



**ADDIS ABABA UNIVERSITY
COLLEGE OF HEALTH SCIENCES
SCHOOL OF PUBLIC HEALTH**

**EARLY DETECTION, REFERRAL AND OUTCOME OF BREAST
ABNORMALITIES AT SELECTED PRIMARY HEALTH CARE FACILITIES
IN ADDIS ABABA: A MULTI-CENTER MIXED METHOD STUDY**

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A THESIS SUBMITTED TO THE GRADUATE PROGRAM OF ADDIS ABABA
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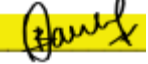
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I undersigned agree to accept all responsibilities for the scientific and ethical conduct of this research project and declare that this thesis is my original work in partial fulfillment of the requirement for the Master of Public Health in Epidemiology and Biostatistics.

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Abbreviations and Acronyms

ASIR	Age Standardized Incidence Rate
ASDR	Age Standardized Death Rate
ASR	Age Standardized Rate
BSE	Breast Self-Examination
CBC	Complete Blood Count
CBE	Clinical Breast Examination
CI	Confidence Interval
CNA	Case Note Audits
DALY	Disability Adjusted Life Years
DHIS	District Health Information System
EAPC	Estimated Annual Percentage Change
EKCC	Else Kröner Cancer Center
ETB	Ethiopian Birr
FNAC	Fine Needle Aspiration Cytology
GBCI	Global Breast Cancer Initiative
HC	Health Center
HCWs	Healthcare workers
IQR	Inter Quartile Range
LMICs	Low and Middle Income Countries
MOH	Ministry of Health
ODK	Open Data Kit

OPD	Out Patient Department
OR	Odds Ratio
PHCF	Primary Healthcare Facilities
SD	Standard Deviation
SSA	Sub-Saharan Africa
TASH	Tikur Anbessa Specialized Hospital
US	United States
WHO	World Health Organization
YLD	Years Lived with Disability
YLL	Years of Life Lost

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Abstract

Background; There are more than 2.3 million cases of breast cancer each year, making it the most common form of cancer. Benign breast conditions, which are not studied well in Ethiopia, together with misdiagnosis and the knowledge gap among health professionals, make the burden even worse. Therefore, this study is crucial in bridging the knowledge gap with this regard.

Objective; The aim of this study was to assess the magnitude of patients with breast abnormalities; referral; and professionals' knowledge about breast cancer early detection work at selected primary health care facilities in Addis Ababa in 2024.

Methods; A multi-center, mixed-method study using a multi-stage sampling method was conducted at primary healthcare facilities. The quantitative study, which was a retrospective cross sectional study, was conducted on all case note audits of patients for year 2023 to assess magnitude and patient outcomes. The other quantitative study had a cross-sectional design and a self-administered questionnaire was provided to health care professionals to assess their knowledge about breast cancer early detection work. The data was collected using Open Data Kit. The qualitative study was conducted with phenomenological study approach. The quantitative data was analyzed using STATA version 14 software. Descriptive statistics was done using frequency and percentages. Categorical data analysis and binary logistic regression were also done. Odds Ratio with its 95% Confidence Interval was used as a measure of association. Variables having a p value less than 0.05 in the multivariable model were considered as having significant association with the dependent variable.

Results; The prevalence of breast abnormalities at the selected health facilities was 170.31 per 100,000 population among adult population and 109.14 per 100,000 female populations among women 30 and older. Patient delay was more than 30 days in 23.5% (85) of the cases. Only 14.9% (54) of the patients were referred to the next health facilities and physical examination was done only for 20.4% (74) of them. Of the health professionals, 27.6% (137) were knowledgeable (95%CI (0.24, 0.32)). Among trained health professionals, 72.7% (32) had poor knowledge. Work experience (AOR=5.61, 95% CI, (1.32, 23.9)); and risk factor identification (AOR=3.53, 95% CI, (1.66, 7.50)) were factors affecting knowledge of health professionals about breast cancer early detection work. The qualitative findings confirmed and explained the quantitative study findings such as absence of referral feedback, screening services and diagnostic investigations; poor knowledge of health professionals; and patient and healthcare related delays.

Conclusions; There is higher prevalence of breast abnormalities among age 30 and above. Only 14.9% (54) of the patients were referred to the next health facility. Absence of diagnostic investigations and referrals with incomplete information together with absence of referral feedbacks deterred the referral experience. Majority of primary healthcare professionals have poor knowledge of breast cancer early detection work resulting in misdiagnosis and negligence. Trainings were given for very few of the health professionals and it was not effective that majority of the trained ones were not knowledgeable.

Keywords; breast cancer, abnormalities, early detection, referral, knowledge, health professionals, mixed method

1. Introduction

1.1 Background

Breast cancer has become the most diagnosed disease worldwide, accounting for about 12% of all cancer cases in 2020 (1). Benign breast disorders and diseases include a diverse set of clinical and pathologic phenomena. Page's classification method divides benign breast illnesses and diseases into three clinically important groups: non-proliferative disorders, proliferative disorders without atypia, and proliferative disorders with atypia (2).

Non-proliferative breast disorders account for 70% of benign breast ailments and are not associated with an increased risk of developing breast cancer. Cysts, duct ectasia, periductal mastitis, calcifications, fibro adenomas, and other illnesses fall into this category. Sclerosing adenosis, radial scars, complicated sclerosing lesions, ductal epithelial hyperplasia, and intraductal papillomas are examples of proliferative breast illnesses without atypia. Atypical proliferative disorders share some of the characteristics of carcinoma in situ, but either lack a major defining trait of carcinoma in situ or have the features in a less developed form (2). Atypical lobular hyperplasia and atypical ductal hyperplasia, which are included in this class, have been associated with an increased risk of breast cancer (3). Ductal involvement by cells of atypical ductal hyperplasia is found to have a 7-fold increased cancer risk, while lobular carcinoma in situ and ductal carcinoma in situ each has 10-fold increased cancer risk (2).

Breast cancer mortality is disproportionately high in low and middle-income countries (LMICs), with over 70% of breast cancer fatalities occurring in those under the age of 70 (1). In 2020, breast cancer was the most frequently diagnosed cancer and the leading cause of cancer-related mortality in women. Africa reported 531,086 new cases (74.3/100,000). It had a death rate of 85,787 (19.4/100,000), whereas Europe had a rate of 141,765 (14.8/100,000) (3). Breast cancer was also reported to be one of the most incident and lethal cancers in Ethiopia in 2019, with age-adjusted incidence rate of 12.9%. It also has the most age-standardized disability-adjusted life years (129,580) (4).

Many risk factors for breast cancer, such as age, family history, early menarche, and late menopause, are non-modifiable. Postmenopausal obesity, the use of combined estrogen and progestin menopausal hormones, alcohol intake, and breastfeeding are all modifiable factors (5). Sadly, most breast cancers cannot be avoided by primary prevention. As a result, secondary prevention, such as screening, which tries to halt the progression of disease to a malignant tumor, is advantageous (6). Screening is responsible for a decrease in mortality, indicating that screening mammography reduced mortality by roughly 12 deaths per 100,000 women (7). However, since doing population screening for breast cancer is not feasible, countries must prioritize breast cancer early detection programs so that at least 60% of breast cancers are discovered and treated early. Early identification of breast cancer and breakthroughs in treatment has also increased patient survival (8).

Health professionals' lack of knowledge (9, 10) and misdiagnosis (11), particularly among primary healthcare professionals (12), results in advanced-stage diagnosis. A fragmented health-care system that involves several administrative delays; limited or nonexistent communication between hospitals; a limited number of centers and scarcity of equipment required for early diagnosis; a shortage of trained personnel at primary health-care centers; and a lack of knowledge of the referral system (13, 14) are all significant barriers to breast cancer early detection. Some of the solutions at hand include a patient navigation program that acts as a bridge between the patient and the health care system, enhancing local capacity for cancer care, community education, improving medical education, and providing training on breast cancer early detection (13, 15).

The WHO Global Breast Cancer Initiative, launched in 2021, aims at reducing cancer mortality globally by 2.5% per year. This initiative is built on three pillars: health promotion for early detection, timely diagnosis, and comprehensive breast cancer management (1). There are other programmatic efforts, such as the global Breast Cancer Awareness Month campaign, which is held every October and aims to raise breast cancer awareness (16). The Federal Ministry of Health in Ethiopia has developed a national cancer control plan, with one of its general goals being to enhance cancer prevention and early detection initiatives. The strategy focuses not only on improving early diagnosis and treatment of precancerous lesions or early-stage disease but also on accelerating the referral of cancer patients for additional care (17).

1.2 Statement of the Problem

Globally, the incidence of breast cancer cases grew to 2.0 million in 2019 (18), with the WHO estimating 2.3 million female breast cancer cases in 2020 (1). The global age-standardized incidence rate (ASIR) gradually increased from 21.44 per 100,000 people in 1990 to 24.17 per 100,000 population in 2019, with a 0.33 estimated annual percentage change (EAPC). The overall number of death cases has continuously ascended from 0.38 million in 1990 to 0.70 million in 2019. The number of Disability Adjusted Life Years (DALYs) has increased from 11.68 million in 1990 to 20.63 million in 2019. The global age-standardized rate (ASR) for mortality, DALYs, and YLL declined over time, but YLD increased (18).

Breast cancer expenditures are rising due to an increase in the number of patients and treatment costs. These expenses account for 13% of overall cancer-related spending in Europe (19) and \$1,056 million in Australia (20). However, amount spent on cancer treatment in Africa is disproportionately low, accounting for only 0.3% of the global cost (21). In Ethiopia, the projected cost of breast cancer treatment for Tikur Anbessa Specialized Hospital (TASH) in the number of new breast cancer patients in Addis Ababa, if the unit costs of materials increase by 15 percent every year, will rise from US\$ 560,000 in 2021 to US\$ 1.14 million in 2025 (22). Breast cancer also has an economic impact on both cancer patients and their caregivers. On average, cancer patients lose 27% of their yearly wage in the first 12 months after diagnosis, while 40% of caregivers had to miss work, with 29% experiencing income loss because of their caregiving (23). The stage of cancer, cognitive functioning, pain, financial challenges, future outlook (24), and treatment toxicities (25) all have an impact on the quality of life of breast cancer patients, who would rather live in full health than live longer (24).

Breast cancer in high-income nations is often diagnosed at an earlier stage and has a better prognosis than in developing ones (26). It is responsible for one in every four cancer diagnoses and one in every five cancer deaths in Sub-Saharan Africa. However, precise incidence numbers in Africa are scarce due to the lack of cancer registration in most countries (27).

In Sub-Saharan Africa (SSA), the five-year survival rate for breast cancer is less than 40%. Approximately 80% of breast cancers in SSA are diagnosed at late stages due to inadequate breast examination and early detection practices, patients' lack of awareness as well as the absence of diagnosis facilities. In SSA, there is a significant delay between the onset of symptoms and the seeking of medical attention. Most SSA countries have not launched and sustained screening programs due to logistical, societal, and financial restrictions (3).

The key performance indicator (KPI) for pillar two of the Global Breast Cancer Initiative (GBCI) indicates that breast cancer should be diagnosed within 60 days of initial presentation. However, the median diagnostic interval in Addis Ababa, Ethiopia is 69 (22-213) days, with 18% of patients waiting more than a year (28). This was considerably more pronounced in north-west Ethiopia, where diagnostic delays ranged from 7 to 276 days. The proportion of those with

advanced-stage breast cancer diagnosis is 71.2%, and diagnoses in stages I and II account for 10% and 18.9% of all cases, respectively (11). These percentages are significantly lower than the GBCI implementation framework of the 2023 benchmark for pillar one, which stipulates that 60% or more of invasive breast cancers should be stage I or II at diagnosis (1).

Many patients encountered care transition delays because of poor provider knowledge and misdiagnosis. Patients are frequently given analgesics or other medicines at primary care facilities for several months before being referred to a facility for breast cancer care (29).

Evidence from various regions of Ethiopia on health professionals' knowledge of breast cancer early detection work reveals wider discrepancies. For instance, cross-sectional studies conducted in Debre Tabor and Addis Ababa show that 79.7% (30) and 30.6% (31) of the health professionals assessed were knowledgeable about breast cancer early detection methods, respectively. Although the level of knowledge in Addis Ababa is expected to be higher due to a better standard of living and access to training, the study indicates a much lower percentage than Debre Tabor's. Therefore, this discrepancy might be due to methodological issues that need to be addressed well to have solid evidence. Moreover, the studies indicated that qualitative study will elaborate the issue well, suggesting future researchers to do so (31).

Failure to understand the burden of breast abnormalities and take preventive actions may increase breast cancer risk. Benign breast conditions such as atypical hyperplasia have been associated with increased risk of breast cancer, reaching up to 43.8% in middle-aged women (32). Therefore, as the magnitude and outcome of breast abnormalities are not adequately studied in Ethiopia and there is a paucity of evidence in referral experiences and challenges, this study will fill the knowledge gap in this regard.

Finally, even though Ethiopia has a National Cancer Prevention Plan, there are no guidelines explicitly designed for breast cancer prevention. Therefore, this study aimed at filling the knowledge gap and inconsistencies of information about breast abnormalities, including breast cancer, by quantifying the magnitude of breast abnormalities in primary health care setups; assessing health professionals' knowledge about breast cancer early detection work; and generating strong evidence that can help improve the program directions and policies.

1.3 Rationale and significance of the study

1.3.1 Rationale of the study

So far, no published material has clarified the magnitude of breast abnormalities and referral, except breast cancer, in Ethiopia, particularly at the primary healthcare level. As a result, this research aids in bridging the information gap and facilitating effective intervention. Furthermore, this study quantifies the delays at different time points of care which helps to tailor interventions.

Several studies have also found a knowledge gap in breast cancer symptoms, risk factors, and early detection methods, which resulted in misdiagnosis (9, 10) and patients' loss of trust in health professionals (33). This knowledge gap is exacerbated even more among primary healthcare providers (12, 29). As a result, there is an urgent need to assess health professionals' expertise to provide them with proper training or to consider improvements in medical and health science education in the country.

1.3.2 Significance of the study

In developing countries like Ethiopia, focusing on early detection and referral of breast lesions through early diagnosis is crucial to combat deaths from breast cancer (1). Hence, this study came up with strong evidence related to breast abnormalities and early detection work, including referral experiences. This is very instrumental in seeing the problem from different dimensions, prioritizing, and mobilizing resources for effective planning and implementation, and achieving the pillar-one recommendation of 60% of early breast cancer detection from WHO/GBCI. Moreover, it will be an input for the national breast cancer policy in Ethiopia that is under consideration to be developed.

The findings of this research will be instrumental for programmers and policymakers, health professionals, curriculum reviewers, and to the public in relation to breast abnormalities and cancer early detection, referral and professionals' capacity development in the area.

2. Literature Review

2.1 Magnitude and characteristics of patients with breast abnormalities

Breast cancer is the most frequent type of cancer in women in 158 of the 183 nations (86%) and the leading cause of female cancer deaths in 107 of the 183 countries (58%). In 173 of 183 countries (95%), it is the leading or second-leading cause of female cancer-related mortality (1). The age-standardized incidence of breast cancer in developed countries is 54.5 per 100,000 female population, while it is 31.3 per 100,000 female population in LMICs (34).

A systematic review and meta-analysis of the incidence of breast cancer in Africa revealed that the overall pooled crude incidence of breast cancer in Africa from population-based registries is 24.5 per 100,000 person years. East Africa has a comparatively higher estimated incidence rate of 28.0 per 100,000, whereas Central Africa has the lowest pooled incidence rate of 13.4 per 100,000 (35).

Breast abnormalities and breast cancer projections in Ethiopia, which account for anticipated population growth over the next 10 years, show that the number of self-reported breast abnormalities could increase from 1.0–1.1 million in 2018 to 1.3–1.5 million in 2028. The expected increase in breast cancer cases among women aged 35 to 49 years is 47.7% (36). Moreover, a mini review on the current state and uncertain future of breast cancer in Sub-Saharan Africa indicates that, according to the Addis Ababa City Cancer Registry, Ethiopia experiences a yearly change of 2.57% in breast cancer cases (3). Over a sixteen-year period, data on new cases of breast cancer registered annually at the cancer registry of the TASH, the country's hospital where cancer patients can be diagnosed and treated, show that the number of cases generally increases from year to year, which may be due to an increase in people's awareness of the disease (37).

This increasing trend of breast cancer incidence is also observed in other parts of Ethiopia. A seven-year retrospective assessment of epidemiological trends of breast cancer in southern Ethiopia revealed that the incidence of breast cancer in hospitals has been increasing over time. In the three years since the hospital's inception, there has been a 6.7% increase in the number of cases diagnosed and treated (38).

The overall death rate in a retrospective follow-up study in Ethiopia, where participants were followed for a total of 60 months, is 16.9 per 100 person-year and the average length of survival is 38.3 months. Advanced clinical stage, high histologic grade, place of residence, co-morbidities, menopausal state, number of positive lymph nodes, and hormone therapy are all significant predictors of mortality in patients with breast cancer (39).

2.1.1 Age at diagnosis of patients with breast abnormalities

A woman's age is essential in determining whether a given body alteration was caused by an illness or by normal changes. Young women can easily correlate bodily changes with menstrual cycles and the possibility of pregnancy, but older women are more concerned with menopausal changes and age-related diseases. Participants who had ever breastfed or been pregnant originally regarded their breast symptoms as normal physical changes and paid little attention until symptoms persisted or became severe (40).

More than two-thirds of breast cancer cases in developed nations are detected in women aged 50 and older (37). However, younger age groups were diagnosed in developing countries. Analysis of the records of patients hospitalized for breast cancer surgery at the Cancer Institute of Tehran, an Iranian referral center, reveals that out of 5,265 cases of breast cancer, 62 individuals (1.17%) were 25 or younger. The patients ranged in age from 15 to 20, with 10 being over the age of 20 (41). Similarly, women with breast cancer in the SSA are apparently younger, having a decade earlier peak incidence (50.2 years) than African Americans and White Americans, who have peak incidences of 60.8 and 62.4 years, respectively. Current SSA data show an increase in diagnosed cases between the ages of 35 and 49, with the majority presenting with advanced late-stage disease. Although inconclusive, these findings point to a high incidence of breast cancer in Africa's younger age groups (3). This is backed further by research conducted at Tikur Anbessa Hospital in Ethiopia, which discovered that more than 70% of the cases were diagnosed before the age of 50 (37). This disparity can be attributed to low breast cancer early detection practices in developing nations.

According to the majority of published series, the median age at diagnosis for patients with breast cancer who do not have HIV in a high-income population is 61 years, compared to 10 to 15 years younger among patients with HIV. However, patients with breast cancer in SSA present at a younger age, regardless of HIV status (42). Abnormal breast conditions are reported at a median age of 13.5 years among patients who were on ART at the time of the reported event, for a median duration of 4.9 years from ART initiation and 2.0 years since commencing their current ART regimen (43).

2.1.2 Symptoms first noticed for healthcare seeking of the patients

According to many research works, the most common symptom documented is a breast lump (28, 36, 44-52). Nipple abnormalities, breast soreness, ulceration, dimpling of breast skin, lump beneath armpit, and breast skin abnormalities are the next most commonly reported presenting symptoms (28, 44, 45, 49, 52, 53).

2.1.3 Barriers to breast cancer early detection

A systematic review of barriers to early presentation and diagnosis of breast cancer among black women focusing on research conducted in developed countries found that a consistent finding across studies is the low level of knowledge among black and African American women about breast cancer symptoms and/or risk factors for developing the disease, which is 25% compared to 44% in white American women. In black and African American women with breast cancer, a lack of information about symptoms and risk factors is linked to a delay in presentation (33). Similarly, a qualitative study in South and Southwestern Ethiopia revealed a general lack of awareness and knowledge about breast cancer risk factors, signs, and symptoms, as well as a general lack of community activity and attention given to early detection of breast cancer as barriers to early diagnosis of breast cancer (29).

In an Ethiopian survey, while most women had heard of breast cancer, only 21.3% had heard of breast cancer screening, and just 1.4% of women aged 40 and older had ever undergone a breast screening test (54). Several studies conducted in Indonesia, Ethiopia, and other Sub-Saharan African countries indicate that while some women in the general community are aware of the term "screening," they are unaware that it is targeted at detecting diseases before symptoms arise (46, 55, 56).

In a study conducted in Southwest Ethiopia employing the health belief model, it was discovered that for every unit increase in awareness of breast self-examination (BSE), the odds of practicing BSE increased by 1.22 times (49). When compared to Clinical Breast Examination (CBE) and mammography, BSE has a greater participation rate (46, 55, 56). BSE lifetime prevalence rates range from 5% among Zambian women to 89.2% among female health workers in urban Nigeria. Across studies, however, the prevalence of regular BSE is substantially lower than the lifetime prevalence (56).

Even after being introduced to CBE, women in Indonesia preferred BSE because it is simple and free, and the breast is a sensitive body part that is considered taboo to be touched by male health care providers (55). Women in Malawi, on the other hand, were afraid that they might miss something when performing self-checks and preferred that this task be delegated to a qualified healthcare practitioner (56). This discrepancy might be due to cultural differences and the levels of knowledge of the participants. In a separate study, most breast cancer patients in Ethiopia preferred female healthcare practitioners to do their CBE (54). Unfortunately, mammography is not available in most SSA nations and is typically only offered to women in urban areas (56).

In a convergent parallel mixed method study in Southeast Ethiopia, only 13.2% of mothers did BSE. The primary reasons provided by the mothers were a lack of information (37.1%), a concern of identifying anomalies (21.7%), and a lack of privacy (16.5%). Mothers who underwent BSE had anomalies in their breasts such as alterations in shape (32.7%) and lumps in

the breast (26.4%). The vast majority (62.7%) of those who discovered abnormalities in their breasts sought medical attention (57).

Based on several research, women with greater levels of education are more likely to have had breast cancer screening (29, 46, 48, 52, 54, 56, 58). Women with a primary or higher level of education are six times more likely to have received a breast screening exam (54). Mothers with completed primary and secondary education are 3.88 and 11.14 times more likely to use BSE than illiterate moms, respectively (57). However, knowing about CBE and BSE does not always translate into better implementation of these techniques (56).

Several studies have indicated several hurdles to the early identification of breast cancer. Family barriers such as fragile emotional relationships with spouse, lack of mutual understanding between couples, lack of the spouse's support, fear of the spouse's remarriage and rejection by him, fear of family breakdown (29, 33, 59) and obsessive attachments to children (59) are frequently encountered.

Many studies also reported cultural and social barriers such as fear of being judged, embarrassment in the cultural context deterrent beliefs, and attempting to treat cancer with herbal medication and holy water remedies (9, 29, 36, 48, 59, 60).

Personal factors like negligence and carelessness, lack of knowledge (9, 36, 48, 59, 60), fear of losing one's beauty (29, 59) and the resulting mood swings and pessimism (59) false or deceptive confidence, mental and psychological distress, and deterrent fears (33) are barriers for seeking early medical care. However, high perceived severity or susceptibility and positive outcome expectations are 1.78 and 2.05 times more likely to engage in BSE behavior than their counterparts, respectively (49).

Organizational barriers such as lack of supportive resources and efficient specialized staff are barriers to breast cancer screening (59). The community's conception of cancer as an incurable and terrible disease is also the most common reason for being afraid to confirm the patients' diagnosis (9).

Lack of financial resources for treatment and transportation also contributes to care delays and makes early diagnosis difficult (9, 29, 48, 61). Higher-income women are correlated with better breast cancer screening habits (58). Those with a high level of income are almost three times more likely to be aware of breast cancer screening than those with a low level of income (46). However, in terms of risk, higher socioeconomic status has been associated to an increased risk of breast cancer in various studies. Women from higher socioeconomic strata may be more likely to have breast cancer risk factors such as late age at first birth, early menarche, late menopause, obesity, and heavy alcohol intake (27).

The other barrier for early detection and treatment of breast cancer is the health system. A fragmented health-care system with many administrative delays is highlighted as one of the most

significant barriers in Columbia. Patients have trouble accessing screening programs and gaining authorizations for government-funded services. Furthermore, communication between hospitals is weak or nonexistent, particularly between level 1 to 2 and level 3 facilities. Despite universal coverage, health maintenance organizations retain complete control over authorizations and require patients to go through a lengthy regulatory administrative process before receiving treatment (13).

Even though a systematic review of data from multiple countries indicates disparity in its findings that the studies conducted ten years onwards showed access to healthcare services and competing priorities had no effect on delay or help seeking intention among black and African American women, unlike the studies conducted before 10 years (33), an exploratory study conducted in recent years in Uganda among women with potential breast and cervical cancer symptoms, shows that a lack of medicines, a long wait time to see healthcare professionals, and competing social obligations are some of the barriers to prompt health care help-seeking (40). A qualitative study done in South and Southwest Ethiopia also found that competing priorities contributed to the delay (29). These disparities could be attributed to differences in socioeconomic status of the study population, as the former was a systematic review from several developed countries whilst the rest of the studies were undertaken in developing countries.

2.1.4 Patient and health care related delay of patients with breast abnormalities

According to a prospective multi-center cohort research conducted in the United States of America, the median duration between seeking medical attention and receiving a diagnosis is 16.5 days (7-30 days) (62).

In a multinational study conducted in twelve countries, the patient-related delay time ranges from 3.4 weeks in Hungary to 6.2 weeks in Latvia. The mean system-related delay time for all countries is 11.1 weeks. A patient delay of more than four weeks is also shown to result in a longer system delay (52).

In a qualitative study conducted in South Africa, the average period between discovery of breast changes and cancer diagnosis is 256 days, with an average of 164 days between discovery of changes and presentation to the first healthcare practitioner and 92 days of diagnostic interval (63). In a research conducted in Rwanda at two rural cancer referral centers, patients' delays in early, locally advanced, and metastatic cancers are 60 days, 150 days, and 270 days, respectively (60).

In an institution-based cross-sectional study conducted in Felege Hiwot, and University of Gondar specialized hospitals, 75.7% of breast cancer patients has a long patient delay of 90 days and more, with an average patient delay period of 8 months (48). A cross sectional study in Northeast Ethiopia shows a slightly lower patient delay of 50.5% (51). The patient delay in Addis Ababa is 35.7% (28) which is lower compared to the above two studies. This discrepancy

might be due to the socio-economical differences of the two populations. Moreover, Patients visiting health centers had longer (89 days) diagnostic interval than those who visited public hospitals (55 days) for their first medical consultation.

Using data from the English National Audit of Cancer Diagnosis in Primary Care, a study on typical and atypical presenting symptoms of breast cancer and their relationships with diagnostic intervals discovers that there is an ample proof for variation in the patient interval by symptom category. Women who did not have breast complaints had a shorter patient interval than those who did. Women who presented with breast complaints had the shortest primary care intervals, while those with 'non-breast' symptoms had the longest (44).

2.2 Professionals' knowledge about breast cancer and the early detection work

A cross sectional study conducted in India shows that 10.5% of nurses had poor knowledge about risk factors of breast cancer and early detection methods (64). Similarly, in a study of female nurses in Gaza-Strip Palestine, 77.9% demonstrated strong understanding of risk factors. When it comes to early detection measures, most participants (94.1%) properly defined BSE and knew the frequency at which it is performed (81.6%), and 92.7% stated mammography is valuable for the early detection of breast cancer (65). However, in a cross sectional study conducted in Saudi Arabia, 53.4% of female health care professionals believe that they cannot detect abnormalities in breast by self-examination (66) indicating that knowledge gaps in health care providers come up as an obstacle in early detection work.

A pre-post knowledge-based intervention study in Pakistan found that 85% of the health professionals opted to go for regular screening after the session, compared to 49% before the session. Following the lesson, awareness of the age of breast cancer screening recommendations increased from 28% to 78%. After the session, knowledge of various methods of early breast cancer diagnosis improved by a factor of ten (67). Health professional who took training have also 8.9 times greater knowledge score than those who are not (65).

A cross-sectional study conducted in West Shoa zone, Ethiopia indicates that the most known early detection method among female healthcare workers is BSE followed by CBE and mammography (68). This finding is similar to that of the study conducted among nurses in University hospitals in Addis Ababa (69). Nonetheless, noticeable knowledge gap as indicated in a descriptive cross-sectional study in university hospitals in Addis Ababa, where, 7.0% (69) of the nurses said it cannot be prevented at all is observed.

In a study conducted in Addis Ababa, Ethiopia, on knowledge, attitude and practice towards breast cancer early detection methods among female health professionals, only 30.6% (31) had good knowledge, which is quite low when compared to their positive attitude (73.8%) and practice. Not only is their degree of knowledge lower in comparison to their positive attitude and

practice, but it is also lower in comparison to a comparable study conducted in Debre Tabor, which discovered that 79.7% (30) of health workers have good knowledge.

Physicians misunderstanding of the earliest symptoms (9, 10) inappropriate reassurance of symptoms as benign and poor provider-patient communication and counseling have all been linked to late breast cancer diagnosis (9) and loss of confidence in medical personnel (33). Misdiagnosis is frequently a problem in primary care settings because providers fail to notice such cases early and refer patients in a timely manner (29). This increases the women's chances of having an advanced stage diagnosis by 1.9 times compared to those who have never had a misdiagnosis (11).

Additionally, on a knowledge assessment in Nigeria, primary health center nurses and health care workers performed significantly lower than other health care providers (12). In another study, good patient –provider communication is important in lowering anxiety. It was indicated in a study that the odds of developing anxiety were 4.5 times higher among those having poor patient-provider communication (70) poor discussions on sexual concerns (71) is also another challenge.

2.3 Experiences and challenges on referral system of breast abnormality cases

According to research conducted in Ohio, about half of the physicians stated that they had never referred a patient for a hereditary breast cancer examination, and 41% of those physicians felt that the hurdles to referral outweighed the motivations. Urban/suburban practice physicians were more than twice as likely as rural practice physicians to have previously referred for an indication of hereditary breast cancer (72).

According to a nested qualitative study conducted in Indonesia, patients had to traverse lengthy referral processes, which exacerbated the patients' physical condition (73). In another study in Indonesia, majority of referral patients underwent surgery in the second level of care without standard procedures, which could be owing to a shortage of mammography facilities and pathologists (55).

In a seven-year retrospective study in Southern Ethiopia, approximately half of the patients were referred for radiotherapy treatment at a Tikur Anbessa Specialized Hospital, despite the fact that information regarding the patients' problems could not be gathered due to the lack of a well-coordinated referral system (38). Another qualitative study found that the referral experience at health centers and private clinics is similarly very poor in that it is accompanied by absence of diagnostic tests and treatment, lengthy diagnostic waiting time for pathologic laboratory test results, and unaffordable referral costs, even when patients presented early for proper diagnosis and treatment (29).

Frequent causes of referral include family history of cancer, patient interest, patient history of cancer, surgical decision-making, and hormone use decisions. Rural practitioners are more likely to refer according to patient interest, whereas urban/suburban practitioners are more likely to refer due to a patient's history of cancer (72). This is similar to a multi-center retrospective study in rural Ethiopia which shows that patients were referred for diagnostic tests (68%) and treatment (14%). Referral success rates varied greatly depending on the cause for the referral. The referral was done more successfully for diagnostic tests (96%) than for treatment commencement (73%) (74).

Financial hardship in obtaining diagnostic testing and treatment; a lack of social support; transportation issues (74, 75); and patients seeing their conditions as not severe, especially when they arrive with minor symptoms (75), are all significant impediments to completing a referral.

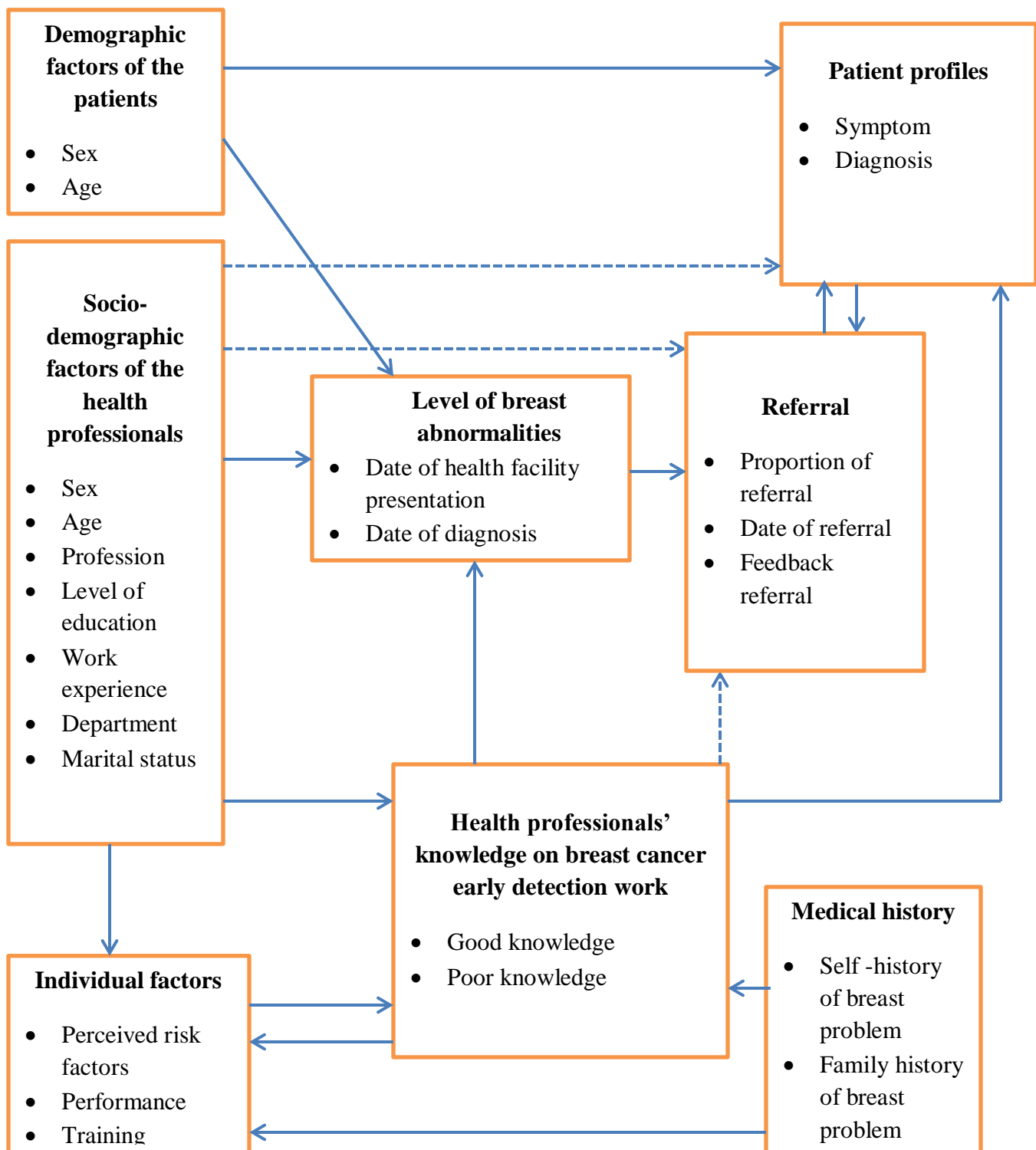


Figure 1: Conceptual framework of early detection, referral and outcome of breast abnormalities at selected primary health care facilities in Addis Ababa: A multi-center, mixed method study (adopted from different literature) (29-31).

3. Objectives

3.1 General objective

To assess the magnitude of patients with breast abnormalities; referral; and professionals' knowledge about breast cancer early detection work at selected primary health care facilities in Addis Ababa in 2024.

3.2 Specific objective

- ✓ To assess the magnitude of patients with breast abnormalities in primary care setups in Addis Ababa in 2024.
- ✓ To assess professionals' knowledge about breast cancer and the early detection work at selected primary health care facilities in Addis Ababa in 2024.
- ✓ To identify factors affecting health professionals' knowledge about breast cancer early detection work at selected primary health care facilities in Addis Ababa in 2024.
- ✓ To explore experiences and challenges on the referral system of breast abnormality cases at selected primary health care facilities in Addis Ababa in 2024.

4. Methods

4.1 Study setting

The study was conducted in Addis Ababa, Ethiopia's capital city and Africa Union's headquarter. Ethiopia is located in the eastern part of Africa. Addis Ababa is situated at an altitude of approximately 2,355 meters (7,726 feet) above sea level in the central highlands of the country. There are currently 11 sub-cities in Addis Ababa. In 2012, the Federal Ministry of Health of Ethiopia published that Addis Ababa has 13 Hospitals, 98 Health Centers (76) 6 referral hospitals, 5 specialized hospitals, and 2 military hospitals in Addis Ababa. The Ethiopian health service delivery is structured as primary, secondary, and tertiary tiers. In urban areas like, Addis Ababa, health centers are in the primary healthcare level providing service to around 40,000 people (77). Most primary healthcare facilities provide services in triaging and referring patients with breast complaints. According to the Addis Ababa City Administration Health Bureau, there are 6,860 health professionals working at primary public health institutions in the city in 2020 (78).

4.2 Study design

A multi-center cross sectional study design with an explanatory sequential mixed methods research approach was conducted from February 19, 2024 to March 29, 2024. The quantitative research approach was used for the first two objectives of the study. A retrospective cross sectional study was employed for the first objective of the study which assessed the magnitude of patients with breast abnormalities in primary care setups; and for the second objective, a cross sectional study design with primary data using self-administered questionnaire was employed to assess professionals' knowledge about breast cancer and the early detection work at selected primary health care facilities. In the qualitative study approach of this research, a phenomenological qualitative study was employed to identify experiences and challenges on referral system of breast abnormality cases at selected primary healthcare facilities in Addis Ababa.

4.3 Population

4.3.1 Source population

All patient case notes of those who visited the primary health care facilities for breast complaints (for the first objective);

All healthcare professionals working at the primary care facilities (for the second objective);

4.3.2 Study population

All patient case notes of those who visited the primary health care facilities for breast complaints from January 1, 2023 to December 31, 2023 (for the first objective);

All healthcare professionals working at the primary care facilities during the study period (for the second objective)

All patients with breast disorders, health professionals, medical directors and government officials in charge of prevention and control of non-communicable diseases during the study period; (for the third objective)

4.3.3 Inclusion and exclusion criteria

4.3.3.1 Inclusion criteria

Case notes of patients with breast complaints whose age is 18 and above at public health centers (for the first study population)

Patients with breast abnormalities who are 18 and above years of age; (for the qualitative study)

4.3.3.2 Exclusion criteria

Patients with breast complaints whose medical charts are not available for further review from the registry

Health care workers who have worked for less than three months

4.4 Sample size determination

4.4.1 Sample size determination for the quantitative study

4.4.1.1 Sample size for magnitude and outcome of patients with breast abnormalities

All case note audits of patients with breast abnormalities from January 1, 2023 to December 31, 2023 were included in the study, making a total of **473** cases.

However, initially, in determining the minimum sample size required for the magnitude of patients with breast abnormalities in primary health care facilities in Addis Ababa, no published reference was found. Therefore, from unpublished dissertation from Addis Ababa University, the sample size was calculated using the single population proportion formula, taking 4.63% proportion (79), 3% margin of error, 95% confidence interval, design effect of 2 (36), 90% power and contingency based on the percent needed to be retained (90%) into consideration.

$$n = \frac{(Z^{\alpha/2})^2 p(1 - p)}{d^2}$$

$$= \frac{(1.96)^2 0.0463(1-0.0463)}{0.03^2} \approx 189$$

Since the sampling method is multi- stage sampling, multiplying by the design effect made the sample size:

$$189 * 2 = 378$$

N (number to enroll) multiplied by (% retained) = Desired sample size

$$N = 378/ (0.9) \approx 420$$

Sample size for knowledge of health professionals about breast cancer early detection work

In determining the sample size to assess professionals' knowledge about breast cancer early detection work, the sample size calculation formula for one sample, dichotomous outcome was used; and 30.6% proportion was taken (31); with 5% margin of error (d), 95% confidence interval, 1.5 design effect (46), 90% power and contingency based on the percent needed to be retained (90%) into consideration.

$$n = \frac{(Z^{\alpha/2})^2 p(1 - p)}{d^2}$$

$$\frac{(1.96)^2 (0.306)(1-0.306)}{0.05^2} \approx 327$$

Since the number of health professionals working in public health facilities is 6860, which is less than 10,000, using the sample size correction formula, the sample size would be:

$$n = \frac{no}{1 + (no/Population)}$$

$$n = \frac{327}{1 + (327/6860)}$$

$$= 313$$

Since the sampling method was multi-stage sampling, multiplying by the design effect made the sample size:

$$313 * 1.5 = 470$$

N (number to enroll) multiplied by (% retained) = Desired sample size

$$N = 470/ (0.9) = \mathbf{523}$$

4.4.1.2 Study participants to identify experiences and challenges on referral system of breast abnormality cases

A total of 12 study participants were selected from patients with breast abnormalities, health professionals, medical directors, focal persons from Ministry of Health and Addis Ababa Health Bureau to identify experiences and challenges on the referral system from different perspectives. The study participants were continually recruited till saturation of information was reached.

4.5 Sampling procedures

4.5.1 Sampling procedures for the quantitative study

The primary health care facilities were selected by multi-stage sampling method. First 5 sub-cities from the 11 sub-cities in Addis Ababa were selected randomly. Then 2 health centers from each sub-city were selected using simple random sampling from where healthcare professionals were chosen at random. All case note audits of patients with breast complaints from January 1, 2023 to December 31, 2023 from each facility was included, first by taking the Medical Registration Numbers (MRNs) from patients' registry and then completing the data extraction checklist. On the other hand, the number of healthcare professionals that would be selected from each facility was allocated proportional to the number of healthcare providers.

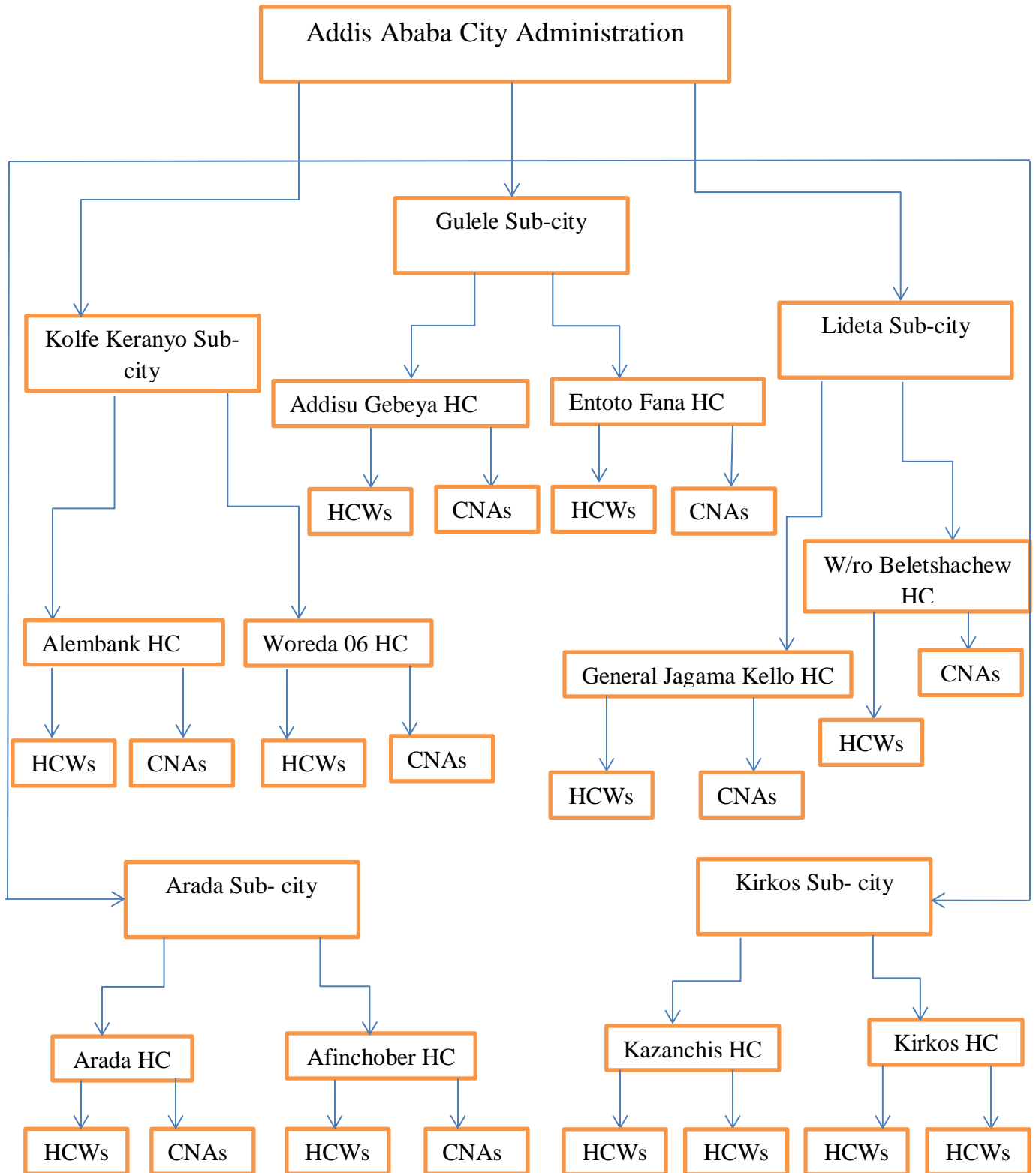


Figure 2: Diagrammatic presentation of the sampling procedure for the quantitative study to select case notes and health professionals at selected primary healthcare setups in Addis Ababa, 2024

4.5.2 Recruitment of participants for the qualitative study

The study participants were recruited using maximum variation sampling which aims at addressing challenges from varied points of view and background.

Box 1: Summary of sample size, sampling/ recruitment and other methodological procedures for each objective of the study on early detection, referral and outcome of patients with breast abnormalities in primary health care facilities Addis Ababa, 2024

Objectives	Design	Population	Sample	Sample size	Sampling technique	Analysis plan
To assess the magnitude and outcomes of patients with breast abnormalities in primary care setups.	Retrospective cross-sectional design with case note audits	Patients with breast complaints	Case notes at the selected primary health care facilities	420	Multi - stage sampling	<ul style="list-style-type: none"> ✓ Descriptive statistics ✓ Cross tabulation
To assess professionals' knowledge about breast cancer and the early detection work at selected primary health care facilities	Cross sectional design using primary data using self-administered questionnaire	Health care workers	Health care workers at primary care setups	523	Multi - stage sampling	<ul style="list-style-type: none"> ✓ Descriptive statistics ✓ Cross tabulation ✓ Logistic regression
To identify experiences and challenges on referral system of breast abnormality cases at selected primary health care facilities in Addis Ababa.	Phenomenological qualitative study using In- depth interview	patients, health professionals, medical directors, regional heads, and ministries	patients, health professionals, medical directors, regional heads, and ministries	12	Maximum variation sampling	Inductive content analysis/ Thematic analysis

4.6 Data collection procedures

4.6.1 Data collection procedure for the quantitative study

4.6.1.1 Source of data

A retrospective review of case notes of patients who visited the primary healthcare facility from January 1, 2023 to December 31, 2023 was conducted using a data extraction checklist in English. For the primary data which was collected from health professionals, a self-administered questionnaire was developed from different literature ([30](#), [31](#)).

4.6.1.2 Measurements

4.6.1.2.1 Dependent variables

- Knowledge of health professionals about breast cancer early detection methods

4.6.1.2.2 Independent variables

- Socio-demographic factors of the health professionals:- (Health center, Sex, Age, Profession, Level of education, Work experience, Department, Marital status);
- Medical history of healthcare providers:- (Self- history of breast problem, Family history of breast problem);
- Breast cancer risk factor identification:- (Perceived risk factors of breast cancer, Training, Breast self-examination, Screening, Referral feedback)

4.6.1.3 Data collection

Four data collectors and two supervisors, who were health professionals with Master's degrees and have data collection experience, were selected to collect the data by reviewing the medical charts of patients for the first objective as they are experienced in the area. For the second objective, the data collectors collected the data using self-administered questionnaires from the health professionals to assess their knowledge about breast cancer early detection work.

The data was collected in primary healthcare facilities from record reviews and health care professionals from February 19, 2024 to March 29, 2024.

The data collectors and supervisors were trained for three days with a training manual on the tools, which were developed by reviewing different literature ([30](#), [31](#)), by the primary investigator. A pre-test was conducted on 21 case note audits and 27 health professionals which are 5% of the total sample size at Woreda 09 health center in Kolfe Keranyo Sub-city and amendments on the tools were made after discussion.

The data was collected using Open Data Kit (ODK). The data extraction check list and self-administered questionnaire developed were converted to an excel form and exported to tablets then the collected data was retrieved and exported to STATA version 14 software.

4.6.2 Data collection procedure for the qualitative study

As this was an explanatory mixed method research, it was conducted sequentially: the quantitative study was followed by the qualitative study. In the qualitative study, an in-depth interview, with open ended questions, was conducted as it would help the participants explain their actual experiences and opinions.

The data was collected from patients, health professionals, medical directors and focal persons from the Ministry of Health and Addis Ababa Health Bureau, by the principal investigator. The in-depth interviews were audio taped after permission from the participants was obtained. Privacy of the participants was kept by interviewing each at their convenient time and space.

Triangulation/ integration were done for the first and second objectives of the study, to gain a more comprehensive understanding of the study and to improve its credibility and validity. The data integration in this study was done at the methods and interpretation and reporting levels.

In the triangulation, following independent analysis of the quantitative and qualitative data, the results were combined using the "merging data" approach, where it would be presented together in the discussion section. Integration at the interpretation and reporting level was done using statistics-theme joint display integration.

4.7 Operational definitions

Primary Health Care facilities (PHCF): refers to health centers which are primary levels of healthcare in urban areas of Ethiopia (77).

Prevalence: is calculated taking number of breast abnormalities in the numerator; and total adult women OPD visits and total number of women ≥ 30 years of age as denominators

Patient interval: the time from the first appearance of symptoms to the first visit to a health facility (80)

Diagnosis interval: the time from first consultation with the health care provider to diagnosis of the disease (80)

Referral interval: period between first consultations with the health care provider to first referral to the next health facility (80)

Good knowledge: There are 10 questions assessing the knowledge of the health professionals, each having one point for every right answer. Knowledge score of greater than or equal to the mean knowledge score is considered to have good knowledge (31).

Poor knowledge: is defined as knowledge score of less than the mean knowledge score (80)

Outcomes: In this study outcome refers to the type of breast abnormalities.

Timely health facility presentation: “Patients’ presentation to medical consultation within 90 days of noticing symptoms (28).”

Timely diagnosis: “When patients are diagnosed within two months of their health facility presentation (1)”

Physical examination: refers to examinations done on the breast(s) clinically.

4.8 Data Management

4.8.1 Data management for the quantitative and qualitative data

The principal investigator retrieved the data collected and did data cleaning to look for inconsistencies and errors before the analysis was done. During the actual data collection, the supervisors followed the data collectors to help in clarifying confusions. When it went beyond that, the principal investigator would address the issues.

The interview guide for the qualitative study was first prepared in English and then it was translated to Amharic which is the local language. Once the data was collected it was transcribed in Amharic and then translated to English before the analysis was done.

4.8.2 Rigor of the qualitative data

4.8.2.1 Credibility

The collecting of referential adequacy materials, and peer debriefing was conducted to establish confidence that the results, from the perspective of the participants, are truthful and credible (81).

4.8.2.2 Dependability

A detailed track record of the data collection process, stepwise replication of the data, and an in-depth account of the research method was established to ensure the findings of this qualitative inquiry were repeatable if the inquiry occurred within the same cohort of participants, coders, and context (81).

4.8.2.3 Confirmability

To increase the potential that the findings would be confirmed by other researchers, frequent investigator meetings, reflexivity, and triangulation was employed (81)

4.8.2.4 Transferability

Maximum variation sampling was used, and data saturation and inductive thematic saturation were assessed, to boost the degree to which the findings could be generalized or transferred to other contexts or settings (81).

4.9 Data Analysis Procedures

4.9.1 Data analysis procedures for the quantitative data

To assess the magnitude of patients with breast complaints in primary healthcare facilities, descriptive data analysis and cross tabulations were conducted. To assess the knowledge of health professionals in primary healthcare facilities, descriptive analysis, cross tabulations and binary logistics regression were conducted.

In construction of the model, a binary logistic regression was performed to explore the unadjusted association between the independent and dependent variables. Independent variables with p-values less than 0.25 as well as variables with established clinical importance were included for multivariable analysis. Odds ratios were interpreted with 95% confidence interval and p-values less than 0.05 were considered significant. The two models were then compared using the partial likelihood ratio to ensure that the parsimonious model fits the same as the original model.

The interaction between covariates was examined, and summary measures of goodness of fit, such as the Hosmer-Lemeshow tests, were used to assess the fitness of the model. Moreover, all assumptions of the logistic regression model were checked and satisfied before the analysis was run.

4.9.2 Data analysis procedures for the qualitative data

To identify the challenges and experiences in the referral of patients with breast abnormalities using a qualitative data, the audio tape was first transcribed in Amharic and then translated to English. Then, inductive content analysis was done and the result was presented in thematic areas.

4.10 Data quality assurance

4.10.1 Data quality assurance for quantitative data

The quality of the data was assured by giving trainings on the data collection tools for the data collectors. Moreover, the data collectors were supervised for appropriate completion and consistency of the data. In order to validate the tools and identify field work challenges, pre - testing was done in 5% of the study participants at Woreda 09 health center which was not part of the actual study spots. The tools were provided to experts, like surgeons, in the area, to ensure the appropriateness of the tools. After the data collection, data cleaning was done before analysis and was cross-checked with the data collected whenever needed. Data was retrieved from and analyzed using ODK and STATA version 14 soft wares respectively.

4.10.2 Trustworthiness of the qualitative data

In order to ensure validity and reliability of the data, the recorded audio was transcribed by the local language (Amharic) and language of interview. Then, the transcribed audio was translated to English and made ready for analysis.

4.11 Ethical consideration

The ethical concern that could be raised from this research included the use of patients' data for which explicit informed consent was not obtained that the data could be used for different research in the future. Therefore, taking into account of the minimal risk the study would ensue; and practicability of the study pertaining to the possibility of death due to breast cancer and incomplete contact information of the participants, a waiver of consent was requested and obtained. Moreover, all identifying information was removed during data collection using numbers to code such variables. Before data collection, ethical clearance was obtained first from Addis Ababa University, School of Public Health and then from Addis Ababa Public Health and Emergency Management Directorate. The participants for the second and third objectives of this study were briefed on the objectives and confidentiality of the study and a written informed consent was obtained. Privacy of participants was kept by making interviews at participants' convenience. The collected data was stored password protected. Any participant was allowed to withdraw from the study at any time as participation was solely on voluntarily and not monetary incentivized or ensue harm.

4.12 Dissemination of findings

The results of this study will be disseminated to Addis Ababa University, College of health sciences, School of Public Health; and Addis Ababa Public Health and Emergency Management Directorate. This work will also be communicated with other researchers in the area and scientific conferences. Moreover, the findings of this research will be published in a peer reviewed journal and made available to the public, researchers and policy makers.

5. Result

5.1 Quantitative Result

5.1.1 Demographic characteristics of the patients with breast abnormalities

The analysis of patient case note audits from January 1, 2023 to December 31, 2023 revealed 473 patients who visited primary health care facilities with breast problems. Of the total case note audits, the data extraction checklist was completed for 76.5% (362) cases, while the remaining 6.6% (31) were found but lacked information and 16.9% (80) were not found at all. All patients for whom the checklist was completed for breast abnormalities were female. The majority of study participants 44.8% (162) were between the ages of 18 and 26, with 41.7% (151) being 30 or older. The median age of the patients was 27 with IQR (24; 33).

Table 1: Demographic characteristics of patients with breast complaints at selected primary healthcare facilities in Addis Ababa, Ethiopia, 2024 (n=362)

Variables	Frequency	Percentage
Age in years (Median age: 27, IQR (24;33))		
18-29	211	58.3
30-39	115	31.8
40-49	20	5.5
≥ 50	16	4.4
Patients' Sub-city		
Arada	33	24.1
Bole	13	9.5
Gulele	40	29.2
Kirkos	14	10.2
Kolfe Keranyo	10	7.3
Nifas Silk Lafto	18	13.1
Yeka	9	6.6
Patients' Village		
Kirkos	22	21.2
Arada	20	19.2
Alembank	36	34.6
Lideta	8	7.7
Other*	18	17.3

* Bole, Gulele, Sululta, kolfe, Sebeta

5.1.2 Clinical profile of the patients with breast abnormalities

Breast pain was the most common chief complaint 65.8% (238), followed by breast lumps 16.9% (61) among patients visiting primary health care facilities. For 23.5% (85) of the patients, the patient delay was greater than 30 days, while for 16% (58) of the patients, it exceeded 90 days. The study found that 17.1% (62) of patients waited ≥ 90 days before visiting a health facility, with an average delay of 36 days (SD=135) ranging from 0 to 2045 days. In this study 34% (123) of the patients waited for more than two months to have the diagnostic response at primary care settings. The mean clinical diagnosis delay at primary health care facilities was 3 days (SD=13).

Mastitis 36.7% (133) was the most commonly diagnosed abnormality, while 5.3% (19) suspected of having breast cancer and 1.4% (5) diagnosed with breast cancer. All patients were diagnosed clinically; however, 27.6% (100) had breast ultrasounds performed, and 10.2% (37) had other tests such as FNAC 3.6% (13), Mammogram 3.3% (12), and CBC 1.7% (6) additionally.

Only 20.4% (74) of the patients got clinical breast examination done, and 75.5% (114) of the women 30 and above have not got CBE done. Of the total breast abnormality cases, 1.4% (5) were assessed for breast cancer risk. Tenderness, breast mass, nipple discharge, and nipple retraction were some of the findings during the clinical breast examination. A significant number of patients, 68% (246), were treated at the health centers, with 14.9% (54) being referred. Five (9.3%) of the patients referred were treated on-site, with the majority being breast cancer suspects 18.5% (10), Fibro adenomas 18.5% (10), breast abscess 18.5% (10), and other preliminary clinical diagnoses at the health centers. Of the total women 30 and above who visited the health centers for breast complaints (151), 13.9% (21) complained of breast lumps and 57.1% of them were not referred to the next health facilities.

Of the patients who were treated on-site, 13% (32) were appointed, advised, or both. The majority of those patients treated on site were diagnosed with mastitis 46.4% (116) and treated with Cloxacilline, Ibuprofen, Amoxicillin, Paracetamol, Diclofenac, and other analgesics. Among those who were given an appointment, 26.3% (5) were told to return if their condition did not improve. None of the patients had feedback on their current health status recorded. (Table 2)

From a total of 54 referrals, Alert Hospital received the most referrals 51.9% (28), followed by Yekatit-12 Hospital 13% (7) and Zewditu Memorial Hospitals 11.1% (6). (Annex 1: Table 10)

Table 2: Clinical profile of patients with breast complaints at selected primary healthcare facilities in Addis Ababa, 2024 (n=362)

Variables	Frequency	Percentage
Chief complaint		
Breast lump	61	16.9
Breast mass	16	4.4
Breast pain	238	65.8
Nipple discharge	8	2.2
Other*	36	9.9
Undocumented	3	0.8
Patient interval (in days)		
(Mean:36, SD: 135)		
≤ 30 days	277	76.5
> 30 days	85	23.5
Diagnosis made at the PHCFs		
Undiagnosed	114	31.5
Mastitis	133	36.7
Breast cancer suspect	19	5.3
Fibro adenomas	28	7.7
Breast cancer	5	1.4
Breast abscess	18	5.0
Lactational mastitis	10	2.8
Other**	35	9.7
Clinical diagnosis interval at PHCFs (in days)		
(Mean: 3, SD:13)		
≤ 60 days	239	66.0
> 60 days	123	34.0
Clinical Breast Examination done		
Yes	74	20.4
No	288	79.6

Risk assessment done

Yes	5	1.4
No	357	98.6

Decision made at the health facility

Treated on site	246	68.0
Referred	54	14.9
Other***	26	7.2
No information	36	9.9

Feedback on the current health status of the patients

Not recorded	362	100.00
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Date the symptom was first noticed

Documented	331	91.4
Undocumented	31	8.6

* Breast itching, Nipple pain, Nipple retraction, Breast engorgement, Nipple itching, Nipple laceration, Burning sensation on the breast, Axillary swelling, checkup, Nipple redness, Breast ulceration, Nipple discoloration

** Breast skin abnormalities, Breast fat necrosis, Cysts, Duct ectasia, Benign ductal hyperplasia, BIRAD II, BIRAD IVC

*** Advised, Appointed, Reassured, on follow up

5.1.3 Distribution of breast abnormalities at selected primary healthcare facilities

Alembank health center had the highest number of breast abnormality cases 20.3% (96), followed by Woreda 06 health center 13.7% (65), placing Kolfe Keranyo as the top sub-city in terms of breast abnormality case distribution among the five sub-cities.

Table 3: Distribution of breast abnormalities at selected primary health care facilities from January 1, 2023 to December 31, 2023 in Addis Ababa, Ethiopia, 2024 (n=497)

Name of the health facility	Sub-city	Frequency	Percent
Alembank health center	Kolfe Keranyo	96	20.3
Woreda 06 health center	Kolfe Keranyo	65	13.7
Addisu Gebeya health center	Gulele	39	8.3
Entoto Fana health center	Gulele	47	9.9
General Jagama Kello health center	Lideta	58	12.3
W/ro Beletshachew health center	Lideta	26	5.5
Arada health center	Arada	45	9.5
Afinchober health center	Arada	31	6.6
Kazanchis health center	Kirkos	40	8.5
Kirkos health center	Kirkos	26	5.5
Total		473	100.0

The prevalence of breast abnormalities, from January 1, 2023 to December 31, 2023 at primary health care facilities in Addis Ababa, among total adult women OPD visits was **170.3** per 100,000 population while the prevalence among women 30 and older was **109.1** per 100,000 female population 30 and older. Entoto Fana and Alembank health centers had the highest prevalence of breast abnormalities among women 30 and older (**233.5** per 100,000 population female population 30 and older) and among the total adult women population OPD visit (**290** per 100,000 population) respectively.

Arada and Beletshachew health centers had the lowest prevalence of breast abnormalities among women 30 and older (**18.2** per 100,000 female population 30 and older) and among the total adult women OPD visits (**90.8** per 100,000 population) respectively.

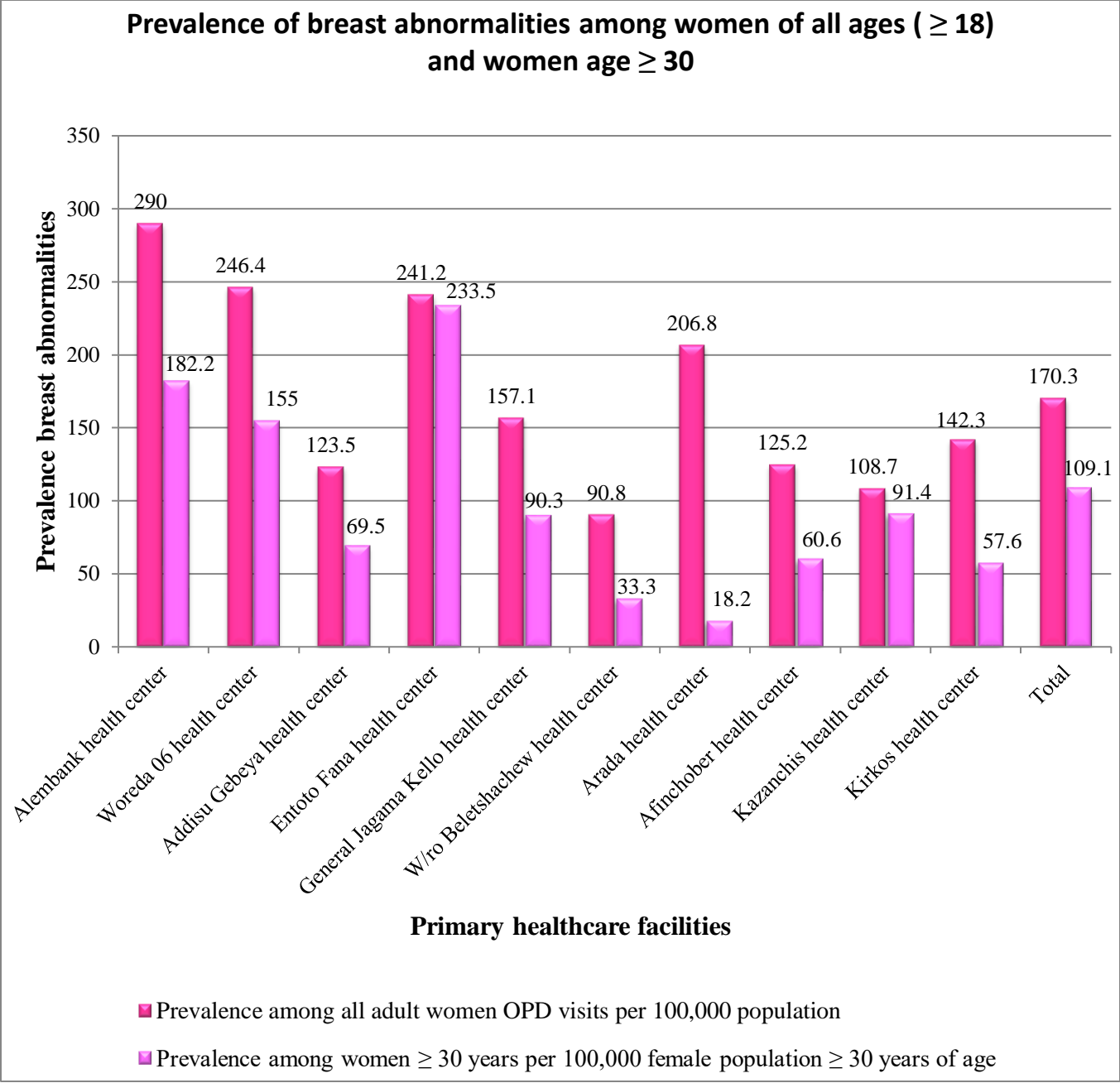


Figure 3 Prevalence of breast abnormalities at selected primary health care facilities in Addis Ababa, Ethiopia, 2024

5.1.4 Trend of primary healthcare visits for breast complaints in 2023

In 2023, the largest patient flow for breast complaints with respect to the monthly total OPD visits was in November (30 per 100 OPD visits), followed by October (28 per 100 OPD visits), and the lowest was in April (12 per 100 OPD visits).

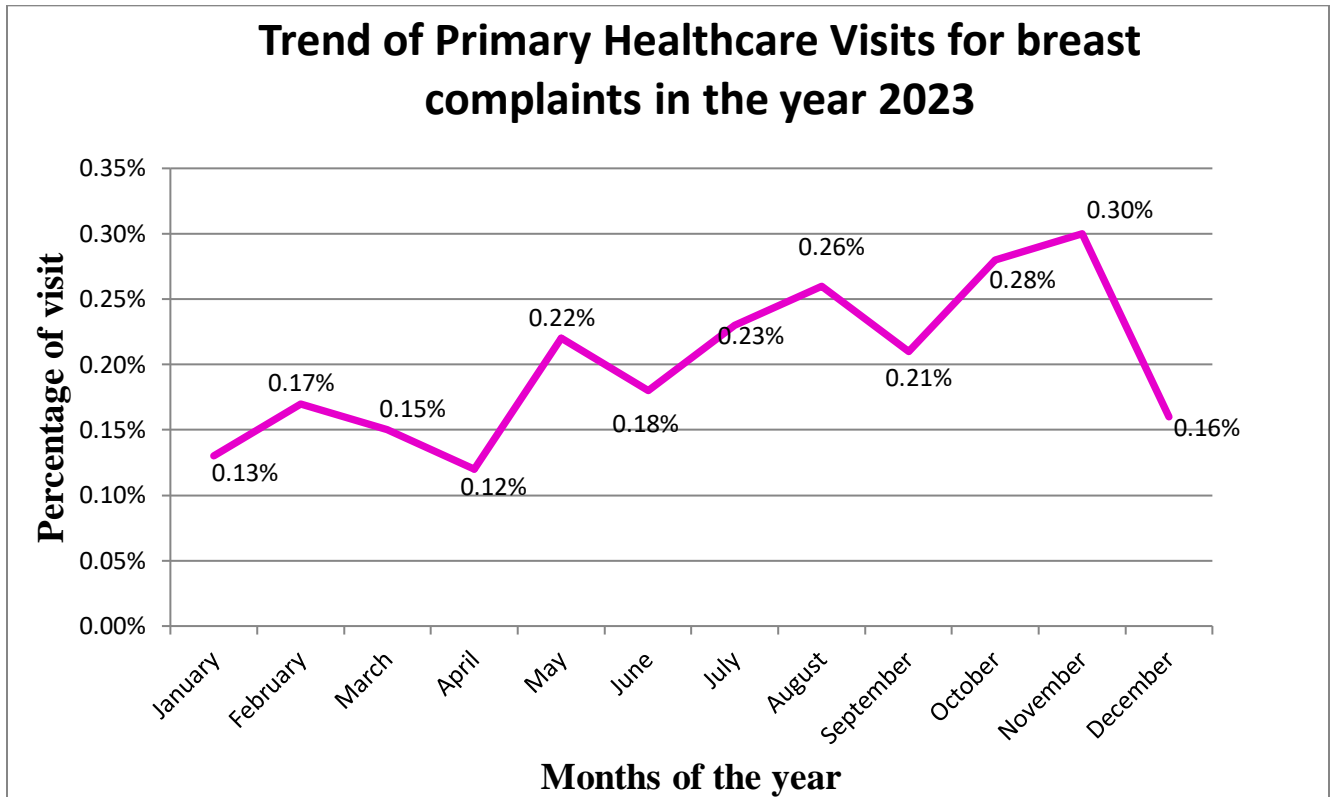


Figure 4 Trend of Primary Healthcare Visits for breast complaints in the year 2023

5.2 Socio-demographic characteristics of primary healthcare professionals

From a total of 523 health professionals selected to take part in this study, 497 have participated; making a response rate of 95.2%. The majority of the health professionals were female 69.6% (346). The median age of healthcare professionals is 29 years (IQR=27; 32), with 57.1% (284) falling between the ages of 23 and 29. Of the total participants, 47.5% (236) were nurses, while 26% (129) were health officers. The majority of health professionals hold a bachelor's degree 65.6% (326), followed by a master's degree 18.1% (90). While 46.1% (229) of health professionals had 0-5 years of work experience, 10.7% (53) had 12–41 years of work experience. The department of Gynecology and Obstetrics had the highest number of participants 21.3% (106). Most of the health professionals 52.3% (260) were single. The mean net income for health professionals was 7189.8 ETB. From the total number of health professionals, 6.8% (34) reported a self-history of breast problems, while 5.2% (26) reported a family history of breast issues.

Table 4: Socio-demographic characteristics of primary health care professionals working at selected primary healthcare facilities in Addis Ababa, Ethiopia, 2024 (n=497)

Variables	Frequency	Percentage
Health Center		
Addisu Gebeya Health Center	57	11.5
Afinchober Health Center	41	8.3
Alembank Health Center	68	13.7
Arada Health Center	45	9.1
Entoto Fana Health Center	46	9.3
General Jagama Kello Health Center	53	10.7
Kazanchis Health Center	52	10.5
Kirkos Health Center	42	8.5
W/ro Beletshachew Health Center	42	8.5
Woreda 06 Health Center	51	10.3
Sex		
Female	346	69.6
Male	151	30.4
Age in years (Median=29, IQR=(27,32))		
< 30	284	57.1
30-39	183	36.8
40-49	20	4.1
≥50	10	2.0
Profession		
Health officer	129	26.0
Nurse	236	47.5
Midwife	67	13.5
General practitioner	32	6.4
Other*	33	6.6
Level of education		
Bachelor's degree	326	65.6
Master's degree	90	18.1
Diploma	80	16.1
Work experience (in complete years) (Median=6, IQR=(3;9))		
0-5	229	46.1
6-11	215	43.3
12-41	53	10.7
Department		
Adult OPD	95	19.1
Emergency	70	14.1
GYN/OBS	106	21.3
Under 5 OPD	75	15.1
Triage	26	5.2
Urban Health Extension	47	9.5
Other**	78	15.7

Marital status		
Single	260	52.3
Married	228	45.9
Divorced	9	1.8
Self- history of breast problem		
Yes	34	6.8
No	463	93.2
Family history of breast problem		
Yes	26	5.2
No	471	94.8

*Urban health extension worker, Pharmacist, Psychiatric nurse, Anesthetist, Radiologist

** Anti-Retroviral outpatient department (ART OPD), Primary Health Care Unit (PHCU), Public Health Emergency Management (PHEM), Operation Theatre(OR), Pharmacy, Radiology, Voluntary Counseling and Testing (VCT)

5.2.1 Breast cancer risk factors identification among health professionals at primary health care facilities

Only 34% (169) of healthcare professionals recognized all of the listed breast cancer risk factors. Of the 8.9% (44) health professionals who claimed to have received breast cancer early detection training, 22.7% (10) indicated that the training did not include what timely health facility presentation and diagnosis is; 61.4% (27) were not trained on clinical breast examination; and 81.8% (36) were not trained on mammogram examination.

While 55.3% (275) of health professionals reported that breast cancer screening services were not available at the primary healthcare facilities they were working, 29.8% (148) reported the absence of a feedback referral system.

Table 5: Breast cancer risk factors identification among health professionals at primary health care facilities in Addis Ababa, Ethiopia, 2024 (n=497)

Variables	Frequency	Percentage
Family history of breast cancer		
Yes	421	84.7
No	63	12.7
I don't know	13	2.6
Early menarche		
Yes	253	50.9
No	180	36.2
I don't know	64	12.9
Radiation/hazardous chemical exposure		
Yes	449	90.3
No	32	6.4
I don't know	16	3.2
Advanced age		
Yes	358	72.0
No	114	22.9
I don't know	25	5.0
Overweight (after menopause)		
Yes	338	68.0
No	102	20.5
I don't know	57	11.5
Prolonged use of oral contraceptives		
Yes	342	68.8
No	110	22.1
I don't know	45	9.1
All		
Yes	169	34.0
No	328	66.0
Trained on breast cancer early detection work		
Yes	44	8.9
No	453	91.2
How is BSE carried out?		
One finger palpation	40	8.1
Palm and three finger palpation	428	86.1
I don't know	29	5.8
Breast cancer screening service at the current health facility		
Yes	191	38.4
No	275	55.3
I don't know	31	6.2
Feedback referral		
Yes	270	54.3
No	148	29.8
I don't know	79	15.9

5.2.2 Knowledge of primary healthcare professionals about breast cancer early detection work

Of all health professionals, 34.8% (173) agreed that breast self-examination, clinical breast examination, and mammograms are important for early detection of breast cancer. The health professionals responded that the recommended age to begin breast self-examination was 20 years 60.8% (302), 41.7% (207) said it should be done once a month, and 54.9% (273) said it should be done 7 days after menstruation. Only 21.7% (108) of respondents agreed that women in menopause should perform breast self-examination same day of the month.

From the total number of health professionals, 19.5% (97) stated that the recommended age to begin clinical breast examination is over 30 and the recommended age to begin mammogram examination is 40 years or older for each. Only 13.3% (66) of health professionals thought that mammography should be performed twice a year, while 39.2% (195) said it was important for both screening and diagnostic purposes. (Annex 2: Table 11)

There were 10 questions assessing the knowledge of the health professionals, each having one point for every right answer. The minimum and maximum possible knowledge scores were 0 and 10 respectively. The mean score of knowledge in this study was 5. Health professionals, who scored the mean value and above were considered to have good knowledge while those who scored below the mean value were considered to have poor knowledge. Generally, only 27.6% (137) of primary healthcare professionals were knowledgeable about breast cancer early detection work (95% CI: 0.24, 0.32). Of the health professionals who stated that they had previously received breast cancer early detection training, 72.7% (32) were found to have inadequate knowledge of the subject; and among those who were not trained, 72.4% (125) had poor knowledge. And of those health professionals who were trained and claimed to be trained in clinical breast examination, mammography, and timely health facility presentation and diagnosis, 76.5% (13), 87.5% (7), and 76.5% (26), respectively, had poor knowledge.

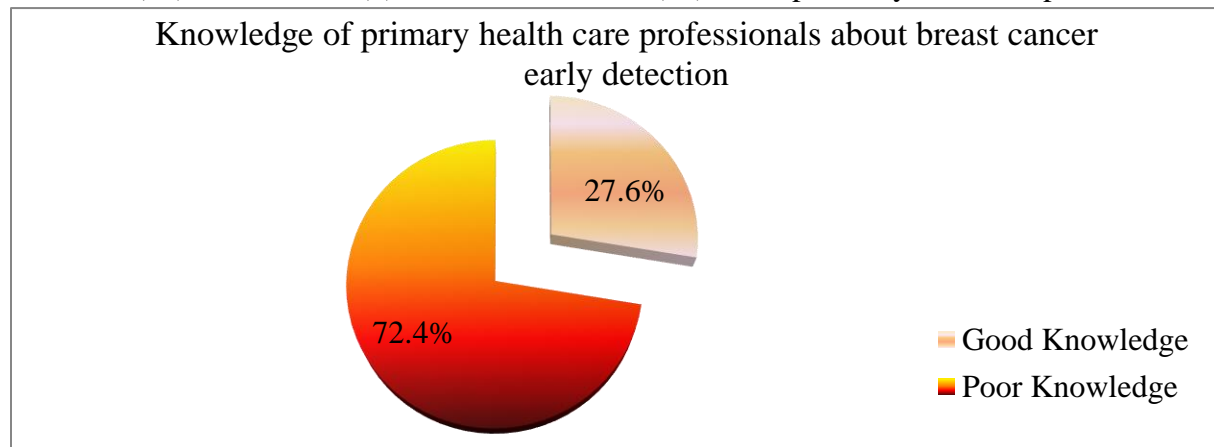


Figure 5 Knowledge of primary healthcare professionals on breast cancer early detection work in Addis Ababa, Ethiopia, 2024

5.2.3 Factors affecting knowledge of primary healthcare professionals about breast cancer early detection work

Variables with a p-value of up to 0.25 in the bi-variable binary logistic regression analysis were entered into the multivariable model. Therefore, variables like profession, level of education, work experience, family history, breast self-examination performance, risk factor identification, and training were entered into the multivariable model. Finally, work experience with (AOR=5.61, 95% CI, (1.32, 23.9)) **P-value = 0.02**; and risk factor identification with (AOR=3.53, 95% CI, (1.66, 7.50)) **P-value = 0.001** were found to be significantly associated with the outcome variable in the multivariable analysis.

Table 6: Factors affecting knowledge of primary health care professionals about breast cancer early detection work using binary and multiple logistic regression analyses (n=497)

Variables	Knowledge level, n		COR (95% CI)	AOR (95% CI)	P –value
	Good	Poor			
Profession					
Health officer	48	81	2.17 (0.85, 5.26)	2.36 (0.90, 6.22)	0.08
Nurse	56	180	1.11 (0.46, 2.71)	1.34 (0.51, 3.52)	0.60
Midwife	16	51	1.12 (0.41, 3.07)	1.19 (0.42, 3.37)	0.74
Other	10	23	1.55 (0.51, 4.76)	1.96 (0.59, 6.54)	0.27
General practitioner	7	25	1	1	
Level of education					
Master's	33	57	1.43 (0.75, 2.74)	1.05 (0.49, 2.23)	0.91
Bachelor's	81	245	0.82 (0.47, 1.41)	0.69 (0.37, 1.27)	0.22
Diploma	23	57	1	1	
Family history					
Yes	3	23	0.33 (0.10, 1.11)	0.32 (0.09, 1.18)	0.09
No	134	337	1	1	
Breast self –examination					
One finger palpation	10	30	1.60 (0.48, 5.31)	1.85 (0.52, 6.66)	0.34
Palm and three finger palpation	122	306	1.91 (0.71, 5.13)	2.28 (0.79, 6.56)	0.13
I don't know	5	24	1	1	
Work experience					
0-4	52	131	1	1	
5-9	58	147	0.99 (0.64, 1.55)	0.93 (0.57, 1.50)	0.76
10-14	19	66	0.73 (0.40, 1.33)	0.53 (0.28, 1.03)	0.06
15-19	7	3	5.88 (1.46, 23.6)	5.67 (1.3, 24.2)	0.02**
≥20	1	13	0.19 (0.02, 1.52)	0.25 (0.03, 2.00)	0.19
Risk factor identification					
0-2 risk factors	9	66	1	1	
3 or more risk factors	128	294	3.19 (1.54, 6.60)	3.53 (1.66, 7.50)	0.001***
Training					
Yes	12	32	0.98 (0.49, 1.97)	1.12 (0.54, 2.31)	0.76
No	125	328	1	1	

*, **, *** Statistically significant at $p \leq 0.05$

5.3 Qualitative Findings

5.3.1 Background information of the participants

The qualitative component of the study involved a total of 12 participants. From the total participants 58.3% (7) were female and 30% (3) of the participants were breast cancer patients. The health professionals comprised of a surgical resident, a health officer, a general practitioner, a midwife and an urban health extension worker (nurse). The mean age of the participants was 34 years (SD=4.9). The mean work experience of the health professionals and medical directors is 7 years (SD=3.4) where 71.4% (5) of them have a work experience of 5 and more years.

Table 7: Background information of in-depth interview participants of the study, Addis Ababa, Ethiopia, 2024

Characteristics	Frequency	Percentage
Sex		
Male	5	41.7
Female	7	58.3
Age (Mean=34; SD=4.9)		
26-34	6	50.0
35-42	6	50.0
Role in the health care system		
Breast cancer Patients	3	25.0
Health professionals	5	41.6
Medical Directors	2	16.7
Government officials	2	16.7
Work experience (in years) (n=7) (Mean=7; SD=3.4)		
0-4	2	28.6
5-10	5	71.4
Facilities and bureaus involved (n=9)		
Ministry of Health	1	11.1
Addis Ababa Health Bureau	1	11.1
Tikur Anbessa Specialized Hospital	1	11.1
Arada health center	1	11.1
Entoto Fana health center	1	11.1
W/ro Beletshachew health center	1	11.1
Churchill health center	1	11.1
Kazanchis health center	2	22.3

5.3.2 The lived experiences of breast cancer patients

The qualitative study findings showed the lived experiences of breast cancer patients in terms of referral experiences of breast abnormality cases; delays from symptom initiation to treatment of breast cancer patients; and health professionals' competence and 7 themes have emerged within these categories

Table 8: Categories and themes of the qualitative data

Categories	Themes	No. of coded responses
Delays from symptom initiation to treatment of breast cancer patients	Patient-related delays	4
	Healthcare related delays	14
Health professionals' competence	Patients' point of view	4
	Professionals' point of view	5
Referral experiences of breast abnormality cases	Patient experiences	29
	Challenges in the referral system	17
	Way forwards to improve referrals	6

5.3.3 Delays from symptom initiation to treatment of breast cancer patients

Delays experienced from initiation of breast symptoms to treatment of patients with breast abnormalities, were categorized into two themes as: patient related delays and healthcare related delays.

5.3.3.1 Patient related delays

The breast survivors indicated that the delays caused by them for health facility presentation and getting tests done ranged from few days to a week. The delays were due to seeking religious alternatives beforehand and fear of knowing if they have a cancer.

“I got scared and stayed at home for 10 days after I have been referred” (30-40 years old breast cancer survivor)

5.3.3.2 Healthcare related delays

The qualitative study revealed the healthcare related delays as reported by breast cancer patients and health professionals at different points of the treatment pathway. It was reported that it takes two weeks to get the surgery done once the patient has been optimized and a minimum of 6 weeks for those would have to take chemotherapy once their response for the chemotherapy was assessed. The most healthcare delay occurs within the radiotherapy service. It can take several months to a year while waiting for the radiotherapy queue. However, a different experience was observed from Churchill health center where health professionals reported that there is no delay especially mentioning that ultrasounds are available every Thursdays. Other than the service

related healthcare delays, misdiagnosis and failure to recognize symptoms of breast cancer early at primary health care facilities resulted in delays.

“...It at least takes 6 weeks for those who had to take chemotherapy before surgery as their response has to be awaited. For Radiotherapy, I don’t know exactly but, it has a very long waiting time; it can take months and even a year.” (30-40 years of age surgery resident at referral hospital)

5.3.4 Health professionals’ competence

5.3.4.1 Patients’ point of view

The breast cancer patients who participated in this study, indicated loss of confidence in the competence of the health professionals at primary health care facilities mentioning that the seriousness of their symptoms was not acknowledged. One participant noted:

“I can tell you a lot about health centers...I argued until the end that I was sick even showing the lump but they said no you’re fine... They refused. Isn’t this hard? You are sick and suffering and you are told that you don’t have a disease. It’s better if they tell us to be examined by other professionals somewhere else rather than just prescribing other medications and sending us home.” (30-40 years old breast cancer survivor)

5.3.4.2 Health professionals’ point of view

The qualitative study showed that specific trainings for early detection of breast cancer were not given. Though sometimes, orientations are given and the health professionals share the information each other, it was stressed especially by medical directors that these are not enough and further trainings should be provided.

“... There are doctors and health officers in OPDs, so these are qualified professionals... even though it is not enough, there are orientations...but there are no specific trainings or initiatives to update the health professionals on breast cancer.” (30-40 years old medical director)

5.3.5 Referral experiences of breast abnormality cases

In analyzing the referral experiences of patients with breast abnormalities, three themes emerged. Namely: patient experiences; challenges in the referral system; and way forwards to improve referrals.

5.3.5.1 Patient experiences

The patient experiences were presented in terms of the symptoms and feelings they experienced; the support systems they had; religious alternatives they used and positive experiences in referrals to tertiary health facilities. The breast cancer patients indicated that they have experienced symptoms like uninterrupted stabbing pain or lumps initially. They have also experienced range of feelings such as worry, disbelief, shock and despair about their conditions. The participants indicated that they had a hard time accepting their condition and thought they would not survive.

The participants had social support systems as a source of encouragement during their illnesses. Their social support was from their spouses, friends and neighbors who had similar conditions. There is also an established social support group which was previously at TASH and currently at Churchill health center where breast cancer patients and survivors meet up once in a month to share ideas and experiences. On the other hand the participants have briefed on social problems the breast cancer patients faced from their own experiences and their friends'. Stigma from the very own spouses and family members of breast cancer patients was encountered. There were instances where the breast cancer patients were kicked out of their houses by their relatives and others whose husbands divorced them and brought another wife at their own houses.

“It’s called Nigat Breast Cancer Support Group...I always look forward to the meeting day excited...So the support group is really important to share ideas and tell how you feel and learn from others.” (30-40 years of age breast cancer survivor)

Some participants explained that they used religious approaches like ‘Tsebel’ and ‘Emnet’ along with their treatment at health facilities while others took the religious alternative as they could not afford treatment. Another breast cancer survivor indicated that some patients stay trying to heal their disease religiously and visit health facilities really late suggesting that the religious approaches can go hand in hand and stressed the need for intervention of religious leaders.

According to the breast cancer survivors, those who visited private health care facilities found the referral service quite effective. Health professionals have also explained the positive aspect of the referral process in terms of improvement in the knowledge and consciousness of the community about breast cancer symptoms, investigations sent to determine breast abnormalities and improved survival of patients after treatment.

The referral process at the primary care level is also seen from the urban health extension program side where patients are found directly from the community by urban health extension workers and referred to health centers.

5.3.5.2 Challenges in the referral system

The participants have raised long queues for treatment, unavailability of medication, unavailability and non-functionality of investigation materials (except Churchill health center /EKCC/ which has a separate breast clinic providing screening services, breast ultrasound, FNAC and core and excisional biopsies), lack of parameters or absence of platform to assess the system challenges (including not it being included in the DHIS report), lengthy referral processes as patients will have to go through a complete health service process all over again starting from taking out cards at the referral sites, incomplete information about patients during referral, shortage of health professionals and time to provide psychological support for the breast cancer patients and lack of training for health professionals on breast cancer early detection as challenges for the referral system from the health system, the ministry and health professionals side; and patients' negligence of symptoms, difficulty of patients to accept their conditions, inability to afford treatments or having no health insurance and patients' misconceptions about cancer such as fear that the cancer will not be cured and giving up easily were the challenges in the referral system identified from the patients' side.

A surgical resident from a referral hospital has explained the challenge as:

“...The referral also doesn't include information about other tests performed and treatments provided. They only have a limited history of the patient. There will come a time when it will be mandatory to look at it afresh and send tests...” (30-40 years of age surgical resident at referral hospital)

On the other hand, it was indicated from Ministry of Health and Addis Ababa Health bureau side that it is professionals' lack of commitment and awareness on seriousness of the problem that resulted in not performing the breast cancer screening and filling information on registration carelessly when no examination was performed. Apart from that not having a data tool and lack of strong leadership that considers breast cancer as a public health problem were raised as challenges. It is planned from the Ministry of Health side to make referral linkages directly to pathology, chemotherapy or radiation service centers to improve patient outcomes. In order to make the treatment affordable, there are plans to share expenses with EPSA and sell medications at lower costs. The challenge that was raised from the Ministry about mass training the professionals was that it was not effective and that there was absence of follow ups.

“Once the already trained are functioning well, we will increase the number. What's the point? If we train a lot of people and it's not functioning? What usually happens after we train a lot of people is, it either doesn't work or there will be absence of follow-up...” (35-40 year old cancer expert at MOH)

The other significant challenge is on referral feedbacks. Participants of the study indicated that, the system for referral feedbacks is there but that it is not functional. Even though referral

catchment area meetings are held every month, most feedbacks are not returned. Having no culture of writing feedback on referrals has been mentioned by a professional from a referral hospital. Moreover, the need for strong referral and feedback system was reflected from the Ministry of Health side acknowledging that the current linkage is very poor.

“Amazingly, it's in the referral sheet format...There is no feedback for each case, despite expectations.” (24-27 year old health officer at primary care facility)

5.3.5.3 Way forwards to improve referrals

In the qualitative study, breast cancer survivors, health professionals, and medical directors have put their suggestions to improve the referral process of breast disorders from the primary health care facilities to tertiary or referral hospitals.

Breast cancer survivors who participated in this study suggested widening treatment spaces and stressed on the need of providing formal psychological support for breast cancer patients from patients who beat the cancer and survived.

The primary healthcare professionals made suggestions on the need of making specialists available for few days in a week on a regular basis at health centers so that the primary healthcare professionals will provide them with list of patients and the specialists will evaluate them. Another point suggested was to respond to referrals with feedbacks.

Suggestions from tertiary or referral hospital professional indicated the need to have referral catchment hospitals to make referrals specific and reduce patient loads concentrated at certain hospitals only; also to make referrals with full patient information; and to create awareness especially through the media to deal with misconceptions.

Reflections from the medical directors and Addis Ababa Health Bureau stressed the importance of awareness creation for early detection of breast cancer; providing trainings for primary health care professionals; utilization of specific referral catchments; and reporting breast cases in the DHIS Report with indicators.

“...Breast cancer is not included in the DHIS report...it has no indicator. Had there been indicators like, how many people are screened, how many people are referred, how many with cancers are found, how many people are treated, we could ask about the performance at every level... It would be better if it is included in the report...” (30-35 year old cancer focal person at Addis Ababa Health Bureau)

5.4 Joint display of the quantitative and qualitative results

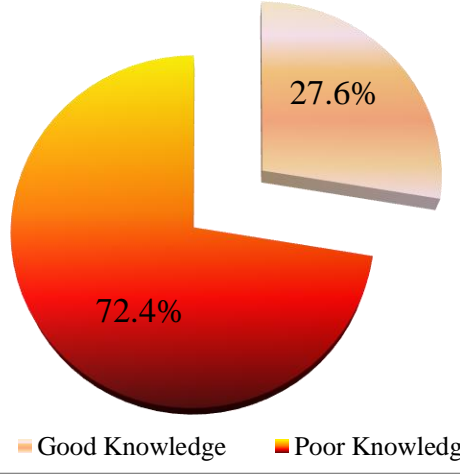
Table 9: Statistics-theme type of joint display for the quantitative and qualitative findings

Table 9.1: Statistics-theme type of joint display for the quantitative and qualitative findings of objective one

Quantitative results	Qualitative quotes explaining quantitative results	How the qualitative results helped explain the quantitative results														
<p>Chief complaints of the patients</p> <table border="1"> <thead> <tr> <th>Complaint</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Breast lump</td> <td>16.9%</td> </tr> <tr> <td>Breast mass</td> <td>4.4%</td> </tr> <tr> <td>Breast pain</td> <td>65.8%</td> </tr> <tr> <td>Nipple...</td> <td>2.2%</td> </tr> <tr> <td>Other</td> <td>9.9%</td> </tr> <tr> <td>Undocumen...</td> <td>0.8%</td> </tr> </tbody> </table>	Complaint	Percentage	Breast lump	16.9%	Breast mass	4.4%	Breast pain	65.8%	Nipple...	2.2%	Other	9.9%	Undocumen...	0.8%	<p><i>“It was an uninterrupted stabbing pain on my breast. I just felt it till the point I couldn't get up.”</i></p> <p>And</p> <p><i>“I noticed the lump, which felt like it was sitting on my breast, as I was changing my pajamas; and I observed that over and over.”</i></p>	<p>Confirmed: Breast lumps and breast pain were the most reported symptoms. Breast cancer survivor explained their symptoms as stabbing pain on their breast and a lump felt like sitting on their breast</p>
Complaint	Percentage															
Breast lump	16.9%															
Breast mass	4.4%															
Breast pain	65.8%															
Nipple...	2.2%															
Other	9.9%															
Undocumen...	0.8%															
<p>For 76.5% (277) of the patients, the patient delay was ≤ 30 days.</p>	<ul style="list-style-type: none"> <i>“They come quickly these days because they know the risk. Now it's not like before. Now they are becoming more aware. When one of the patients comes to us and gets the service, she goes to her neighbors and talks to them about it.”</i> <i>“I even extended one week on my own after the time I was appointed to get admitted for surgery as I wanted to go to Tsebel.”</i> 	<p>Confirmed and explained: Most patients visited the health facility within thirty days of noticing breast symptoms. This can be explained by the improved awareness of the community. For those who delayed more than 30 days (23.48%), fear and seeking</p>														

	<ul style="list-style-type: none"> • <i>“I got scared and stayed at home for 10 days after I have been referred”</i> 	religious alternatives were some of the reasons.
In this study 34% (123) of the patients waited for morethan two months to have the diagnostic response at primary care settings	<ul style="list-style-type: none"> • <i>“...if a patient is diagnosed with breast cancer and then optimized, they will be sent to the operating room within two weeks. It at least takes 6 weeks for those who had to take chemotherapy...For Radiotherapy...it can take months and even a year...”</i> • <i>“...she (the health professional) observed it and squeezed it and it had no discharge, then she said that it wasn’t a cancer at all...went back home; and then we just did nothing about it for 3 months...”</i> 	Confirmed and explained: A lot of patients waited for morethan two months to have the diagnostic response at primary care settings. This can be explained by misdiagnosis and failure of recognition of breast cancer symptoms early at primary health care facilities.
Breast ultrasound was done for 27.6% of the patients, FNAC for 3.6% (13) of the patients, Mammogram 3.3% (12) and CBC 1.7% (6).	<i>“None of the investigations are available in the health center. We send the patients to get it done at nearby private clinics and bring the results. Otherwise, Ultrasound, Mammogram, and FNAC are not available in the health center.”</i>	Explained: most of the patients haven’t got any tests done as they were not available at the PHCF.
None of the patients had feedback on their current health status recorded	<ul style="list-style-type: none"> • <i>“Amazingly, it is on the referral sheet format... Feedbacks were supposed to be sent for each case but in reality there is no feedback. I personally want to get feedbacks on the cases I have referred for the sake of my knowledge but I have never received a feedback once...”</i> 	Confirmed: Feedback was documented for none of the patients and health professionals indicated that although the system is there, they have not developed the culture of responding referrals with feedbacks.

Table 9.2: Statistics-theme type of joint display for the quantitative and qualitative findings of objective two

<p>55.3% (275) of health professionals reported that breast cancer screening services were not available at the primary healthcare facilities they were working at.</p>	<ul style="list-style-type: none"> • <i>“To tell you the truth, there is no screening service.... This also depends on the professional ... Plus, for the interest of time... we rush and as there is a patient load, we need to be specific...Most of the time we don't do a general physical examination, it's a focused one...”</i> 	<p>Confirmed and explained: Breast cancer screening services were not available in most of the PHCFs. Reasons like time constraint and Patients’ lack of interest were mentioned</p>						
<p>Knowledge of primary health care professionals about breast cancer early detection</p>  <table border="1"> <caption>Knowledge of primary health care professionals about breast cancer early detection</caption> <thead> <tr> <th>Knowledge Level</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Good Knowledge</td> <td>27.6%</td> </tr> <tr> <td>Poor Knowledge</td> <td>72.4%</td> </tr> </tbody> </table>	Knowledge Level	Percentage	Good Knowledge	27.6%	Poor Knowledge	72.4%	<ul style="list-style-type: none"> • <i>“I don't think she had the knowledge about it, she said that it didn't matter and there is no such thing as cancer.”</i> • <i>“I can tell you a lot about health centers. Most of the people I talked had experienced same things with the health center. I argued until the end that I was sick even showing the lump but they said no you're fine... They refused. Isn't this hard? You are sick and suffering and you are told that you don't have a disease. It's better if they tell us to be examined by other professionals somewhere else rather than just prescribing other medications and sending us home.”</i> 	<p>Confirmed: Majority of the health professionals had poor knowledge about breast cancer. They failed to recognize the symptoms and neglected it as if it didn't matter when the patients had to be investigated and/or referred to tertiary hospitals.</p>
Knowledge Level	Percentage							
Good Knowledge	27.6%							
Poor Knowledge	72.4%							
<p>Of the 8.9% (44) health professionals who claimed to have received breast cancer early detection training,</p> <ul style="list-style-type: none"> ➤ 22.7% (10): training did not 	<ul style="list-style-type: none"> • <i>“From the professionals, perhaps the issue of training may be raised. They may not face a different challenge, but they mainly need breast cancer training. ... There were 4 health professionals who were trained on this under the cervical cancer training and they have given an orientation for the health center professionals.”</i> 	<p>Confirmed and explained: 91.15% of the health professionals are not trained on breast cancer early detection work. This can be</p>						

<p>include what timely health facility presentation and diagnosis is;</p> <ul style="list-style-type: none"> ➤ 61.4% (27): not trained on CBE ➤ 81.8% (36): not trained on mammogram 	<p><i>However, this is not enough. I believe that more health professionals should be trained.”</i></p> <ul style="list-style-type: none"> • <i>“...It’s due to the focus it has been given that there is no training on breast cancer early detection”</i> • <i>“...What's the point? If we train a lot of people and it’s not functioning? What usually happens after we train a lot of people is, it either doesn't work or there will be absence of follow-up.”</i> 	<p>due to the focus the disease is given.</p>
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6. Discussion

This study demonstrated the prevalence of breast abnormalities at primary health care facilities, knowledge of health professionals about breast cancer early detection work with predicting factors, and referral experience and challenges of patients with breast abnormalities. In this study, the prevalence of breast abnormalities at primary healthcare facilities was 170.3 per 100,000 population, while the prevalence among women aged 30 and above was 109.1 per 100,000. As this study is the first in estimating the prevalence of breast abnormalities in health facilities in Ethiopia it was difficult to make comparisons. However, in a community survey conducted in rural Ethiopia, 3.4% of the women surveyed reported breast abnormality (36). This figure was higher in a multi center histopathological audit conducted in Nigeria, where, 68.3% were benign breast lesions (82).

In this study 13.9% (21) of the patients who were 30 and above years of age presented with breast lumps indicating that there is a 0.49% (83) chance that their breast lump represents breast cancer. However, of those aged 30 and up who had a breast lump, 57.1% (12) were not referred to the next facility. The qualitative part of this study indicated that the breast survivors thought their symptoms could be due to menstrual changes initially. This finding was similar with a study conducted in Uganda (40).

Although WHO recommends clinicians pay attention to self-identified breast abnormalities and recommend diagnostic work-ups (1), only 27.6% (100), 3.3% (12), and 3.6% (13) of the patients in this study had an ultrasound, mammography, or FNAC done to determine the abnormality respectively. The qualitative study also found that almost none of the health centers had investigation modalities available to assess breast disorders. These findings were similar to the study conducted in South and South western Ethiopia (29). However, these findings were different compared to the study conducted in Iraq which showed the use of investigations as 93.3% for ultrasound, 49.3% for mammogram, and 22.6% for FNAC (84). The reason for the low usage of investigations, in this study, to determine breast abnormalities can be attributed to the unavailability of the investigations at the health centers and unaffordability for the patients as explained in the qualitative part of the study.

Even though the WHO recommends that patients complaining of breast problems receive a definitive diagnosis within 60 days of their health facility diagnosis (1), only 34% (123) of the patients in this study received an initial diagnosis after 60 days, let alone a definitive diagnosis. As explained by the qualitative study, this might be due to misdiagnosis, failure of recognition of breast cancer symptoms early and unavailability of diagnostic investigations at the primary health care facilities. These findings can be barrier to early detection of breast cancer as explained by other studies (13, 14).

In this study, physical examinations were performed only on 20.4% (74) of the patients; however this was substantially higher than the study on self-reported breast abnormalities in rural Ethiopia

which reported that physical examination was done in 3.2% (36) of women having breast complaints. In a 10 year retrospective cohort study conducted in Turkey, cancer was detected in 1.6% of the patients with breast ultrasound alone and in 38.9% of the patients with breast ultrasound and diagnostic clinical breast examination (85). This implies the crucialty of including clinical breast examinations along with ultrasound which can be applied in the case of primary health care facilities. In both studies the most common physical breast examination finding was breast mass.

In the current study, 14.9% (54) of all patients visiting primary care facilities were referred. This figure is lower when compared with the figure in southern Ethiopia, where more than half of the patients were referred (38). This distinction can be explained by the fact that the second study was conducted in a referral hospital, where patients have already received their definitive diagnoses, making referrals mostly for radiotherapy. Majority (68% (246)) of the patients in this study were treated at the health centers. This was also indicated in the qualitative study, explained as patients are usually given analgesics at primary health care facilities and they reach tertiary hospitals once their conditions are complicated. These findings are in line with a study in Ethiopia (29).

Breast pain (Mastalgia) was the most commonly reported symptom 65.8% (238), which is consistent with the results of a cross-sectional study conducted in Ethiopia (50.8%) (36) and Iraq (68%) (84). The next most frequently reported symptoms were breast lump 16.9% (61), breast mass 4.4% (16), and nipple discharge 2.2% (8). This finding was supported by the qualitative component of the current study where patients reported breast pain and breast lump as symptoms. These findings differed from a national audit of cancer diagnosis study in London and Addis Ababa, in which breast lump was the most common symptom in 83% (44) and 78% (28) of the study participants, respectively, followed by nipple abnormalities (7%), breast pain (6%), and breast skin abnormalities (2%) (44). The results differ from a study in northern Ethiopia, where 79% of patients had a long-standing breast mass (47).

The most common clinical diagnosis of patients in the quantitative part of the study was mastitis followed by Fibro adenoma and so was in the qualitative study. This was similar with a study conducted in Iraq (84). In this study, 1.4% (5) of the patients were diagnosed with breast cancer, while in Mali, 51.6% were diagnosed with cancer. This discrepancy can be attributed to the fact that most patients in the current study have not received a definitive diagnosis yet, whereas in the study in Mali, diagnoses were determined after pathological tests were performed as the study included both primary care and referral health facilities (45).

This study revealed that 17.1% (62) of patients had a 90-day or more delay before visiting a health facility, compared to 75.7% (48) and 50.5% (51) in previous studies in Northern and North East Ethiopia. The mean patient delay in this study was one month and six days, with a range of 0 to five years; however, in another study, the mean patient delay was eight months, with a range of two weeks to three years (48). This discrepancy can be explained by

improvement in breast cancer awareness as indicated in the qualitative study through time as these studies were conducted in before five and four years respectively. Another possible explanation can be the difference in study settings as this study was conducted in the capital city, Addis Ababa, and the others in Gondar and Dessie towns respectively.

Similar cross-sectional studies conducted in North East Ethiopia, Rwanda, and Northern Ethiopia found that median patient delays were 4 months (51), 5 months (60) and 12 months (47) respectively. These disparities may be due to socioeconomic differences which impact the two communities' health-seeking behaviors. However, a previous study in Addis Ababa found a median patient delay in line with this study, which ranged from 6 to 132 days (28). This demonstrates that residence plays an important role in seeking healthcare services.

Patients and health professional in the qualitative section of the study indicated that the patients were using religious alternatives like holy water and 'Emnet' which resulted in delays. This finding was in line with several studies conducted in different parts of Ethiopia (9, 29, 36, 48) and in Rwanda (60).

The breast cancer survivors experienced stigma from their spouses and family members of breast cancer patients who made them leave their home as their husbands re married and their relatives kicked them out of their houses. This was line with findings from Ethiopia (29) and Iran (59).

In this study, 27.6% (137) of health professionals were found to have good knowledge of breast cancer early detection work. The qualitative findings also indicated that the health professionals failed to recognize the symptoms and neglected it while the patients had to be investigated and/or referred to tertiary hospitals. This finding was consistent with a study conducted in Addis Ababa, which discovered 30.6% (31) of health professionals have good knowledge. However, it was significantly lower than the study in Debreabor, which found 79.7% (30) of study participants had good knowledge. This discrepancy could be attributed to the way the participants' knowledge was assessed; as the three breast cancer early detection methods namely, breast self examination, clinical breast examination and mammogram were assessed in the current study while only breast self examination was assessed and results presented as health professionals' knowledge level about breast cancer early detection methods in the other study.

In this study 34% (169) of the health professionals identified common breast cancer risk factors while 77.9% (65) in Gaza Palestine had strong knowledge about breast cancer risk factors. This significant difference can be due socio-demographic difference of the study participants. The qualitative study indicated misunderstanding of initial symptoms of breast cancer and misdiagnosis at primary health care facilities. This finding was in line with other studies conducted in Ethiopia (9) and the US (10).

Although 72% (358) of health professionals in this study had a good understanding of mammography, only 57.9% (207) of them recognized it as a screening method for breast cancer. However, in India, 89% of health professionals, (64) recognized it as a screening method. This

difference could be attributed to differences in how health professionals' knowledge was assessed.

In multivariable regression, risk factor identification and work experience were statistically significant variables affecting health professionals' knowledge of breast cancer early detection work.

In the current study, the odds of having good knowledge about breast cancer early detection work is 5.61 times higher for health professionals with 15-19 years of work experience than health professionals with less than 4 years of work experience controlling for all other variables in the model. This was in line with a previous study conducted in Addis Ababa where work experience was found to have statistically significant association with knowledge of health professionals about breast cancer early detection work (31).

The odds of having good knowledge was 3.53 times higher for health professionals who identified three or more breast cancer risk factors than health professionals who identified less than three risk factors of breast cancer. Even though risk factor identification was significant in this study, it was not statistically significant in the study conducted in Palestine (65). This can be due to the different breast cancer risk factors considered in the studies which were not the same. However, having a family history of breast cancer has no effect on knowledge of breast cancer early detection work in both studies (65).

Although providing training in breast cancer early detection work was found to have a positive effect in knowledge of breast cancer early detection works (15), it showed statistically no significance in this study. Moreover cross tabulations have also indicated that of the health professionals who took training on breast cancer early detection, 72.7% (32) had poor knowledge. This was further confirmed in the qualitative study which revealed that mass trainings were not effective due to absence of follow up and that the better strategy planned to be implemented is training professionals at different levels at different times, thereby promoting mentorship trainings where the functionality will be assessed in between. This difference can be attributed to the different study settings and the assessment intervals of the training effect, as the pre-post training assessment was done within a week of completing the training in the Turkey study while it is not a short term effect of training assessment in the current study.

These findings show the increasing prevalence of breast abnormalities especially in women 30 years and older implying the need to early detection work especially in this age group. Absence of diagnostic investigations at the health centers implies lower rates of referral and delays in referrals as undiagnosed patients tend to wait longer for treatment than those with confirmed diagnosis. Low level of knowledge about breast cancer early detection work among health professionals can be a source of higher misdiagnosis rates which in turn affects the referral of the patients; this initiates the need for capacity building activities for health professionals.

7. Strengths and limitations of the study

7.1 Strengths of the study

This study is the first study to estimate the magnitude of breast abnormalities in Primary Health Care setting. It is a mixed method study of quantitative and qualitative study approaches where results were triangulated to provide fuller image of the referral process and maintain validity of the findings. With regard to this, this research has addressed one of the recommendations from a previous study.

The quantitative data was collected with an open data kit (ODK) where fields are set required in order to avoid missing data encountered due to carelessness or intentional ignoring of questions by the participants and data collectors.

This study is a multi-center study conducted at 10 health centers representing better variety. Moreover, sampling error was avoided in estimating the magnitude of breast abnormalities, referrals and delays as the study has taken all cases of breast abnormalities that visited the selected primary health care facilities during the whole one year period. The study has also engaged varied set of participants, that is, from the Ministry of Health to breast cancer survivors, making evidence from different perspectives included.

7.2 Limitations of the study

This study has some limitations. Case note audits of patients with breast abnormalities which were not available during data collection due to poor document handling; missing history sheets; medical charts taken out for patients' visit and for other reasons were not included. Due to the retrospective nature of the chart review part of the quantitative study, some socio-demographic information of the patients could not be obtained as it was not documented. Moreover, inconsistent understanding of the term screening among health professionals as identification of the problem among women who have already got the breast symptoms or came with a breast complaint rather than among asymptomatic women, might make their response biased. Finally, for the qualitative study, as in-depth interviews were conducted, it may be prone for social desirability bias. However, strategies like using triangulation and reflexivity; establishing rapport and trust with respondents; and avoiding leading questions were used to control social desirability bias.

8. Conclusions

The findings indicated higher share of prevalence of breast abnormalities in age 30 and above. From the patients who visited the primary healthcare facilities only few were referred. Absence of diagnostic investigations and referral with incomplete information together with absence of referral feedbacks deterred the referral experience. Majority of Primary healthcare professionals have poor knowledge of breast cancer early detection work resulting in misdiagnosis and negligence. The knowledge of health professionals about breast cancer early detection is affected by their knowledge of breast cancer risk factors and work experience. Though there is shortage of trainings, majority of those who have taken the trainings were not knowledgeable about breast cancer early detection methods stressing the need to evaluate the trainings and tailor them. Along with the early detection work, providing trainings on breast cancer risk factors is also beneficial.

9. Recommendations

Some recommendations from the findings of this study include for Federal ministry of health, Addis Ababa health bureau and sub-city health bureaus, to work on breast cancer prevention activities for instance through awareness creation programs especially targeting women 30 and older.

For ministry of health to prepare capacity building activities that are tailored to breast cancer early detection work specifically on Mammogram and CBE trainings for primary healthcare professionals. Moreover, to provide trainings on breast cancer risk factors as this can largely affect health professionals' knowledge on breast cancer early detection. Additionally since merely providing trainings will not be enough, evaluating the significance and effectiveness of trainings and following up progresses is instrumental. The ministry should also make medications available for breast cancer patients from low socio-economic backgrounds for free or at lower costs.

For health centers, especially focal persons in charge of managing patient medical record/ charts storage, to oversee careful management of patient case note audits interms of safe storage of hard copies and appropriate registration in the electronic medical records.

For primary healthcare professionals, to take doing clinical breast examinations seriously, especially among women 30 and above years of age and to continually update themselves on breast cancer early detection methods as they stay on the clinical practice and to make referrals with full patient information and for referral hospital health professionals to respond referrals with feedbacks.

For future researchers, to conduct prospective studies to assess the treatment outcome of patients referred from primary health care facilities at tertiary / referral hospitals as there is scarce evidence especially in developing countries' setup.

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11. Annexes

Annex 1: Table 10

Table 10: Referral hospital information for referred patients in Addis Ababa, Ethiopia, 2024 (n=54)

Referral Hospital	Number of Referred Patients	Percent
Alert Hospital	28	51.9
Yekatit 12 Hospital	7	13.0
Zewditu Memorial Hospital	6	11.1
Tikur Anbessa Specialized Hospital	1	1.9
St. Paul Hospital	1	1.9
Unspecified	11	20.4
Total	54	100.0

Annex 2: Table 11

Table 11: Knowledge of primary health care professionals about cancer early detection work at selected primary healthcare facilities in Addis Ababa, Ethiopia, 2024 (n=497)

Variables	Frequency	Percentage	
Methods important for early detection of breast cancer	Breast self-examination	254	51.1
	Clinical breast examination	11	2.2
	Mammogram	8	1.6
	Breast self-examination and Clinical breast examination	51	10.3
	All	173	34.8
Recommended age to start breast self-examination for women	At 20 years	302	60.8
	At 40 years	65	13.1
	After menarche	97	19.5
	I don't know	17	3.4
	Other*	16	3.2
Recommended frequency of breast self-examination for women	Once in a month	207	41.7
	Once in a week	140	28.2
	Once in three months	110	22.1
	I don't know	21	4.2
	Other**	19	3.8
Appropriate time for performing breast self-examination for women	1-7 days after menses	273	54.9
	1-7 days before menses	49	9.9
	During menses	22	4.4
	At any time	134	27.0
	I don't know	14	2.8
	Other***	5	1.0
Appropriate time for performing breast self-examination for women in their menopause	At any time	322	64.8
	Same day of the month	108	21.7
	I don't know	64	12.9
	Other****	3	0.6
Recommended age to start clinical breast examination for women	Above 18	226	45.5
	Above 25	105	21.1
	Above 30	97	19.5
	Above 40	42	8.5
	I don't know	22	4.4
	Other*****	5	1.1
Recommended frequency to get clinical breast examination be done for women	Monthly	131	26.4
	Once in a year	149	30.0
	Every three months	126	25.4
	Every one to three years	57	11.5
	I don't know	26	5.2

	Other*****	8	1.6
Recommended age to start mammography examination	30 years	166	33.4
	35 years	113	22.7
	40 years	97	19.5
	45 years	51	10.3
	I don't know	64	12.9
	Other*****	6	1.2
Recommended frequency of getting mammography examination done	Once in a year	168	33.8
	Every six months	102	20.5
	Once in two years	66	13.3
	Once in three years	82	16.5
	I don't know	72	14.5
	Other*****	7	1.4
Use of mammography	For diagnostic purpose	199	40.0
	For screening purpose	93	18.7
	For both	195	39.2
	I don't know	10	2.0
Delayed presentation (patient delay) for breast cancer	Presentation to the health facility a month after noticing breast symptoms	146	29.4
	Presentation to the health facility \geq 3 months after noticing breast symptoms	109	21.9
	Presentation to the health facility \geq 6 months after noticing breast symptoms	194	39.0
	I don't know	48	9.7
Delayed diagnosis of breast disorders	Diagnosis of patients with breast complaints after a month of health facility presentation	250	50.3
	Diagnosis of patients with breast complaints after two months of health facility presentation	60	12.1
	Diagnosis after 3 months of health facility presentation	136	27.4
	I don't know	51	10.3

* After menopause, after 30 years;

** Daily, once in six months, twice a year, three times a week;

*** Before or after menses;

**** Always, every year, every three months;

***** Up on complaint, below 18, above 35;

***** Every six months, every two years;

***** Up on complaint, 50 years, 15 years;

***** Upon complaint, not recommended, every three month, every five year

Annex 3: Proportional allocation of the required sample of health professionals from each facility to the number of health professionals working at the primary health care facilities

Name of the primary health care facility	Number of health professionals working in the health center at the start of data collection	Required sample of health professionals proportionally allocated to the number of health professionals
Alembank health center	141	69
Woreda 06 health center	127	63
Addisu Gebeya health center	125	62
Entoto Fana health center	94	46
General Jagama Kello health center	109	54
W/ro Beletshachew health center	85	42
Arada health center	93	46
Afinchober health center	88	43
Kazanchis health center	106	52
Kirkos health center	94	46
Total	1064	523

Annex 4: Catchment population and outpatient visit of the selected health centers

Information from January 1, 2023 to December 31, 2023 (DHIS Tirr 2015 E.C to Tahisas 2016)

Health center	Population catchment	Number of outpatient visits for adult women	Total no. of women ≥ 30 years old	Referral catchment
Alem bank	75,051	33,106	20,857	Alert Hospital
Woreda 06	50,271	26,380	17,419	Alert Hospital
Addisu Gebeya	47,617	31,575	20,131	St. Paul Hospital
Entoto Fana	41,766	19,488	9,849	St. Peter Hospital
General Jagama Kello	62,770	36,917	23,258	Zewditu Memorial Hospital
Beletshachew	31,771	28,629	18,036	Tikur Anbessa Specialized Hospital
Arada	36,551	21,760	12,613	Ras Desta Hospital
Afincho Ber	39,920	24,770	14,863	Yekatit 12 Hospital
Kazanchis	83,500	36,786	24,079	Zewditu Memorial Hospital
Kirkos	66,787	18,271	13,898	Zewditu Memorial Hospital
Total	536,004	277,682	175,003	

Annex 5: Data extraction checklist to assess magnitude and outcome of patients with breast complaints

No.	Variable	Response	Skips
101	Name of the health facility	<ol style="list-style-type: none"> 1. Arada health center 2. Afincho Ber health center 3. Addisu Gebeya health center 4. Entoto Fana health center 5. Woreda 06 health center 6. Alembank health center 7. General Jagama Kello health center 8. W/o Beletshachew health center 9. Kazanchis health center 10. Kirkos health center 	
102	Sub-city	<ol style="list-style-type: none"> 1. Arada Sub-city 2. Gulele Sub-city 3. Kolfe Keranyo Sub-city 4. Lideta Sub-city 5. Kirkos Sub-city 	
103	MRN	_____	
104	Sex	<ol style="list-style-type: none"> 1. Male 2. Female 	
105	Age (in complete years)	_____	
106	Patient's village	_____	
107	Patient's kebele	_____	
108	Chief complaint	<ol style="list-style-type: none"> 1. Breast lump 2. Breast pain 3. Breast mass 4. Nipple discharge 5. Breast skin abnormalities 6. Undocumented 7. Other, specify _____ 	
109	Date the symptom was first noticed	<ol style="list-style-type: none"> 1. Undocumented 2. Documented 	
110	Date, symptom	_____	If answered "1" to 109
111	Date of first visit of the health facility	<ol style="list-style-type: none"> 1. Undocumented 2. Documented 	
112	Date, visit	_____	If answered "1" to 111
113	What was the diagnosis in the current health facility?	<ol style="list-style-type: none"> 1. Undiagnosed 2. Mastitis 3. Breast cancer suspect 4. Fibro adenomas 	

		<ul style="list-style-type: none"> 5. Breast cancer 6. Breast abscess 7. Lactational mastitis 8. Other, specify _____ 	
114	Date the patient was diagnosed	<ul style="list-style-type: none"> 1. Undocumented 2. Documented 	If answered "1" to 113
115	Date, diagnosis	_____	If answered "1" to 114
116	What investigation was done to determine the abnormality	<ul style="list-style-type: none"> 1. Clinically.....Yes/No 2. Breast abnormality.....Yes/No 3. Other, specify 	
117	Was clinical breast examination (CBE) done for the patient?	<ul style="list-style-type: none"> 1. Yes 2. No 	
118	What was the CBE finding?	_____	If answered "2" to 117
119	Is there any risk assessment conducted for this patient?	<ul style="list-style-type: none"> 1. Yes 2. No 	
120	What was found in the risk assessment?	_____	If answered "2" to 119
121	What decision was taken at the health facility?	<ul style="list-style-type: none"> 1. Referred 2. Treated on site 3. Other, specify _____ 	
122	Where is the patient referred to?	_____	
123	Reason for referral		
124	What treatment was given at the health facility?	_____	
125	Date the patient was referred/ treated	<ul style="list-style-type: none"> 1. Undocumented 2. Documented 	
126	Date, referral/ treatment		If answered "1" to 125
127	Feedback on the current health status of the referred patients	<ul style="list-style-type: none"> 1. Not recorded 2. Treated at the referral site 3. Recovered 4. Died 5. Lost to follow up 6. Other 	

Annex 6: Questionnaire to assess the knowledge of the health professionals about early detection work of breast cancer

Consent: Yes/No _____

1. Socio demographic characteristics of the study participants

No.	Questions	Response	Skips
101	Name of the health facility	_____	
102	Sex	1. Male 2. Female	
103	Age (in complete years)	_____	
104	Profession	1. Health officer 2. Nurse 3. Midwife 4. General practitioner 5. Pharmacist 6. Psychiatric nurse 7. Other, specify _____	
105	Level of education	1. Master's degree 2. Bachelor's degree 3. Diploma 4. Other, specify _____	
106	Work experience (in complete months)	_____	
107	Department (at work)	1. Adult OPD 2. GYN/OBS 3. Pediatrics 4. Emergency 5. Triage 6. Other, specify _____	
108	Marital status	1. Single 2. Married 3. Divorced 4. Widowed	
109	What is your net monthly income?	_____	

2. Medical history of health care providers

No.	Questions	Response	Skips
201	Do you have self- history of breast problem?	1. Yes 2. No	
202	Do you have family history of breast problem?	1. Yes 2. No	

3. Knowledge of respondents on breast cancer early detection methods

No.	Questions	Response	Skips
301	Which methods are important for early detection of breast cancer?	<ol style="list-style-type: none"> 1. Breast self-examination 2. Clinical breast examination 3. Mammogram 4. Breast self-examination and Clinical breast examination 5. All 	
302	What is the recommended age to start breast self-examination?	<ol style="list-style-type: none"> 1. At 20 years 2. At 40 years 3. After menarche 4. After menopause 5. Other, Specify _____ 6. I don't know 	
303	How often should breast self-examination be done?	<ol style="list-style-type: none"> 1. Once in a month 2. Once in a week 3. Once in three months 4. Other, specify _____ 5. I don't know 	
304	When is the appropriate time for performing breast self-examination?	<ol style="list-style-type: none"> 1. During menses 2. 1-7 days before menses 3. 1-7 days after menses 4. At any time 5. Other, specify _____ 6. I don't know 	
305	When is the appropriate time for performing breast self-examination for women in their menopause?	<ol style="list-style-type: none"> 1. At any time 2. Same day of the month 3. Other, specify _____ 4. I don't know 	
306	What is the recommended age to start clinical breast examination?	<ol style="list-style-type: none"> 1. Above 18 2. Above 25 3. Above 30 4. Above 40 5. Other, specify _____ 6. I don't know 	
307	How often should clinical breast examination be done?	<ol style="list-style-type: none"> 1. Monthly 2. Once in a year 3. Every three months 4. Every one to three years 5. Other, specify _____ 6. I don't know 	
308	What is the recommended age to start mammography examination?	<ol style="list-style-type: none"> 1. 30 years 2. 35 years 	

		<ol style="list-style-type: none"> 3. 40 years 4. 45 years 5. Other, specify _____ 6. I don't know 	
309	How often should mammography examination be done?	<ol style="list-style-type: none"> 1. Once in a year 2. Every six months 3. Once in two years 4. Once in three years 5. Other, specify _____ 6. I don't know 	
310	What is the use of mammography?	<ol style="list-style-type: none"> 1. For diagnostic purpose 2. For screening purpose 3. For both 4. I don't know 	
311	What is delayed presentation (patient delay) for breast cancer?	<ol style="list-style-type: none"> 1. Presentation to the health facility a month after noticing breast symptoms 2. Presentation to the health facility ≥ 3 months after noticing breast symptoms 3. Presentation to the health facility ≥ 6 months after noticing breast symptoms 4. I don't know 	
312	What is delayed diagnosis of breast disorders?	<ol style="list-style-type: none"> 1. Diagnosis of patients with breast complaints after a month of health facility presentation 2. Diagnosis of patients with breast complaints after two months of health facility presentation 3. Diagnosis after 3 months of health facility presentation 4. I don't know 	

4. Individual factors

401	What are the perceived risk factors for breast cancer?	Yes	No	I don't know	
	<ol style="list-style-type: none"> 1. Family history of breast cancer 2. Early menarche 3. Radiation/hazardous chemical exposure 4. Advanced age 5. Overweight after menopause 6. Prolonged use of oral contraceptives 7. All 				
402	Have you taken any training on breast cancer early detection work?	1. Yes	2. No		
403	Did the training include definitions of timely health facility presentation, diagnosis, and referral	1. Yes	2. No		If answered "2" to 402
404	Have you been trained on Clinical Breast Examination (CBE)?	1. Yes	2. No		If answered "2" to 402
405	Have you been trained on Mammogram?	1. Yes	2. No		If answered "2" to 402
406	How is BSE carried out?	1. One finger palpation	2. Palm and three finger palpation	3. I don't know	
407	Is breast cancer screening service provided at the health facility you are currently working in?	1. Yes	2. No		
408	What breast cancer screening service is provided?	1. Clinical breast examination	2. Mammogram	3. Other, specify	If answered "2" to 407
409	Is there a feedback referral system for breast cancer cases at the health facility you are currently working in?	1. Yes	2. No	3. I don't know	

Annex 7: Amharic version of the questionnaire to assess the knowledge of the health professionals about early detection work of breast cancer

1. የጥናቱ ተሳታፊዎች ማህበራዊ ስነ-ሕዝብ ባህሪያት

ቁጥር	ጥያቄዎች	ምላሽ	መዝለሎች
101	የጤና ተቋሙ ስም	_____	
102	ጾታ	1. ወንድ 2. ሴት	
103	ዕድሜ	-----	
104	ሙያ	8. የጤና መኮንን 9. ነርስ 10. አዋላጅ 11. አጠቃላይ ሐኪም 12. ሌላ, ይግለጹ	
105	የትምህርት ደረጃ	5. ማስተርስ ዲግሪ 6. የባችለር ዲግሪ 7. ዲፕሎማ 8. ሌላ, ይግለጹ	
106	የስራ ልምድ (በወራት)	_____	
107	የስራ ክፍል	1. ተመላላሽ ሕክምና 2. የማህፀን እና የፀንስ ሕክምና 3. የሕፃናት ሕክምና 4. ድንገተኛ 5. ትሪያጅ 6. ሌላ, ይግለጹ	
108	የጋብቻ ሁኔታ	5. ነጠላ 6. ያገባ 7. የተፋታ 8. ባል የሞተባት	
109	የተጠራ ወርሃዊ ገቢዎ ምን ያህል ነው	-----	

የጤና ባለሙያዎች የሕክምና ታሪክ

ቁጥር	ጥያቄዎች	ምላሽ	መዝለሎች
201	የራስዎ የጡት ችግር አለ?	1. አዎ 2. አይ	
202	የቤተሰብ የጡት ችግር ታሪክ አለ?	1. አዎ 2. አይ	

4. ስለ የጡት ካንሰር ቀደምት የመለየት ዘዴዎች ምላሽ ሰጪዎች እውቀት

ቁጥር	ጥያቄዎች	ምላሽ	መዝለሎች
301	የጡት ካንሰርን ቀደም ብሎ ለመለየት የትኞቹ ዘዴዎች አስፈላጊ ናቸው	1. የጡት ራስን መመርመር 2. ክሊኒካዊ የጡት ምርመራ 3. ማሞግራም 4. የጡት ራስን መመርመር እና ክሊኒካዊ የጡት ምርመራ 5. ሁሉም	
302	የራስን ጡት ምርመራ ለመጀመር የሚመከረው እድሜ ስንት ነው	1. በ 20 ዓመታት 2. በ 40 ዓመት 3. ከወር አበባ በኋላ 4. ከማረጥ በኋላ 5. ሌላ ይግለጹ 6. አላውቅም	
303	የራስን ጡት መመርመር ምን ያህል ጊዜ መደረግ አለበት?	1. በወር አንድ ጊዜ 2. በሳምንት አንድ ጊዜ 3. በሶስት ወራት ውስጥ አንድ ጊዜ 4. ሌላ ይግለጹ 5. አላውቅም	
304	የራስን ጡት ለመመርመር ትክክለኛው ጊዜ መቼ ነው	1. በወር አበባ ወቅት 2. ከወር አበባ በፊት 1-7 ቀናት 3. ከወር አበባ በኋላ ከ1-7 ቀናት 4. በማንኛውም ጊዜ 5. ሌላ ይግለጹ 6. አላውቅም	
305	በማረጥ ወቅት ለሴቶች የጡት ራስን ምርመራ ለማካሄድ ትክክለኛው ጊዜ	1. በማንኛውም ጊዜ 2. የወሩ ተመሳሳይ ቀን	

	መቼ ነው?	<ul style="list-style-type: none"> 3. ሌላ ይግለጹ 4. አላውቅም 	
306	ክሊኒካዊ የጡት ምርመራ ለመጀመር የሚመከረው ዕድሜ ምን ያህል ነው?	<ul style="list-style-type: none"> 1. ከ 18 ዓመት በላይ 2. ከ 25 ዓመት በላይ 3. ከ 30 ዓመት በላይ 4. ከ 40 ዓመት በላይ 5. ሌላ ይግለጹ 6. አላውቅም 	
307	ክሊኒካዊ የጡት ምርመራ ምን ያህል ጊዜ መደረግ አለበት?	<ul style="list-style-type: none"> 1. ወርሃዊ 2. በዓመት አንድ ጊዜ 3. በየሶስት ወሩ 4. በሶስት አመታት ውስጥ አንድ ጊዜ 5. ሌላ ይግለጹ 6. አላውቅም 	
308	የማሞግራፊ ምርመራ ለመጀመር የሚመከረው ዕድሜ ስንት ነው?	<ul style="list-style-type: none"> 1. 30 ዓመት 2. 35 ዓመት 3. 40 ዓመት 4. 45 ዓመት 5. ሌላ ይግለጹ 6. አላውቅም 	
309	የማሞግራፊ ምርመራ ምን ያህል ጊዜ መደረግ አለበት?	<ul style="list-style-type: none"> 1. በዓመት አንድ ጊዜ 2. በየስድስት ወሩ 3. በሁለት አመት አንዴ 4. በሶስት አመታት ውስጥ አንድ ጊዜ 5. ሌላ ይግለጹ 6. አላውቅም 	
310	የማሞግራፊ ጥቅም ምንድነው?	<ul style="list-style-type: none"> 1. ለምርመራ ዓላማ 2. ለማጣሪያ ዓላማ 3. ለሁለቱም 4. አላውቅም 	
311	ለጡት ካንሰር የዘገየ አቀራረብ (የታካሚ	ለጤና ተቋሙ የቀረበው:-	

	መዘግየት) ምንድነው?	<ol style="list-style-type: none"> 1. የጡት ምልክቶችን ከተመለከተ ከአንድ ወር በኋላ 2. የጡት ምልክቶችን ካዩ $h \geq 3$ ወራት በኋላ 3. የጡት ምልክቶች ከታዩ $h \geq 6$ ወራት በኋላ 4. አላውቅም 	
312	የጡት ህመሞች ወቅታዊ ምርመራ ምንድነው?	<p>ይህ የጡት ህመም ያለባቸው ታካሚዎች ምርመራ</p> <ol style="list-style-type: none"> 1. በሽተኛው ምልክቶችን ካስተዋለ በአንድ ወር ውስጥ 2. የጤና ተቋም በቀረበ በ2 ወር ጊዜ ውስጥ 3. ታካሚው ምልክቶችን ካስተዋለ በ3 ወራት ውስጥ 4. አላውቅም 	

5. የግለሰብ ተዛማጅ ምክንያቶች

401	ለጡት ካንሰር የሚያጋልጡ ምክንያቶች ምንድን ናቸው?	አዎ	አይ	አላውቅም	
	<ol style="list-style-type: none"> 1. የቤተሰብ የጡት ካንሰር ታሪክ 2. ቀደምት የወር አበባ 3. የጨረሮ / አደገኛ የኬሚካል መጋለጥ 4. ከፍተኛ ዕድሜ 5. ከማረጥ በኋላ ከመጠን በላይ ክብደት 6. የእርግዝና መከላከያዎችን ለረጅም ጊዜ መጠቀም 7. ሁሉም 				
402	የጡት ካንሰርን አስቀድሞ የመለየት ስራ ላይ ስልጠና ወስደዋል?	1. አዎ	2. አይ		
403	ስልጠናው ወቅታዊ የጤና ተቋም አቀራረብ፣ እና የምርመራ ትርጓሜዎችን አካቷል	1. አዎ	2. አይ		ለ 402 መልስ "2" ከሰጠ

404	በክሊኒካል የጡት ምርመራ (CBE) ላይ ስልጠና ወስደዋል?	1. አዎ 2. አይ	ለ 402 መልስ "2" ከሰጡ
405	በማሞግራም ላይ ስልጠና ወስደዋል?	1. አዎ 2. አይ	ለ 402 መልስ "2" ከሰጡ
406	የጡት ራስን መመርመር እንዴት ይከናወናል?	1. አንድ ጣት መታጠፍ 2. በመዳፍ እና ሶስት ጣት መመርመር 3. አላውቅም	
407	አሁን እየሰሩበት ባለው የጤና ተቋም የጡት ካንሰር ምርመራ አገልግሎት ይሰጣል?	1. አዎ 2. አይ	
408	ምን ዓይነት የጡት ካንሰር ምርመራ አገልግሎት ይሰጣል?	1. ክሊኒካዊ የጡት ምርመራ 2. ማሞግራም 3. ሌላ፣ ይግለጹ _____	ለ 407 መልስ "2" ከሰጡ
409	አሁን እየሰሩበት ባለው የጤና ተቋም የጡት ካንሰር ሪፈራል ግብር መልስ አሰራር አለ?	1. አዎ 2. አይ	

Annex 8: Interview guide

Early detection, referral and outcome of breast abnormalities at selected primary health care facilities in Addis Ababa

Annex 8.1: Questions for patients

Introduction

First of all thank you for your willingness to participate in today's interview. The aim of this discussion is to better understand experiences and challenges on referral system of breast abnormality cases at primary health care facilities in Addis Ababa.

Questions and consent

Before I start my interview do you have any question about the research please?

Section 1: How did you realize that you have a breast problem at first?

1. When did you realize that you have a breast problem?
2. What did you do as you noticed the symptom?
3. How did you feel as you noticed the symptom?
4. When did you visit the health facility for the first time?
5. Where did you go at first? health center or hospital?
6. What made you decide to visit the health facility late/ early?
7. What opportunities and challenges did you face as you decided to visit the health facilities?

Section 2: What does your first health facility presentation look like?

8. What clinical and laboratory examinations were done? ,if any
9. What did the health professionals told you? /your diagnosis/
10. What did you feel as you have been told you had a breast cancer?
11. Were you referred to another health facility? If so to where?
12. When were you referred? Or how long did you have to wait before referral?
13. When did you visit your referral site?

Section 3: Can you tell me your experience with the referral system for breast abnormality cases?

14. How would you describe the process of being referred for a breast abnormality at the primary health care facility? Was it clear and easy to understand?
15. Did you feel that the primary health care facility adequately explained the referral process and the reasons behind it?
16. Did you encounter any challenges or difficulties while going through the referral process? If so, can you explain what they were?

17. How long did it take from the time you were referred to the time you received further care or consultation? Was the waiting time acceptable to you?
18. Were there any communication issues between the primary health care facility and the facility to which you were referred? Did this lead to any complications or delays?
19. Did you receive sufficient information about the facility you were referred to, such as location, contact details, and the healthcare professionals you would be seeing?
20. Were you satisfied with the quality of care and attention you received at the facility you were referred to for your breast abnormality?
21. Did you face any financial challenges or difficulties related to the referral process, such as costs for transportation or additional tests?
22. Are there any suggestions or improvements you would like to see in the referral system for breast abnormality cases at primary health care facilities?
23. Finally, let me give you the chance if there is anything additional you would like to discuss

Annex 8.2: Questions for health professionals from primary healthcare facilities

Introduction

First of all thank you for your willingness to participate in today's interview. The aim of this discussion is to better understand experiences and challenges on referral system of breast abnormality cases at primary health care facilities in Addis Ababa.

Questions and consent

Before I start my interview do you have any question about the research please?

Section 1: Can you please tell me about your professional career?

1. What is your profession?
2. What unit are you currently working in?
3. How long have you been working in the health care industry?

Section 2: Can you describe your experience with the referral system for breast abnormality cases at the primary health care facility you work in?

4. What is the process followed for identifying and referring patients with breast abnormalities to specialist care?
5. What are the criteria used to determine whether a patient with a breast abnormality needs to be referred to a specialist?
6. How efficient and effective do you find the current referral system in ensuring timely and appropriate care for patients with breast abnormalities?
7. Have you encountered any challenges or barriers in referring patients with breast abnormalities to specialist care? If yes, can you describe them?
8. What is the average time it takes for a patient with a breast abnormality to be seen by a specialist after referral?

9. Are there any specific resources or training programs provided to primary health care staff to improve their ability to identify and refer breast abnormality cases?
10. Are there any collaborative efforts or partnerships with specialists or tertiary care facilities to enhance the referral process for breast abnormalities?
11. How do you ensure continuity of care and follow-up for patients after they have been referred to a specialist? Feedback referral system for breast cancer patients?
12. Is a breast cancer screening service provided at health centers for those visiting for breast unrelated complaints?
13. Are there any plans or strategies in place to address the challenges or improve the efficiency of the referral system for breast abnormality cases?

Annex 8.3: Questions for medical directors

Introduction

First of all thank you for your willingness to participate in today's interview. The aim of this discussion is to better understand experiences and challenges on referral system of breast abnormality cases at primary health care facilities in Addis Ababa.

Questions and consent

Before I start my interview do you have any question about the research please?

Section 1: Can you tell me about your professional career please?

1. What is your profession?
2. How long have you been working in the healthcare field and specifically as a medical director?

Section 2: Can you describe the current referral system in place for breast abnormality cases at the primary healthcare facilities?

3. What is the process involved from detection of breast cancer in patients to their referral?
4. Have you encountered any specific challenges or issues related to the referral system for breast abnormality cases? If yes, could you provide examples and explain how they have been addressed?
5. How do you ensure timely and accurate communication between primary healthcare facilities and specialized breast care centers? Are there any specific strategies or protocols in place?
6. What collaboration or partnerships exist between your primary healthcare facilities and specialized breast care centers to facilitate seamless referral and follow-up for breast abnormality cases?

7. How do you monitor the effectiveness of the referral system for breast abnormality cases? Are there any performance indicators or metrics you use to evaluate the system's efficiency?
8. Have you implemented any initiatives or interventions aimed at improving the referral process for breast abnormality cases? If yes, what were the outcomes or results observed?
9. How do you ensure proper training and education of primary healthcare professionals regarding the identification and referral of breast abnormality cases? Are there any ongoing educational programs or resources available?
10. Are there any particular barriers or challenges faced by primary healthcare professionals when referring breast abnormality cases? How are these barriers being addressed?
11. Can you share any success stories or positive experiences related to the referral system for breast abnormality cases at the primary healthcare facilities?
12. What future plans or strategies do you have in place to enhance the efficiency and effectiveness of the referral system for breast abnormality cases?

Annex 8.4: Questions for Urban health extension workers

Introduction

First of all thank you for your willingness to participate in today's interview. The aim of this discussion is to better understand experiences and challenges on referral system of breast abnormality cases at primary health care facilities in Addis Ababa.

Questions and consent

Before I start my interview do you have any question about the research please?

Section 1: Can you tell me about your professional career please?

1. What is your profession?
2. In which department are you currently working in?
3. How long have you been working in the healthcare field

Section 2: Can you describe the current referral system in place for breast abnormality cases at the primary healthcare facilities?

4. What is the process involved in detection of breast cancer in patients to in the community?
5. What criteria are there to refer patients with breast abnormalities?
6. How effective is the current referral system of breast abnormalities?
7. Have you encountered any specific challenges or issues related to the referral system for breast abnormality cases? If yes, could you provide examples and explain how they have been addressed?
8. How long will it take for the patient to be seen by a professional?

9. Are there any specific resources or training programs provided to primary health care staff to improve their ability to identify and refer breast abnormality cases?
10. How do you ensure continuity of care and follow-up for patients after they have been referred to a specialist? Feedback referral system for breast cancer patients?
11. Is a breast cancer screening service provided at health centers for those visiting for breast unrelated complaints?
12. Can you share any success stories or positive experiences related to the referral system for breast abnormality cases at the primary healthcare facilities?

Annex 8.5: Question for health professionals from referral hospitals

Introduction

First of all thank you for your willingness to participate in today's interview. The aim of this discussion is to better understand experiences and challenges on referral system of breast abnormality cases at primary health care facilities in Addis Ababa.

Questions and consent

Before I start my interview do you have any question about the research please?

Section 1: Can you please tell me about your professional career?

1. What is your profession?
2. What unit are you currently working in?
3. How long have you been working in the health care industry?

Section 2: Can you describe your experience with the referral system for breast abnormality cases at the primary health care facility you work in?

4. What is the process followed for identifying and referring patients with breast abnormalities to specialist care?
5. What kind of breast abnormality cases are referred to the referral hospital?
6. How efficient and effective do you find the current referral system in ensuring timely and appropriate care for patients with breast abnormalities?
7. Have you encountered any challenges or barriers in serving/treating patients referred with breast abnormalities to the tertiary hospital? If yes, can you describe them?
8. What is the average time it takes for a patient with a breast abnormality to be seen by a specialist after referral?
9. Are there any collaborative efforts or partnerships between primary healthcare facilities and tertiary care facilities to enhance the referral process for breast abnormalities?
10. Is there a feedback referral system for breast abnormalities?

11. Is a breast cancer screening service provided at health centers for those visiting for breast unrelated complaints?
12. What type of health care process do patients go through once they reach the tertiary health facility?
13. Are there any positive or negative experiences you encountered in treatment of patients with breast abnormalities?

Annex 8.6: Questions for ministers and other officials

Introduction

First of all thank you for your willingness to participate in today's interview. The aim of this discussion is to better understand experiences and challenges on referral system of breast abnormality cases at primary health care facilities in Addis Ababa.

Questions and consent

Before I start my interview do you have any question about the research please?

Section 1: Can you tell me about your current position please?

1. How long have you been working in your current role?

Section 2: Can you provide an overview of the current referral system in place for breast abnormality cases at primary health care facilities?

2. What are the key goals or objectives of the referral system?
3. How are patients with breast abnormality cases identified and referred from primary health care facilities to specialized facilities?
4. Are there any specific protocols or guidelines followed for referring these cases?
5. What are the main factors that contribute to successful referrals for breast abnormality cases?
6. What challenges or barriers are faced in implementing an effective referral system for breast abnormality cases, if any?
7. Are there any technical or infrastructure limitations that impact the referral process?
8. How do primary health care facilities and specialized facilities collaborate or coordinate in managing breast abnormality cases?
9. Is there any specific training or capacity-building efforts in place to support health care providers in managing and referring breast abnormality cases?
10. How is the quality of referral information maintained and communicated between primary health care facilities and specialized facilities?
11. Have there been any notable success stories or achievements in improving the referral system for breast abnormality cases?

12. Are there any ongoing initiatives or plans to further strengthen the referral system for breast abnormality cases?

Annex 9: Amharic version of the interview guide

አባሪ

የቃለ መጠይቅ መመሪያ

በአዲስ አበባ ውስጥ በተመረጡ የመጀመሪያ ደረጃ የጤና ተቋማት የጡት ችግሮች ላይ የሚሰሩ ጥናት

ለታካሚዎች ጥያቄዎች

መግቢያ

በመጀመሪያ በዛሬው ቃለ መጠይቅ ላይ ለመሳተፍ ፈቃደኛ ስለሆኑ እናመሰግናለን። የዚህ ውይይት አላማ በአዲስ አበባ በሚገኙ የመጀመሪያ ደረጃ ጤና ተቋማት የጡት ችግርን በተመለከተ የሪፈራል ስርዓትን ተሞክሮ እና ተግዳሮቶችን በተሻለ ለመረዳት ነው።

ጥያቄዎች እና ስምምነት

ቃለ መጠይቁን ከመጀመሪያ በፊት ስለ ጥናቱ ምንም አይነት ጥያቄ ካለዎት እባክዎ?

ክፍል 1: መጀመሪያ ላይ የጡት ችግር እንዳለብዎ እንዴት ተረዱ?

1. የጡት ችግር እንዳለብዎት መቼ ተረዱ?
2. ምልክቱን እንዳስተዋሉ ምን አደረጉ?
3. ምልክቱን ሲመለከቱ ምን ተሰማዎት?
4. መጀመሪያ የት ሄዱ? ጤና ጣቢያ ወይስ ሆስፒታል?
5. ጤና ተቋሙን ለመጀመሪያ ጊዜ የጎበኙት መቼ ነው?
6. ጤና ተቋሙን ዘግይተው/ቀድመው ለመጎብኘት የወሰኑት ለምንድን ነው?
7. የጤና ተቋማቱን ለመጎብኘት ሲወስኑ ምን እድሎች እና ፈተናዎች አጋጥመውዎታል?

ክፍል 2: የመጀመሪያዎ የጤና ተቋም አቀራረብ ምን ይመስላል?

8. ምን ዓይነት ክሊኒካዊ እና የላብራቶሪ ምርመራዎች ተደርገዋል? ,ካለ
9. የጤና ባለሙያዎች ምን ነገሩዎት? /የምርመራ ዉጤትዎ/
10. የጡት ካንሰር እንዳለብዎት እንዳወቁ ምን ተሰማዎት?
11. ወደ ሌላ የጤና ተቋም ተልከዉ ነበር? ከሆነ ወደ የት?
12. ሪፈራል ከመደረጉ በፊት ምን ያህል ጊዜ መጠበቅ ነበረብዎት?
13. የሪፈራል ጣቢያዎን መቼ ጎበኙ?

ክፍል 3: የጡት ችግርን በተመለከተ ስለ ሪፈራል ሲስተም ያለዎትን ልምድ ሊነግሩኝ ይችላሉ?

14. በመጀመሪያ ደረጃ የጤና ተቋም ውስጥ ለጡት ችግር ሪፈራል ሂደት እንዴት ይገልጹታል? ግልጽ እና ለመረዳት ቀላል ነበር?
15. የመጀመሪያ ደረጃ የጤና ተቋም የሪፈራል ሂደቱን እና ምክንያቱን በበቂ ሁኔታ አብራርቷል?
16. በሪፈራል ሂደት ውስጥ ሲያልፉ ተግዳሮቶች ወይም ችግሮች አጋጥመውታል? ከሆነ ምን እንደነበሩ ሊያስረዱኝ ይችላሉ?
17. ሪፈራል ከተደረጉበት ጊዜ አንስቶ ተጨማሪ ህክምና እስከተቀበሉበት ምን ያህል ጊዜ ፈጅቷል? የጥበቃ ጊዜው ለእርስዎ ተቀባይነት ነበረው?
18. በመጀመሪያ ደረጃ የጤና ተቋም እና በተለኩበት ተቋም መካከል ግንኙነቶች ነበሩ? በዚህ ምክንያት ችግሮች ወይም መዘግየት ነበር?
19. ሪፈራል ስለተደረጉበት ተቋም፣ እንደ አካባቢ፣ አድራሻ ዝርዝሮች እና ስለሚመለከትዎ የጤና ባለሙያዎች በቂ መረጃ ደርሶዎት ነበር?
20. ለጡት ችግር ሪፈራል በተደረጉበት ተቋም ባገኙት እንክብካቤ እና እንክብካቤ ጥራት ረክተዋል?
21. ከሪፈራል ሂደቱ ጋር የተያያዙ እንደ የመጓጓዣ ወጪዎች ወይም ተጨማሪ ያሉ የገንዘብ ችግሮች አጋጥመውታል?
22. በመጀመሪያ ደረጃ የጤና ተቋማት የጡት ችግርን በተመለከተ በሪፈራል ሲስተም ውስጥ ማየት የሚፈልጓቸው ጥቆማዎች ወይም ማሻሻያዎች አሉ?
23. በመጨረሻም ለመወያየት የምትፈልጉት ተጨማሪ ነገር ካለ እድሉን ልስጥ።

ለጤና ባለሙያዎች ጥያቄዎች

መግቢያ

በመጀመሪያ በዛሬው ቃለ መጠይቅ ላይ ለመሳተፍ ፈቃደኛ ስለሆኑ እናመሰግናለን። የዚህ ውይይት አላማ በአዲስ አበባ በሚገኙ የመጀመሪያ ደረጃ ጤና ተቋማት የጡት ችግርን በተመለከተ የሪፈራል ስርዓትን ተሞክሮ እና ተግዳሮቶችን በተሻለ ለመረዳት ነው።

ጥያቄዎች እና ስምምነት

ቃለ መጠይቁን ከመጀመሪያ በፊት ስለ ጥናቱ ምንም አይነት ጥያቄ ካለዎት እባክዎ?

ክፍል 1: እባክዎን ስለ ሙያዎ ሊነግሩኝ ይችላሉ?

1. ሙያዎ ምንድን ነው?
2. በአሁኑ ጊዜ በየትኛው ክፍል ውስጥ እየሰሩ ነው?
3. በጤናዎ ኢንዱስትሪ ውስጥ ምን ያህል ጊዜ እየሰሩ ነው?

ክፍል 2: በምትሠሩበት የመጀመሪያ ደረጃ የጤና ተቋም የጡት ችግሮችን በተመለከተ ስለ ሪፈራል ሲስተም ያለዎትን ልምድ መግለፅ ይችላሉ?

4. የጡት ችግር ያለባቸውን ታካሚዎችን ወደ ልዩ ባለሙያተኞችን ለመለየት እና ሪፈረ ለማድረግ ሂደቱ ምን ይመስላል?
5. የጡት ችግር ያለበት በሽተኛ ወደ ልዩ ባለሙያተኛ መመራት እንዳለበት ለመወሰን ምን ዓይነት መመዘኛዎች አሉ?
6. የጡት ችግር ላለባቸው ታካሚዎች ወቅታዊ እና ተገቢ እንክብካቤን በማረጋገጥ ረገድ አሁን ያለውን የሪፈረል ስርዓት ምን ያህል ቀልጣፋ እና ውጤታማ ነው?
7. የጡት ችግር ያለባቸውን ታካሚዎች ወደ ልዩ ባለሙያተኛ በመምራት ረገድ ተግዳሮቶች ወይም መሰናክሎች አጋጥመውታል? አዎ ከሆነ እነሱን መግለፅ ይችላሉ?
8. የጡት ችግር ያለበት ታካሚ ከሪፈረል በኋላ በልዩ ባለሙያ እንዲታይ የሚፈጀው አማካይ ጊዜ ስንት ነው?
9. የጡት ችግሮችን አስቀድሞ የመለየት እና ሪፈረ የማድረግ ችሎታቸውን ለማሻሻል ለጤና ባለሙያዎች የተሰጡ ልዩ ግብዓቶች ወይም የሥልጠና ፕሮግራሞች አሉ?
10. የጡት ችግሮችን ሪፈረል ሂደት ለማሻሻል ከስፔሻሊስቶች ወይም ከሶስተኛ ደረጃ ጤና ተቋማት ጋር የትብብር ጥረቶች ወይም ሽርክናዎች አሉ?
11. ለታካሚዎች ወደ ልዩ ባለሙያተኛ ከተላኩ በኋላ የህክምና እና ክትትልን ቀጣይነት እንዴት ማረጋገጥ ይቻላል? ለጡት ካንሰር በሽተኞች የግብረመልስ ሪፈረል ስርዓት አለ?
12. ከጡት ጋር ላልተያያዙ ችግሮች ለሚጎበኙ ሰዎች የጡት ካንሰር የምርመራ አገልግሎት በጤና ጣቢያዎች ይሰጣል?
13. ተግዳሮቶችን ለመቅረፍ ወይም የጡት ችግርን በተመለከተ የሪፈረል ስርዓቱን ውጤታማነት ለማሻሻል እቅድ ወይም ስልቶች አሉ?

ለ ጤና extension ባለሙያዎች ጥያቄዎች

መግቢያ

በመጀመሪያ በዛሬው ቃለ መጠይቅ ላይ ለመሳተፍ ፈቃደኛ ስለሆኑ እናመሰግናለን። የዚህ ውይይት አላማ በአዲስ አበባ በሚገኙ የመጀመሪያ ደረጃ ጤና ተቋማት የጡት ችግርን በተመለከተ የሪፈረል ስርዓትን ተሞክሮ እና ተግዳሮቶችን በተሻለ ለመረዳት ነው።

ጥያቄዎች እና ስምምነት

ቃለ መጠይቁን ከመጀመሪያ በፊት ስለ ጥናቱ ምንም አይነት ጥያቄ ካለዎት እባክዎ?

ክፍል 1: እባክዎን ስለ ሙያዎ ሊነግሩኝ ይችላሉ?

1. ሙያዎ ምንድን ነው?
2. በአሁኑ ጊዜ በየትኛው ክፍል ውስጥ እየሰሩ ነው?
3. በጤናዉ ኢንዱስትሪ ውስጥ ምን ያህል ጊዜ እየሰሩ ነው?

ክፍል 2: በምትሠሩበት የመጀመሪያ ደረጃ የጤና ተቋም የጡት ችግሮችን በተመለከተ ስለ ሪፈረል ሲስተሙ ያለዎትን ልምድ መግለፅ ይችላሉ?

4. የጡት ችግር ያለባቸውን ሰዎች community ላይ የመለየት ሂደቱ ምን ይመስላል?

5. የጡት ችግር ያለበት በሽተኛ ወደ ባለሙያተኛ መመራት እንዳለበት ለመወሰን ምን ዓይነት መመዘኛዎች አሉ?
6. የጡት ችግር ላለባቸው ታማሚዎች ወቅታዊ እና ተገቢ እንክብካቤን በማረጋገጥ ረገድ አሁን ያለውን የሪፈራል ስርዓት ምን ያህል ቀልጣፋ እና ውጤታማ ነው?
7. የጡት ችግር ያለባቸውን ታማሚዎች ወደ ባለሙያተኛ በመምራት ረገድ ተግዳሮቶች ወይም መሰናክሎች አጋጥመውዎታል? አዎ ከሆነ እነሱን መግለፅ ይችላሉ?
8. የጡት ችግር ያለበት ታካሚ ከሪፈራል በኋላ በባለሙያ እንዲታይ የሚፈጀው አማካይ ጊዜ ምን ያህል ነው?
9. የጡት ችግሮችን አስቀድሞ የመለየት እና ሪፈራል የማድረግ ችሎታቸውን ለማሻሻል ለጤና ባለሙያዎች የተሰጡ ልዩ ግብዓቶች ወይም የሥልጠና ፕሮግራሞች አሉ?
11. ለታካሚዎች ወደ ልዩ ባለሙያተኛ ከተላኩ በኋላ የህክምና እና ክትትልን ቀጣይነት እንዴት ማረጋገጥ ይችላሉ? ለጡት ካንሰር በሽተኞች የግብረመልስ ሪፈራል ስርዓት አለ?
12. የጡት ችግር ለሌለባቸው ሰዎች የጡት ካንሰር የምርመራ አገልግሎት በጤና ጣቢያዎች / community ላይ ይሰጣል?
13. የጡት ችግር ያለባቸውን ሰዎች በመለየት ረገድ ያጋጠሙሽ የስኬት ታሪኮች አሉ?

ለ referral ሆስፒታል ባለሙያዎች ጥያቄዎች

መግቢያ

በመጀመሪያ በዛሬው ቃለ መጠይቅ ላይ ለመሳተፍ ፈቃደኛ ስለሆኑ እናመሰግናለን። የዚህ ውይይት አላማ በአዲስ አበባ በሚገኙ የመጀመሪያ ደረጃ ጤና ተቋማት የጡት ችግርን በተመለከተ የሪፈራል ስርዓትን ተሞክሮ እና ተግዳሮቶችን በተሻለ ለመረዳት ነው።

ጥያቄዎች እና ስምምነት

ቃለ መጠይቁን ከመጀመሪያ በፊት ስለ ጥናቱ ምንም አይነት ጥያቄ ካለዎት እባክዎ?

ክፍል 1: እባክዎን ስለ ሙያዎ ሊነግሩኝ ይችላሉ?

1. ሙያዎ ምንድን ነው?
2. በአሁኑ ጊዜ በየትኛው ክፍል ውስጥ እየሰሩ ነው?
3. በጤናዉ ኢንዱስትሪ ውስጥ ምን ያህል ጊዜ እየሰሩ ነው?

ክፍል 2: በምትሠሩበት የሪፈራል የጤና ተቋም የጡት ችግሮችን በተመለከተ ስለ ሪፈራል ሲስተሙ ያለዎትን ልምድ መግለፅ ይችላሉ?

4. የጡት ችግር ያለባቸውን ታካሚዎችን ወደ ልዩ ባለሙያዎችን ለመለየት እና ሪፈረ ለማድረግ ሂደቱ ምን ይመስላል?
5. ምን ምን አይነት የጡት ችግር ያለባቸው ታካሚዎች ናቸው ወደ referral ሆስፒታሉ የሚላኩት?
6. የጡት ችግር ላለባቸው ታካሚዎች ወቅታዊ እና ተገቢ እንክብካቤን በማረጋገጥ ረገድ አሁን ያለውን የሪፈረል ስርዓት ምን ያህል ቀልጣፋ እና ውጤታማ ነው?
7. Referr ተደርግዋል የሚመጡ የጡት ችግር ያለባቸውን ታካሚዎች አገልግሎት በመስጠት ረገድ ተግዳሮቶች ወይም መሰናክሎች አጋጥመውዎታል? አዎ ከሆነ እነሱን መግለፅ ይችላሉ?
8. የጡት ችግር ያለበት ታካሚ ከሪፈረል በኋላ በልዩ ባለሙያ እንዲታይ የሚፈጀው አማካይ ጊዜ ስንት ነው?
9. የጡት ችግሮችን ሪፈረል ሂደት ለማሻሻል በስፔሻሊስቶች ወይም ከሶስተኛ ደረጃ ጤና ተቋማትና በመጀመሪያ ደረጃ የጤና ተቋማት መካከል የትብብር ጥረቶች ወይም ሽርክናዎች አሉ?
10. ለጡት ካንሰር በሽተኞች የግብረመልስ ሪፈረል ስርዓት አለ?
11. ከጡት ጋር ላልተያያዙ ችግሮች ለሚጎበኙ ሰዎች የጡት ካንሰር የምርመራ አገልግሎት ይሰጣል?
13. ታካሚዎች ከተለያዩ የጤና ተቋማት ከተላኩ በኋላ ምን ምን አይነት የህክምና ሂደቶችን ያልፋሉ?
14. ለጡት ችግር ያለባቸው ታካሚዎችን ሪፈረል በተመለከተ ቀ ታካሚ እንዲሁም ከጤና ባለሙያዎች አንፃር ምን challenge አለ?
- 15: የጡት ችግር ያለባቸውን ታካሚዎች አክመዱ አዎንታዊ/ አሉታዊ ውጤት ያገኙበት አጋጣሚ ካለ ቢያካፍሉን?

ለህክምና ተቋማት ዳይሬክተሮች ጥያቄዎች

መግቢያ

በመጀመሪያ በዛሬው ቃለ መጠይቅ ላይ ለመሳተፍ ፈቃደኛ ስለሆኑ እናመሰግናለን። የዚህ ውይይት አላማ በአዲስ አበባ በሚገኙ የመጀመሪያ ደረጃ ጤና ተቋማት የጡት ችግርን በተመለከተ የሪፈረል ስርዓትን ተሞክሮ እና ተግዳሮቶችን በተሻለ ለመረዳት ነው።

ጥያቄዎች እና ስምምነት

ቃለ መጠይቁን ከመጀመሪያ በፊት ስለ ጥናቱ ምንም አይነት ጥያቄ ካለዎት እባክዎ?

ክፍል 1: እባክዎን ስለ ሙያዎ ሊነግሩኝ ይችላሉ?

1. ሙያዎ ምንድን ነው?

2. በህክምና/ በጤና መስክ እንዲሁም በጤና ተቋም ዳይሬክተርነት ምን ያህል ጊዜ እየሰሩ ነው?

ክፍል 2: በአንደኛ ደረጃ የጤና ተቋማት የጡት ችግሮችን አሁን ያለውን የሪፈራል ስርዓት መግለጽ ይችላሉ?

3. በታካሚዎች ላይ የጡት ካንሰርን ከመለየት ጀምሮ እስከ ሪፈራል ድረስ ያሉት ሂደቶች ምን ምን ናቸው?

4. ለጡት ችግሮች ከሪፈራል ሲስተም ጋር የተያያዙ ልዩ ተግዳሮቶች ወይም ጉዳዮች አጋጥመውዎታል? አዎ ከሆነ፣ ምሳሌዎችን ማቅረብ እና እንዴት እንደተፈቱ ማስረዳት ይችላሉ?

5. በአንደኛ ደረጃ የጤና ተቋማት እና በሪፈራል ተቋማት መካከል ወቅታዊ እና ትክክለኛ ግንኙነትን እንዴት ማረጋገጥ ይቻላል? በቦታዊ የተወሰኑ ስልቶች ወይም ፕሮቶኮሎች አሉ?

6. የጡት ችግርን በተመለከተ እንከን የለሽ ሪፈራል እና ክትትልን ለማመቻቸት በአንደኛ ደረጃ የጤና ተቋማት እና በሪፈራል ተቋማት መካከል ምን ትብብር ወይም ሽርክና አለ?

7. ለጡት ችግሮች የሪፈራል ስርዓቱን ውጤታማነት እንዴት ይቆጣጠራሉ? የስርዓቱን ውጤታማነት ለመገምገም የሚጠቀሙባቸው የአፈጻጸም አመልካቾች ወይም መለኪያዎች አሉ?

8. ለጡት ችግሮች የሪፈራል ሂደትን ለማሻሻል ያተኮሩ ማናቸውንም ተነሳሽነት ወይም ጣልቃገብነቶች ተግብረዋል? አዎ ከሆነ፣ ውጤቶቹ ምን ነበሩ?

9. የጡት ችግሮችን መለየት እና ሪፈር ማድረግን በተመለከተ የመጀመሪያ ደረጃ የጤና ባለሙያዎች ተገቢውን ስልጠና እና ትምህርት መወሰድ እንዴት ያረጋግጣሉ? ቀጣይነት ያለው የትምህርት ፕሮግራሞች ወይም ግብዓቶች አሉ?

10. የጡት ችግሮችን ሪፈር ሲያረጉ የመጀመሪያ ደረጃ የጤና ባለሙያዎች የሚያጋጥሟቸው ልዩ መሰናክሎች ወይም ተግዳሮቶች አሉ? እነዚህ መሰናክሎች እንዴት እየተፈቱ ነው?

11. በአንደኛ ደረጃ የጤና ተቋማት ውስጥ የጡት ችግሮችን በተመለከተ ከሪፈራል ሲስተም ጋር የተያያዙ ማንኛውንም የስኬት ታሪኮችን ወይም አወንታዊ ተሞክሮዎችን ማካፈል ይችላሉ?

12. ለጡት ችግሮች የሪፈራል ስርዓቱን ውጤታማነት ለማሳደግ ምን የወደፊት እቅዶች ወይም ስልቶች አሉ?

ለሚኒስትሮች እና ሌሎች ባለስልጠና ተያያዥ

መግቢያ

በመጀመሪያ በዛሬው ቃለ መጠይቅ ላይ ለመሳተፍ ፈቃደኛ ስለሆኑ እናመሰግናለን። የዚህ ውይይት አላማ በአዲስ አበባ በሚገኙ የመጀመሪያ ደረጃ ጤና ተቋማት የጡት ችግርን በተመለከተ የሪፈራል ስርዓትን ተሞክሮ እና ተግዳሮቶችን በተሻለ ለመረዳት ነው።

ጥያቄዎች እና ስምምነት

ቃለ መጠይቁን ከመጀመሪያ በፊት ስለ ጥናቱ ምንም አይነት ጥያቄ ካለዎት እባክዎ?

ክፍል 1: ስለአሁኑ የስራ ሚናዎ ሊነግሩኝ ይችላሉ?

1. አሁን ባሉበት የስራ ሚና ምን ያህል ጊዜ እየሠሩ ነው?

ክፍል 2: በአንደኛ ደረጃ የጤና ተቋማት የጡት ችግሮችን በተመለከተ አሁን ያለውን የሪፈራል ስርዓት አጠቃላይ እይታ ማቅረብ ይችላሉ?

2. የሪፈራል ስርዓቱ ቁልፍ ግቦች ወይም አላማዎች ምን ምን ናቸው?
3. የጡት ችግር ያለባቸው ታካሚዎች ከመጀመሪያ ደረጃ የጤና ተቋማት ወደ ልዩ ተቋማት እንዴት ተለይተው ሪፈር ይደረጋሉ?
4. እነዚህን ታካሚዎች ሪፈር ለማድረግ የሚከተሏቸው ልዩ ፕሮቶኮሎች ወይም መመሪያዎች አሉ?
5. ለጡት ችግሮች ስኬታማ ሪፈራል አስተዋጽኦ የሚያደርጉት ዋና ዋና ነገሮች ምንድን ናቸው?
6. የጡት ችግርን በተመለከተ ውጤታማ የሪፈራል ስርዓትን ተግባራዊ ለማድረግ ምን ተግዳሮቶች ወይም መሰናክሎች ያጋጥሙታል?
7. የሪፈራል ሂደቱን የሚነኩ ቴክኒካዊ ወይም የመሠረተ ልማት ገደቦች አሉ?
8. የመጀመሪያ ደረጃ የጤና ተቋማት እና ልዩ ተቋማት የጡት ችግሮችን ለመቆጣጠር እንዴት ይተባበራሉ?
9. የጡት ችግሮችን ለማከም እና ሪፈር ለማድረግ የጤና ባለሙያዎችን ለመደገፍ የተለየ የስልጠና ወይም የአቅም ግንባታ ጥረቶች አሉ?
10. የመጀመሪያ ደረጃ የጤና ተቋማት እና ልዩ ፋሲሊቲዎች መካከል የሪፈራል መረጃ ጥራት እንዴት ይጠበቃል?
11. የጡት ችግርን በተመለከተ የሪፈራል ስርዓትን በማሻሻል ረገድ የሚታወቁ የስኬት ታሪኮች ወይም ስኬቶች አሉ?
12. የጡት ችግርን በተመለከተ ሪፈራል ስርዓቱን የበለጠ ለማጠናከር ቀጣይነት ያላቸው ውጥኖች ወይም እቅዶች አሉ?

Annex 10: Study Information Sheet

Department of Epidemiology and biostatistics, School of public health, Addis Ababa University

Title: Early detection, referral and outcome of breast abnormalities at selected primary health care facilities in Addis Ababa: A retrospective follow up study

Principal Investigator: Bethlehem Fiseha

Contact Information: Mobile phone no.: +251 965187334,

Email: bethlehem.fiseha@gmail.com

Invitation:

You are being invited to participate in this research study. Before you decide whether to participate, it is essential that you understand the purpose, procedures, risks, and benefits of the study. Please read this information sheet carefully and feel free to ask any questions you may have.

Background:

There are more than 2.3 million cases of breast cancer each year, making it the most common form of cancer among men and women combined. By making strategic investments in health systems founded on established principles of health promotion for early detection, referral, timely diagnosis, and access to treatment it is possible to reduce early death from breast cancer and related complications.

Objective:

This research project aims to assess the magnitude of patients with breast abnormalities; referral; and professionals' knowledge about breast cancer early detection at selected primary health care facilities in Addis Ababa.

Significance of the Study:

This study will come up with strong evidence related to breast abnormalities and early detection work including referral experiences. This will be very instrumental to see the problem from different dimensions and prioritize and mobilize resources for effective planning and implementation and achieve the pillar one recommendation of 60 % of early breast cancer detection from WHO/GBCI. Moreover, it will be an input for the national breast cancer policy which is under consideration to be developed.

The findings of this research will be made available for policy makers, health professionals, curriculum reviewers and the public.

Study site and period:

The study will be conducted at selected primary health care facilities in Addis Ababa from 02 January 2024 to 29 February 2024.

Study Procedures:

If you choose to participate, the following procedures will be involved in the study:

- ✓ Completion of a brief questionnaire to gather demographic and breast cancer early detection work related information.
- ✓ Interviews on experiences and challenges in the early detection of breast abnormalities and the referral process.

Potential Risks/ Benefits:

Participating in this study involves minimal risks. The primary risk is the potential breach of confidentiality, but strict measures will be taken to ensure that all data is de-identified and kept secure. There may be no direct benefits to you as a participant; however, the information obtained from this study may lead to improved breast cancer care and referral for future patients.

Confidentiality:

All information collected during this study will be treated with strict confidentiality. Your identity will be kept anonymous, and data will be stored securely in accordance with applicable data protection laws. Only authorized researchers will have access to the data.

Voluntary Participation and Withdrawal:

Participation in this study is entirely voluntary, and you have the right to refuse or withdraw at any time without providing a reason. Your decision to participate or not will not affect your current or future medical care at the health center and/ or your work position.

Contact Information:

If you have any questions or concerns about the study, you can contact the principal investigator at [+251 965187334] or [bethlehem.fiseha@gmail.com].

Address of IRB secretariat officer phone and email address
+251 and@gmail.com

Annex 11: Consent Forms

Annex 11.1: Consent form for patients

I have read and understood the information provided in this consent form, and I voluntarily agree to participate in the research study on early detection, referral and outcome of breast abnormalities at selected primary health care facilities in Addis Ababa. I understand that my participation is entirely voluntary, and I am free to withdraw at any time without this affecting the medical service I get or bringing other consequences. I also understand that my identity will be kept confidential, and my data will be handled securely.

Participant's Name: _____

Participant's Signature: _____

Date: _____

Principal Investigator's Name: _____

Principal Investigator's Signature: _____

Date: _____

Annex 11.2: Consent form for health professionals

I have read and understood the information provided in this consent form, and I voluntarily agree to participate in the research study on early detection, referral and outcome of breast abnormalities at selected primary health care facilities in Addis Ababa. I understand that my participation is entirely voluntary, and I am free to withdraw at any time without this affecting my job or having other consequences. I also understand that my identity will be kept confidential, and my data will be handled securely.

Participant's Name: _____

Participant's Signature: _____

Date: _____

Principal Investigator's Name: _____

Principal Investigator's Signature: _____

Date: _____

Annex 11.3 Consent form for medical directors

I have read and understood the information provided in this consent form, and I voluntarily agree to participate in the research study on early detection, referral and outcome of breast abnormalities at selected primary health care facilities in Addis Ababa. I understand that my participation is entirely voluntary, and I am free to withdraw at any time without this affecting my job or having other consequences. I also understand that my identity will be kept confidential, and my data will be handled securely.

Participant's Name: _____

Participant's Signature: _____

Date: _____

Principal Investigator's Name: _____

Principal Investigator's Signature: _____

Date: _____

Annex 11.4: Consent form for government officials

I have read and understood the information provided in this consent form, and I voluntarily agree to participate in the research study on early detection, referral and outcome of breast abnormalities at selected primary health care facilities in Addis Ababa. I understand that my participation is entirely voluntary, and I am free to withdraw at any time without this affecting the current position I hold or having other consequences. I also understand that my identity will be kept confidential, and my data will be handled securely.

Participant's Name: _____

Participant's Signature: _____

Date: _____

Principal Investigator's Name: _____

Principal Investigator's Signature: _____

Date: _____

Annex 12: Amharic version of the participant information sheet

የጥናት መረጃ ወረቀት

የኢፕሚዩሎጂ እና ባዮስታስቲክስ ትምህርት ክፍል ፣ የሕብረተሰብ ጤና ትምህርት ቤት ፣ አዲስ አበባ ዩኒቨርሲቲ

ርዕስ: በአዲስ አበባ ከተማ በተመረጡ የመጀመሪያ ደረጃ የጤና እንክብካቤ መስጫ ተቋማት የጡት እክሎችን አስቀድሞ ማወቅ፣ ሪፈራል እና ውጤት፡- የኋለኛው ተከታታይ ጥናት

ዋና መርማሪ:- ቤተሰብም ፍስሐ

የመገኛ አድራሻ: የሞባይል ስልክ ቁጥር: +251 965187334፣

ኢሜል: bethlehem.fiseha@gmail.com

ግብዣ:-

በዚህ የጥናት ጥናት ላይ እንድትሳተፉ ተጋብዘዋል። ለመሳተፍ ከመወሰንዎ በፊት የጥናቱ ዓላማ፣ ሂደቶች፣ አደጋዎች እና ጥቅሞች መረዳትዎ በጣም አስፈላጊ ነው። እባክዎ ይህንን የመረጃ ወረቀት በጥንቃቄ ያንብቡ እና ማንኛውንም ጥያቄ ለመጠየቅ ነፃነት ይሰጣዎታል።

ዳራ:

በየአመቱ ከ2.3 ሚሊዮን በላይ የጡት ካንሰር ተጠቂዎች አሉ ይህም በወንዶችና በሴቶች መካከል በጣም የተለመደ የካንሰር አይነት ነው። በጤና ስርአቶች ውስጥ ስልታዊ ኢንቨስትመንቶችን በተቀመጠላቸው የጤና ማስተዋወቅ መርሆች ላይ የተመሰረተ ቅድመ ምርመራ፣ ሪፈራል፣ ወቅታዊ ምርመራ እና ህክምናን በማግኘት በጡት ካንሰር ምክንያት ያለ እድሜ ሞትን እና ተያያዥ ችግሮችን መቀነስ ይቻላል።

ዓላማ:-

ይህ የምርመራ ፕሮጀክት የጡት ችግር ያለባቸውን ታካሚዎች ብዛት እና ውጤታቸውን ስለ የጡት ካንሰር ቀደም ብሎ ስለማወቅ የባለሙያዎች እውቀት; በአዲስ አበባ በተመረጡ የመጀመሪያ ደረጃ የጤና አገልግሎት መስጫ ተቋማት በሪፈራል ሥርዓት ላይ ያጋጠሙትን ልምድና ተግዳሮቶች መለየት ለመገምገም ያለመ ነው።

የጥናቱ አስፈላጊነት:-

ይህ ጥናት የጡት ቀድመ ምርመራ ስራዎችና የሪፈራል ልምዶች ጋር የተያያዙ ጠንካራ ማስረጃዎችን ያመጣል. ይህም ችግሩን ከተለያዩ አቅጣጫ ለማየት እና ግብአትን በማስቀደም እና በማሰባሰብ ለውጤታማ እቅድ እና ትግበራ እና 60 % የቅድመ የጡት ካንሰርን ከ WHO/GBCI የተገኘውን ምሳሌ

አንድ ለማሳካት በጣም አጋዥ ይሆናል። ከዚህም በላይ ለመዘጋጀት እየታሰበ ላለው አገር አቀፍ የጡት ካንሰር ፖሊሲ ግብአት ይሆናል።

የዚህ ጥናት ግኝቶች ለፖሊሲ አውጪዎች፣ ለጤና ባለሙያዎች፣ ለሥርዓተ ትምህርት ገምጋሚዎች እና ለሕዝብ ይቀርባል።

የጥናት ቦታ እና ጊዜ;

ጥናቱ ከጥር 02 እስከ የካቲት 29 ቀን 2024 በአዲስ አበባ በተመረጡ የመጀመሪያ ደረጃ ጤና አጠባበቅ ተቋማት ይካሄዳል።

የጥናት ሂደቶች:-

ለመሳተፍ ከመረጡ፣ የሚከተሉት ሂደቶች በጥናቱ ውስጥ ይሳተፋሉ።

- ✓ የስነ-ሕዝብ እና የጡት ካንሰር ቅድመ ምርመራ ስራዎች ተያያዥ መረጃዎችን ለመሰብሰብ አጭር መጠይቅ ማጠናቀቅ።
- ✓ የጡት እክሎችን ቀድሞ በመለየት እና በሪፈራል ሂደት ውስጥ ስላጋጠሙ ተግዳሮቶች ቃለመጠይቆች።

ሊሆኑ የሚችሉ አደጋዎች/ጥቅሞች:-

በዚህ ጥናት ውስጥ መሳተፍ ሚስጥራዊነትን መጣስ ሊያስከትል ቢችልም፣ ነገር ግን ሁሉም መረጃዎች ተለይተው እንዳይታወቁ እና ደህንነቱ እንደተጠበቀ ለማረጋገጥ ጥብቅ እርምጃዎች ይወሰዳሉ። እንደ ተሳታፊ ለእርስዎ ምንም ቀጥተኛ ጥቅሞች ላይኖር ይችላል; ይሁን እንጂ ከዚህ ጥናት የተገኘው መረጃ የተሻሻለ የጡት ካንሰር እንክብካቤን እና ለወደፊት ታካሚዎች ማስተላለፍን ያመጣል.

ሚስጥራዊነት:-

በዚህ ጥናት ወቅት የሚሰበሰቡት መረጃዎች ሁሉ በጥብቅ ሚስጥራዊነት ይያዛሉ። ማንነትዎ በማይታወቅ ሁኔታ ይቀመጣል እና ውሂቡ ደህንነቱ በተጠበቀ ሁኔታ በሚመለከታቸው የውሂብ ጥበቃ ህጎች መሰረት ይከማቻል። የተፈቀደላቸው ተመራማሪዎች ብቻ ውሂቡን ማግኘት ይችላሉ።

በፈቃደኝነት ተሳትፎ እና መውጣት;

በዚህ ጥናት ውስጥ መሳተፍ ሙሉ በሙሉ በፈቃደኝነት ነው, እና በማንኛውም ጊዜ ያለምክንያት እምቢ የማለት ወይም የመተው መብት አለዎት. ለመሳተፍ ወይም ለመሳተፍ ውሳኔዎ አሁን ባለው ወይም ወደፊት በጤና ጣቢያዎ ውስጥ ያለዎትን የሕክምና ሁኔታ እንክብካቤ እና የስራ ቦታዎን አይጎዳውም.

አድራሻ:

ስለ ጥናቱ ማንኛውም አይነት ጥያቄ ወይም ስጋት ካለዎት ዋናውን መረጫ በ [+251 965187334] ወይም [bethlehem.fiseha@gmail.com] ማግኘት ይችላሉ።

የ IRB ሴክራታሪያት መኮንን ስልክ እና ኢሜል አድራሻ

+251 እና@gmail.com

Annex 13: Amharic version of the consent forms

የስምምነት ቅጽ ለታካሚዎች

በዚህ የስምምነት ቅጽ የቀረበውን መረጃ አንብቤ ተረድቻለሁ እናም በአዲስ አበባ በተመረጡ የመጀመሪያ ደረጃ የጤና ተቋማት የጡት እክሎችን አስቀድሞ ማወቅ፣ ሪፈራል እና ውጤት ላይ በሚደረገው የምርምር ጥናት ላይ ለመሳተፍ በፈቃዴ ተስማምቻለሁ። የእኔ ተሳትፎ ሙሉ በሙሉ በፈቃደኝነት እንደሆነ ተረድቻለሁ፣ እና ይህ የማገኘትን የህክምና አገልግሎት ሳይጎዳ ወይም ሌላ መዘዝ ሳያመጣ በማንኛውም ጊዜ ለመልቀቅ ነፃ ነኝ። እንዲሁም ማንነቴ በሚስጥር እንደሚጠበቅ እና ውሂቤ ደህንነቴ በተጠበቀ ሁኔታ እንደሚስተናገድ ተረድቻለሁ።

የተሳታፊ ስም: _____
የተሳታፊ ፊርማ: _____
ቀን: _____

የርእሰ መርማሪ ስም: _____
የርእሰ መርማሪ ፊርማ: _____
ቀን: _____

የስምምነት ቅጽ ለጤና ባለሙያዎች

በዚህ የስምምነት ቅጽ የቀረበውን መረጃ አንብቤ ተረድቻለሁ እናም በአዲስ አበባ በተመረጡ የመጀመሪያ ደረጃ የጤና ተቋማት የጡት እክሎችን አስቀድሞ ማወቅ፣ ሪፈራል እና ውጤት ላይ በሚደረገው የምርምር ጥናት ላይ ለመሳተፍ በፈቃዴ ተስማምቻለሁ። የእኔ ተሳትፎ ሙሉ በሙሉ በፈቃደኝነት እንደሆነ ተረድቻለሁ፣ እና ይህ ስራዬን ሳይነካው ወይም ሌላ መዘዝ ሳያመጣብኝ ያለምንም መዘዝ በማንኛውም ጊዜ ለመልቀቅ ነፃ ነኝ። እንዲሁም ማንነቴ በሚስጥር እንደሚጠበቅ እና ውሂቤ ደህንነቴ በተጠበቀ ሁኔታ እንደሚስተናገድ ተረድቻለሁ።

የተሳታፊ ስም: _____
የተሳታፊ ፊርማ: _____
ቀን: _____

የርእሰ መርማሪ ስም: _____
የርእሰ መርማሪ ፊርማ: _____
ቀን: _____

የስምምነት ቅጽ ለህክምና ተቋማት ዳይሬክተሮች

በዚህ የስምምነት ቅጽ የቀረበውን መረጃ አንብቤ ተረድቻለሁ እናም በአዲስ አበባ በተመረጡ የመጀመሪያ ደረጃ የጤና ተቋማት የጡት እክሎችን አስቀድሞ ማወቅ፣ ሪፈራል እና ውጤት ላይ በሚደረገው የምርምር ጥናት ላይ ለመሳተፍ በፈቃዴ ተስማምቻለሁ። የእኔ ተሳትፎ ሙሉ በሙሉ በፈቃደኝነት እንደሆነ ተረድቻለሁ፣ እና ይህ ስራዬን ሳይነካው ወይም ሌላ መዘዝ ሳያመጣብኝ ያለምንም መዘዝ በማንኛውም ጊዜ ለመልቀቅ ነፃ ነኝ። እንዲሁም ማንነቴ በሚስጥር እንደሚጠበቅ እና ውሂቤ ደህንነቴ በተጠበቀ ሁኔታ እንደሚስተናገድ ተረድቻለሁ።

የተሳታፊ ስም: _____

የተሳታፊ ፊርማ: _____

ቀን: _____

የርእሰ መርማሪ ስም: _____

የርእሰ መርማሪ ፊርማ: _____

ቀን: _____

የስምምነት ቅጽ ለሚኒስትሮች እና ሌሎች ባለስልጣናት ለህክምና ተቋማት ዳይሬክተሮች

በዚህ የስምምነት ቅጽ የቀረበውን መረጃ አንብቤ ተረድቻለሁ እናም በአዲስ አበባ በተመረጡ የመጀመሪያ ደረጃ የጤና ተቋማት የጡት እክሎችን አስቀድሞ ማወቅ፣ ሪፈራል እና ውጤት ላይ በሚደረገው የምርምር ጥናት ላይ ለመሳተፍ በፈቃዴ ተስማምቻለሁ። የእኔ ተሳትፎ ሙሉ በሙሉ በፈቃደኝነት እንደሆነ ተረድቻለሁ፣ እና ይህ ስራዬን ሳይነካው ወይም ሌላ መዘዝ ሳያመጣብኝ ያለምንም መዘዝ በማንኛውም ጊዜ ለመልቀቅ ነፃ ነኝ። እንዲሁም ማንነቴ በሚስጥር እንደሚጠበቅ እና ውሂቤ ደህንነቴ በተጠበቀ ሁኔታ እንደሚስተናገድ ተረድቻለሁ።

የተሳታፊ ስም: _____

የተሳታፊ ፊርማ: _____

ቀን: _____

የርእሰ መርማሪ ስም: _____

የርእሰ መርማሪ ፊርማ: _____

ቀን: _____

Annex 14: Waiver of consent request form

Here is to formally request a waiver of consent for conducting a retrospective review of medical records at selected primary healthcare facilities in Addis Ababa. Given the nature of this retrospective review and the large number of records involved, obtaining individual consent from each patient is both impractical and could potentially compromise the validity of the study results. Therefore, we seek your support in granting a waiver of consent to access and review the medical records of eligible patients meeting the inclusion criteria for this study.

Purpose of the Study: the purpose of this retrospective review is to assess the magnitude and outcomes of patients with breast abnormalities at selected primary healthcare facilities in Addis Ababa. The findings of this study will contribute to improve breast cancer early detection work and referral of patients with breast abnormalities.

Non-Identifiable Data / confidentiality/: any identifiable information such as name, address, or contact details, will be removed and replaced with a unique study identification number to ensure anonymity throughout the study. Only authorized researchers will have access to the de-identified data, and strict security measures will be in place to protect patients' privacy. The results obtained from this retrospective review will be summarized in aggregate form, and no personally identifiable information will be disclosed or published.

Minimal Risk: the retrospective review of your medical records imposes minimal risk, as it involves the collection and analysis of information that is already documented within the medical records. All data will be handled confidentially and in accordance with applicable privacy laws and ethical guidelines.

Data Protection: we will implement rigorous data protection measures to safeguard information during the research process. The medical records will only be accessed by authorized researchers involved in this study, and all data will be stored securely on password-protected servers. Furthermore, the results derived from this research will be communicated in a manner that does not allow identification of any specific individuals.

We truly appreciate your time and consideration in this matter. Your support will significantly contribute to the success of this study and its potential impact on breast cancer early detection and outcomes of patients. Thank you in advance for your attention to this request.

Sincerely,
Bethlehem Fiseha
MPH in Epidemiology and Biostatistics candidate,
Addis Ababa University

Annex 15: Training manual for data collectors and supervisors

Early detection, referral and outcome of breast abnormalities at selected primary health care facilities in Addis Ababa: A multi- center mixed method study

November, 2023

Part I: Overview of the study

Background

Breast cancer has become the most commonly diagnosed disease worldwide, accounting for about 12% of all cancer cases in 2020. Benign breast disorders and diseases include a diverse set of clinical and pathologic phenomena. Atypical lobular hyperplasia and atypical ductal hyperplasia have been associated with increased risk of breast cancer. Ductal involvement by cells of atypical ductal hyperplasia is found to have 7-fold increased cancer risk whilst lobular carcinoma in situ and ductal carcinoma in situ each has 10-fold increased cancer risk. Breast cancer was also reported to be one of the most incident and lethal cancers in Ethiopia in 2019, with age adjusted incidence rate of 12.9%. It also has the most age-standardized Disability adjusted life years (129,580).

Since, the vast majority of breast cancers cannot be avoided by primary prevention, secondary prevention, such as screening, which tries to halt the progression of disease to a malignant tumor, is advantageous. Even though screening is responsible for a decrease in mortality, population screening for breast cancer is not feasible. Therefore, countries must prioritize breast cancer early detection programs so that at least 60% of breast cancers are discovered and treated early. Early identification of breast cancer and breakthroughs in treatment has also increased patient survival.

Health professionals' lack of knowledge and misdiagnosis, particularly among primary healthcare professionals, results in advanced stage diagnosis. A fragmented health-care system that involves several administrative delays; limited or nonexistent communication between hospitals; a limited number of centers and scarcity of equipment required for early diagnosis; a shortage of trained personnel at primary health-care centers; and a lack of knowledge of the referral system are all significant barriers to breast cancer early detection. Some of the solutions at hand include a patient navigation program that acts as a bridge between the patient and the health care system, enhancing local capacity for cancer care, community education, improving medical education, and providing training on breast cancer early detection. This study aims to assess the magnitude and outcomes of patients with breast abnormalities; professionals' knowledge about breast cancer early detection work; and identify experiences and challenges on the referral system at selected primary health care facilities in Addis Ababa.

Part II: Training and its arrangements

In order to achieve the objectives of this study, the data collectors and supervisors will be trained on the study design, research ethics, data collection technique, the study data collection tools, and the field procedures required.

The principal and co investigators will give the training for each session over three days. The training will be held in the mornings and afternoons from 8:00 am to 12:00 am and from 2:00 pm to 4:00 pm respectively from February 5, 2024 to February 7, 2024. During the training, the trainers will work intensely to ensure the research team is ready for the actual work. Before the start of each training session, the team members are expected to study this manual along with the data extraction checklist and self-administered questionnaire and to write down any concerns they have, which will make the training more successful and allow appropriate use of time. They shall also learn a lot from each other by asking questions and experience sharing. Investigators and supervisors should use the manual to guide their work in supervising data collectors in collecting accurate data from respondents. At the completion of the training, all data collectors and supervisors will be grouped and travel to the field for the pilot study and to practice.

Part III: Survey Organization and Roles and responsibilities

The data for this study will be collected using an Open Data Kit (ODK) data extraction checklist and a self-administered questionnaire. The data extraction checklist will be completed by each data collector by reviewing patient registries and then medical charts. The total number of case note audits required for the study is **420**. The number of health professionals required for this study is **523**.

A self-administered questionnaire is designed specifically to be completed by a respondent without intervention by a trained data collector or interviewer collecting the data. That means there is no need of interviewer to motivate or help the respondent to complete the questionnaire.

Both the data extraction checklist and self-administered questionnaire to be used for data collection in the current study are prepared in English in order to make the questions short, simple and understandable for the respondents. We assume that the healthcare workers confidently complete the questionnaire in English. The data extraction checklist has a total of **32** check points, and the questionnaire has a total of **33** questions with mostly closed ended questions. It will take 7-10 minutes to complete the checklist and 10 -20 minutes to complete the questionnaire. The data extraction checklist has a waiver of consent request form and the questionnaire will be presented with a study information sheet (SIS) and consent form with introduction to the study and purpose of the survey, and researchers contact information for any questions the respondent might have.

Part IV: Data collection skill and technique

Before you begin the interview, the supervisor needs to communicate with the medical directors of the health facility. In each primary health facility, eligible healthcare professionals and medical charts will be reviewed.

At the beginning of the data collection, introduce yourself and state the purpose of your visit. The respondent's first impression of you will influence his or her willingness to cooperate with the survey. Be sure that your manner is friendly as you introduce yourself. You must obtain a respondent's informed consent for participation in the study before you begin the data collection. It assures a respondent that his/her participation in the survey is completely voluntary and that it is his/her right to refuse to participate in the study at any point.

In the end, thank respondents for answering the questions and health professionals for providing medical charts and for giving their time. Make sure you have completed all the questions.

Role of the data collectors:

In this study, the main role of the data collector is to review medical records to collect data and provide the self-administered questionnaire to health professionals. Once the sub-cities and health centers are identified by multi stage sampling, the participants of the study must be selected using simple random sampling method. Therefore, the main roles and responsibilities of the data collector include:

- Get orientation about the checklist, questionnaire and data collection procedures.
- Read and understand the checklist, questionnaire and procedures before departing for data collection.
- Understand the number of medical record reviews and questionnaires they are expected to collect and the number assigned to the health facility they are assigned to.
- Sign a contractual agreement.
- Collect the copy of the "Support Letter" by the University, "IRB Approval letter" and "To Whom May It Concern" letter
- Identify potential respondents from the selected health center.
- Introduce yourself to the respondent and provide adequate information about the objectives of the study and data collection procedures.
- Provide adequate information to the respondent about the ethical issues of this study.
- Request the willingness/voluntariness of the respondent to get verbal and written consent to take part in this study.
- Adequately respond to the questions that might be raised by the respondent.
- Provide /send the link to/ the questionnaire to the respondent with adequate information about the nature of the questions and procedures for completing the questionnaire.
- Get appointment from the respondent when to complete and send the questionnaire.
- Develop a strategy for addressing non-response, including how many attempts to reach the respondents face-to-face, by phone and/or other possible methods.
- At the end of the data collection, prepare and submit a 4-5 pages field report about the data collection situation including challenges encountered and solutions made.

- Submit the completed questionnaires on time along the field report and MS Excel containing the lists of the works done.
- Assist the supervisor as needed.

Part V: Pre-testing and its purpose

Pre- test will be conducted in 21 medical records, which is 5% of the minimum number of case notes, to be reviewed; and 27 health professionals, which is 5% of the minimum number of health professionals required for this study.

The purpose of the pre- test is to check inconsistencies and clear out confusions. Moreover, the pre-test will be used to identify fieldwork challenges and make arrangements accordingly.

Part VI: Data quality management during data collection

Collecting high quality data is the highest priority of the study. High quality data means that the information collected reflects respondents' actual situation. Therefore, follow instructions correctly. The supervisors and investigators have several ways of checking the data quality that enumerators collected. They may conduct spot checks on the collected case-note reviews and health professionals' responses. The supervisors will discuss with data collectors errors or problems found in the collection of data. It may sometimes be necessary to send a data collector back to a respondent or case note in order to correct some errors.

Enumerators should clearly document the process and any tools used during the study. You should record any challenges encountered and actions taken in response. The enumerator should write down these challenges and share with the team supervisor during team meetings. The supervisor will then summarize them for final reporting.

Part VII: Supervision of data collection

In this study, the main role of the supervisor is to organize and coordinate the data collectors and the implementation of the survey. The main roles and responsibilities of the supervisor are listed below:

- Closely work with the research team.
- Coordinate and supervise the overall activities.
- Identify and recruit the data collectors.
- Facilitate "Support Letters", "IRB Approval Letter" and "To Whom It May Concern Letters" for the data collectors.
- Facilitate the contractual agreement for the data collectors.
- Assign data collectors to the institutions/organizations.
- Facilitate transportation for field work.
- Orient the data collectors about the aims of the study, checklist, questionnaire and the data collection procedures including ethical issues.

- Obtain the final list of primary health care facilities and the total case notes and healthcare workers in each health center.
- Allocate the sample size to the primary healthcare facilities in consultation with the research team.
- Closely follow-up and monitor the progress of the data collectors.
- Give solutions to the problems encountered during the field work on the spot or in consultation with the research team.
- Prepare an MS Excel Sheet containing the list of health centers, list of data collectors (with contact address), number of questionnaires and case notes distributed and completed.
- Monitor data collector's log book on the study participants contact number and appointment date and time.
- Summarize the field reports of the data collectors as a final report including the challenges, solutions made and non-response rate on time along with lessons learnt.
- Develop a data entry template with EPI Info/EPI data or other appropriate data management software.
- Monitor and supervise the data entry process.
- Clean the data and submit to the research team.

Annex 16: Declaration

Assurance of Principal Investigator

I, the undersigned declare that this thesis is my original work for in partial fulfillment of the requirement for the degree of Master of Public Health with specialty in Epidemiology and Biostatistics. I also declare that it has never been presented in this or any other university and that all resources and materials used in the thesis have been duly acknowledged.

Name of the student: Bethlehem Fiseha

Date: May, 2024

Signature: 

Approval of the primary Advisor

Name of the primary advisor: Sefonias Getachew (PhD)

Date: May, 2024

Signature: 