation of diagnosis has been found to be one of the most important markers of successful treatment; therefore, advanced stage on initial presentation contributes to high mortality rates in developing regions (4).

Depending on the study there search data have generally divided diagnostic delays into "patient delay" (the delay between a patient's onset of symptoms and first seeking care at a healthcare facility) and "system delay" or "provider delay" the delay between the first presentation to a healthcare provider and diagnosis or treatment initiation (5). Delayed breast cancer diagnoses are likely a major contributor to advanced-stage presentations in LMICs (6). Delayed on initial diagnosis of breast cancer is mostly a problem of developing countries (5).

Stage at presentation is more advanced in developing countries than in developed countries (7, 8). Five-year survival rates of 90% and 65% have been reported for Stage I and Stage II, correspondingly, compared with just 33% for Stage III and 6% for Stage IV in developing countries (9) Stage III and stage IV tumors are more difficult and expensive to treat compared with Stage I and Stage II tumors; hence, down staging on presentations in developing countries be supposed to decrease government cost for health care services (10).

Advanced stage at presentation may be due to determinant factors related with patient, health care providers and/or barriers in the health care system. In recent study on factors associated with patients linked late-stage at presentation to 'due to fear of hospitals, cultural taboos associated with cancer centers, time constraints, and lack of knowledge regarding risk factors and specific symptoms of breast cancer (11).

Other factors included patients' lack of knowledge regarding screening tests such as breast-self-examination, clinical examination, mammography, and be suspicious of primary care physicians in the local community (8). Although factors due to health providers and health system issues are less studied, patients' lack of access to hospitals and physicians' lack of knowledge regarding proper breast cancer diagnosis and treatment have been linked to late-stage presentation in study population (10, 11).

Breast cancer is an increasingly visible disease, and a speedily growing cause of death, in limited resource countries treat compared with Stage I and Stage II tumors; hence, reducing the number of late-stage presentations in limited-resource settings should decrease government expenditures of treatment as well (9).

1.2 Statement of the problem

Breast cancer incidence is rapidly growing in both in developed and developing regions (4). In 2008, an estimated 636,000 incident cases were diagnosed in high resource countries, while 514,000 cases were diagnosed in low and middle resource countries. It is the most commonest cause of death among women both in developing 269,000deaths and developed region with an estimated189, 000 deaths (13) regardless of incomplete cancer registration in Africa, GLOBOCAN estimated that by the year 2050 that there may be a doubling in the number of incident cases from present estimates (3).

The highest incidence rates occur in the highest income regions of the world, with 74.1 new cases per 100000 women in comparison to the 31.3 new cases per 100000 observed in low-income regions (3). However, the mortality rates are actually higher in developing countries (14). The incidence of breast cancer had difference from country to country; the highest rates occur in the United States and Canada and, the lowest rate is found in Asia (17).

Hospital records show that in Ethiopia there are more than200,000 cancer cases per year where Breast & cervical cancers are the top two cancer types having high contribution for the high number of maternal mortality in the country (15). Ethiopian women typically present for care at a late stage in the disease (4).

In Ethiopia, breast cancer is the second frequent cancer next to cervical cancer. It is estimated that around 10,000 Ethiopian women and men have breast cancer with thousands of more cases unreported as women living in rural areas often seek treatment from traditional healers before seeking help from the government health system. In Ethiopia, Breast cancer is become fatal due to late presentation, limited resources, low awareness of breast cancer and its symptoms and strong traditional beliefs that can delay biomedical care (18).

Late-stage presentations associated with several factors includes lack of proper health care services and screening programs, lack of community awareness,

limited access to health-care facilities, and social barriers hampering early detection and treatment programs these factors (12,19–20).

In Ethiopia, breast cancer is usually a deadly disease with high mortality (6, 21), different from the experience of the Western world where breast cancer is commonly treatable and with lower death rate (22) Ethiopia has an increasingly comprehensive set of breast cancer prevention, diagnosis, and treatment interventions available for women (23). where treatment is most ineffective, and while system-related barriers to care account for a share of that delay in access, women's attitudes and lack of awareness of breast cancers symptoms also account for a slowed down initiation of action (24).

In developing countries advanced stage at initial diagnosis of breast cancer is common, more than 70% of patients looking for medical care with late stage of disease. Delayed presentation has been associated with low levels of community and health professionals' awareness of breast cancer, barriers to access to appropriate treatment, difficulties in finding the way to health care systems, unsuccessful health care systems, and absence of detection programs. In the absence of organized screening programs, in low resource countries most breast cancer patient seek medical care with self-discovered "painless breast lump (25). However, a national cancer program based on a breast cancer screening test such as mammography is often not applicable in low income countries: the women are not aware of the pathology "cancer".

The medical equipment for the diagnosis of breast cancer is not available and there is no funding for the diagnostic or therapeutic interventions. The WHO reports that low and middle income countries (LMICs) have the option to implement early diagnosis programs based on awareness of signs and symptoms of breast cancer with prompt referral to diagnosis and treatment (28).

1.3. Significance of the study

There are few studies done in this field in low resource countries unlike developed countries. This study was give insight in determinants to late stage diagnosis for early initiation of treatment methods for patients, health professionals, policy makers and other organization working on this area. Therefore the finding from the study was have significant benefit in promoting prevention and early control mechanisms, conscious the policy makers and national programs about the need of preventive, diagnostic, treatment and palliative care facilities and was play a vital role for in reducing mortality from breast cancer.

1.4 Research question

1. What kind of personal, socioeconomic and other factors contributes to late stage diagnosis of breast cancer?
2. Where there any delay between presentation and diagnosis?

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2. LITERATURE REVIEW

2.1 Overview of Breast Cancer

According to WHO breast cancer: prevention and control 2014 the recognized risk factors of breast cancer are a familial history of breast cancer, long time exposure to endogenous estrogens, such as early menarche, late menopause, late age at first childbirth ,Exogenous hormone, Oral contraceptive and hormone replacement therapy. Breastfeeding, weight control, physical activity, and avoidance of smoking also have a protective effect (26).

Although risk reduction might be achieved with prevention, but it is not only the way to eliminate the majority of cancer in low and middle income countries. Therefore; the key approach in reducing breast cancer associated death, important because an effective prognosis is directly correlated with stage at which tumor is initially detected and how prevent from spreading the lesion is. The effect of early detection is usually results in successful treatment before dissemination of disease and signifies before better outcome (27).

Five-year survival rates of 90% and 65% have been reported for Stage I and Stage II, respectively, compared with just 33% for Stage III and 6% for Stage IV in developing countries (11) World journal of clinical oncology 2014 on challenges to early diagnosis and treatment of breast cancer in developing countries found that in HICs the majority of breast cancer are initially presented in localized stage, In LMICs the most cases are detected in regional spread stages. In HICs, more than 70% of breast cancer patients are diagnosed in stages I and II; Sweden and Norway have proportions above 90%. In contrast, in LMICs, only between 20 and 60% of patients are diagnosed in these earlier stages, while between 30 and 80% are diagnosed in stages III and IV. The exceptions in Porto Alegre in Brazil and white women in South Africa, who behave similar to those in developed countries, with70% and 68% of breast cancer cases detected in stages I and II, respectively (5).

A prospective study conducted in Ethiopia 1998, to obtain information on , clinical profile of Ethiopian patients with breast cancer and problems related to early diagnosis and treatment of breast cancer in Ethiopian patients showed that the majority of females developed breast cancer at younger age (were premenopausal) No case of Stage I disease was not recorded. Ductal invasive adenocarcinoma was the most frequently reported pathological type and the majority had advanced disease (Stages III and IV) at initial diagnosis (6).

A retrospective study conducted in Ethiopia from1995-1999 to analyze the pattern and treatment outcome of breast cancer in a teaching hospital in 125 case has found that the median age of females was 40 years. The median duration of the presenting symptom on admission was nearly 1 year. Clinically, majority of cases had stage III disease. Invasive ductal carcinoma was the most frequent type. The majority of patients underwent modified radical mastectomy (29). According to world cancer research fund international (2012) breast cancer statistics. Breast cancer is the most common cancer in women worldwide, (second most common cancer overall). This represents about 12% of all new cancer cases and 25% of all cancers in women (30).

In such lower resource settings, breast cancers are commonly diagnosed at late stages, and women may receive inadequate treatment, pain relief, or palliative care (19, 31). Because breast cancer is often diagnosed in late stages in women in LMCs, mortality rates are often much higher compared with developed countries (32-33).

The study conducted in Tikur Anbesa Hospital shows that the trend of breast cancer in the sixteen years, the number of cases generally increases from year to year. 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 (34).

2.2 Factors related to Late Stage Presentation of Breast Cancer

2.2.1 Socio demographic determinant

Study done in north China, found that in high Surveillance Epidemiology and Results (SER) areas, education appeared to influence the cancer stage at presentation. The risk of being diagnosed at a late stage was three-fold higher on those only attended middle and/or high school compared with the patient had attended university. In low surveillance epidemiology and results areas, workers were less likely to be diagnosed at late breast cancer stages than were homemakers. Other demographic characteristics, including marital status and age at diagnosis, were not associated with breast cancer stage at diagnosis (34).

As study done in Uganda showed that, the mean age for early stage presenters was 49 years whereas for those patients diagnosed at late stage were 46 years (35). According to a research done in north east Thailand in 180 breast cancer patients found that stage at diagnosis was significantly associated with older age , lower level of education, lower family income postmenopausal status , long referral time, and lower number of consultations with a surgeon before diagnosis (36).

A study conducted in Iranian women found that significant association of patient delay by marital status and educational level. Widowed and divorced women had a significant delay compared to married women. Also more than three months delay was significantly higher risk among illiterate and primary educated women, marital status, education levels and family history of breast cancer showed significant results. There was a risk for longer delay in widowed or divorced women. Women with a positive family history of breast cancer and illiterate or primary educated women also showed significant association (37).

In another study else were found that, widowed and divorced women had a higher risk of delay. Perhaps one might argue that this could be explained by the fact that widowed and divorced women do not have enough motivation to seek help or care about themselves and lack support (38). Studies in Iranian and Indian women yielded different results. For instance, one study found an association between being married and patient delay,

While another observed an association between not being married and patient delay besides, one study found association between family history and patient delay, while another observed no association instead delay (37, 39).

The study conducted elsewhere found that patients who lacked social support from family members and spouses were more likely to delay .only less than third of study participants sought care immediately. This is in keeping with a study done in Mexico in 2011 where it was mentioned that social support is vital for appearance of the initial contact as well as for the community care (40).

2.2.2 Knowledge

A study conducted in Egypt found that associations between screening practices and stage at diagnosis were impounded by several variables. Women diagnosed at late stages rather than early-stage were less likely to have knowledge of BSEs. Late-stage rather than early-stage diagnosis was also significantly associated with no previous CBE and no previous mammogram. (41)

2.2.3 Health system related Factors

Study conducted in Rwanda Delay and Stage at Diagnosis experienced by patients stratified by stage the median total delay was fifteen months; median delays were eleven, thirteen and twenty four months among patients with stage I/II, III, and IV disease, respectively. The median patient delay was five months two months for patients with early, five months for patients locally advanced, and nine months for patient with metastatic disease. The median system delay was five months. (42).

One study conducted in general hospital in Cameron has found that a weak association of patients with longer travel times more likely to present with late stage at diagnosis. On one hand, travel time represents a physical barrier to access healthcare, whereas on the other, it may represent a proxy for an increase in other delay factors.

This is quite possible because the cancer centers where this study was conducted are located in urban areas and patients with longer travel times most probably were from rural areas. However, in this setting, the presence of effective and cheap transportation, and good network of roads especially near the TCC, seemed to lessen geographical distance as a strong determinant of stage of presentation in this population (43).

2.2.4 Symptom recognition and interpretation

Breast cancer awareness emphasize on the fact that breast cancer is mostly asymptomatic and pain is a rare symptom, which happens quite late in the disease process. In breast cancer, pain is most likely to occur in case of large tumors or ulceration, both of which are indicative of late-stage disease. In settings with low screening or early detection, lack of pain was delay a patient's attention toward a growing tumor and delay the process of seeking treatment (41). The study conducted in Uganda found that the first symptoms noticed by majority of patients were a lump followed by, pain and abnormal discharge (45, 17).

The study finding from Ethiopia showed that the majority of participants indicated that a lump was the first symptom of breast cancer that they experienced pain. Also some participants noted that they found additional lumps subsequent to their first symptom. Nearly all participants indicated that they noticed a lump at some point prior to seeking advice for their symptoms. Most participants did not expect that the lump they noticed was of any concern, at least initially (17).

2.2.5 Health professional or medical related factors

Study found that the associations between provider delay and type of first health service contacted, the medical specialty of the first provider that was seek advice from and medical errors all reflect differences in the quality of care that patients receive. Medical errors in relation to provider delay have been studied in terms of the primary care physician's failure to suspect cancer at the initial consultation. A common planned solution is to enhance early detection through mammography screening.

However, this is most likely not the right path to follow for LMICs. Organized population-based mammography programs have been adopted as the gold standard of early detection in the majority of HICs (5).

The study conducted Ethiopia in black lion hospital to assess patient navigation of the health care system found that the primary care site was most common joint way of entry into the healthcare system for patients with breast cancer , typically a local clinic or an individual practitioner followed by traditional healers and also local or regional hospitals. An additional of patients with breast cancer accessed care first through a private hospital setting, and others directly at TAH, the tertiary referral center for cancer. The node of entry to care did not vary significantly by geography, religion, or age (35).

The patient interval prolongation is primarily influenced by the patients' help-seeking behavior, which varies according to different socioeconomic and cultural factors. In turn, the delayed provider intervals most likely reflect access barriers and quality deficiencies in cancer care in the LMIC health systems, as has been observed in some of the few available studies (45, 46).

In systemic review conducted in developing country found that, the median patient interval is between seven and sixteen days for HICs and between ten days and three months for LMICs. The lengthiest median patient intervals have been reported for Iran, Egypt and Malaysia .Among countries that report mean instead of median intervals, including Eastern European countries, India and Ethiopia, the average patient interval is between twenty-four days (Hungary) and one and half month (India) for all except Ethiopia, which reports amazing eighteen-months patient interval (5).

One study conducted in general hospital in Cameron has found that a weak association of patients with longer travel times more likely to present with late stage at diagnosis (42). On one hand, travel time represents a physical barrier to access healthcare; on the other hand, it may be cause for an increase in other delay factors. This is quite possible because the cancer centers where study was conducted are located in urban areas and patients with longer travel times most probably were from rural areas.

However, in this setting, the presence of effective And cheap transportation, and good network of roads especially near the TCC, seemed to lessen geographical distance as a strong determinant of stage of presentation in this population (35).In addition, it is likely that woman who had less aggressive breast tumors presented at earlier stages and thus had opportunities to seek more than one medical opinion before presenting to the cancer centers. Increased risks for late stage were also found in women who reported delay of treatment due to social, financial, or time constraints although not significant. Social and financial factors included fear of hospitals, busy clinics, and lack of access to hospitals with most women reporting more than one factor as has also been observed. (17, 43).

2.3 Conceptual framework for late diagnosis of breast cancer

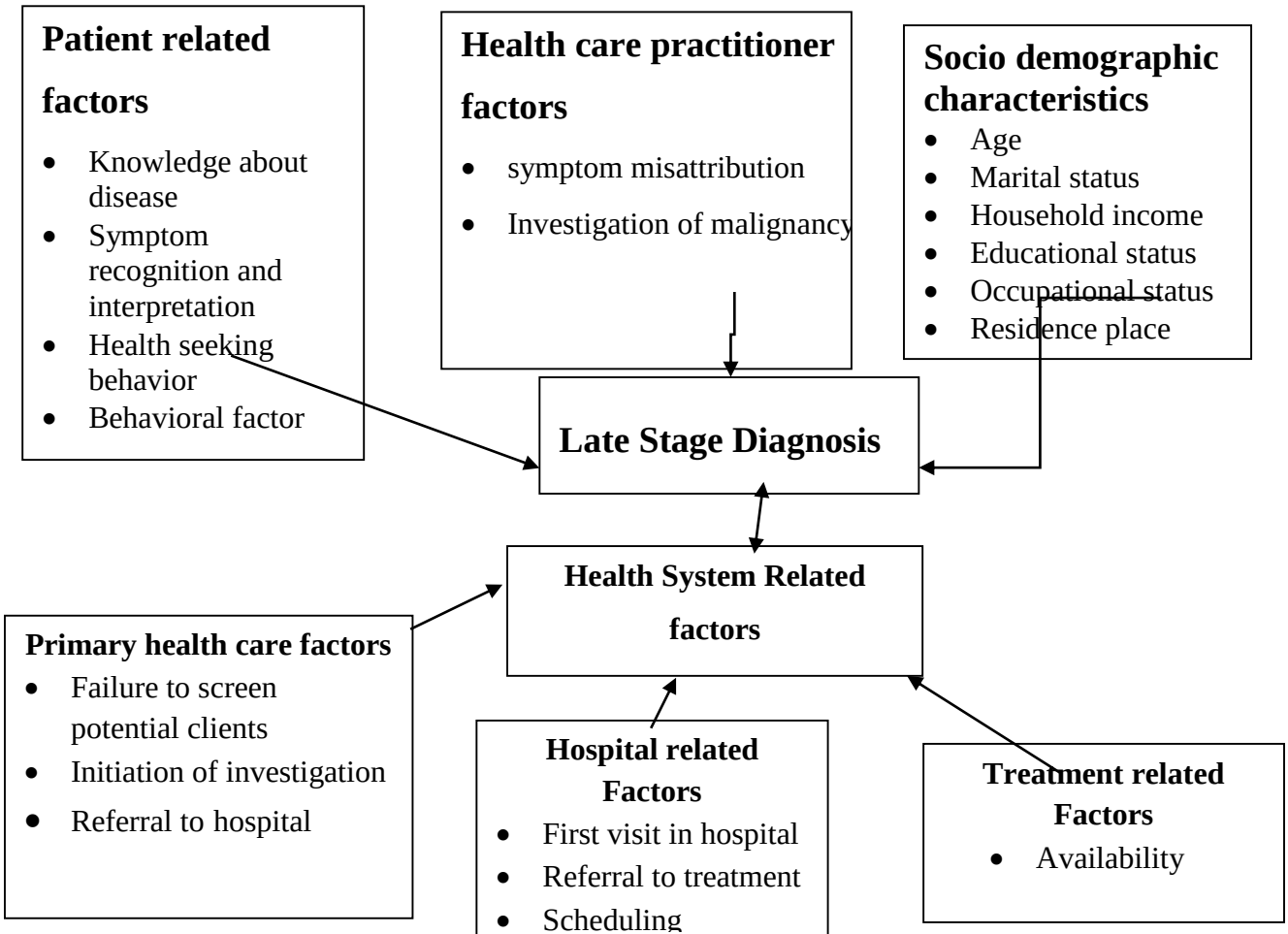

Figure 1: Conceptual framework of the study on factors related to late diagnosis of breast cancer.

3. OBJECTIVES

3.1 General objective

To assess factors associated and delay between presentation and diagnosis to late stage diagnosis of patients with breast cancer in public and private hospital of Hawassa Ethiopia, 2018.

3.2 Specific objectives

1. To identify associated factors for late diagnosis of breast cancer in Hawassa referral hospital and Yanet specialized internal medicine center, Hawassa, Ethiopia.
2. To assess delays between presentation and diagnosis among women patient diagnosed with breast cancer in Hawassa Ethiopia.

4. METHODOLOGY

4.1 Study area and period

Hawassa is a regional capital of the SNNPRS, which is a multi-ethnic state, often known as a mosaic of language and culture with over 56 ethno-linguistic groups living in the state.

It is 275 kilometers south of Addis Ababa and it is accessible through all- weather roads. With 8-sub city and a population of 350,000, it covers 50 km² and is located 1,700m above sea level. This study was conduct in one public hospital and one private specialized clinic that serve as referral centers for oncology cases. There are totally 6 hospitals (2 are owned by government,4 by private) .There are about 10 health centers,4 private clinic,13 specialty clinic,2 primary clinic and 45 medium clinic. Hawassa referral hospital and Yanet specialized medical center are the selected institutions for this study.

Hawassa University Referral Comprehensive Hospital started giving service in November 2005. The hospital has 350 beds for admitted patients. It is expected to serve more than 18 million people of the Southern region and the surrounding Oromia zones. The hospital provide surgical and chemotherapy treatment service for breast cancer patients including the pathologic diagnostic service.

Yanet specialized medical center oncology unit provides prevention ,advanced pathology and chemotherapy for almost all cancers.

Yanet Specialized Internal Medicine Center; Oncologists address the problem of cancer at three level of approach:

- Prevention-through education of risk factors like tobacco&alcohol consumption
- Early diagnosis Screening of common cancers and comprehensive diagnosis and staging.
- Treatment-Multimodality management by discussion in tumor board and treatment in comprehensive cancer center
- Study period was from March2016 –January, 2018.

4.2. Study design

A facility based unmatched case control study design using both qualitative and quantitative data.

4.3. Source population

All breast cancer diagnosed women who visited oncology department in Hawassa referral hospital and Yanet specialized internal medicine center.

4.4. Study population

A breast cancer diagnosed women in Hawassa referral hospital and Yanet specialized internal medicine center.

Cases: are breast cancer women diagnosed at stage III and Stage IV at presentation

Controls: are breast cancer women diagnosed with breast cancer at stage 0, stage I&II at presentation.

4.5. Inclusion and Exclusion Criteria

Inclusion criteria: patients diagnosed with breast cancer with clear stage in study period.

Exclusion criteria: Those patients who had cancer from another site and disseminated to the breast.

4.6 Sample size determination

To determine the sample size double proportion formula was used based on the following assumptions and findings from other study. From pervious study on prevalence of exposure for no referral by first physician to late presentation and diagnosis of breast cancer cases in Egypt yielded that proportion of exposed in cases 23.91%,

And a proportion of exposed in controls 11.21 was used to calculate sample size for the study population (13). Accordingly, we assumed hypothetical 80% power and 95% CI Confidence level with alpha 0.05.

$$\text{Let} \qquad P = \frac{P1 + rP2}{1 + r}$$

$$n1 = \frac{[Z\alpha/2\sqrt{\left(1+\frac{1}{r}\right)P(1-P)} + Z\beta\sqrt{P1(1-p1) + \frac{p2(1-p2)}{r}}]}{(p1 - p_2)^2}$$

Where r is ratio of control to case =1

- P1= proportion of exposure weight among cases
- p2 = proportion of exposure among controls
- Z α/2 = is the standard normal deviate for an α type I error
- β = is the standard normal deviate for an type II error
- n1=sample size of cases
- n2 = sample size of controls

The total sample size after including 10% nonresponse rate, found to be a total of 344. (172 cases, and 172 controls in the facility).

Table 1: Tabular presentation of total sample size used to investigate exposure variable

Exposure variable	Proportion of exposed controls (stage I &II)	Proportion of exposed cases (stage III&IV)	Total sample size including 10% non-response rate	Study area and Author
Social, financial & time constraints	46.45	61.96	Total 317 158 cases & 158 controls	Stapleton et al Egypt 2015
No referral by first physician	11.21	23.91	Total 344 172 cases & 172 controls	Stapleton et al Egypt 2015

4.7. Sampling procedures

Consecutive sampling technique was used to select (172 cases and 172 controls) in two health facilities where two of the study facilities were selected using purposive sampling method due to the only facilities provide oncology services in Hawassa. The study subjects were allocated proportionally according to the patient flow to the facilities. Consecutive sampling technique was used with the following steps. Cases were breast cancer women diagnosed at stage III and Stage IV at study period and Controls were breast cancer at stage 0, stage I&II at selected health institutions during the study period were included in the study. The data were collected by using structured checklist. The in-depth interview conducted among those volunteer key informants who selected based on purposive sampling until a point of saturation of information reached.

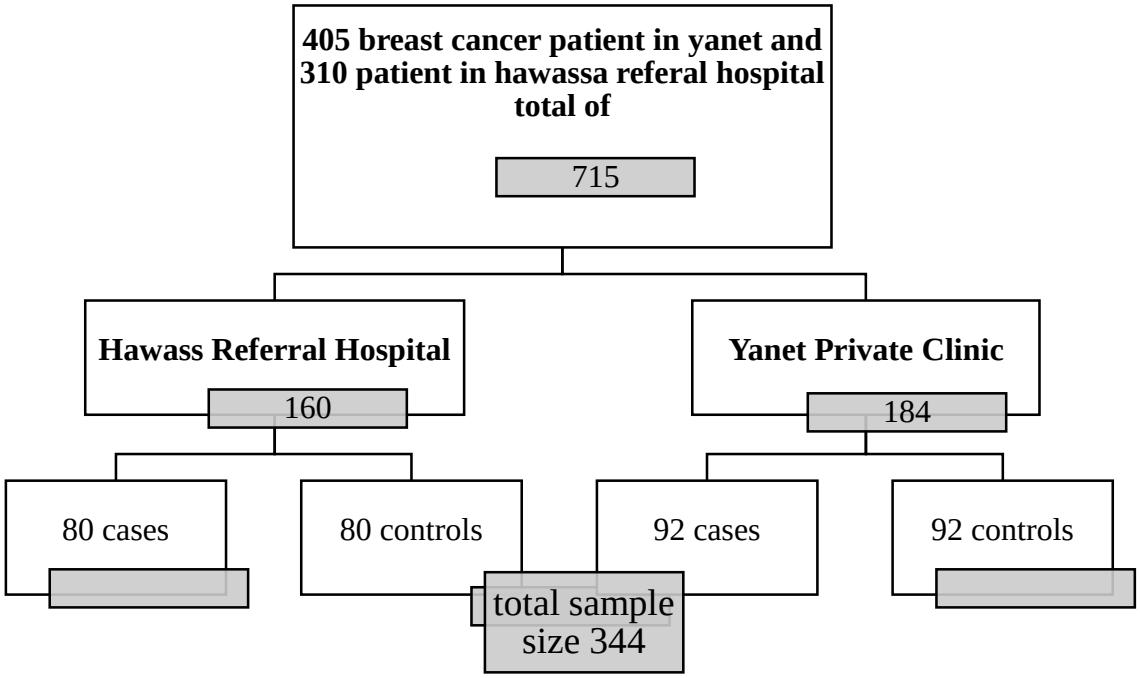

Figure 2: The study participants allocated proportionally according to the patient flow.

4.8. Study variables

Dependent variable

- Late diagnosis of breast cancer

Independent variables

Socio-demographic

- Age
- Marital status
- Occupation status
- Educational status
- Area of residence
- Income
- Distance from the health facility

Personal

- Knowledge about the disease
- Utilization of the service
- Personal and familial history
- First symptom recognition

Clinical factor

- Tumor size
- Time of diagnosis
- Type of delay

Behavioral

- Smoking
- breast feeding
- Age at menarche

4.9. Definition of terms

- **Late diagnosis (case);** patients diagnosed with breast cancer stage III and stage IV
- **Early diagnosis (control)**; patients diagnosed with breast cancer stage 0, Stage I and Stage II
- **Key Informant**; an individual who has special knowledge on a topic by experience and can speak about the general situation
- **Cancer staging;** is important in diagnosis in order to give appropriate management**.** Breast cancer staging based on TNM classification, T stands for tumor size N for lymph node involvement depending on methods (2)

TO	No tumor detectable
Tis	Carcinoma in situ, non-invasive
T1	Micro invasion up to 0.1 cm
T1	Up to 2cm
T1a	≤ 0.5 cm
T1b	> 0.5 cm up to 1cm
T1c	> 1cm up to 2 cm
T2	>2cm up to 5 cm
T3	>5cm
T4	Any size including invasion of chest wall or skin in both above/below clavicle
N	For lymph node involvement
N0	None
N1	1-3 in the axilla
N2	4-9 in the axilla
N3	10 or more in the axilla or below/above clavicle
M	For metastasis
Stage 1	TXNo
Stage 2	ToN1, T1N1 , T2No, T2N1 orT3No
Stage 3	TXN2, T3N1, T4NX or TXN3
Stage4	M

- **Delay** - refers to the time interval between two specific events in diagnostic pathway.
- **Patient delay:** The period from a patient first becoming aware of symptoms until their first presentation to a health care provider (HCP). The duration of more than 60 days defined as "long patient delay" and 60 days or less defined as short patient delay".
- **Health care provider's (HCP) delay:** The time between patient's first Presentation to the health care provider (HCP) and the final referral by HCP to the cancer Diagnostic center. The period of seven days or less defined as "short HCP delay" and More than seven days referred as "long HCP delay".

- **Referral delay:** the time interval between the dates of final referral by health care provider to diagnostic center with suspicion of breast cancer and the date of first appointment of patient in the breast cancer diagnostic center. The period of seven days or less defined as "short referral delay" and more than seven days referred as "long referral delay". Actually, it is patients decision-making period and the travel period to reach the diagnostic center after referral by HCP.
- **Diagnostic waiting time:** This includes waiting time for all relevant investigations of Symptoms in the diagnostic center. The period of seven days or less defined as "short Waiting time" and more than seven days was defined "long waiting time".
- **Total diagnostic delay:** The time between onset of symptoms of breast cancer And confirmed diagnosis. The period of more than 90 days defined as "long diagnostic delay" and 90 days or less as "short diagnostic delay".

  Total diagnostic delay = patient delay + health care provider delay + referral delay + Diagnostic waiting time.

4.10. Data collection Tool and procedure

Data collection instrument

Data was collected using structured questionnaire adapted from the similar research done in Uganda to assess determinant factors to assess late stage of diagnosis of breast cancer. We add also some questions in order to measure the objective of the study and considered some modification in sign and symptom, and risk factors to breast cancer to our context. The component of the questionnaire was introductory, demographic information, socio-economic information, Information on reasons for delay, Patient's History on diagnostic pathway, Patient's history on help seeking, health awareness and Behavioral factors of the patients. The clinical questions like stage of diagnosis, treatment planned, type of diagnosis and question which need exact date reviewed from their medical records. The interview was conducted in outpatient and inpatient departments of surgical ward and oncology unit in the hospital and medical center for both cases and controls.

Qualitative Study Key informants were selected based on purposive sampling method from cases, based on the assumption that they were more knowledgeable about the topic and can speak about diagnosis and treatment process.

The interview process continued until that point was obtained. And finally that point reached after 6 patients were interviewed. Principal investigator carried out the in-depth interview with the assistance of a note taker. A study guide was developed by the principal investigator to conduct the in-depth interview. The interview was tape recorded, and translated and transcribed in the same day of the interview.

4.10.1. Data collection method and procedure

Data was collected through interviewer-administered technique. Three trained data collectors who work on oncology department were involved in the data collection. The data collection period entirely supervised by three-trained health professional and the principal investigator. Individuals for data collection two nurses from oncology department and the head of oncology department for supervision was recruited by the investigators. Then after they were trained for two days on objectives of the study, the concepts of using the proposed sampling technique and eligibility criteria; structure of the data collection tool and the purpose of each item included in the tool; techniques and ways of collecting the data as well as roles and responsibilities of the team members to maintain precaution throughout the study.

4.10.3. Pre-testing and data quality management

Before the actual data collection, the quantitative questionnaire was pre-tested on 10% of the total sample size in non-selected with gynecological clinics in Hawassa city breast cancer patients to ensure that whether the questions are understandably phrased; whether the interviewee understand the questions and the instructions; to check and estimate the time it takes to locate an eligible patients and how long it takes to collect the information for each woman;

Whether the design of the data collection tool in translated version allows for illegible recording of the data, as they are collected and to see if the logic and skip order of the questions is in a sensible way to the respondents.

And necessary modification in the questionnaire was made based on the nature of gaps identified. Repeated supervision was done during data collection period and data entry.

4.10.4. Data processing and analysis

The collected data was coded to enter and cleaned for any inconsistencies and missing values using STATA version 14.1. Descriptive analysis was done using frequency, proportion and summery measures like means and standard deviation for the socio-demographic and some other clinical characteristics respectively. Explanatory variables were fitted with bivariate and multi-variable logistic regression to identify factors associated with late diagnosis of breast cancer. The result of the final model was expressed in terms of Adjusted Odd Ratio (AOR) and 95% confidence intervals (CI). Statistical significance was declared if the P-value is less than 0.05. The qualitative data generated from in-depth interviews was thematically analyzed using open code software.

4.11. Ethical Consideration

Ethical approval and clearance was obtained from research and scientific ethical committee at School of public health, AAU University. Additional written support letter also obtained from AAU. Permission to conduct the study was obtained from public hospital administrations (Hawassa referral hospital and Yanet specialized internal medicine center), southern Ethiopia. All participants will give adequate information regarding the purpose, risk and benefit, and confidentiality of the study as described in the information. Participation was fully voluntary and informed consent was obtained from each participant. Code numbers was used in place of identifiers to maintain the confidentiality of participants' information. The study incurs no cost to the study participants and interviewed free of charge. At the end of each interview necessary advice and right information, concerning breast cancer provided to women.

4.12. Dissemination of Finding

The findings of the study will be presented to AAU in the partial fulfilment for master of public health. Hard copies of this study will be distributed to study facilities and other concerned bodies including the Ministry of Health. It will also be presented in various seminars as necessary and Published in pear reviewed journal for scientific audience.

5. RESULT

5.1 Socio Demographic Characteristics

A total of 310 patients were participated in the study. None of the participants was rejected to participate. Among women involved to the study 107(69.0%) cases and 109 (70.3%) of controls were below or equal to 45 years old. The mean (±SD) age of the participants in completed years was 43 (±8). Among women, 102 (66.2%) controls and 119 (76.8%) cases live in rural area. In the study more than half 88 (56.8%) of women from controls and 119 (76.8%) from cases were protestant in their religion. Among the women enrolled to the study 66 (42.6%) controls and 55 (35.5%) cases were Illiterate and informal education whereas 60 34 (21.9%) of controls and 24 (15.5%) of cases had secondary and above educational status. In total most of the women 131 (42.3%) were in primary education status and from this controls account 55 (35.5%) and 76 (49.0%) cases. In total 117 (75.5%) of controls and 57 (51.82%) cases were unemployed and seventy (47.30%) controls and 101 (65.2%) of cases had monthly income less than or equal to 1000 Ethiopian birr as per respondents.

From total women involved 25(53.19%) of controls and, 22(46.81% cases mentioned the distance to oncology center is less than 6 hours. Whereas, 81(47.09%) controls and 91(52.91%) cases mentioned six to twelve hour and 32(53.3%) controls and 28(46.62%) cases mentioned one to two days, 17 (54.84%) controls, and 14 (45.16%) cases mentioned more than 2 days (Table 1).

Table 2: Socio demographic characteristics of breast cancer patients among cases and controls at public and private hospital Hawassa, Ethiopia 2018.

Variables	Category	Early	Late	Subtotal
		No. (%)	No. (%)	No. (%)
Age	≤ 45	109 (70.3)	107 (69.0)	216 (69.7)
	> 45	46 (29.7)	48 (31.0)	94 (30.3)
Residence	Urban	52 (33.8)	36 (23.2)	88 (28.5)
	Rural	102 (66.2)	119 (76.8)	221 (71.5)
Ethnicity	Sidama	29 (18.7)	20 (12.9)	49 (15.8)
	Welayta	43 (27.7)	45 (29.0)	88 (28.4)
	Hadiya	39 (25.2)	24 (15.5)	63 (20.3)
	Kembata	13 (8.4)	19 (12.3)	32 (10.3)
	Amhara	12 (7.7)	24 (15.5)	36 (11.6)
	Others	19 (12.3)	23 (14.8)	42 (13.5)
Region	Amhara	3 (1.9)	6 (3.9)	9 (2.9)
	Oromia	31 (20.0)	44 (28.4)	75 (24.2)
	SNNPR	120 (77.4)	100 (64.5)	220 (71.0)
	Others	1 (.6)	5 (3.2)	6 (1.9)
Religion	Orthodox	30 (19.4)	36 (23.2)	66 (21.3)
	Catholic	20 (12.9)	35 (22.6)	55 (17.7)
	Protestant	88 (56.8)	60 (38.7)	148 (47.7)
	Muslim	17 (11.0)	24 (15.5)	41 (13.2)
Marital status	Married	104 (67.1)	108 (69.7)	212 (68.4)
	Single	27 (17.4)	22 (14.2)	49 (15.8)
	Divorced	16 (10.3)	17 (11.0)	33 (10.6)
	Widowed	8 (5.2)	8 (5.2)	16 (5.2)
Income	< =1000	70 (45.2)	78 (50.3)	148 (47.7)
	> 1000	85 (54.8)	77 (49.7)	162 (52.3)
Occupation	Unemployed	117 (75.5)	101 (65.2)	218 (70.3)
	Employed	38 (24.5)	54 (34.8)	92 (29.7)
Education	second and above	34 (21.9)	24 (15.5)	58 (18.7)
	Primary education	55 (35.5)	76 (49.0)	131 (42.3)
	Illiterate and informal	66 (42.6)	55 (35.5)	121 (39.0)
Distance	less than 6 hours	25 (53.19)	22 (46.81)	47 (15.2)
	six to twelve hour	81 (47.09)	91 (52.91)	172 (55.5)
	one to two days	32 (53.3)	28 (46.62)	60 (19.4)

more than 2days	17 (54.84)	14 (45.16)	31 (10.0)

NB. SNNP; South Nation Nationality People,

5.2 History of Diagnosis

Out of 310 respondents, 160 (51.61%) referred by hospitals. More than half 98 (63.2%) control and 102 (65.8%) cases of the participants had given a birth and Most of the participants were 143 (93.5%) controls and 149 (96.1%) cases had less than or equal to four children. Number of facility consulted before diagnosis was available about three 176(56.8) from this 99 (63.9%) and 77 (49.7%) were control and case respectively. About 252 (81.29%) had no advise test for breast cancer in the first facility from this 125 (80.6%) and 127 (81.9%) were control and case respectively. Almost all of the participants had time gap between presentation and diagnosis 309 (99.68%) and reason for delay 308 (99.35%) both groups. Table 3 shows details of history of diagnosis of participants on both groups.

Table 3: History of diagnosis of breast cancer patients by stage at diagnosis among public and private hospital Hawassa, Ethiopia 2018.

Variables	Category	Early No. (%)	Late No. (%)	Subtotal No. (%)
Ever gave Birth	Yes	98 (63.2)	102 (65.8)	200 (64.5)
	No	57 (36.8)	53 (34.2)	110 (35.5)
No. of children	≤ 4 Children	143 (93.5)	149 (96.1)	292 (94.8)
	> 4 Children	10 (6.5)	6 (3.9)	16 (5.2)
Number of facility consulted before diagnosis	One	1 (.6)	0 (.0)	1 (.3)
	Two	15 (9.7)	7 (4.5)	22 (7.1)
	Three	99 (63.9)	77 (49.7)	176 (56.8)
	Above Three	40 (25.8)	71 (45.8)	111 (35.8)
If yes where in the above facilities/before referral	Health Post	3 (1.9)	0 (.0)	3 (1.0)
	Health Center	53 (34.2)	52 (33.5)	105 (33.9)
	Clinic	25 (16.1)	17 (11.0)	42 (13.5)
	Hospital	74 (47.7)	86 (55.5)	160 (51.6)
Had they advised test for breast ca in the first facility	Yes	30 (19.4)	28 (18.1)	58 (18.7)
	No	125 (80.6)	127 (81.9)	252 (81.3)
Had performed breast examination at initial consultation	Yes	22 (14.2)	6 (3.9)	28 (9.0)
	No	133 (85.8)	149 (96.1)	282 (91.0)

Reason for delay	Yes	155	(100.0)	153	(98.7)	308	(99.4)
	NO	0	(.0)	2	(1.3)	2	(.6)

5.3 Awareness of the contributing factors to breast cancer

Regarding the condition of symptoms that made them feel something wrong was mainly breast lump 108 (69.7%) from control and 110 (71.0%) from cases not only this majority of the participants were shared their problems or symptom first with their friends 92 (59.4%) and 67 (43.2%) were control and case respectively. This study shows that from the 310 breast cancer patients 278 (89.68%) did not share their problems immediately to others and mainly they share their problems first to health extension workers 63 (40.6%) and 69 (44.5%) were control and case respectively. Majority of the participants previously heard about breast cancer 211 (68.06%) from this 116 (74.8) controls and 95 (61.3) were cases and 308 (99.35%) never heard about mammography before current disease. Details described on below table 4.

Table 4: Awareness of the contributing factors to breast cancer of breast cancer patients by stage at diagnosis among public and private hospital Hawassa, Ethiopia 2018

Variables	Categories	Early No. (%)	Late No. (%)	subtotal No. (%)
Symptom made you feel something wrong	Breast lump	108 (69.7)	110 (71.0)	218 (70.3)
	Chang in breast size	5 (3.2)	3 (1.9)	8 (2.6)
	Discharge from nipple	2 (1.3)	15 (9.7)	17 (5.5)
	Itching	8 (5.2)	3 (1.9)	11 (3.5)
	Pain	32 (20.6)	24 (15.5)	56 (18.1)
To whom you shared the problem/symptom first	Husband	47 (30.3)	46 (29.7)	93 (30.0)
	Friends	92 (59.4)	67 (43.2)	159 (51.3)
	Family Members	16 (10.3)	42 (27.1)	58 (18.7)
Whom first contacted for help before professionals	Traditional faith healers	50 (32.3)	38 (24.5)	88 (28.4)
	Health extension workers	63 (40.6)	69 (44.5)	132 (42.6)
	No Where	42 (27.1)	47 (30.3)	89 (28.7)

	Others	0 (.0)	1 (.6)	1 (.3)
Family history of breast cancer	Yes	12 (7.7)	8 (5.2)	20 (6.5)
	No	143 (92.3)	147 (94.8)	290 (93.5)

In this study, 310 participants selected among the participants who use contraceptive COC 29 (18.7%) and 41 (26.5%), Injectable 115 (74.2%) and 96 (61.9%), Implanol 10 (6.5%) and 16 (10.3%) and IUCD 1 (0.6%) and 2 (1.3%) %) were control and case respectively. Details described on below figure 3.

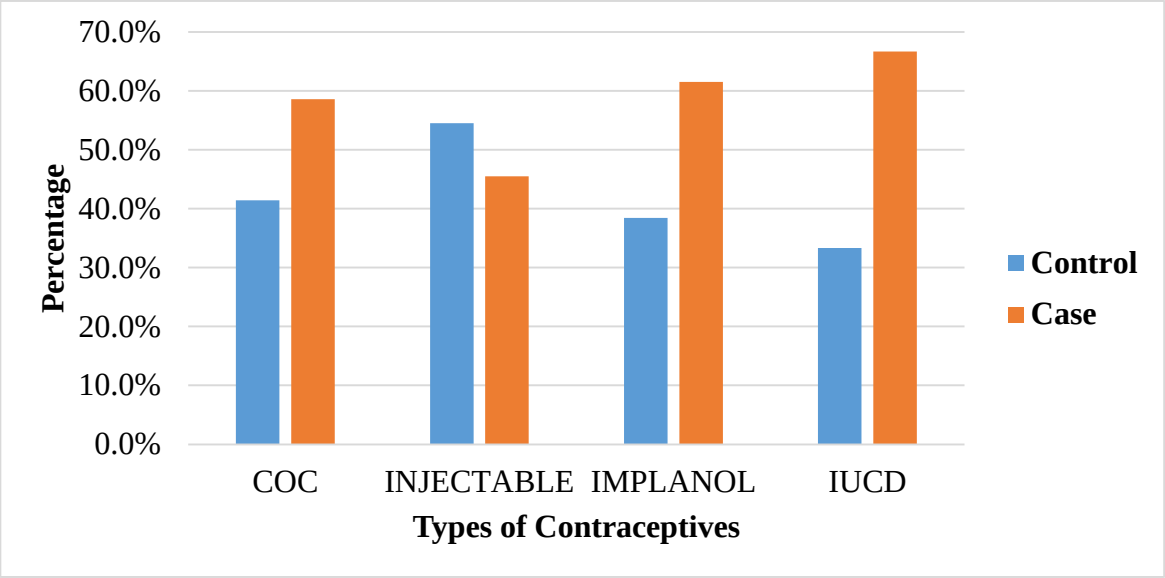

Figure 3: Contraceptive utilization of breast cancer patients by stage at diagnosis among public and private hospital Hawassa, Ethiopia 2018.

5.4 Information on Reasons for Delay

Regarding to the reason for delay almost all study participants 308 (99.35%) had reasons to delay. out of this 155 (100.0%) of controls and 153 (98.7%) of cases. Reasons for late diagnosis related with participants mainly with breast cancer not be cured 45 (29.0%) and 75 (48.4%) and lack of money 60 (38.7%) and 49 (31.6%) were control and case respectively. Reasons for late diagnosis related with hospital was mainly waiting time to see a doctor were 86 (55.5%) and 73 (47.1%) and late diagnosis related with being busy of health care

professionals 56 (36.1%) and 94 (60.6%) were control and case respectively. Not only had this most of them 151 (97.4%) control and 134 (86.5%) cases had treatment plan for chemotherapy. Details described on below table 5.

Table 5: Information on reasons for delay of breast cancer patients by stage at diagnosis among public and private hospital Hawassa, Ethiopia 2018.

		early	Late	subtotal
Reasons	**Categories**	**No. (%)**	**No. (%)**	**No. (%)**
Reasons for late diagnosis related with you	Lack of Money	60 (38.7)	49 (31.6)	109 (35.2)
	Not be Cure	45 (29.0)	75 (48.4)	120 (38.7)
	Traditional Faith Healer	22 (14.2)	12 (7.7)	34 (11.0)
	Difficult to make decision	19 (12.3)	10 (6.5)	29 (9.4)
	No Reason	9 (5.8)	9 (5.8)	18 (5.8)
Reasons for late diagnosis related with hospital	Waiting time in reception	38 (24.5)	52 (33.5)	90 (29.0)
	Waiting time to see a doctor	86 (55.5)	73 (47.1)	159 (51.3)
	No Appropriate Physician	31 (20.0)	30 (19.4)	61 (19.7)
late diagnosis related with health care professionals	Lack of appropriate attention	72 (46.5)	41 (26.5)	113 (36.5)
	Being Busy	56 (36.1)	94 (60.6)	150 (48.4)
	Unable to examine the patient	26 (16.8)	20 (12.9)	46 (14.8)
	Others	1 (.6)	0 (.0)	1 (.3)
Whom first contacted for help before professionals	Traditional faith healers	50 (32.3)	38 (24.5)	88 (28.4)
	Health extension workers	63 (40.6)	69 (44.5)	132 (42.6)
	No Where	42 (27.1)	47 (30.3)	89 (28.7)
	Others	0 (.0)	1 (.6)	1 (.3)
Total no of visit in cancer hospital till diagnosis	2-3 times	32 (24.5)	14 (9.0)	52 (16.7)
	4 times	74 (47.7)	116 (74.8)	190 (61.3)
	5 times	43 (27.7)	25 (16.1)	68 (21.9)
Treatment planned	Surgery	69 (44.5)	38 (24.5)	107 (34.5)
	Chemotherapy	151 (97.4)	134 (86.5)	285 (91.9)
	Radiotherapy	71 (45.8)	33 (21.3)	104 (33.5)
	Palliative care	1 (.6)	54 (34.8)	55 (17.7)
Immediate referral health facility hospital	Yes	101 (65.2)	113 (72.9)	214 (69.0)
	No	54 (34.8)	42 (27.1)	96 (31.0)
	Yes	19 (12.3)	14 (9.0)	33 (10.6)

Immediate referral facility health center	No	136	(87.7)	141	(91.0)	277	(89.4)
Immediate referral facility private health facility	Yes	35	(22.6)	28	(18.1)	63	(20.3)
	No	120	(77.4)	127	(81.9)	247	(79.7)

5. 5 Qualitative result

The key informants were six late diagnosis of breast cancer patients from public and private hospital Hawassa, Ethiopia 2018**.**

5.5.1 Analysis of qualitative data

The table below showed the codes, categories and theme developed during the qualitative data analysis.

Table 6: Theme, Categories and codes identified from the qualitative data in late diagnosis of breast cancer patients from public and private hospital Hawassa, Ethiopia 2018.

Theme	Patient, health care practitioner and diagnostic journey related with late diagnosis of breast cancer		
Categories	Patient factor	Health care practitioner	Health system
Codes	Lack of awareness medication Symptoms Thought relief by itself Fear Misconception Lack of support	Inappropriate diagnosis Not enough emphasis Unnecessary investigation Waiting time to see doctors. Severity Attention	Frequent visit Treatment delay Waiting time Frequent referral Far away Inappropriate treatment

5.6.2 Patient late diagnosis

1. Patient factor for late diagnosis

Interviewers were unaware of the disease, four of them never heard about Breast cancer, the disease symptoms, preventive and screening methods. Two of the respondents know breast cancer before and one of the respondents know about breast cancer screening method.

A 43-year-old participant said, " *The symptoms started 3 or 4 years breast itching and pain then followed by change in breast size and lump finally discharge from nipple when the symptom started I go to health facility and took medication frequently."* She also report *"I visited a number of health facilities about three of them; private clinics, health centers and governmental hospital frequently but never get a solution."*

A 45 year old patient spoke as follow" *It has been one year since the disease started and told to my son and daughter, they took me to hospitals. I was afraid of what will happen to me if I go to health facility, was so scared because I never heard such symptoms at this age." Also "When the symptom start change in breast size and lump finally discharge from nipple but then it gets worse .when they took me to nearby hospital the doctor suspected cancer and referred me to Hawassa referral hospital.''*

A 50 year old patient said" *Some of our neighbors have been telling me that the Chemotherapy and surgery also makes uglier, sometimes patients will die."* As she told to data collector*: "I was so scared to come to hospital but my children were against my neighbors and push me to go to hospital and get the treatment. They said we cannot listen to what people say and let you*

suffer from the disease and getting the treatment is getting me some relief."

A 40-year-old patient also added another important factor, she said; *'' I was too busy to go and visit a health facility and consult my problem."* Also her tale about: *"I was expecting the symptoms relief with their time itself and after 3 years, I start to experience breast itching and pain then followed by change in breast size.''*

2.Health care practitioner factors for late diagnosis

The respondents clearly state that the role of health practitioner is very important in the process of diagnosis. Since the patients are not aware and knowledgeable, it increases the practitioner role.

A 48-year-old patient said, "*I have a doubt in some of the practitioner because they order investigation and treat you for another disease then after it became cancer after some weeks."*

A 56-year-old patent spoke as follow "*They haven't given enough emphasis and order different medication with different investigation."* As her thought *"Its only 6 months since the disease have been diagnosed it was a very difficult journey though we do not have a solution for the disease*. "

A 43 year old patient said: "*for the first time-experienced pain, embarrassments 4 years back, go to private clinic, and give me pills, and it has no relief after all." She also report about: "I visited health center and gave me another medication and it has no relief too then I visited hospital and the doctor ordered me another treatment."*

3. Diagnostic journey related with late diagnosis

Factors that will lead to late diagnosis in breast cancer discussed thoroughly, different challenges raised as dominant factor that affect late diagnosis. Among those, lack of appropriate investigations in the hospitals, waiting time to see a doctor, waiting time to get treatment whether its surgical, chemotherapy and radiotherapy ,frequent referral from one facility to another and the time and cost for transportation were the major reasons.

A 48 year old patient said*" I waited very long to see a doctor and long waiting time to get a*

radiotherapy and other treatment and the symptoms and pain gain get sever while waiting andworse so should give emphasis for waiting times over the treatment center and to see a doctor."

A 55-year-old patient spoke as follow.*''I have waited a long time to get the treatment and I was taking only ant pain for the disease for about 4 months.''*

A 65-year-old patient said*, "After being referred to BLH we have been told that, we should wait for radiotherapy. They also said they will call but they never did and almost we have waited more than 8 month to get treatment I was diagnosed at stage II and now am stage III because of long waiting time of radiotherapy treatment.*

5.6 Associated Factors Related with Late Diagnosis

Determinants of late stage diagnosis of patients who present with breast cancer in Hawassa compressive specialized hospital and Yanet Specialized Internal Medicine Center factors related with socio demographic and other factors that may affect late diagnosis of breast cancer described in table 7. In the bivariate analysis the factors that have found to have an association and candidate for multivariate analysis variables that showed significant association in bivariate analysis model were residence, education, occupation, patient delay, health care provider's delay, referral delay and total diagnostic delay and P value < 0.25 were residence, occupation, income and number of children was candidate for multivariate analysis.

In multivariate analysis education status of the study participants, patient delay, health care provider's delay, referral delay and total diagnostic delay remained significantly associated with late stage diagnosis. After controlling for all the other variables in the model the odds ratio calculated for late stage diagnosis among those women who had level of the education status illiterate and who had no formal education were four times late with AOR 4.35; 95%CI (1.61, 11.75) than women among primary and secondary and above educational level. Regarding to the patient delay women who delayed more than 60 days had three times late with AOR 3.22; 95%CI (1.72, 6.01) when compare with less than or equal to 60 days delay. The odds of late stage diagnosis were 2.67 times higher among women who wait for health care provider more than 7 days with AOR 2.67; 95%CI (1.47, 4.83) than those women who wait less. The odds of late stage diagnosis, were two times higher among women who referred for more than 7 days with AOR 2.25; 95%CI (1.27, 4.00) than those women who referred less. Not only this total diagnostic delay for more than 90 days were statistically significant AOR 8.03; 95%CI (3.18, 20.28) than women who had less or equal to 90 days total diagnostic delay. Details described on below table 7.

Table 7: Bivariable and multivariable logistic regression analysis of variables associated factors related with late diagnosis of breast cancer diagnosis among public and private facilities in Hawassa Southern Ethiopia, 2018 (n=285)

Variables	Diagnosis		COR (95%CI)	AOR (95%CI)	P-value
	Early No. (%)	Late No. (%)			
Age					
≤ 45	109 (70.3)	107 (69.0)	1	-	
> 45	46 (29.7)	48 (31.0)	1.06 (0.66, 1.73)		
Residence					
Urban	52 (33.8)	36 (23.2)	1	1	
Rural	102 (66.2)	119 (76.8)	1.69 (1.02, 2.78)	1.41 (0.81, 2.45)	0.226
Education					
Secondary & above	34 (21.9)	24 (15.5)	1	1	
Primary education	55 (35.5)	76 (49.0)	1.18 (0.63, 2.22)	0.93 (0.52, 1.63)	0.782
Illiterate & informal	66 (42.6)	55 (35.5)	1.96 (1.05, 3.67)	4.35 (1.61, 11.75)	< 0.001*
Occupation					
Employed	38 (24.5)	54 (34.8)	1		
Unemployed	117 (75.5)	101 (65.2)	1.65 (1.01,2.70)	1.79 (0.86, 3.74)	0.120
Income					
≤ 1000	70 (45.2)	78 (50.3)	1.23 (0.79, 1.92)	-	
> 1000	85 (54.8)	77 (49.7)	1		
Number of children					
≤ 4 Children	143 (93.5)	149 (96.1)	1.74(0.62, 4.90)	-	
> 4 Children	10 (6.5)	6 (3.9)	1		
Patient delay					
≤ 60 days	49 (31.6)	27 (17.4)	1	1	
> 60 days	106 (68.4)	128 (82.6)	2.19 (1.28, 3.74)	3.22 (1.72, 6.01)	< 0.001*
Health care provider's (HCP) delay					
≤ 7 days	63 (40.6)	30 (19.4)	1	1	
> 7 days	92 (59.4)	125 (80.6)	2.85 (1.71, 4.76)	2.67 (1.47, 4.83)	0.001*
Referral delay					
≤ 7 days	69 (44.5)	40 (25.8)	1	1	
> 7 days	86 (55.5)	115 (74.2)	2.31 (1.43, 3.73)	2.25 (1.27, 4.00)	0.006*
Diagnostic waiting time					
≤ 7 days	41 (26.5)	34 (21.9)	1	-	

> 7 days	114 (73.5)	121 (78.1)	1.15 (0.69, 1.92)		
Total diagnostic delay					
≤ 90 days	143 (50.35)	141 (49.65)	1	1	
> 90 days	12 (46.15)	14 (53.85)	2.18 (1.05, 4.54)	8.03 (3.18, 20.28)	< 0.0.0.001*

Variables that show Significant * p-value, 0.05

6. DISCUSSION

This study showed associated factors related with late stage daignosis of breast cancer among public and private hospital at Hawassa, Ethiopia. After controlling for all the other variables in the model the odds ratio calculated for late stage diagnosis among those women by multivariate analysis education status of the study participants, patient delay, health care provider's delay, referral delay and total diagnostic delay remained significantly associated with late stage diagnosis.

The only socio demographic factor that was associated with patient delay in our study was educational status of the participants who had low level of the education status illiterate and who had no formal education were four times late than women among primary and secondary and above educational level. This result agree with the study conducted in Libya, Morocco, Southern Italy and China on education level of female breast cancer patients on their cancer staging at diagnosis, clinical and pathological features, rate of implementation, and selection of treatment (47-50). This may be due to education on breast cancer especially who at higher risk of diagnosis delay, imparting adequate knowledge to its presenting signs and symptoms, also the necessity of regular self-breast examination.

Regarding to the patient delay women who delayed more than 60 days had three times late when compare with less than or equal to 60 days delay. This result agree with the study conducted in Libya and Germany on Patient delay and stage of diagnosis among breast cancer patients (47, 51). The average time before medical advice and diagnosis was long, and the diagnosis time was higher than in developed or developing countries (6). This due to low awareness of health issues among women, to poor information campaigns, and to the absence of mammographic or other screening programs for early detection of breast cancer.

Late stage diagnosis is also significantly higher among women who wait for health care provider more than 7 days than those women who wait less. This result consistent with the study conducted in Morocco (48). Due to misunderstanding, breast lump was a first clinical presentation; it is not always assess well within non-gynecologist's doctors.

This produces a skewed system of referrals because health care providers are not able to reassure women about her diagnosis without specialist assessment (32). Because of delays and frustration, an increasing number of women were being referred to cancer referral centers, bypassing secondary level specialized facilities, so the benign to malignant ratio is rising.

This study revealed referral delay were two times higher among women who referred for more than 7 days was late stage diagnosis to breast cancer than those women who referred less. This was agree with the study conducted in stage at breast cancer diagnosis and distance from diagnostic hospital in a peri-urban setting South African public hospital (53) and Egypt (40). This due to local availability of equipment, expertise and costs. Biopsy, fine needle cytology or a core biopsy was performed in few large tertiary hospitals and specialized secondary level facilities.

Total diagnostic delay for more than 90 days were statistically significant with late stage diagnosis to breast cancer than women who had less or equal to 90 days total diagnostic delay. This result consistent with the study report from Libya (47). This due to the choice of tissue sampling techniques (FNAC, core biopsy, or surgical biopsy) largely depends on local availability of equipment, expertise and costs. Biopsy, fine needle cytology or a core biopsy was performed in few large tertiary hospitals and specialized secondary level facilities.

This study showed that there was not statistically significant association between the patient-associated factors delayed presentation of symptoms, in despite with delayed presentation of symptomatic breast cancer (4). Patients are more likely to attribute new symptoms to less serious conditions than to life-threatening diseases. Studies have reported delays when the patients assumed that symptoms were benign and would fade without interference (23). We also observed that patients often considered symptoms as benign. This was the most important reason for delay in seeking doctors' advice as shown by study conducted in Germany (51).

This due to educational status of the patients and community health seeking behavior and economic factors.

This study shows that diagnosis delay was not statistically significant association between the patient delays to late diagnosis of breast cancer. Despite with. There are certain 'alarm symptoms', important for create cancer diagnosis (29). However, these are not always known within doctors or nurses. In the present study, we found that the respondents were inappropriately reassured after the first visit to the doctor that a lump can be considered as benign without biopsy. This is a false attitude. In this study, this attitude was an important reason to the magnitude of the diagnosis time. Interestingly, the present study revealed that the initial breast symptoms that did not include a lump were strongly associated with diagnosis delay. The discovery of a breast lump reduces the patient delay as confirmed in other studies (4, 18). The findings suggest that doctors and patients need to be educated about the different types of breast cancer symptoms.

7. STRENGTH

This study was used both qualitative and quantitative method format public and private hospital at Hawassa, Southern Ethiopia.

8 LIMITATION

Limitation of our study is that due to case control nature of the design there was recall bias on some variables but in order to solve this problem, we extracted data from records

9. CONCLUSION

In this study No formal education, health care provide delay, Referral delay and total diagnostic delay were higher odds of late stage diagnosis than women primary and secondary and above educational level and those women who wait less.

9. RECOMMENDATION

Based on the finding of the study the following important recommendation are forwarded for the respective body on breast cancer prevention, control and treatment program implementers, policy makers and researchers who are engaged in this area:

Government level

- Create programs to increase the community knowledge about prevention and early treatment methods of breast cancer.

Health system level

- Health care providers should give special attention for early symptoms, consult, and give immediate response to the patients for early diagnosis of breast cancer screening.
- The primary health care facilities should give health education to the women attending health facilities about breast cancer.

Researchers

- More studies regarding breast cancer and other facility and treatment related factors.

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8. APPENDIXES

Appendix I Patient Information sheet

Greeting; good morning/afternoon!

Hello. My name is _____. I am data collector for master of public health student project in Addis Ababa University. As part of this study I am conducting a research to identify the factors telated for late stage diagnosis of breast cancer in Hawassa, Ethiopia. So, you are selected and included in the study as part of the sample population to complete the questionnaire designed for this purpose.

The information that I was collect was help to identify the problem, make interventional, and health system difference to make the situation better. Now you are randomly selected for the study. The questions usually take about 15 to 20 minutes.

Objective of the study: To assess determinants to late presentation and diagnosis of Patients with breast cancer in Hawassa, Ethiopia 2018

Benefit of the study: there is no direct benefit to the participants but accordingly the result was Provide important information on addressing the problem about the delays and late diagnosis by creating a convenient programmatic approach to give appropriate service to the respective population.

Risk of the study: Participating in this study was not have any risk or harm.

Rights of Participants: You either have full right to Participate or decline participation in this Study as participant. You may respond to all the questions or you may not answer to questions you do not want to and you may end the interview at any time you want. You can ask any question that is not clear for you.

Confidentiality: Any information forwarded confidentially and names was not be written or specified.

Appendix II-Patient Informed consent

As to the information given ahead, Participating in this study has no any risk. Your name was not be written on this form and the information you give would never share to others. You may not answer any questions that you do not want to answer and you may end this interview at any time you want. Now I would like to tell you that you selected randomly to participant of the Study. Your genuine response to the interviews was be very important for the purpose of the study. At the same time we would like to appreciate your voluntarily participation in the survey after a thorough understanding of the information given to you.

I have read this form or it read to me in the language i comprehend and understand all conditions stated above.

Do you agree to participate in this study?

1- No (say thank you)

2- Yes (continue interviewing)

Name of principal investigator: Yetimwork W/michael

Cell phone No – +251 911 74 44 94

E-mail: mamewelde@yahoo.com

Name of health facility……..

Name of interviewer_____ signature_____

Date of interview (Ethiopian calendar) _____/_____/_____

Result of interview:

1. Completed…… 2. Refused …….

3. Respondent not available…….. 4. Partially completed …

Checked by supervisor;

Name …….. Signature …… Date ……...

Appendix-III English structured questioners

Instruction,

Circle the numbers for the choices given.

Hospital ID…….

Form no.

Hospital registration no ……..

SN	DISCRIPTION	VALUE
1	Date of confirmed diagnosis	Day…….Month……..Year
2	Date of advice for breast biopsy	Day…….Month……..Year
3	Date of first visit of cancer hospital	Day…….Month……..Year
4	Date of referral	Day……Month……Year
5	Total no. of visits in cancer hospital till diagnosis	…….
6	Were patients advised to go any other place for any test	Yes…….. No……
7	Stage of breast cancer at diagnosis	……Specify stage
8	Types of diagnosis	1.clinical only 2. Clinical investigation (x-ray etc.) 3.specific tumor markers 4.cytology /hematology 5.histology
9	Current stages of diagnosis	Specify stages…….
10	Treatment planned	Surgery……1 Chemotherapy….2 Radiotherapy…...3 Palliative care….4 Other ……..5 Specify
11	Immediate referring HF(Type)	Hospital----------1 Health center-------2 Private HF----------3

Identification

Hospital ID……. **Hospital registration no…** **Date …….**

1. Introductory and socio Demographic information				
Question Codes	**Questions**	**Probable Answers**	**Answer codes**	**Skip to**
101	What is your usual place of residence	Urban…… Rural……	1 2	
102	What is your Ethnicity	1. Sidama 2. Welayeta 3. gedyo 4. Hadiya 5. Kembata 6. Gurage 7. Amhara 8. Others (specify)	1 2 3 4 5 6 7 8	
103	Where is your region?	1. Amhara 2. Oromia 3. SNNPR 4. Afar 5. Tigray 6. Gembella 7. B.Gumuze 8. Somali 9. AA 10. DD 11. Harari	1 2 3 4 5 6 7 8 9 10 11	
104	What is your religion	1. Orthodox 2. Catholic 3. Protestant 4. Muslim 5. Others (specify)……	1 2 3 4 5	
105	How old are you? were you at your last birthday?	Age in completed years (…….)		
106	What is your marital status ?	1. Married 2. Single(never married) 3. Divorced/separated	1 2 3	

		4. Widowed	4	
107	Have you ever give birth?	• Yes • No	1 2	Skip to Sect 2
108	How many live children did you have?	No.of children……..		
2. Socio- economic information				
201	What is the highest level of school you completed?	1. Illiterate 2. Informal education 3. Primary education 4. High school education 5. Diploma 6. Graduate and above	1 2 3 4 5 6	
202	What is/ was your occupation, that is, what kind of work do you mainly do?	1. House wife 2. Private employee 3. Farmer 4. Government employee 5. Daily laborer 6. Merchant 7. Student 8. Others (specify)……	1 2 3 4 5 6 7 8	
203	What is the HH monthly income in Birr?	In EB……		
204	How much time took to come to this hospital By available means from your home.	Hours……..days……		
3. Patient's History on diagnostic pathway (Diagnostic): *Use supportive documents of previous history*				
301	Can you please say me the disease you have been diagnosed?	Breast cancer Other (specify)……. Don't know	1 2 9	

302	How many Health facilities have you consulted before being referred to this hospital for the current complaint that is diagnosed as cancer?	No. of HFs……. Specify type of each HFs 1…….. 2……		
303	What problem had they diagnosed for your current symptoms in the HF you consulted before being referred to this hospital?	Diagnosis in HF1…… HF2…… HF3…… HF4…… (Mention patient's version)		
304	Had they advised you for any test for breast cancer in HF you visited first for current symptom?	Yes No	1 2	
305	Were there breast examinations in initial consultation?	Yes No	1 2	

4. Information on reasons for delay (supported by medical record)

401	When was the time you present to a HF for the current compliant for the first time?	Year…..month …… date …..		
402	Is there time lag between presentation and diagnosis? Above 3wks of presentation (filled by data collector	Yes No	1 2	Skip to section 5
403	Could you please tell me what the reasons for delay attending to this hospital are?			

404	Could you please say me what are the reasons for late diagnosis? Reasons related with you	Lack of cash money at that time (took time to manage money) Thinking that cancer was not becured (it's waste of money) Sought traditional faith healer and alternative practices Difficulty to make decision I thought it was relief by itself Inappropriate diagnosis Others (specify)……... (spontaneously and multiple answer possible)		
405	Could you please say me what are the reasons for late diagnosis? Reasons related with hospital	1. Waiting time in the reception 2. Waiting time to see a doctor 3. No appropriate Physician (spontaneously and multiple answer possible)	1 2 3	
406	Reasons related with health care professionals?	lack of appropriate attention and appropriate professional at the time being busy unable to examine the patient appropriately (spontaneously and multiple answer possible)	1 2 3	
5. Patient's history on help seeking form health care professional and health awareness				
501	When did you first notice signs or symptoms of the current condition?	Month……year……		
502	What was the symptom that made you feel that something is wrong?	Breast lump Change in breast size Discharge from nipple Itching Pain	1 2 3 4 5	
503	After feeling that something is wrong, to whom you shared the problem?	Husband Friends family members Health professional Other (specify)	1 2 3 4 5	

504	Did you immediately share the problem to other?	Yes No	1 2	
505	Where you did first contacted for help?	Traditional faith healers (Traditional practitioners) Health extension workers Nowhere /Self medication Health facility Other (specify	1 2 3 4 5	
506	Have you previously heard of breast Cancer?	Yes No	1 2	
507	Have you previously heard of mammography test?	Yes No	1 2	
508	done mammography test before the diagnosis of the current disease?	Yes No	1 2	
509	Was there any familial history of cancer?	Yes No	1 2	
6.Behavioral factors of the patients				
601	Have you ever had smoke cigarette?	**Yes** **No**	**1** **2**	Skip to 703 →
602	How many cigars or tobacco did you smoke per day, on average?	---------- cigarettes (tobacco)/ day		
603	Age at menarche	…….the age in completed years		
604	How many years did you breastfed?	…….(years)		
605	Have you ever used any type contraceptive method?	Yes No	**1** **2**	→ Skip
606	Which type of contraceptive and for how long?	…….. type …….. in months		

Thank You!

Appendix-IV Key informant in-depth interview guide

Greeting!

Hello Dear participant!

With the aim of assessing factors related for late diagnosis of breast cancer, having an in depth interview with you has become an important idea. I hope that the interview I would be having with you is very much helpful to improve problems related with late diagnosis by directing early intervention methods.

In doing this interview, I was raise some questions concerning late diagnosis of breast cancer in general and specifically why women do not come to health facility in early stage. Entering to interview, I would like to appreciate you for your voluntary participation in this

Interview/discussion**.**

Discussion points

To the patients

1. What do you understand about breast cancer before? (Prop: about severity of the disease, its preventability, health care seeking behavior and awareness of screening test)
3. What do you think the challenge is to visit the health facility early when the symptom start? (Prop: when did the symptom start , recognition and perception of symptoms , challenges to visit the health facility)
4. What was your reason to come late to health facility? (Prop: personal reasons, social reasons , health system related reasons)
5. What was the challenge related with the health care professionals during the process? (Prop: what was the diagnosis's made, the care and attention given and the role of practitioners)
6. What was the general health system contribution is from your journey (referral process, hospital related issues, facility problems and other relatedissues) Finally, I would like to express my heartfelt thanks for your voluntary participation in this in depth interview.You have contributed your best!

Thank you!

Appendix-IV Structured questioner Amharic version

የአማርኛ ቋንቋ መጠይቅ

የመረጃ መስጫ

ጤና ይስጥልኝ ስሜ ----------ይባላል እኔ የጥናቱን ባለቤት የትምወርቅ ወ/ሚካኤል ወክዬ ስገኝ እርሶም የአአዲስበባ ዩኒቨርስቲ የህብረተሰብ ጤና የድህረ ምረቃ ተማሪ ስትሆን የመመረቂያ ጥናቱ በጡት ካንሰር ዘግይቶ መምጣት የተያዙ ጉዳዮችን በሚል ርዕስ ላይ እየሰራች ትገኛለች የምሰበስበው መረጃ ለወረዳው ለመንሰት አካለት እና ለህብረተሰቡ ከፍተኛ አቅም ይሰጣል።ጥያቄዎቹን ለመመለስ ከ15 እሰከ 20 ደቂቃ ይወስዳል።

አላማው በጡት ካንሰር ዘግይቶ መምጣት የተያዙ ጉዮችን ለማወቅ በሃዋሳ ከተማ በሚገኙ ሆስፒታሎችና ክሊኒክ በሚመጡ ሴቶችላይ ምን ያህል እንደሆነ ለማወቅ ነው።

የጥናቱ ልዩ ጥቅም ፡- የጥናቱ ተሳታፊዎች የረጅምና የአጭር ጊዜጥቅም ይኖራቸዋል የረጅም ጊዜ ጥቅሙም የጥናቱ ውጤት ለህረተሰቡ እና ለጤና ተቋማቱ የሚያመጣው ጥቅም ሲሆን የእጭር ጊዜ ጥቅሙ ደግሞ ከጥያቄዎቹ በሀዋላ ተሳታፊዎቹ ስለጡት ካንሰር አነስ ያለ ገለፃ ይደርግላቸዋል።

የጥናቱ ተሳታፊዎች መብት ፡- በጥናቱ ላይ ያለመሳተፍ መብት አሎት መመለስ የማፈልጉትን ጥያቄዎች እንዲመልሱ አይገደዱም ።

በአስፈላጊው ሰዓት ጥናቱን ማቋረጥ ይችላሉ ያልገባዎትን ማንኛውንም ጥያቄ መጠየቅ ይችላሉ።

ሚስጥራዊነቱ የሚመልሷቸው መልክቶች ሁሉ ሚስጥራዊነታቸው የተጠበቀ ሲሆን የጥናቱተሳታፊ ስምና መለያ ሳይወሰድ በመለያ ቁጥሮች እንጠቀማለን ።

ስምምነት

ከላይ እንደተጠቀሰው በጥናቱ መሳተፍ ምንም አይነት ጉዳት አኤስከትልም ስምምነቶም በዚህ መጠይቅ ላይ አይፃፍም መረጃውም ከተጠቀሰው ውጪ ለማንም ተላልፎ አይሰጥም ሊመልሱ የሚፈልጉትን ጥያቄ መመለስ በሚፈልጉብት ጊዜ አለቋርጠው መሄድ ይችላሉ።።ሌላው ልንሮ የምፈልገው የርሶ እውነተኛ መልሶች ለሚደረገው ጥናት በጣም ጠቃሚ እንደሆነ እንዲሁም ጥያቄዎን መልሶ ለማጠናቀቅ ከ15-20 ደቂቃ ሊፈጅ ይችላል ። የተሰጦትን መረጃ ተረድተው በጥናቱ ሊሳተፉ ስለቀዱ እጅግ በጣም አመስናለሁ።።

ከላይ ያለውን በሙሉ በማውቀው ቋንቋ ተነቦልኝ ተረድቼአለው ካሉ፡-

በጥናቱ ለመሳተፍ ቃደደኛ ኖት? 1) አይደለሁም(አመስናለሁ) 2. አዎ(እንቀጥላለን)

ለሚኖሮት ጥያቄ የሚጠቀሙት አድራሻእና የጥናት አድራጊዋ መረጃ

ስልክ ቁጥር 0911744494

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የጠያቂው ስምና ፊርማ ----------የተጠየቀበት ቀን በኢትዮጲያ አቆጣጠር----------/-------/-------

የጥናቱ ውጤት 1. ተጠናቋል 2. መጠየቅ አልፈለጉም 3. ተጠያቂው አልተገኘም 4. በከፊል የተጠናቀቀ

በሱፐርቫይዘር ተረጋግጧል ስም----------ፊርማ----------ቀን

1. የመልስ ሰጪ ማንነት መለያና ስነ ህዝባዊ መረጃ

ቀን	ጥያቄ	የመልሶች አማራጭ		ዝለል/እለፍ
101	የተጠያቂው አድራሻ ት ነው	ገጠር ከተማ	1 2	
102	የተጠያቂው ብሄር ምንድን ነው	ሲዳማ ወላይታ ሃድያ ከምባታ ሌሎች (ጥቀስ)----------	1 2 3 4 5	
103	ክልል			
104	የተጠያቂው ሃይማኖት ምንድን ነው	ኦርቶዶክስ ካቶሊክ ፕሮቲስታንት ሙስሊም ሌሎች (ጥቀስ)----------	1 2 3 4 5	
105	የተጠያቂው እድሜ ስንት ነው	በቁጥር(ዓመት)----------		
106	ያጋብቻ ሁኔታ	ያገባ ያላገባ የተፋታ ባሏ የሞተባት	1 2 3 4	
107	ልጅ ወልደው ያውቃሉ	አዎ አላውቅም		
108	ስንት ልጆች ጡት አጠቡ	በቁጥር----------		

ማህበራዊና የምጣኔ ሃብት ሀኔታ

201	የትምህርት ደረጃዎ እንዴት ነው	ያልተማረ መንበብና መፃፍ የሚችል የመጀመሪያ ደረጃ(እስከ 8) ሁለተኛ ደረጃ(9-10) ዲፕሎማ የመጀመሪያ ዲሪና ከዚያ በላይ	1 2 3 4 5 6	
202	የስራ ሁኔታ	የቤት እመቤት የግል ስራ አርሶ(አርብቶ)አደር የመንግስት ሰራተኛ የቀን ሰራተኛ ነጋዴ ተማሪ ሌሎች ጥቀስ	1 2 3 4 5 6 7 8 9	
203	የቤተሰቡ የወር ቢ ምን ያህል ነው	ገቢዎ(---------በር)		
204	ወደዚህ የህክምና ተቋም ለመምጣት ምን ያህል ሰዓት ይፈጃል	ሰዓት----------ቀን-------		

2. በህክምና ሂደት ላይ የነበረ ታካሚ ሁኔታ የታካሚ ህመም የታወቀ1በት መንድ (ካስፈለገ ከካርድ የሚሞላ)

301	ምን በሽታ አለቦት ተባሉ	የጡት ካወንሰር አላውቅም		
302	ወደዚህ ሆስፒታል ለመላክ በፊት አሁን ላለኖ በሽታ ምልክቶች ስንት ጊዜ ወደ ተለያዩ ተቋማት ሄደዋል	የሄዱበት ጊዜ-------- ጤና ተቋም---------- ጤና ተቋም---------- ጤና ተቋም---------- ጤና ተቋም----------	1 2 3 4	
303	ወደዚህ ሆስፒታል ለመላክ በፊት የሄዱባቸው ተቋማት በሽታዎ ምንድን ነው አሎት	የተረጋገጠው ህክም-- ጤና ተቋም---------- ጤና ተቋም---------- ጤና ተቋም---------- ጤና ተቋም----------	1 2 3 4	
304	ከዚህ በፊት የሄዱባቸው የጤና ተቋማት የጡት ምርመራ እንዲያደርጉ ምክር ሰጥተዎት ነበረ	አዎ አይለም	1 2	
305	በመጀመሪያ በዚህ የህመም ስሜት የሄዱበት የጤና ተቋም የጡት ምርመራ አድርውሎት ነበረ	አዎ አይለም	1 2	

3. የመዘግየት ምክንያቶች (ካርድ ላይ ባለ መረጃ የሚደገፍ)

401	ለዚህ የህመም ስሜት ለመጀመሪያ ግዜ የጤና ባለሙያ ያማከሩት መቼ ነበረ	-------/-----/-------		
402	ወደዚህ ሆስፒታል በተላኩበትና በመጡበት መሃል የጊዜ ክፍተት ነበር	አዋ አይደለም	1 2	የለም ካሉወደ 501 ለፉ

403	ለዚህ የጊዜ ክፍተት ምክንያቶ ምን ነበር			
404	የዘገየበትን ምክንያት ሊልፁልኝ ይችላሉ(ከእርሶ ጋር የተናኘ	የንዘብ እጦት ካንሰር የማይድን መሆኑን በማሰብ የባህልና የእምነት ቦታዎች ስለሄድኩ ለውሳኔበመቸገር ምክንያት የለኝም ሌሎች ካሉ	1 2 3 4 5 6	
405	ከሆስፒታሉ ጋር የተገናኙ ምክንያቶች	እንግዳ መቀበያ ላይ ያለው ወረፋ ሃኪም ለማኘት ያለው ወረፋ ተገቢውንሓኪም አለማግኘት ምክንያት የለኝም ሌሎች ካሉ	1 2 3 4 5 6	
06	ከጤና ባለሙያዎች ጋር የተገናኘ ምክንያት	ተቢውን አፅኖት አለመስጠት በስራ መጠመድ ለታካሚው ተገቢውን ምርመራ አለማድረግ ሌሎች ጥቀስ	1 2 3 4	

4. የታካሚዎች ወደጤና ተቋማት የመሄድ ፍላጎት

501	አሁን ያለቦት የበሽታ ምልክቶች መጀመሪያ የጀመሮት መቼ ነው	---------/-------/------		
502	ያሳሰቦት የበሽጻ ምልክጽ ምንድነው	1. የጡት ጢ 2. የጡት መጠን መለወጥ 3. የጡጥ ጫፍ ውጥና ያልተፈለገ ፈሳሽ 4. የጡት ቆዳ ቀለም መቀየር 5. የብብት ስር ንፍፊት እብጠት		

		ሌላ ካለ ይጥቀሱ		
503	ለመጀመሪያ ጊዜ ይህ የህመም ስሜት ሲሰማዎት ያማከሩት ለማን ነበር	1. ባለቤትዎ 2. ለጓደኛዬ 3. ለሌላ ሴት የቤተሰብ አባል 4. ሌሎች ካሉ ይጥቀሱ		
504	ይህ ህመም ሲሰማዎት ወዲያውኑ ለሰዎች አማከሩ	1. አዎ 2. አይደለም	1 2	
505	የጤና ባለሙያ ከማማከሮት በፊት ያማከሩት ሰው ነበር	1. የባህል ህክምናና የእምነትቤቶች 2. የጤና ኤክስቴንሽን ባለሙያ 3. ለማንም አላማከርኩም 4. ሌሎች ካሉ ጥቀስ	1 2 3 4	
50	ከዚህ በፊት ስለ ጡት ካንሰር ሰምተው ያውቃሉ	1. አዎ 2. አይደለም	1 2	
507	ከዚህ በፊት ስለ ጡት ካንሰር ቅድመ ምርመራሰምተው ያውቃሉ	1. አዎ 2. አይደለም	1 2	
508	የጡት ካንሰር ቅድመ ምርመራአድርገው ያውቃሉ	1. አዎ 2. አይደለም	1 2	
509	በቤተሰቦ ውስት የካንሰር በሽታ እንደነበር የሚታወቅ ሰው ነበር	1. አዎ 2. አይደለም	1 2	

6. የታካሚ ፀባዮችና ልምዶች

601	ሲጋራ አጭሰው ያውቃሉ	1. አዎ 2. አይደለም	1 2	የለም ካሉ ወደ 03
602	አዎ ካለ ለምን ያህል ጊዜ ያጤሱ ነበረ በቀን ስንት ጊዜ	------በአመት ------በቀን		
603	የመጀመሪያ ጊዜ የወር አበባዎን ያዩት መቼ ነበረ	እድሜ-----		
604	ለምን ያክል ጊዜ ጡት አጥብተዋል	---------		
605	የወሊድ መከላከያ ተጠቅመው ያውቃሉ	1. አዎ 2. አይደለም	1 2	የለም ካሉ ወደ
606	መልሶ አዎን ከሆነ የትኛውን አይነት ለምን ያህል ጊዜ	--------		

ASSURANCE OF PRINCIPAL INVESTIGATOR

The undersigned agrees to accept responsibility for the scientific ethical and technical Conduct of the research project and for provision of required progress reports as Per terms and conditions of the Research Publications Office in effect at the time of Grant is forwarded as the result of this application.

Name of the student: _____

Date. _____ Signature _____

Approval of the examination board

Name of the Externa Examiner: _____ Date_____ Signature_____

Name of the internal Examiner: _____Date_____ Signature_____

Name of primary advisor_____ Date_____ Signature_____

Name of secondary advisor_____ Date_____ Signature_____