ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCE

SCHOOL OF ALLIED HEALTH SCIENCE

DEPARTEMENT OF NURSING AND MIDWIFERY

PRACTICE OF BREAST SELF EXAMINATION AND ASSOCIATED FACTORS AMONG WOMEN ATTENDING HEALTH SERVICES IN SELECTED PUBLIC HEALTH FACILITIES IN DIRE DAWA TOWN, ETHIOPIA

BY: - FIREALEM SOLOMON (BSC)

A THISIS SUBMITTED TO ADDIS ABABA UNIVERSITY, COLLEGE OF HEALTH SCIENCES SCHOOL OF ALLIED HEALTH SCIENCES, DEPARTMENT OF NURSING AND MIDWIFERY, FOR INPARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS IN MATERNITY AND REPRODUCTIVE HEALTH.

MARCH, 2018

ADDIS ABABA, ETHIOPIA

PRACTICE OF BREAST SELF EXAMINATION AND ASSOCIATED FACTORS AMONG WOMEN ATTENDING HEALTH SERVICES IN SELECTED PUBLIC HEALTH FACILITIES IN DIRE DAWA TOWN, ETHIOPIA

ADVISOR: EMABET BERHANE (RN, BSc, MSc)

CO-ADVISOR: KALKIDAN WONDWOSSEN (BSc, MSc)

Approval by the Board of Examiners

This thesis by Firealem Solomon is accepted by the Board of Examiners as satisfying thesis requirement for the Degree of Masters of Science in Maternity and Reproductive Health Nursing.

Principal Advisor _____ Signature _____ Date _____

Co- adviser _____ Signature _____ Date _____

Internal examiner _____ Signature _____ Date _____

Chair of department _____ Signature _____ Date _____

ACKNOWLEDGMENT

First, I would like to thank my almighty GOD for letting me to have all my achievements; next I would like to offer my in-depth gratitude to Black Lion hospital for giving me this chance of education.

It is also my pleasure to thank my primary advisor Sr. Emebet Berhane and co-advisor Sr. Kalkidan Wondwossen for their guidance and encouragement through constructive suggestions and comments in all aspect of developing this thesis.

Further, I extend my gratitude, respect and appreciation to all instructors of Addis Ababa University, College of Health Science, School of Nursing and Midwifery for their unreserved effort in the teaching and learning process, to library staffs and IT technicians who provided me all the needed support from them.

My great appreciation also goes to Dire-Dawa health Bureau, Dil-Chorareferral hospital, Sabian general hospital, Goro, Gende-Korea, Dechatu and Dire Dawa health centers staffs for their unreserved cooperation in the data collection process.

I am grateful to my Family for their endless concern, moral support and encouragement and finally, I am thankful to my friends who were beside me throughout this thesis writing, so completing this thesis without them would have been impossible.

ACRONYMS AND ABBREVATION

ACS	American Cancer Society
BC	Breast cancer
BSE	Breast Self-Examination
CBE	Clinical Breast Examination
DALY	Disability Adjusted Life Years
GLOBOCAN	Global Burden of Cancer
HBM	Health Belief Model
NCCN	National Comprehensive Cancer Network

Table of Contents

Contents Page

List of Figure

List of Table

Abstract

Background: Breast cancer is one of the most common cancer diseases among women globally, identified as causing increasing number of morbidity and mortality. Breast self-examination is one of the cheapest breast cancer screening tools, women who are 20 years old and above can practice by themselves. Identifying the women's practice of Breast Self-Examination and the factors that influence their practice is important to improve the women's health by designing and providing healthcare services accordingly. **Objectives:** To assess the practice of Breast Self-Examination and its associated factors among females attending health service in the selected public health facilities in Dire-Dawa town. **Method:** Institutional based cross-sectional study was conducted among women who attended health services in selected public health facilities in Dire-Dawa town. With this study 351 sample were drawn from the selected health facilities by using random sampling technique, the data was collected using interview administered questionnaire, and then entered into SPSS version 20 for analysis. Descriptive statistics; frequency, percentage, mean and standard deviations were used. Binary and multiple logistic regressions were computed to see association between dependent and independent variables. Thus, association is considered statistically significant with p-value < 0.05 at95% confidence interval. **Result**: In this study 340 participants were surveyed with 95.7% response rate. Among these 109(32.1%) have ever practiced BSE and 29(26.6%) practiced BSE regularly. And most of the respondents mentioned lack of skill as a reason not to practice. With multivariate analysis the statistically significant variables that showed association with practice of breast self-examination include; educational status being at high school level AOR 0.278(0.107, 0.718); having Knowledge about sign and symptom of BC with AOR 8.2 (2.82, 17.73); Attitude on perceived barrier those who agree on absence of barriers were AOR 7.19(1.65, 31.32) times more likely to practice BSE compared to those who disagree. **Conclusion:** The regular practice of BSE in the study area is higher to studies done in different region of Ethiopia. But it is low as compared to other African countries and high compared to other Asian and Eastern countries. Education at high school level, knowledge about sign and symptoms of breast cancer and absence of perceived barrier were the predicators of breast self-examination. **Recommendation**: promoting wider range of health strategies to increase women awareness of breast cancer, benefits and techniques of doing BSE. **Key words**: Breast self-examination, Dire Dawa, Perceived barriers, knowledge of sign and symptoms.

CHAPTER ONE

1. INTRODUCTION

1.1. Background

Cancer is a group of diseases involving abnormal cell growth with the potential to spread to other parts of the body. There are a number of identified cancer diseases; Breast cancer is the commonest type of cancer which is characterized with the abnormal growth of the cells lining the breast lobules or duct. These cells grow uncontrollably and have the potential to spread to other parts of the body [1].The breast cancer causes huge burden over human being in relation to the disease process and treatment strategies. The pattern of the disease differs between countries and regions as showing variations in incidence, mortality and survival rates[2]. Its incidence rates remain highest in more developed regions, but mortality is relatively much higher in less developed countries due to lack of early detection leading to advanced stage of disease at presentation, lack of functional diagnostic and treatment facilities and limited availability of professionals[3].

Breast cancer is a manageable disease, in case of early diagnosis with sufficient treatment protocols such as advanced surgical intervention, chemotherapy and radiation therapies. But the main focus is early detection through screening[4].The three screening methods currently recommended by the American Cancer Society are clinical breast examination (CBE), mammography, and breast self-examination (BSE) [5]. BSE is a relatively simple, convenient, non-invasive (minimal-risk), and inexpensive method, recommended for early detection of any type of breast cancer. It is a systematic method of self-inspection and palpation of the breast and auxiliary regions which is recommended to be practiced regularly by every woman, thus, all women should begin this routine in their 20s by learning how the healthy breasts look and feel by their own senses. They can develop knowledge and skill to identify any changes (i.e. a lump or mass, skin irritation or dimpling, breast or nipple pain, nipple retraction (turning inward), redness, scale, or thickening of the nipple or breast skin and discharge through nipple other than milk) that appear in their breasts and report to health professional immediately[5, 6].Unlike developed countries in developing countries the access for Clinical Breast Examination particularly the mammography is extremely difficult, so that Breast Self-Examination is important method for detecting breast cancer as early as possible[7].

1.2 Statement of the Problem

Both women and men can develop breast cancer, although it is rare in men[8]. It is the most frequent and leading cause of death among women aged between 40 and 44 years[3]. In less developed regions cancer caused death accounts 324,000 which is 14.3% of the total death and 198,000 deaths (15.4%) of the total death reported from developed regions[8].In 2013 breast cancer caused 13.1million disability adjusted life years, with 63% occurring in developing countries and 37% occurring in developed countries[9].

In United States (US) 2015 there were231,840 new cases and 40,290 deaths and in India 2015 there were also about 155,000 new cases and 7600 deaths[1].A high prevalence rate is also noted among women living in Denmark, Finland and Sweden[8]. In Africa the incidence vary from 26.8 per 100,000 per year in Middle Africa to 43.2 per 100,000 in North Africa[2].

In Ethiopia, cancer diagnosis and treatment is provided in single hospital at Tikur Anbesa Specialized Hospital (TASH). Over the period of sixteen years (1997-2012) the registered new cases of breast cancer were indicating216 cases per year. The peak age of breast cancer incidence was 30- 49 years and accounts more than 60% (2076) of all cases[10].It is the second common cancer next to cervical cancer, and becoming fatal due to late presentation and diagnosis resulted from limited resources, low awareness of breast cancer and its symptoms, low awareness of the screening methods and strong traditional beliefs that can delay seeking medical care[10].

Though Prevention is the best option to tackle the rising morbidity and mortality by breast cancer, some early detection methods such as mammography are inaccessible for women who live in developing countries like Ethiopia. In such areas mammography cannot be an option in routine practice since it is expensive and needs sophisticated technology trained professionals. Even Clinical Breast Examination is not much viable for them as it needs professional skills and regular health facility visit which is especially hard to women living in rural areas[11].

Therefore, BSE is the most viable tool for early detection of breast cancer in our setting[12]. But current studies in Ethiopia revealed that the practice of BSE is low, such as among health extension workers is as low as14.4% and 37.7%,regular practice and ever practice, respectively;

among university students, 21.4%; and 23%, among medical students; 29.5%among women in northern Ethiopia and 6%amongwomen in Addis Ababa respectively[13-17].

On the other hand though the prevalence of reproductive organ cancers nationwide is significant, there is no organized prevention, education, and curative care programs[18].

Despite the benefit of regular BSE, only few women surely examine themselves; while majority does not even know how to do BSE. Thus, it is critical to investigate the BSE practice and the factors associated with it. However, researches done in Ethiopia on BSE are very limited and no tangible research is done among Dire Dawa women.

Since there is no tangible study which is done on BSE practice among Dire Dawa town women, the aim of this study is to address the untouched area by assessing the BSE practice and its associated factors among Dire Dawa women. Accordingly based on the result all concerned bodies will understand the status of BSE practice of the particular community.

1.3 Significance of the Study

Breast cancer is a worldwide health problem with higher incidence, morbidity and mortality and has a great impact on physical, psychological, and economical aspects of a woman, family and community as whole particularly, in developing countries including Ethiopia.

Early discovery of breast lumps through breast self-examination (BSE) is important for the prevention and early detection of breast cancer and has important role in decreasing its morbidity and mortality especially in low income countries like Ethiopia where resource constraint is very high.

Though BSE is one of the inexpensive and easy screening methods for early detection of breast cancer, studies showed that women in Ethiopia do not perform BSE for various reasons. Since tangible Studies have not been available so far on the practice and associated factors of BSE among women in Dire Dawa town. The findings from this study will help health workers to understand the BSE practice among the women and based on the information they can develop and implement targeted health education to the community or to any women who come to the health facilities so that women’s knowledge and practice of BSE increases which intern promote early detection.

For any concerned bodies such as governmental and nongovernmental organizations which are working on health promotion activity especially on breast cancer, it can be an input on planning the intervention of different health education and for implementing proper health promotion program.

Further, the finding can be used by other researchers who are interested to do more detail researches on BSE.

CHAPTER TWO

2. LITERATURE REVIEW

At present, breast cancer is among one of the most frequent causes of mortality in the world. The National Cancer Institute estimates that, one in eight women today are diagnosed with breast cancer at some time in her life[1]. According to the American Cancer Society about 1.3 million women are diagnosed with breast cancer annually and about 465,000 die from the disease. It causes 15% of all cancer deaths, ranks as the fifth cause of death from cancer overall 522,000 deaths, 6.4%)[8].

In Ethiopia much attention is given to communicable diseases such as HIV/AIDS, malaria, and tuberculosis than to non-communicable. Even though there is no published literature in Ethiopia to understand the exact situation, but reports from Tikur Anbessa Specialized Hospital Radiotherapy Center showed that breast cancer is the second most prevalent malignancy which is about 27.8% of all cancer cases referred to the hospital. Estimations showed that around 10,000 Ethiopians women and men have breast cancer with thousands of more cases unreported[19, 20].

Primary cancer prevention is slowly growing; its strategies cannot yet be implemented in clinical prevention programs, therefore, secondary prevention and early detection of cancer remains the main focus for reducing breast cancer mortality[21].

American Cancer Society (ACS) recommends mammography yearly starting at age 40 and those who are at high risk before age 40years.Mammography is the best standard for early detection of breast cancer Compared to other screening methods; it can identify tumors at early stages of progress. But it has limitations; One is its cost and another is its technical complexity due to this mammography is not recommended for countries with limited resources. On the other hand it is criticized for giving false positive results which might lead to different negative consequences among women without breast cancer and this needs a strong quality assurance[22-24].

Clinical Breast Examination (CBE) is an inspection of the breast and palpation of breast by health care providers. ACS recommends CBE to be performed at least every 3 years starting between ages 20 and 39 and annually starting at age 40years.It involves visual inspection of the breast; inspecting the breast for symmetry, skin of the breast, areola, and nipple for edema,

erythema, dimpling, or ulceration, which can be evidence of underlying masses .It also involves palpating the axilliae, supra clavicular fosse and the breast for enlarged hard, fixed nodes while the woman is both in standing and supine positions. It is likely to be used in areas where mammography examination is unavailable or not affordable[22, 23].

2.1 Controversies on the efficacy of BSE

There is controversy regarding the efficacy of BSE in lowering breast cancer mortality, since newer screening technologies have been developed. Researchers have examined the efficacy of BSE in reducing breast cancer mortality. Organizations like the Canadian Taskforce on Preventive Health Care no longer recommends the use of BSE for breast cancer screening due to a lack of evidence supporting its benefits and strong evidence of harm, such as unnecessary biopsies which can lead to a higher risk of breast cancer. According to the ACS 4 of every 5 breast biopsy specimens are benign, with BSE, women detect changes in their breasts more often and tend to seek professional help and more testing to rule out cancer, which increases healthcare costs. Additionally, when women discover abnormalities in their breasts, their feelings of anxiety and depression are likely to increase[23, 24].

Organizations like, the worldwide Summit Early Detection Panel does not positively recommend the BSE on the basis of current evidence but they also not discourage to use it either, and conclude that evidence is insufficient to recommend for or against teaching or performing routine breast self-examination[24].

On the other hand The National Comprehensive Cancer Network (NCCN) recommends that women should be familiar with their breasts and to immediately report any change to their healthcare provider and suggests that regular BSE can facilitate breast awareness[25].

According to the National Breast Cancer Foundation, up to 70% of breast cancers are found by women performing their own BSE. The American Congress of Obstetricians and Gynecologists (ACOG) recommend the use of BSE as a tool for breast cancer screening, stating that palpable lesions can be detected through BSE. The ACS also states that BSE can also help women recognize normal versus abnormal breast tissues [22, 26, 27].

The American Cancer Society recommends that women should be aware of the benefits and limitations of BSE practice, and use BSE only if they have no existing symptoms of breast cancer or when they are not at a significantly higher-than-average risk for the disease[21].

Despite controversy concerning BSE's effectiveness in decreasing mortality, it is generally accepted as an important add to other detection methods, especially among young women where other screening methods are not routinely used[5].

A study in US by 2011 described patient characteristics and time trends for various methods of breast cancer detection. In this study among the 361 survivors, 43% reported detecting their cancer themselves (18% by accident and 25% by breast self-examination), and43% reported mammographic detection[28].

A cohort study in USA from July, 2004 to October, 2007 by Duke University Department Of Radiology, with the aim to study the ability of BSE to detect new breast cancer in 147 high risk women undergoing surveillance with breast Magnetic Resonance Imaging (MRI), Mammogram and CBE; in the study BSE detected 43%(6/14) of new breast cancer, mammogram 14%(2/14) and MRI 43%(6/14) of new breast cancer[29].

A study which sought to analyze the determinants of method of detection in a cohort of 921 low income women with breast cancer receiving care through California's Breast and Cervical Cancer treatment program; in this study two third of the women self-detected their breast cancer, with only 36% of cancer being detected by routine mammography or physician[30].

BSE remains a cost-effective method to detect breast cancer in resource-constrained countries where mean tumor sizes are above 3-4 cm and for those present with stage three and four. A woman who performs regular BSE may be more motivated to seek medical attention, including CBE and mammography[7].

Women younger than 35 years of age are not routinely exposed for mammography screening and are only encouraged to have a CBE once every three years, it is less likely that breast cancer in younger women will be detected using these screening techniques. Thus, BSE is the only means of discovering tumors early for younger women[29].

2.2. Socio-demographic factors and Breast Self –Examination

Education level, Marital status, income level are found affecting the practice of Breast Self-Examination. A study on socioeconomic factors influencing breast cancer screening practices among Arab women in Qatar found that married women and women with higher education and income levels were significantly more likely to be aware of and to practice BSE than women who had lower education and income levels. Study done in Malaysia among women and female students found that age, marital status and educational level are statistically associated with the practice of breast self-examination [31-33].

A study done among women in Northern Ethiopia where One- fifth 160 (19.8%) of the study participants were illiterate; while 257 (31.8%) and 105 (13%) had primary and college/university education, showed that educational level of the respondents was significantly associated with BSE practice[16].

2.3. Family history of breast cancer and Breast Self- Examination

Family history of breast cancer in a first-degree relative (mother, sister, or daughter) increases the likelihood that a woman will develop breast cancer. These women have twice the risk of developing breast cancer compared to a woman with no family history of breast cancer[34].

A study which uses the health belief model to predict breast self- examination among Saudi women of 433 respondents 22.9% reported family history of BC (3.3 % near relatives & 19.6 % far relatives) and the research showed that family history of cancer is one of the predictors of BSE performance($p=0.011$)[35].

Another study done in Kuwait among 520 women attending primary care for maternity and child care showed that 40(7.6%) of the respondents had family history of breast cancer and the study revealed that family history of breast cancer had significant association with BSE[36].

In Ethiopia a study was done among female undergraduate students in Addis Ababa University. In this study majority of the respondents 89.9% have no family history of breast cancer, of these 51.2% had aunt history while 29.7% had grandmother history. This study showed that participants with family history were practicing BSE two times more than those who do not have family history [14].

2.4. Knowledge of Breast Self-Examination

Knowledge of BSE includes woman's awareness about the significance of BSE, at what age to start, when to do and the knowledge of how to do it. A study done in Kuwait on practice of BSE among women attending primary health care, in this study the most frequent BSE steps known by the respondents were squeezing the nipples to look for discharge 79.8%,use of right hand to examine the left breast and the left hand to examine the right breast 76.1%,when examining the breast feeling for lumps or hard knots or thickening 75.2%,examining one breast at a time 72.5%,when looking at a breast in the mirror looking for swelling, dimpling of the skin or changes in the nipple 68.8%,looking at both breasts in the mirror with arms raised over the head 67.1%,examining the breast at the end of the menstrual period 65.1%,examining the breasts in a circular clockwise motion moving from outside in 55%,looking at the breasts in the mirror with arms at the sides 54.1%, examining the breast while lying down place the hand above the head to examine the breast on the same side 52.3%. In this study the least endorsed steps were examining the breasts while lying down, to place a towel or pillow under the shoulder to examine the breast on that side and looking at the breasts in the mirror with hands on the thigh[36].

A descriptive analytic study on BSE among 200 women in Iran showed the respondents knowledge on screening methods and 31%, 21%, and 9% heard about BSE, clinical examination, mammography respectively and 39% of respondents knew nothing about any of screening methods[37].

In a descriptive cross sectional study done on knowledge and practice of BSE among women in rural community of Nigeria, Participants' knowledge on breast self-examination was very low as 60% were not aware of BSE and only 22% had understanding of what BSE assessment is all about. Sixty percent of the respondents said BSE should be practiced from 30 years and above, 66% believed that It only helps to know the shape and size of the breast and only 22%understood that BSE helps to detect breast lump earlier[38].

In Ethiopia a cross sectional study was done on practice of BSE among health science students at Adama University; Concerning the respondents knowledge on the frequency of BSE, 44.1% of the respondents correctly reported that BSE should be done monthly and 30.2% them reported

annually, every 3 month or occasionally while 25.6% of the respondent didn't know when and how often should be done. Nearly two fifth of the respondents reported that BSE should be performed a week after menses while 30.2% of the respondents didn't know when to be performed and women of age above 20 years should perform BSE[16].

2.5. Attitude toward Breast Self-Examination

The Health Belief Model (HBM) focuses cognitive and attitudinal barriers, and is the most frequently used model to predict BSE behavior[39]. This model consists six factors relate to the performance of a surveillance behavior: **perceived severity of the disease**: ones belief about seriousness of a medical condition; perceived possible medical consequences like death, disability, and pain. **Perceived susceptibility**: ones belief regarding the chance of being diagnosed with a disease; the risk of a breast cancer diagnosis in the long term or future. **Perceived benefits**: one's belief in the efficacy of the advised action to reduce health risk; perceived benefits of breast cancer screening behaviors including BSE and CBE for early detection of breast diseases. **Perceived barriers**: the belief about physical and psychological costs of taking health action; emotional, social, and physical perceived barriers to performing breast cancer screening behaviors. **Self-efficacy to maximize utility**: ones confidence to use a screening method, and **cues to action**: internal motive for living a healthy lifestyle by performing breast cancer screening behaviors relate to BSE, CBE, and mammograms[39, 40].

According to the HBM, women who perceive themselves as susceptible to breast cancer and believe the disease is serious are more likely to be motivated to take action against the health threat. Also, women who believe that performing BSE has more benefits than barriers are more likely to take part in regularly practicing BSE. This model also suggests that increased self-efficacy concerning the behavior and exposure to more cues regarding the behavior will increase the likelihood that the behavior will be practiced regularly[41].

A descriptive study was done in Iran which was about the knowledge and attitude of 200 women towards breast self-examination in this study; 71.5% of the women strongly agreed or agreed with the probability of having a normal life in the future in case of early detection and treatment

of breast cancer. On the other hand, 70.5% of the participants strongly agreed and agreed that the majority of women had no idea about correct BSE technique[39].

Research done in Turk to describe health beliefs and breast self-examination (BSE) practice of 113 Turkish female nursing and midwifery students; there was a statistically significant difference between the regular BSE practice and susceptibility, barriers, and confidence domains ($p<0.05$). Students who practiced BSE regularly had higher susceptibility than those who did not. Students with high susceptibility were found to have taught BSE practice to their relatives and patients. Students with high confidence values were found to practice BSE regularly, as well. Students, who had positive family and symptoms history, were also observed to practice BSE regularly and have high confidence[42].

A study was done in Ghana on the knowledge, attitude, and practice of BSE among 250 nursing female university students and revealed that 65% of respondents strongly agreed on the importance of BSE, while 35% of respondents agreed that is not necessary[43].

Cross sectional study with the aim to assess predictors of breast self-examination among 315 female teachers in Kafa Zone, South West part of Ethiopia; revealed that the practice of BSE was very low. The study evidenced that, participant's having good knowledge, the extent to which teachers perceived they are susceptible to cancer, perceived that cancer is severe, and feel benefitted from BSE are found to be the most important predictors that affect teacher's decisions about performing BSE[44].

2.6. Practice of Breast Self-Examination

Young women who perform BSEs will familiarize themselves with their healthy breasts, which will assist them in identifying any abnormalities or differences that may become more likely to occur later in their lives. It establishes health practices that can help a woman who is moving into the age group at risk for breast cancer (45 years and older) [44]. More than 70% of cases of cancers of the breast are detected by women themselves [45]. Research shows that completing monthly BSE is significantly more effective than accidental discovery in detecting the disease at an early stage [33, 34].

Premenopausal women are often instructed to relate their "BSE day" to their menstrual cycle, 5 or 7 days after the start of the menstrual period. Postmenopausal women are only told to do their self-examination on a set date of the month. The woman is usually recommended to stand and inspect her breasts in a mirror, looking particularly for nipple retraction, scaling of skin redness, discharge and asymmetry or change in normal shape of breast and under side of the breast when the hands are pressed on the hips or raised above the head; the right arm should be raised when examining the right breast, and vice versa ; then lying down with a pillow placed under the right shoulder, the right hand must be placed behind the head and palpate the breast. The flat surfaces of the three middle fingers of the left hand must be used to palpate the right breast and auxiliary. All parts of the breast and auxiliary must be palpated using small, circular motions and pressing firmly. The nipple should be squeezed gently to assess if there is any discharge, especially in non-lactating women, this entire process must be repeated using the right hand on the left breast and must be repeated in the shower[21, 46].

A study in Portuguese on the health professionals' practices of BSE showed results related to performing BSE, its periodicity, and the changes found during the practices; 79.5% of the participants stated to perform self-examination, while 20.5% reported they do not. Regarding the periodicity, 38.9% examine their breasts on a monthly basis, 33.3%reported doing it every 3 months and 11.1% once a year. Regarding the time for performing BSE, 8.6% are post-menopausal women who chose a regular day in the month for performing the examination. 54.3% reported practicing the examination between 5 and 7 days after menstruation, while 25.7% said they sporadically do it. Regarding whether they observed any change in the breasts; 13.2% of those practices have discovered change while 86.8% did not. And of those with findings 20% was the presence of nipple discharge and 80% were the presence of nodules. In all cases, the search for medical care took place in the interval between 1 and 6 months[47].

A cross-sectional study carried out among female nurses in Egypt, showed that 56.4% of nurses performed BSE in their life time but only 18.8% of respondents practiced BSE on a monthly basis. 79.3% nurses reported that they did not practice BSE because they perceived they did not have a breast problem, and 68.9% of them were not convinced that BSE is important. 53.4% of the nurses reported that they did not know how to practice BSE. Only 17.2% reported that they did not practice BSE because they are negligent[48].

A study done in Nigeria on knowledge of breast cancer risk factors, beliefs and practice of female health care professionals, Concerning the practice of BSE; 57% of them had ever practiced breast self-examination, 37.3% correctly described it and only 32.1% of them were ever practicing and only 19.0% of the respondent practice BSE every month. Some of the reasons mentioned by the respondents for not practicing breast self-examination were forgetfulness, lack of time and belief that there is no problem with their breast[49].

Finding from the study conducted in West Gojjam, Ethiopia on factors affecting breast self-examination among female health extension workers had shown that only 14.4% practiced BSE regularly (every month) and 37.3% reported that they practiced BSE during their life time. The three main reasons for not doing BSE were had no breast problem 53.2%, lack of knowledge how to perform BSE 30.6%, and not knowing the importance of BSE 21.4%.[13].

2.7. Conceptual Frame work

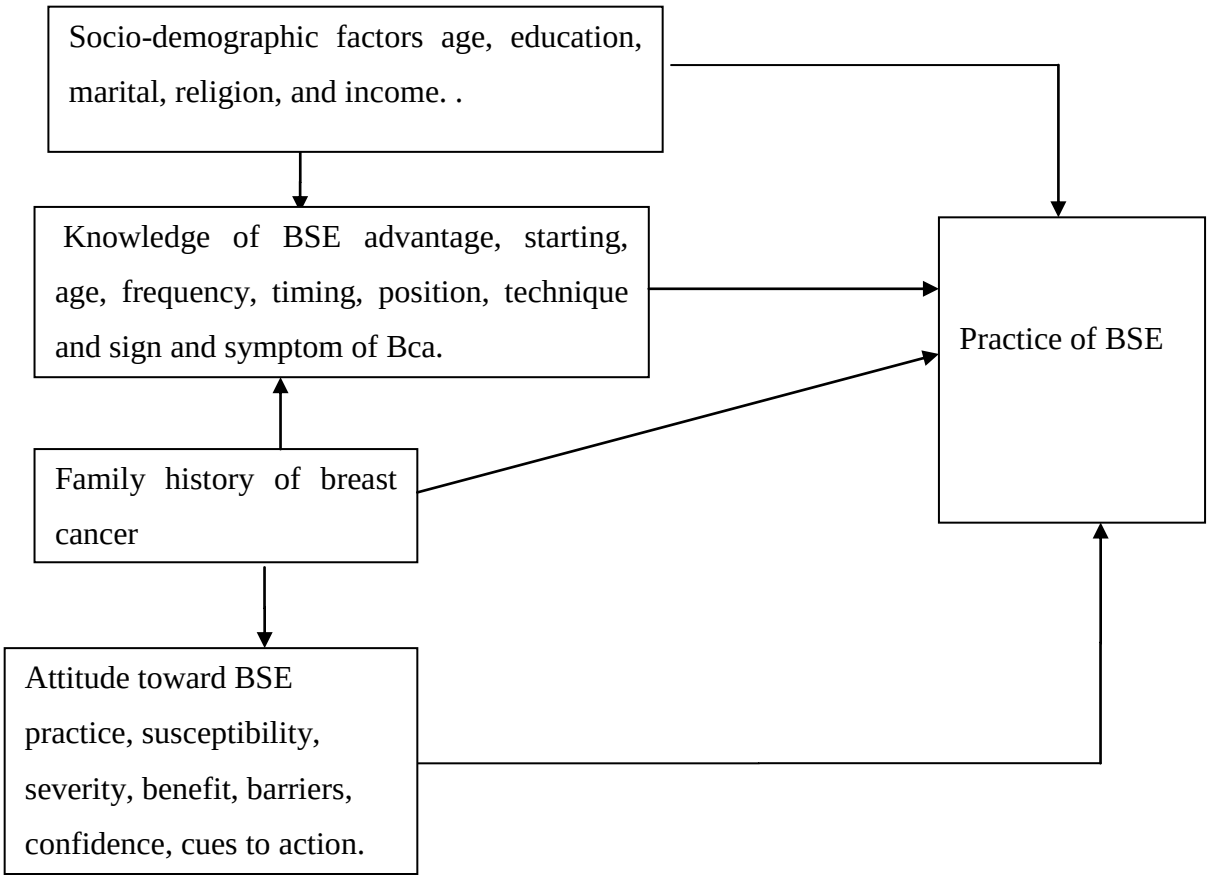

Figure 1:Conceptual frame work on practice of Breast Self- Examination and its associated factors among women in Dire Dawa town, Ethiopia (13)(52).

CHAPTER THREE

3. OBJECTIVES OF THE STUDY

3.1 General Objective

To assess practice of breast self-examination and its associated factors among females attending health services in outpatient department other than reproductive health services in the selected governmental health facilities at Dire Dawa, Ethiopia, 2017.

3.2 Specific Objectives

- To assess practice of breast self-examination among the respondents.
- To identify factors associated with Breast Self-Examination practice among the respondents.

CHAPTER FOUR

4. METHODOLOGY AND MATERIALS

4.1 Study Area

Dire Dawa is located in the eastern part of Ethiopia 515 kilometers away from Addis Ababa. It is bordered by Somali Regional State in the east, west and north, and the Oromia Regional State in the south and east. Dire Dawa has a total area of 1,558.64 square kilometers with an estimated density of 237.2 people per square kilometer. The region had a total population of 395,000 consisting of 198,092 males, 196,908 females and 94,187 childbearing age women. Dire Dawa City Administration has two public hospitals, 15 health centers and 34 health posts. Out of these health facilities, two hospitals and seven health centers are located in the central part of the administration while the rest are located in the peripheries of the city[50].

4.2 Study Design and Period

In this study institution based cross sectional, quantitative study design was used, from March 15, 2017- April 15, 2017.

4.3 Source Population

All females, in the age of 20 years old and above residing in Dire Dawa town were the source population for the study.

4.4 Study Population and Samples

Study subjects were recruited from the population comprised of all females who were 20years old and above whom attending at the outpatient health service departments other than reproductive health services in the selected public health facilities of Dire Dawa town and eligible to those inclusive criteria.

4.4.1. Inclusion Criteria

- Voluntary females who were 20 years old and above and attending outpatient health services in the selected health facilities during the study period.
- Females whose residence was in Dire Dawa town.

4.4.2. Exclusion Criteria

- Females who were attending emergency and reproductive health services.
- Females who had communication difficulty.
- Females who were diagnosed with breast cancer.
- Those who had mastectomy.

4.5 Sample Size Determination

The total sample size was determined using single population proportion formula $n = [(Z\alpha/2)^2 p (1 - P)]/d2$, assuming; Zα/2= Z-value for 95% confidence level which is 1.96, d =margin of error considered to be 5%, and P = 29.5 %, this prevalence is taken from house hold based study in northern Ethiopia[16]. Significant level at α= 0.05, at 95% confidence interval, and considering 10% no response rate, the sample size was calculated by the following formula:

$$n = \frac{(Z\alpha/2)^2 p (1-p)}{d^2} = \frac{(1.96)^2 . 0.295(1-0.295)}{(0.05)^2} = 319$$

The total sample size is computed to be n = 351

4.6 Sampling Procedure and Techniques

In this study, the two hospitals (Dillchora referral hospital, Sabiyan General Hospital) and four health centers (Goro, Dire Dawa, Dechatu and Gendi Korea) were selected by a lottery method from the total 15 health centers. Based on the last year annual patient flow in to each health institution, the351 samples were drawn from every selected health facility with proportional allocated client population size. To determine the sampling frame By dividing the last year annual female client population was divided by 12 and the average monthly client population has been determined. To determine the interval of sample i.e. "K" the average monthly client population was divided to each allocated sample size and the K value was determined. Taking randomly the first eligible client and samples were collected from every K^{th} client.

Diagrammatic Illustration of sampling procedure

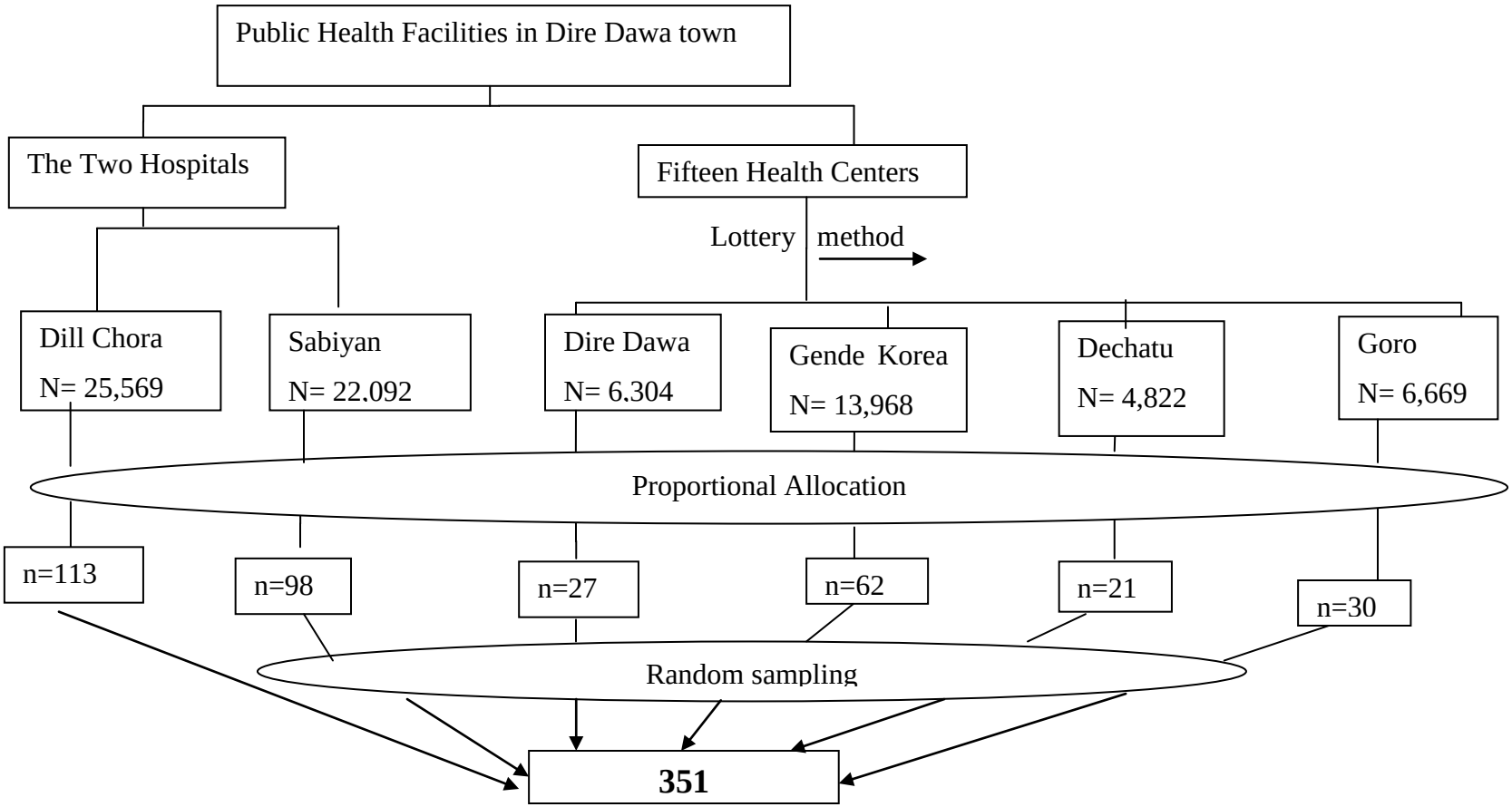

Figure 2: Schematic representation of sampling procedure

Where:

N- Number of women registered during last year in each health facility.

n- Number of women required for the study from each health facility which is proportional to population size.

4.7 Data Collection Materials and Procedures

4.7.1 Data collection instrument

Data was collected using structured questionnaire guided interview which was adopted from a study done in Philippine, and some modifications were made based on objectives of the study[51]. Primarily the questionnaire was developed in English and then translated to Amharic and retranslated back to English to ensure consistency. The questionnaire had five parts; the questions focused on socio-demographic data, history of breast cancer, knowledge, attitude and practice of breast self-examination.

4.7.2 Data Collection technique

Four female nurse data collectors with qualification of diploma in nursing and two supervisors with degree in nursing qualification were selected and they were responsible to lead the whole situation of data collection process, to check the data collected for consistence and completeness. Training was given for both data collectors and the supervisors for one day before the pretest regarding the objective of the study; discussing the content of the questionnaire, the methodology in relation to reaching the intended goals, about having an informed consent before interviewing and how to keep confidentiality and privacy.

4.8. Study variables

4.8.1 Dependent variable

- Practice of breast self-examination

4.8.2 Independent variables

- Socio demographic factors.
- Family history of breast cancer.
- Knowledge of breast self-examination.
- Attitude toward breast self-examination.

4.9. Operational Definitions

Within this study BSE position, techniques, frequency and timing for performing BSE have been given the following operational definitions.

Knowledgeable on Position of breast self-examination- The respondent was considered to be knowledgeable, if the participants mentioned BSE position in either standing/sitting in front of the mirror or supine positions.

Not Knowledgeable on position of breast self-examination- If the respondent did mention neither standing/sitting nor lying.

Knowledgeable on Technique of breast self-examination-If participants responded at least one of the techniques for conducting BSE such as inspection, palpation or squeezing nipples with finger tips, it was considered to be knowledgeable.

Not Knowledgeable on Technique of breast self-examination. - If the respondent did not mention any of the techniques.

Knowledgeable on Frequency of practicing breast self-examination-If the respondent mentioned once a month (monthly).

Not Knowledgeable on Frequency of practicing breast self-examination- If the respondent mentioned frequency other than monthly.

Knowledgeable on Timing for conducting breast self-examination-The correct answer is "within five to seven days after the end of the cycle" for those with regular menstrual periods and "on a specific day every month" for those with irregular or no menstruation. If different from this it was considered to be not knowledgeable of Timing for BSE.

Knowledgeable on Sign and Symptom of BC- If the respondent mentioned at least one of the sign and symptoms of BC like swelling, palpable lump, skin change, change in size or shape, it was considered to be knowledgeable.

Not Knowledgeable on Sign and Symptom of BC– If the respondent did not mention any of the BC signs and symptoms.

Attitude of BSE: Agree if the respondent agree or strongly agree on the health belief attribute questions, neutral if she was neutral on the points and disagree if the respondent disagree or strongly disagree with the health attribute questions.

Regularly practice BSE- if the participants expressed their BSE practice with frequency of once a month and the last 6 month practice were exactly 6 times.

Ever Practice -those who practice at least once in their life.

Correct BSE practicing position- practicing either sitting/standing or lying position. If the respondent practiced different from these, it was considered to be incorrect.

Correct BSE practicing techniques – technique was considered to be correct, if the respondent practiced inspection or palpation or squeezing. If different from these, it was considered to be incorrect.

Correct practicing frequency- monthly and different from this is incorrect.

4.10 Data quality control and management

To assure the data quality; one day training was given for the data collectors and the supervisors to avoid any bias, and promote proper coding of questioner. Appropriate information and instruction on the objective; relevance of the study was given for the respondents. The data collectors were controlling the completeness of the questionnaire before the submission. The principal investigator was also checking and reviewing the completeness of questionnaires and was offering necessary feedback to data collectors.

4.12Data processing and analysis

The collected data were checked by the principal investigator for their completeness and entered into SPSS version 20 for analysis. Descriptive statistics was used to see frequency, mean, standard deviation and percentages of the characteristics. Binary logistic regression was used to assess relationship between the independent variables with the dependent variable and multivariate logistic regression to control the effect of possible confounders and finally by calculating the Odd Ratios (OR) with 95% confidence intervals (CI) variables with ($p<0.05$) were identified as significantly associated.

4.13. Ethical consideration

The study was undertaken after the proposal was approved by the research committee of Addis Ababa University (Ethical Review Board), School of Allied Health Science, Department of Nursing and Midwifery, and an official letter were written to Dire Dewa Health Bureau. Letters of cooperation were also written from Dire Dewa Health Bureau and medical director to each health facilities. Participation of all respondents was voluntary and verbal consent was ensured before engaging into the study. Measures were taken to assure respect, dignity and freedom of each individuals participating in the study. Information on the purpose and procedures of the study was explained; issue of confidentiality of information was assured verbally to all study subjects.

4.14. Dissemination of the result

The result of this study is submitted to Addis Ababa University, College of Health Science, Department of Nursing and Midwifery, and will be communicated to Health Beuro of Dire Dawa town, and furthermore, all attempts will be made to present the findings to scientific conference and attempt will be made to publish the finding in scientific journals.

CHAPTER FIVE

RESULT AND DISCUSSION

5.1. RESULT

5.1.1. Socio demographic characteristics of participants

A total of 351 female participants were expected to respond, but 340 women were participated that accounted 95.7%response rate. The participants were between 20-72 years with a mean age of 36 and standard deviation of 12 years. The respondents were predominantly between the age of 20 to 29 which accounted 135(39.7%), those who were between 30-39 years were 67(19.7%) and those who were 40 and above years were 138(40.6%). Regarding religion 147(43.2%) were Orthodox, 123(36.2%) of the respondents were Muslim, Protestants accounted 50(14.7%) and Catholics were 18(5.3%). Of all the respondents 189(55.6%) were married followed by singles who were 109(32.1%) and those who were divorced or widowed 42(12.4%). In this study 31(9.1%) participants had no education, another 31(9.1%) were only able to read and write, 68(20%) attended primary education, 85(25%) had high school education and majority of them 125(36.8%) were college/ university students. Majority of the respondents 137(40.3%) were with income less than 1001ETB and those with income greater than 4000ETB were 36(10.6%) as shown in table 1.

Table 1: Socio demographic characteristic of women attending governmental health facilities in Dire Dawa town, Ethiopia 2017.

Socio-demographic Variables		Frequency	Percent
Age category of respondent	20-29	135	39.7
	30-39	67	19.7
	40-49	79	23.2
	>49	59	17.4
Religion of respondent	Orthodox	147	43.2
	Protestant	50	14.7
	Catholic	18	5.3
	Muslim	123	36.2
	Other	4	1
Marital status of respondent	Single	109	32.1
	Married	189	55.6
	Divorced	21	6.2
	Widowed	21	6.2
Educational level of respondent	No formal education	31	9.1
	Read and write	31	9.1
	Elementary	68	20.0
	High school	85	25.0
	College/university	125	36.8
Monthly Income category	<1001	137	40.3
	1001-2000	58	17.1
	2001-3000	84	24.7
	3001-4000	25	7.4
	>4000	36	10.6
	Total	340	100.0

Other* Jeova, Wakeftea

5.1.2. Family History of breast cancer

As shown below in table 2, about 322(94.7%) of respondents have reported that they did not have a family history of breast cancer, but 18(5.3%) have the history. Those who reported mother history are 5(1.5%), sister 4(1.2%), grandmother 2(0.6%) and most of them 7(2.1%) have reported aunt history.

Table 2: Family history of breast cancer among women attending governmental health facilities in Dire Dawa town, Ethiopia, 2017

Family history of breast cancer	Option	Frequency	Percent
Family history of breast cancer	Yes	18	5.3
	No	322	94.7
Kinship/Relationship with respondent	Mother	5	1.5
	Sister	4	1.2
	Aunt	7	2.1
	Grand mother	2	.6

5.1.3 Knowledge on Breast Self-Examination

The respondents knowledge on age to start BSE have been assessed and found267 (78.5%) were knowledgeable and reported that BSE starting age is 20 years old and 73(21.5%) were not knowledgeable. Knowledge of respondent on frequency of BSE showed that 89(26.2%) were knowledgeable, and able to mention that BSE should be practiced monthly and most of the respondents 251(73.8%) were not knowledgeable. Regarding knowledge of BSE conducting time for a woman with regular menses 96(28.2%) had knowledge these respondents were able to state (day 5 to day 7 after menses) and 244(71.8%) had no knowledge. The same way knowledge of respondents on BSE conducting time for a women with irregular menses had been assessed and found that 79(23.2%) were able to mention that BSE should be conducted on specific day monthly and 261(76.8%) had no knowledge. The respondents Knowledge on advantage of BSE show 299(87.9%) were able to mention at least one advantage of doing BSE while 41(12.1%) had no idea regarding advantage of BSE. The assessment on knowledge of respondents on position of breast self-examination showed that 177(52.1%) were knowledgeable and abled to mention at least either sitting or standing or both but 163(47.9%) no knowledge, were not able to mention any of the positions. Regarding knowledge on techniques of BSE 145(42.6%) of the respondents were able to mention at least one technique or all techniques and 195(57.4%) had no knowledge, were not able to mention any of the techniques. The respondents knowledge on sign and symptom of BC had been also assessed and showed 178(52.4%) had knowledge and were

able to mention at least one sign of BC, while 162(47.6%)were not able to mention any of the sign as shown on table 3.

Table 3: Knowledge of breast self-examination among women attending governmental health facilities in Dire Dawa town, Ethiopia, 2017

Knowledge variables		Frequency	Percent
Knowledge of Respondent on Right age to start BSE	Knowledgeable(Starting age of BSE)	73	21.5
	Not knowledgeable (Starting Age of BSE)	267	78.5
Knowledge of respondent on frequency of BSE	Knowledgeable (Monthly)	89	26.2
	Not knowledgeable(not monthly)	251	73.5
Knowledge of BSE time for a women with regular menses	Knowledgeable (day 5 to day 7 after menses)	96	28.2
	Not knowledgeable (Other day 5 to day 7 after menses	244	71.8
Knowledge of BSE time for a women with irregular menses	Knowledgeable (Regular Day Monthly)	79	23.2
	Not knowledgeable (Other than Regular Day Monthly)	261	76.8
Knowledge on Position of BSE	Knowledgeable	177	52.1
	Not knowledgeable	163	47.9
Knowledge on Techniques of BSE	Knowledgeable	145	42.6
	Not knowledgeable	195	57.4
Knowledge on Sign and Symptom of BC	Knowledgeable	178	52.4
	Not knowledgeable	162	47.6
Knowledge on Advantage of BSE	Knowledgeable	299	87.9
	Not knowledgeable	41	12.1

5.1.4. Attitude of Respondent women on Breast Self-Examination

The respondents' attitudes on breast self-examination had been also assessed. With this assessment the six components of HBM were addressed.134 (39.4%) of the respondents agreed that they are susceptible to BC while 54(15.9%) were neutral and 152(44.7%) disagree on their susceptibility; regarding severity of breast cancer 179(52.6%) agreed that BC is a serious disease,40(11.8%) neutral and 121(35.6%) disagree. On the benefit of BSE 148(43.5%) agreed that BSE helps to detect lumps earlier, 180(52.9%) were neutral and 12(3.5%) disagreed on the benefit of BSE to detect lumps earlier. On the presence of perceived barrier to practice BSE 41(12.1%) agree that they did not have difficulty to practice BSE, 184(54.1%) were neutral and

115(33.8%) disagree and belief that they have difficulty to do BSE. On their self-efficacy to practice BSE 130(38.2%) agreed that they are confident to practice BSE, 187(55%) were neutral and 23(6.8%) disagreed. The respondents' attitude on cues to action showed that 74(21.8%) agreed that they have discussed on BSE with a health professional, 179(52.6%) were neutral and 87(25.6%) had disagreed, have never tried to discuss BSE before as shown on table 4.

Table 4:Attitude of Breast self-examination among women attending governmental health facilities in Dire Dawa town, Ethiopia, 2017

Attitude		Frequency	Percent
Attitude of respondent self-susceptibility to breast cancer	Agree	134	39.4
	Neutral	54	15.9
	Disagree	152	44.7
Attitude of respondent on severity of breast cancer	Agree	179	52.6
	Neutral	40	11.8
	Disagree	121	35.6
Attitude of respondent on perceived benefit of BSE	Agree	148	43.5
	Neutral	180	52.9
	Disagree	12	3.5
Attitude of respondent on perceived barriers of BSE	Agree	41	12.1
	Neutral	184	54.1
	Disagree	115	33.8
Attitude of respondent on perceived self - efficacy to do BSE	Agree	130	38.2
	Neutral	187	55
	Disagree	23	6.8
Attitude of respondent on cues to action	Agree	74	21.8
	Neutral	179	52.6
	Disagree	87	25.6

5.1.5. Breast Self-Examination Practice

In this study of all 340 respondents only 109(32.1%) ever practice BSE and 231(67.9%) did not practice at all. Of those who practice 29(26.6%) practice regularly on monthly base which is correct practice while 80 (73.4%) practice not regularly (not monthly)thus incorrect. The result showed that 26(23.8%) started at correct age time (20 years) and 83(76.2%) did not start to practice at correct age. While they practice all 109(100%) use correct position i.e. at least either stand/sit or supine/lying position and 92(84.4%) follow correct technique like at least one of the

techniques i.e. inspection, palpation or squeezing and the rest 17(15.6%) did not follow any of the techniques. Among the practitioners 89(81.6%) examine one breast at a time and 20(18.4%) examine both breast at a time as shown on table 5.

Table 5: Practice of breast self-examination among women attending governmental health facilities in Dire Dawa town, Ethiopia, 2017

Practice of BSE	Response/Option	Frequency	Percent
Ever Practice of BSE	Yes	109	32.1
	No	231	67.9
Breasts examined at a time	One breast at a time	89	81.6
	Both breasts at a time	20	18.4
Age of respondent at first practice of BSE	Incorrect(BSE start Time)	83	76.2
	Correct (BSE star time)	26	23.8
Frequency of BSE(Regularity)	Not Regularly(Not monthly)	80	73.4
	Regularly(monthly)	29	26.6
Correct time of BSE practice related with Menses	Incorrect Practice	36	33.1
	Correct(Either for regular/Irregular Menses	73	66.9
Practice of BSE position	Incorrect	0	0
	Correct	109	100
BSE Technique	Incorrect Technique	17	15.6
	correct Technique	92	84.4

As shown on figure 3 the respondents stated reasons to practice were; Recommendation by health professionals was stated by majority of the respondents 67(61%), Fear of BC from family history 3(3%), For early detection and treatment 3(3%), Fear of developing breast cancer 15(19%), had previous breast problem 6(5%), and multiple (more than one) reasons were mentioned by 15(14%) of the practitioners.

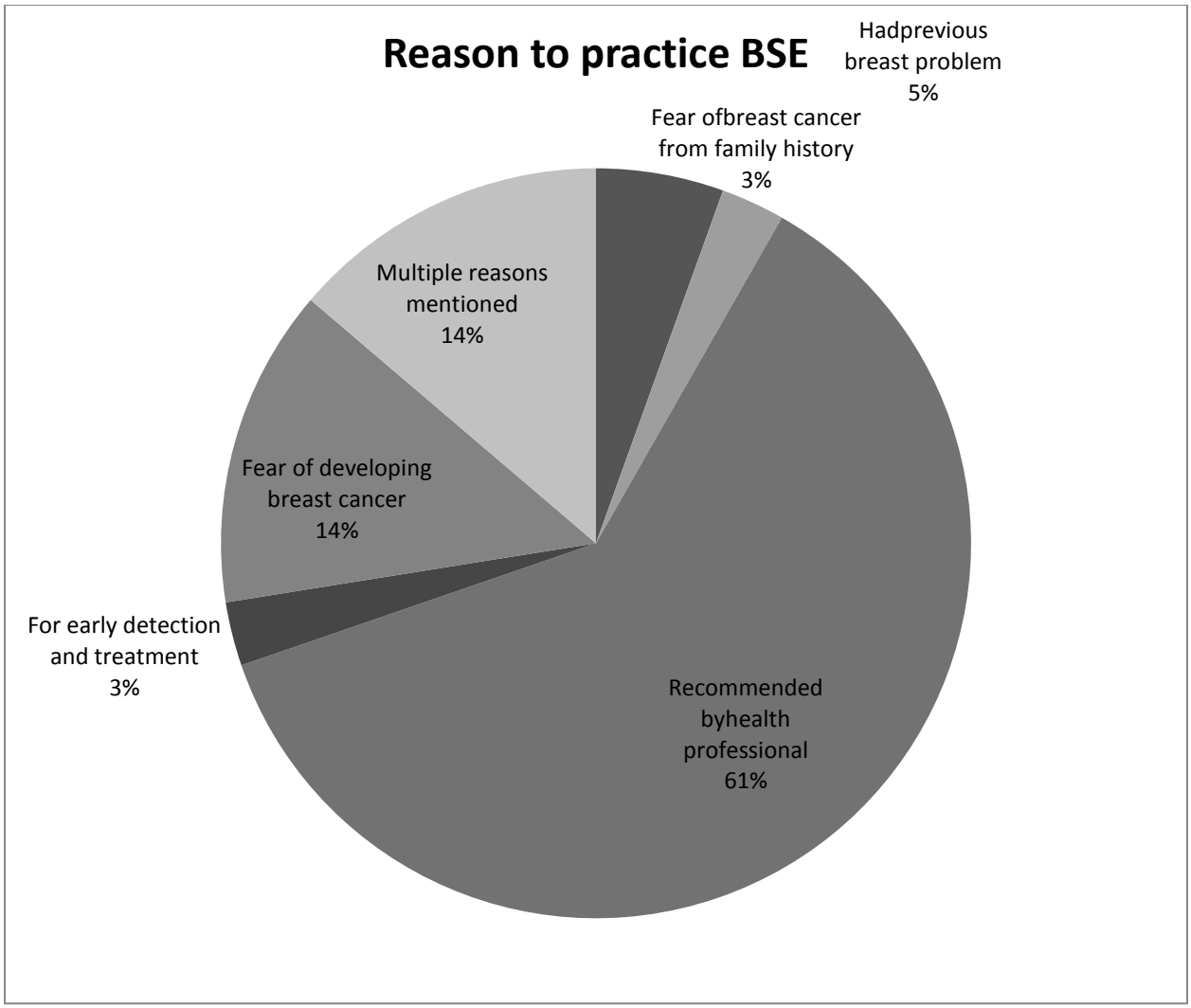

Figure 3: Reason to practice BSE among women studied in Dire Dawa, 2017

Among those who did not practice BSE the majority166(72%) didn't know how to do it,32(14%) stated absence of breast problem, forgetfulness 18(8%), embarrassment 8(3%), and fear of diagnosing breast cancer 7(3%) as shown on figure 4.

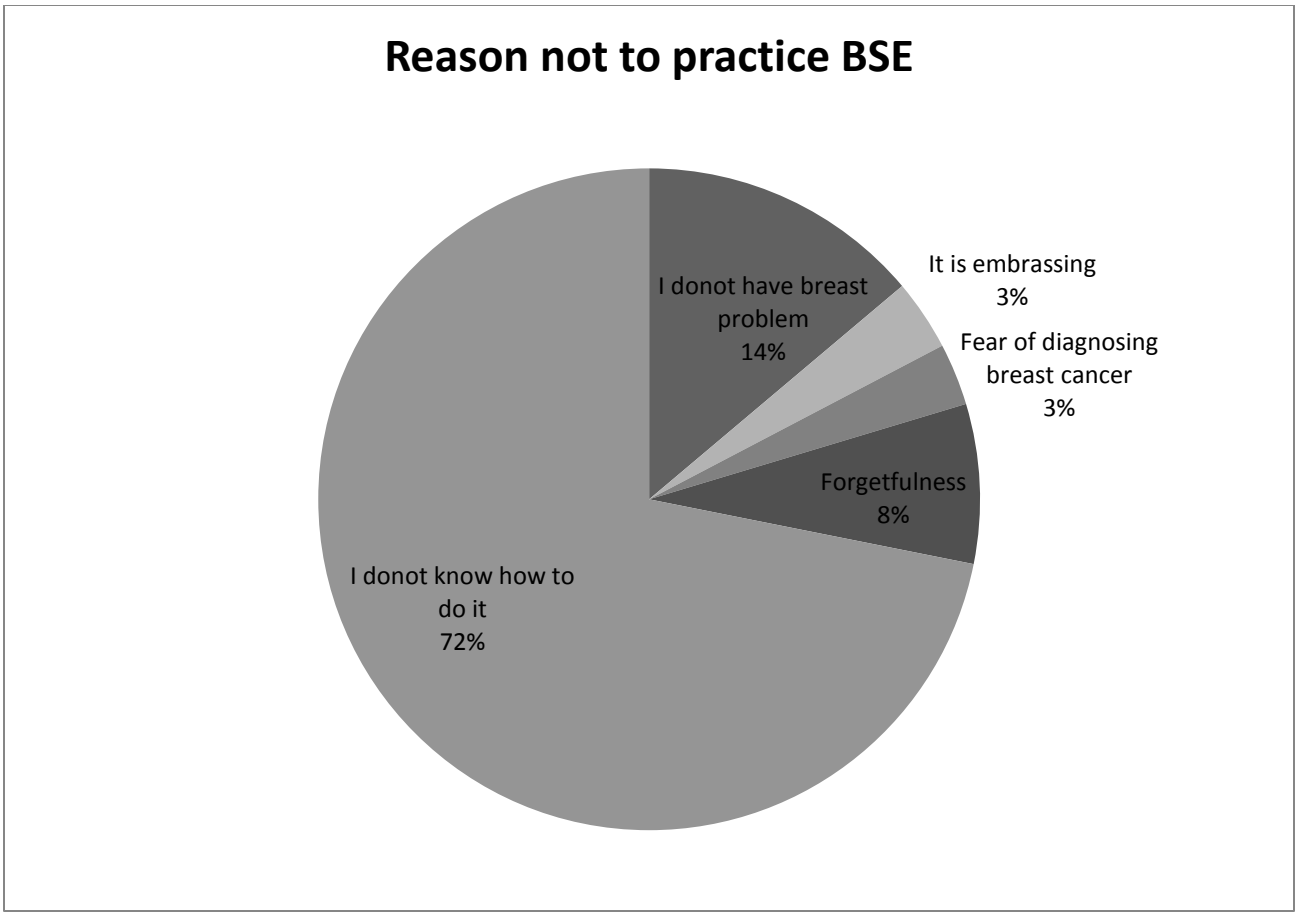

Figure 4: Reason for not practicing BSE.

After examination 3(2.8%) of the practitioners found lump, 9(8.3%) found changed shape and size, 5(4.6%) found multiple findings (more than one), 92(84.4%) found no change. From all who found something in their breast 16(94%) consulted health professional while 1(6%) consulted traditional healer as shown on figure 5.

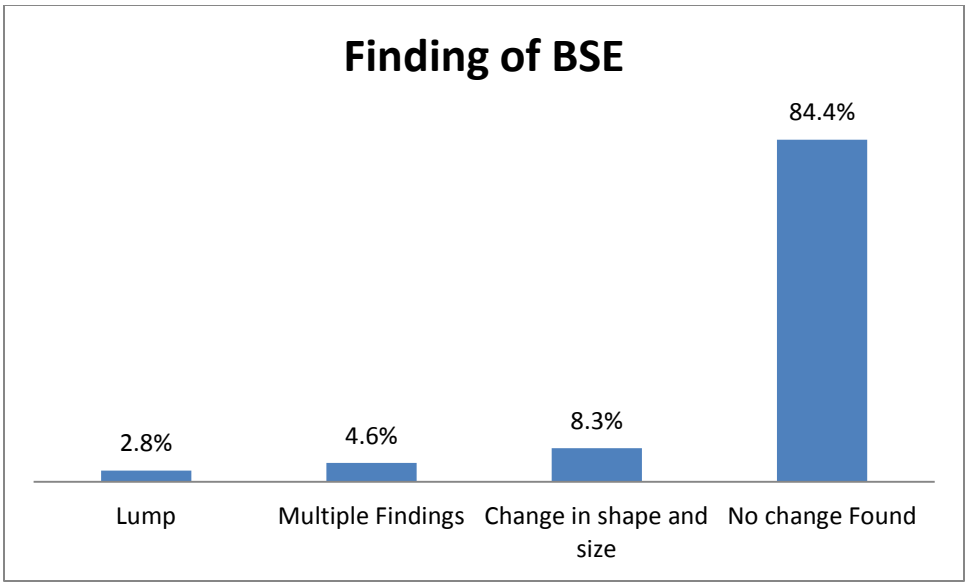

Figure 3: Respondents' findings during BSE.

5.1.6 Binary Logistic Regressions

5.1.6.1 Binary Logistic Regression for socio-demographic variable with BSE practice

The binary logistic regression in table 6 showed that respondents with age 20-29 years, 30-39 years and 40-49 years were more likely to practice BSE compared to age groups above 49 years with COR 14.49(94.32, 48.600), 10.41(2.94,36.88), 7.66(2.17, 26.99) respectively. Regarding religion Orthodox, Protestant and Catholic were more likely to practice BSE compared to Muslims with COR 3.25(1.83, 5.78), 3.81(1.84, 7.91), 3.09(1.07, 8.90) respectively. Educational status was positively associated with BSE practice, those who were illiterate, only read and write, elementary and high school levels were less likely to practice BSE compared to college and university level educated women with COR 0.025(0.003, 0.186), 0.025(0.003, 0.186), 0.098(0.043, 0.223) and 0.343(0.192, 0.611) respectively .With this binary logistic analysis Income level was also found associated with BSE practice. Respondents with income level less than 1001 birr monthly were 0.354(0.167, 0.750) times less likely, income level 1001-2000 birr monthly were 0.147(0.056, 0.387) times less likely, and income level 2001-3000 birr were 0.379(0.170, 0.844) times less likely to practice BSE compared to those who had income level above 4000 birr monthly. Those who have a family history of breast cancer were 0.355(0.136, 0.927) times less likely to practice BSE compared to those who have no family history of breast cancer.

Table 6: Binary Logistic Regression of socio-demographic characteristics with BSE practice among women attending governmental health facilities in Dire Dawa town, Ethiopia, 2017

					95% CI for COR	
Practice of BSE	**Options**	**B**	**Sig.**	**COR**	**Lower**	**Upper**
Age category of respondent	20-29	2.674	0	14.491	4.32	48.609
	30-39	2.344	0	10.419	2.943	36.889
	40-49	2.037	0.002	7.667	2.177	26.997
	>49	Ref.				
Religion of respondent	Orthodox	1.181	0	3.256	1.834	5.781
	Protestant	1.339	0	3.816	1.84	7.916
	Catholic	1.128	0.037	3.091	1.073	8.9
	Muslim	Ref.				
Marital status of respondent	Single	2.681	.010	14.603	1.891	112.760
	Married	2.105	.042	8.209	1.075	62.675
	Divorced	2.303	.041	10.000	1.104	90.593
	Widowed	Ref.				
Educational level of respondent	No formal education	-3.708	0	0.025	0.003	0.186
	Read and write	-3.708	0	0.025	0.003	0.186
	Elementary	-2.321	0	0.098	0.043	0.223
	High school	-1.071	0	0.343	0.192	0.611
	College/university	Ref.				
Income category	<1001	-1.039	0.007	0.354	0.167	0.75
	1001-2000	-1.918	0	0.147	0.056	0.387
	2001-3000	-0.97	0.018	0.379	0.17	0.844
	3001-4000	-0.464	0.376	0.629	0.225	1.756
	>4000	Ref.				
Family History of Breast Cancer	Yes	-1.035	0.034	0.355	0.136	0.927
	No	Ref.				

5.1.6.2 Binary logistic regression /odds ratio/ analysis for Knowledge with BSE practice

Using the binary logistic regression the variables related with the techniques, positions, frequency, starting age, recommended conducting time of BSE for women with regular and irregular menses and knowledge of breast cancer signs have been regressed with their practice. The result as shown in table 7 all have positive association with BSE; respondents who were knowledgeable on advantage of BSE were 3.55(1.81, 6.94) times more likely to practice BSE

than those with no knowledge; respondents who were knowledgeable on age to start BSE were 13.30(7.15, 24.73) p-0.000times more likely to practice BSE compared to those who did not know; those with knowledge on Frequency of BSE were 13.88(7.74, 24.71) p-0.000 times more likely to practice than those with no knowledge; Respondents with knowledge on correct time of doing BSE for regular menses were 11.616(2.587, 52.168) p-0.001 more likely to practice BSE than those with no knowledge; Knowledge on correct time of BSE for Irregular menses 4.041(1.550, 10.536) p-0.004; Knowledge on position of BSE 7.67(4.59, 12.83) p-0.000; Knowledge of BSE technique18.17(9.96, 33.16) p-0.000, Knowledge on sign and symptoms of BSE 248(33.99, 1815) p-.000.

Table 7: Binary logistic regression of Knowledge with BSE practice among women attending governmental health facilities in Dire Dawa town, Ethiopia, 2017

				95% CI	
Variables	**B**	**Sig.**	**COR**	**Lower**	**Upper**
Knowledge on Advantage of BSE	1.268	0.000**	3.554	1.818	6.947
Knowledge on the right Age to Start BSE	2.588	0.000**	13.301	7.152	24.737
Knowledge on correct time of BSE for Regular menses	2.452	0.001**	11.616	2.587	52.168
Knowledge on correct time of BSE for Irregular menses	1.396	0.004**	4.041	1.55	10.536
Know the Right position of BSE	2.038	0.000**	7.677	4.592	12.834
Knowledge on techniques of BSE	2.9	0.000**	18.175	9.96	33.167
Knowledge on Sign and symptom of BC	5.515	0.000**	248.4	33.992	1815.2
Knowledge on Frequency of BSE	2.630	.000**	13.881	7.794	24.719

**significant at 0.01 level

5.1.6.3. Binary Analysis for Attitude with BSE practice

The respondents attitude on susceptibility to BC (X^2=23.791, P=0.000), severity of BC (X2=17.721, P=0.000), benefits of breast self-examination(X^2=105.402, p=0.000), barriers of doing BSE(X^2=120.789, P=0.000) and self-efficacy to do BSE (X^2=113.788, P=0.000) have all shown association with practice of breast self-examination as shown in table 8.

Table 8BinaryAnalysis of Attitude with BSE practice among women attending governmental health facilities in Dire Dawa town, Ethiopia, 2017.

Attitude		Practice of BSE		
		No	Yes	
Attitude of respondent self-susceptibility to breast cancer	Disagree	115(33.8%)	3710.90%	X^2=23.791
	Neutral	45(13.2%)	92.60%	P=0.000
	Agree	71(20.9%)	6318.50%	
Attitude of respondent on severity of breast cancer	Disagree	93(27.4%)	28(8.2%)	X^2=17.721
	Neutral	34(10.0%)	6(1.8%)	P=0.000
	Agree	104(30.6%)	75(22.1%)	
Attitude of respondent on perceived benefit of BSE	Disagree	72.10%	51.50%	X^2=105.402
	Neutral	166(48.8%)	14(4.1%)	P=0.000
	Agree	58(17.1%)	90(26.5%)	
Attitude of respondent on perceived barriers of BSE	Disagree	58(17.1%)	57(16.8%)	X^2=120.789
	Neutral	168(49.4%)	16(4.7%)	P=0.000
	Agree	5(1.5%)	36(10.6%)	
Attitude of respondent on perceived self -efficacy to do BSE	Disagree	15(4.4%)	8(2.4%)	X^2=113.788
	Neutral	171(50.3%)	16(4.7%)	P=0.000
	Agree	45(13.2%)	85(25.0%)	
Attitude of respondent on Cues to action	Disagree	59(17.4%)	28(8.2%)	X^2=1.196
	Neutral	118(34.7%)	61(17.9%)	P=0.550
	Agree	54(15.9%)	20(5.9%)	

5.1.7. Multiple Logistic Regression

The multiple logistic regressions have been done with those variables that showed significant associations by chi-square test and odd ratio.

Table 9: Multivariate Analysis of with BSE practice among women attending governmental health facilities in Dire Dawa town, Ethiopia, 2017

Variables	Options	B	Sig.	COR with 95% CI	AOR with 95% CI
Educational level of respondent	No formal education	-3.006	0.076	0.025(0.003, 0.186)*	.049(.002, 1.366)
	read and write	-0.563	0.708	0.025(0.003, 0.186)*	.569(.030,10.814)
	Elementary	-0.899	0.193	0.098(0.043, 0.223)*	.407(.105,1.573)
	High school	-1.281	**.008****	0.343(0.192, 0.611)*	0.**278(0.107,0.718)***
	college/university	Ref.		1	
Knowledge of Respondent on age to start BSE	Correct(Starting Age of BSE)	-0.508	0.274	13.30(7.15, 24.73)*	.602(.242,1.495)
	Incorrect(Starting age of BSE)	Ref.			
Knowledge of respondent on frequency of BSE	Correct(Monthly)	0.791	0.097	13.88(7.74, 24.71)*	2.205(.867,5.608)
	Incorrect(not monthly)	Ref.			
Knowledge of BSE time for a women with regular menses	Correct(day 5 to day 7 after menses)	-0.707	0.115	11.61(2.587, 52.168)*	.493(.205, 1.188)
	Incorrect(Other than day 5 to day 7 after menses)	Ref.			
Knowledge of BSE time for a women with irregular menses	Correct(A Regular Day Monthly)	0.22	0.629	4.04(1.550, 10.536)*	1.246(.511, 3.039)
	Incorrect(Other than Regular Day Monthly)	Ref.			
Knowledge on Position of BSE	Knowledgeable	0.523	0.372	7.67(4.59, 12.83)*	1.687(.536, 5.310)
	Not knowledgeable	Ref.			
Knowledge on Techniques of BSE	Knowledgeable	-0.092	0.862	18.17(9.96, 33.16)*	.912(.325, 2.558)
	Not knowledgeable	Ref.			
Knowledge on Advantage of BSE	Knowledgeable	-0.292	0.581	3.55(1.81, 6.94)*	.747(.265, 2.108)
	Not Knowledgeable	Ref.			
Knowledge on Sign and Symptom of BC	Knowledgeable	3.643	**.006****	4.8(3.99, 18.15)*	**8.216(2.821, 17.734)***
	Not knowledgeable	Ref.			
Attitude of respondent on perceived barriers of BSE	Agree	1.973	**.009****		**7.190(1.653,31.269)***
	Neutral	0.443	0.575	X^2=120.789, P=0.000*	1.557(.331, 7.316)
	Disagree	Ref.			

*significant at 0.05 level, **significant at 0.01 level

As shown in table 9 the multivariate analysis showed that being at High school were 72.2% times less likely to practice BSE compared to college and above level educated AOR 0.**278(0.107,0.718);** Those who had good knowledge on sign and symptom of BC were 8 times more likely to practice BSE compared to those who had poor knowledge AOR 8.2(2.82, 17.73); and those who were responding as they had no perceived barrier to practice BSE were 7 times more likely to practice BSE compared to those who had perceived barrier AOR 7.19(1.65, 31.32).

5.2. DISCUSSION

BSE is an option for women starting in their 20s. Women should be informed about the benefits and limitations of BSE. Doing BSE regularly is one way for women to know how their breasts normally look and feel and to notice any changes. And its goal is to report any breast-related changes to a health professional right away. At the same time, women should remember that these breast changes may not be an indicative of cancer most of the time [1].

In this study 32.1% of the respondents have ever practiced BSE which is higher compared to a study done among students at Haromaya University Harar, Ethiopia(23%), students at Ambo University, Ethiopia (20.7%), students at Dedre Berihan University, Ethiopia (28.3%)and a study done among women in rural area of Southern India (22.6%) and Malaysian women(24.4%)[15, 32,52-54] and it is low compared to study done among Saudi Women(41.6%),students at Adama Science and Technology University, Ethiopia(39.4%), women in Northern Ethiopia(53.6%),health extension workers in West Gojjam Ethiopia (37.3%), a study done in Nigeria(32.1) and a study done among Philippine teachers in Philippines(73%)[6, 13, 16, 35,51, 55].This study showed that 26.6% of the practitioners' practice BSE regularly ;this is equivalent with the study done in Northern Ethiopia that showed (29.5%)[16] and it is high compared to a study done in West Gojjam Ethiopia (14.4%),among teachers in Philippine by Abdus Salam which showed (17%),Saudi women(21%) and it is lower compared to studies done at Ambo University(44.4%) and Debrebrehan University(61.9%)[13, 51-53].

In this study the major reason for practicing BSE was recommendation by health professionals (61%) which is higher than a study done among Addis Ababa University female students (31.9%). On the other hand a study done in Debre Birhan University revealed early detection as a major reason to practice (64.6%) that is very high compared to this study(3%). A study in North

Ethiopia revealed fear of developing breast cancer as a major reason to practice (64.4%) which is much higher than the current study[14, 16, 52].

The respondents who started practicing BSE at age 20 in this study were 23.8% which is very low compared to a study done at Harar University, Ethiopia (41.37%)[15] and it is high compared to a study done among female primary health workers in Turkey (13.6%)[15, 56].

In the current study all respondents who were practicing BSE were using either stand/sit or supine/lying position and this is very high compared to a study done in Philippine(45%) and among women attending primary health care in Kuwait standing (54.1%),lying down(52.3%)regarding technique this study revealed 15.6% follow one of like inspection, palpation or squeezing, similar study in Philippine showed that 50% practiced inspection and palpation, while in Kuwait study inspection (54.1%) and palpation (55%)[36, 51].

In this study of those who practice BSE 15.7% found change in their breast and this is high compared to a study done among health professionals in Portuguese(13.2%)and is low compared to Ambo Ethiopia(45.9%) and among Undergraduate students in University of Buea, (18.4%).In this study 94% consult health professionals regarding their findings and this was very high and 2 fold compared to the study done in Ambo Ethiopia, that (45.9%) and is lower than that of Portuguese(100%) [47][53, 57].

This study showed that not knowing how to do was the main reason not to practice BSE (72%) and similar study in Cameroon showed that not knowing how to do as a major reason which is higher compared to a study in West Gojjam Ethiopia(30.6%) and Debre Brehan University Ethiopia(32.8%) and lower compared to Philippine (82%)[13, 51, 52].

The current study showed that (87.9%) of the respondents' were knowledgeable on advantages of BSE which is lesser than Harar Ethiopia(93.6%), other study in Cameroon showed 88.6% to detect breast lump earlier and Nigerian women 60% to learn normal shape and size of breast. Regarding the right time to start BSE the current study revealed that 78.5% were knowledgeable which is higher compared to Adama University(62.2%),in contrast to this a study in Nigeria

showed that 60%of the respondents were not knowledgeable and claimed that BSE should be practiced at 30 years and above[15, 38, 55, 58].

Regarding knowledge on frequency and timing of BSE, this study showed that those who were knowledgeable on frequency of BSE 26.2% and this is lower compared to Adama Ethiopia (44.2%), Cameroon (37.3%),Turkey (30.1%) and Philippine (60%). The current study showed that 28.2% of the respondents were knowledgeable on the right timing of doing BSE for a woman with regular menses and this is higher than females in Addis Ababa University(14.7%),Harar(26.9%) and Nigerian women(8.1%) and is lesser compared to Ambo(46.2%) ,Saudi women(44.8%)and Turkey(90%). On the other hand 23.2% of respondents of this study were knowledgeable on the right time of practicing for a woman with irregular menses which is lesser compared to Philippine teachers (39%)[15, 17, 35, 38, 55, 58, 59].

The assessment of knowledge on position and technique of breast self-examination showed, 52.1% were knowledgeable on the right positions to do BSE which is higher compared to Debrebrehan University (41.3%),Philippine(45%) and Cameroon(9%).The knowledge on techniques of BSE was also assessed and 42.6% were knowledgeable which is much lesser compared to Philippine 70%[51, 52, 58].

Regarding the knowledge of sign and symptoms of breast cancer or what to look during BSE, the current study revealed that 52.4% of the respondents are knowledgeable which is much higher compared to Cameroon (13.9%). In this study swelling was mentioned by most of the respondents (45.6%) in contrary to this most of Medical Students in Haramaya University(77.7%) mentioned palpable lump as sign of BC[15, 58].

The attitude of respondents was also assessed and majority of them 44.7% disagreed on their susceptibility to BC and this is similar to Saudi women and Philippine teachers. BC was perceived to be a serious disease by 52.6% of the respondents that is similar to Saudi women (55.6%).Regarding the perceived benefit of BSE only 43.5% agreed which is much lesser compared to Harar, Ethiopia(95%) and Saudi women. 33.8% of the respondents had perceived barrier which is much higher compared to Saudi women (4.7%), 38.2% of this study believed to

do BSE confidently .that is similar to Philippine teachers(33%) but lower compared to Saudi women (56.5%).Regarding motivation only 21.8% of the respondent perceived their motivation to do BSE which is much lesser compared to Saudi women and Philippine teachers[15, 35, 51].

Regarding the relationship of socio-demographic factors, history of breast cancer, knowledge and attitude with BSE; the socio-demographic variables like age, marital status, income, religion, family history of breast cancer, knowledge related variables like right age to start, advantage of BSE, time of practice for regular menses and irregular menses, positions and techniques of breast self-examination, attitude related variables like perceived susceptibility, perceived severity, perceived self-efficacy, perceived benefit and cues to action even showed significant association on the binary logistic regression but they could not show significant association on the multiple logistic regression. Only three variables; level of education, knowledge on sign and symptoms of BC and perceived barrier are found to be predicators of BSE. Educational status being at High school with AOR 0.278 (0.107, 0.718)(p=0.008) is consistent with North Ethiopia(p=0.000),South India (p,0.003) and Qatar. Knowledge on sign and symptom of BC with AOR 8.2 (2.82, 17.73)(p= 0.026)this study is consistent with a study done in Malaysia among female students [55].Attitude on perceived barrier those who disagree AOR 7.19(1.65, 31.32)(p=0.000) is consistent with Saudi Women(p=0.0046)[16, 60-62].

LIMITATIONS OF THE STUDY

- The findings of this study were based on self-report as it was not possible to validate claims made by respondents in the course of questionnaire administration.
- No details of data on attitude.
- Lack of related papers and only specific references were used.

CONCLUSION AND RECOMMENDATION

CONCLUSION

This study tried to assess practice of BSE and its predicators and revealed that many of the respondents had never heard about BSE. And the number of respondents who ever practice were 109(32.1%) of this only 29(26.6%) were practicing regularly. This study revealed that educational status being at high school level, having knowledge about sign and symptom of BC and absence of perceived barrier were found to be predicators of BSE. On the other hand of those who did not practice most of them mentioned lack of skill as a reason not to practice. This implies that the health care system such as policy makers, health care managers, health care professional and community based health extension workers are giving limited attention to breast cancer despite its public burden.

RECOMMENDATION

All health professionals need to have the initiation and the responsibility to upgrade and update our knowledge on breast cancer and its screening methods especially BSE which is very feasible in our setting, so that we can educate women on "breast awareness" during regular visits for other health issues.

Health biro of Dire Dawa need to have strategies toward:

- Training on breast self-examination should be given to health professionals especially health extension workers who are the best way to reach the wider community and the best menses to prevent the problem at wider perspective.
- Promoting breast health education program at school by focusing on the treat of cancer and benefit of BSE.

- Channeling health education regarding breast cancer through women friendly agencies/organizations such as hospital antenatal and postnatal clinics, religious organizations, and women's self-help groups.

Further, Nationwide study on the practice of BSE and associated factor is recommendable in order to get representative evidences from urban and rural parts of the country.

Reference

1. Rick Alteri, et al Society, A.C., *Breast Cancer Facts & Figures 2015-2016*, in *Breast Cancer Facts & Figures*.American Cancer Society: Atlanta, 2015.
2. Global Burden of Disease Cancer, C., *The global burden of cancer 2013.* JAMA Oncology, 2015. 1(4): p. 505-527.
3. Forouzanfar, M.H., et al., *Breast and cervical cancer in 187 countries between 1980 and 2010: a systematic analysis.* The lancet, 2011. 378(9801): p. 1461-1484.
4. Misganaw, A., et al., *Epidemiology of major non-communicable diseases in Ethiopia: a systematic review.* Journal of health, population, and nutrition, 2014. 32(1): p. 1.
5. Smith, R.A., et al., *Cancer screening in the United States, 2010: a review of current American Cancer Society guidelines and issues in cancer screening.* CA: a cancer journal for clinicians, 2010. 60(2): p. 99-119.
6. FO., K., A. TM., and O. GK., *Knowledge, Attitude and Practice of Breast Self -Examination among Female Secondary School Teachers in Ilorin, Nigeria.* European Journal of Scientific Research, 2005. 10.
7. MarilysCorbex, Robert Burton, and H. Sancho-Garnier, *Breast cancer early detection methods for low and middle income countries, a review of the evidence.* . The Breast, 2012. 21: p. 428-434.
8. Ferlay, J., et al., *Cancer incidence and mortality worldwide: sources, methods and major patterns in GLOBOCAN 2012.* International journal of cancer, 2015. 136(5).
9. Aune, D., et al., *Dietary fiber and breast cancer risk: a systematic review and meta-analysis of prospective studies.* Annals of Oncology, 2012. 23(6): p. 1394-1402.

10. Abate, S., et al., *Trends of Breast Cancer in Ethiopia.* Int J Cancer Res Mol Mech, 2016. 2(1).
11. Akhtari-Zavare, M., et al., *Knowledge of breast cancer and breast self-examination practice among Iranian women in Hamedan, Iran.* Asian Pac J Cancer Prev, 2014. 15(16): p. 6531-6534.
12. Stewart, B. and C.P. Wild, *World cancer report 2014.* Health, 2017.
13. Azage, M., G. Abeje, and A. Mekonnen, *Assessment of factors associated with breast self-examination among health extension workers in West Gojjam Zone, Northwest Ethiopia.* International journal of breast cancer, 2013. 2013.
14. G., M.A., *Assessment of knowledge and practice of breast self examination among female undergraduate students in Addis Ababa University, college of Business and Economics*, in *Addis Ababa University School of Public Health*. 2016, Addis Ababa University: Unpublished.
15. Ameer, K., et al., *Breast cancer awareness and practice of breast self-examination among female medical students in Haramaya University, Harar, Ethiopia.* Int. J. Interdiscipl. Multidiscipl. Studies, 2014. 2(2): p. 109-119.
16. Legesse, B. and T. Gedif, *Knowledge on breast cancer and its prevention among women household heads in Northern Ethiopia.* Open Journal of Preventive Medicine, 2014. 4(01): p. 32.
17. M., M., *Assessment of breast self examination practice and associated factors among women between 20 and 70 years attending on selected public health centers in Addis Ababa*. 2015, Addis Ababa University: Unpublished thesis.
18. Belay, T., *National Reproductive Health Strategy 2006-2015*, F. Health, Editor. 2006, Ethiopian Ministry of Health: Addis Ababa.

19. Assefa, M., *Assessment of types and treatment pattern of cancer in TASH Radiotherapy Center: Retros- pective study.*, in *Addis Ababa University School of Grad- uate StudiesA Thesis Submitted to the of AAU in partial fulfillment of the require-, Addis Ababa*. 2011, AAU: Unpublished.
20. Astrazeneca pharmaceuticals, *Clinical Oncology Publishes Findings from First-Ever Initiative on Sustainable Breast Cancer Treatment in the Developing World*. 2017.
21. Toomey,K.J.,*Breast Self-Examination Among College-Aged Females An Intervention Study*. 2011, Appalachian State University.
22. Smith, R.A., V. Cokkinides, and O.W. Brawley, *Cancer screening in the United States, 2008: a review of current American Cancer Society guidelines and cancer screening issues.* CA: A Cancer Journal for Clinicians, 2008. 58(3): p. 161-179.
23. WHO, *Guidelines for the early detection and screening of breast cancer*, in *EMROTechnical Publications Series*, Khatib and M.N. Oussama Editors. 2006.
24. Wu, T.-Y., et al., *Health beliefs and practices related to breast cancer screening in Filipino, Chinese and Asian-Indian women.* Cancer Detection and Prevention, 2006. 30(1): p. 58-66.
25. Care, C.T.F.o.P.H., *Recommendations on screening for breast cancer in average-risk women aged 40–74 years.* Canadian Medical Association Journal, 2011. 183(17): p. 1991-2001.
26. Khokhar, A., *View point: How to make women familiar with their breasts?* Asian Pacific Journal of Cancer Prevention, 2013. 14(9): p. 5539-5542.
27. Bevers, T.B., et al., *NCCN clinical practice guidelines in oncology: breast cancer screening and diagnosis.* J Natl Compr Canc Netw, 2009. 7(10): p. 1060-96.

28. Roth, M.Y., et al., *Self-detection remains a key method of breast cancer detection for US women.* Journal of Women's Health, 2011. 20(8): p. 1135-1139.
29. Wilke, L.G., et al., *Breast self-examination: defining a cohort still in need.* The American journal of surgery, 2009. 198(4): p. 575-579.
30. Thind, A., et al., *Method of detection of breast cancer in low-income women.* Journal of Women's Health, 2009. 18(11): p. 1807-1811.
31. Donnelly, T.T., et al., *Do socioeconomic factors influence breast cancer screening practices among Arab women in Qatar?* BMJ open, 2015. 5(1): p. e005596.
32. Chee, H.L., et al., *Factors related to the practice of breast self examination (BSE) and Pap smear screening among Malaysian women workers in selected electronics factories.* BMC Women's Health, 2003. 3(1): p. 3.
33. Akhtari-Zavare, M., et al., *Barriers to breast self examination practice among Malaysian female students: a cross sectional study.* Springerplus, 2015. 4.
34. Staton, A.D., et al., *Cancer risk reduction and reproductive concerns in female BRCA1/2 mutation carriers.* Familial cancer, 2008. 7(2): p. 179-186.
35. A., M., et al., *Using the health belief model to predict breast self - examination among Saudi Women.* BMC public health, 2015. 15(1163).
36. Al-Azmy, S.F., et al., *Practicing breast self-examination among women attending primary health care in Kuwait.* Alexandria Journal of Medicine, 2013. 49(3): p. 281-286.
37. Hosseni, S., N. Mahdavi, and M. Pilevarzadeh, *Breast self-examination among women: A quantitative study.* Indian Journal Fundamental Applied Life Sciences, 2015. 5(S2): p. 3089-3096.

38. Makanjuola, O., et al., *Breast cancer: knowledge and practice of breast self examination among women in rural community of Ondo State Nigeria.* Journal of Pharmacy and biological sciences, 2013. 8(1): p. 32-7.
39. Champion, V.L., *Revised susceptibility, benefits, and barriers scale for mammography screening.* Research in nursing & health, 1999. 22(4): p. 341-348.
40. MJ., G., *Health belief model, social support, and intention to screen for colorectal cancer in older African American men. Health Promotion & Education.* Health Promotion & Education, 2012. 51(1): p. 12-22.
41. Scarinci, I.C., et al., *Development of a theory-based (PEN-3 and health belief model), culturally relevant intervention on cervical cancer prevention among Latina immigrants using intervention mapping.* Health promotion practice, 2012. 13(1): p. 29-40.
42. Özkan, A., et al., *Do Turkish nursing and midwifery students teach breast self-examination to their relatives.* Asian Pac J Cancer Prev, 2010. 11(6): p. 1569-73.
43. Sarfo, L.A., et al., *Knowledge, attitude and practice of self-breast examination among female university students at Presbyterian University College, Ghana.* Am J Res Communication, 2013. 1(Suppl 11): p. 395-404.
44. Birhane, N., et al., *Predictors of breast self-examination among female teachers in Ethiopia using health belief model.* Archives of Public Health, 2015. 73(1): p. 39.
45. CO, C., *Facts & Figures 2015-2016.* 2015.
46. Smeltzer, B.S.C., et al., *Brunner and Suddarth's Textbook of Medical-Surgical Nursing*. 12 ed. Vol. 2. 2010.
47. Alves de Sousa e Silva, L., Y. Macêdo Lobo Piauilino, and A.I. Oliveira Nicolau, *Knowledge, attitude, and practice of breast self-examination*

among nursing professionals. Journal of Nursing UFPE on line, 2013. 7(12): p. 6755-6763.

48. Elshamy, K.F. and A.M. Shoma, *Knowledge and practice of breast cancer screening among Egyptian nurses.* African Journal of Haematology and Oncology, 2010. 1(4).
49. Ibrahim, N.A. and O.O. Odusanya, *Knowledge of risk factors, beliefs and practices of female healthcare professionals towards breast cancer in a tertiary institution in Lagos, Nigeria.* BMC cancer, 2009. 9(1): p. 76.
50. T., T., *Assessment of maternal death and factors affecting maternal death surveillance and response system in Dire Dawa, Ethiopia*. 2015, Addis Ababa University, School of Public Health: Unpublished Thesis.
51. Marzo, R.R. and A. Salam, *Teachers' Knowledge, Beliefs and Practices of Breast Self-Examination in a City of Philippine: A Most Cost-Effective Tool for Early Detection of Breast Cancer*. 2016.
52. Birhane, K., et al., *Practices of Breast Self-Examination and Associated Factors among Female Debre Berhan University Students.* International journal of breast cancer, 2017. 2017.
53. Natae, S.F., *Assessment of Knowledge, Attitude and Practice of Breast Selfexamination among Ambo University Undergraduate Regular Female Students*. Journal of Medicine, Physiology and Biophysics, 2017. 32: p. 2422-8427.
54. Yerpude, P.N. and K.S. Jogdand, *Knowledge And Practice Of Breast Self-Examination (BSE) Among Females In A Rural Area Of South India.* National Journal of Community Medicine, 2013. 4(2): p. 329-332.
55. Segni, M., et al., *Breast Self-examination: Knowledge, Attitude, and Practice among Female Health Science Students at Adama Science and Technology University, Ethiopia.* Gynecol Obstet (Sunnyvale), 2016. 6: p. 4.

56. Canbulata, N. and O. Uzunb, *Health beliefs and breast cancer screening behaviors among female health workers in Turkey.* European Journal of Oncology Nursing, 2008. 12: p. 148-156.

57. Nde, F.P., et al., *Knowledge, attitude and practice of breast self-examination among female undergraduate students in the University of Buea.* BMC Research Notes, 2015. 8(43).

58. Suh, M.A.B., et al., *Breast self-examination and breast cancer awareness in women in developing countries: a survey of women in Buea, Cameroon.* BMC research notes, 2012. 5(1): p. 627.

59. Ergin, A.B., et al., *Meta analysis of studies about breast self examination between 2000-2009 in Turkey.* Asian Pacific Journal of Cancer Prevention, 2012. 13(7): p. 3389-3397.

60. Donnelly, T.T., et al., *Do socioeconomic factors influence breast cancer screening practices among Arab women in Qatar?* BMJ Opens, 2015. 5.

61. Akhtari-Zavare, M., et al., *Knowledge on breast cancer and practice of breast self examination among selected female university students in Malaysia.* Medical and Health Science Journal, 2011. 7(3).

62. Yerpude, P.N. and K.S. Jogdand, *Knowledge And Practice Of Breast Self-Examination (BSE) Among Females In A Rural Area Of South India.* National Journal of Community Medicin, 2013. 4(2).

Annexes

Annex I. Information Sheet and Consent Form

Hello! My name is _____, I am here to collect data for the research purpose which is conducted to complete a thesis for Master's Degree of Maternity and Reproductive health.
The purpose of this study is to assess Breast self- examination practice and associated factors among women attending governmental health center in Dire Dawa town.

You are selected to be one of the participants in the study. I would like to ask you to fill this questionnaire that takes 15 to 20 minute of your time. No harm is imposed to you except the time you commit for interview, some of the question may look too personal but it is helpful for the study. In addition, there is no payment for participation even though the result of the study may benefit as a citizen. The questionnaire Participation in this study is voluntary, you have the right to refuse or with draw from the study at any time for any reason without penalty. However, your honest answers to these questions are important since it provide relevant information to design interventions that aims to improve the practice of Breast self- examination among women.

The information you provide is confidential and it will be used only for study purpose and it will not be disclosed to anyone. A code number will be used to identify the participant therefore, writing your name is not needed.

Do you agree to participate in the study? Please make (X) mark to indicate the agreement.

a) Agree _____ b) Disagree_____

Thank you!!

Interviewer name_____ Signature_____

Checked by supervisor: Name_____ Signature_____ Date_____

Result of interview: 1. Completed---------- 2. Incomplete----------

Annex: English Version Questionnaire

Instruction- Circle the code number given parallel to the answer you choose and for questions that you give direct answer, write the answer in the space provided.

Part I Socio-demographic characteristics of respondents.

SN	Characteristics	Response	Skip
101	How old are you?	…… years old.	
102	What is your religion?	1. Orthodox 2. Protestant 3. Catholic 4. Muslim Other, please specify……88	
103	What is your marital status?	1.Single 2. Married 3. Divorced 4. Widowed 5. Separated Other, please specify……88	
104	What is your educational level?	1. No formal education 2. Read and write 3. Elementary 4. High school 5. College or university Other, please specify……88	
105	What is your average monthly income?	…….birr.	

Part II Family history of breast cancer

S no	Characteristics	Response	Skip to
201	Do you have family history of breast cancer?	1. Yes 2. No	
202	If yes, what is the kinship level?	1. Mother 2. Sister 3. Aunt 4.Grand mother Other, please specify…….88	

Part III Knowledge of Breast Self-Examination

S no.	Characteristics	Response	Skip to
301	Do you know about breast self-examination?	1. Yes 2. No	
302	Why to perform Breast self-examination? (Multiple responses are possible)	1.To know how a normal breast feels and looks. 2. To identify unusual changes on the breasts. 3. To get health service earlier. 4. I don't know Other, please specify……88	
303	At what age a girl should begin breast self-examination?	1.Atage less than 20 years. 2. At age 20 years. 3. Starting age 35. 4. Starting age 40. 5. I don't Know Other, please specify……..88	
304	How frequent Breast self-examination should be done?	1. Monthly 2. Every three month 3. Every six month 4.Annually	

		5.Occasionally 6.I don't know Other, please specify……..88	
305	When is the time for a woman with regular menses to perform breast self-examination?	1. Few days before menses 2. Day 5 to day 7 after menses 3. one to seven days of menses 4. I am not sure Other, please specify……88	
306	When is the time for a woman with irregular menses or menopause should perform breast self-examination?	1. Any day monthly 2. Regular day monthly 3. One to seven days of menses 4. I don't know Other please specify…….	
307	What are the body positions while performing breast self-examination? (Multiple responses are possible)	1. Standing/sitting in front of mirror. 2. Lying down/supine. 3. I don't know Other, please specify…….88	
308	What are the techniques of doing breast self-examination? (Multiple responses are possible)	1. Inspection of breasts by standing in front of mirror. 2. Palpation of the breast tissue using hand's pads. 3. Squeezing breasts nipples with finger tips. 4. I don't know. Other, please specify…….88	
309	What to look for when doing breast self-examination? (Multiple response is possible)	1. Swelling 2. Nipple discharge 3. Skin change 4. Breast lump 5. I don't know Other, please specify…….88	

Part IV Attitude of respondents toward breast self-examination

S no	Characteristics	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
401	There is a possibility that I can get breast cancer.					
402	Breast cancer can kill a woman.					
403	Doing BSE monthly helps me to get lump earlier.					
404	It is not difficult for me to do breast self-exams every month.					
405	Ifeel confident that I could identify any change by performing breast self-examination.					
406	I want discussion on BSE with health professionals.					

Part V Practice of breast self-examination

S no	Characteristics	Response	Skip to
501	Have you ever perform Breast self- examination?	1. Yes 2. No	If no skip to 512
502	Why do/did you perform breast self- examination? (multiple answers are possible)	1. Had previous breast problem. 2.Family history of breast cancer. 3.Recommended by Health professional. 4. For early detection and treatment. 5. Fear of developing breast cancer. Other, specify……88	
503	At what age you started practicing?	1. Before 20 years old. 2. At 20 years old. Other, please specify……88	

504	How many times did you practice last six months?	…….. times.	
505	How often you practice Breast self- examination?	1. Monthly 2. Every 3 month 3. Every 6 month 4. Yearly 5.Occassionaly Other, please specify……88	
506	When do you practice breast self-examination?	1. Few days before menses. 2. Day 5 to day 7 after menses. 3. one to seven days of menses 4. Regular day monthly. 5. When it comes to my mind. Other, please specify……88	
507	Which body position do you practice while doing breast self-examination? (Multiple responses are possible)	1. Standing/ sitting in front of mirror. 2. Lying down/supine. Other, please specify…….88	
508	How do you practice breast self-examination? (Multiple response is possible)	1. Inspection of breasts by standing in front of mirror. 2. Palpation of the breast tissue using hand's pads. 3. Squeezing breasts nipples with finger tips. Other, please specify……88	
509	Do you examine one breast at a time?	1. Yes. 2. No.	
510	What did you observe while doing BSE?	1. Nipple discharge. 2. Lump.	

	(multiple answers are possible)	3. Change in shape and size. 4. Nipple retraction. 5. No change Other, please specify……..88	
511	What did you do upon a positive finding? (Multiple responses are possible)	1. Consult traditional healer. 2. Consult health person. 3. Nothing. Other, please specify……88	
512	What is your reason not to practice? (multiple responses are possible)	1. I don't have breast problem. 2. It is embarrassing. 3. Fear of diagnosing breast cancer. 4. Forgetfulness. 5. I don't know how to do it. Others, specify……..88	

Annex II: Participant Information Sheet and Information Consent Form (Amharic Version)

አዲስ አበባ ዩኒቨርሲቲ ጤና ሳይንስ ኮሌጅ በነርሲንግና በሚድዋይፈሪ የድህረ ምረቃ ትምህርት ፕሮግራም

የምርምር/ጥናት ማብራሪያና የስምምነት መግለጫ ቅፅ

ጤና ይስጥልኝ

ስሜ_____ይባላል፡፡ እዚህ የመጣሁት የአዲስ አበባ ዩኒቨርሲቲን የጤና ሳይንስ ኮሌጅ የነርሲንግና ሚድዋይፈሪ የድህረ ምረቃ የትምህርት ፕሮግራምን ለማጠናቀቅ የሚረዳ ጥናት ማድረጊያ መረጃ ለመሰብሰብ ነው፡፡

የጥናቱ ዋና ዓላማ በድሬዳዋ ከተማ ውስጥ ባሉ የመንግስት የጤና ማዕከላት ውስጥ ተጠቃሚ የሆኑ ሴቶች ላይ የራስ በራስ የጡት ምርመራ ተግባር ምን እንደሚመስል ለማጥናት ነው፡፡ የመጠየቂያ ቅፁን ለመሙላት ከ15-20 ደቂቃ ይፈጃል፡፡ በዚህ ጥናት ላይ በመሳተፍዎ መጠይቁን ለመሙላት የሚጠይቀውን የተወሰኑ ደቂቃዎች ከማጥፋትዎ በቀር የሚደርስብዎት ምንም ጉዳት የለም፡፡ ነገር ግን አንዳንድ ጥያቄዎች ግላዊ ቢመስሉም ለጥናቱ አስፈላጊ ናቸው፡፡ በተጨማሪም በዚህ ጥናት ስለ ተሳተፉ የሚያገኙት ክፍያ የለም ምንም እንኳ ለጥናቱ ውጤት እንደ ዜጋ ሊያገኙት የሚችሉት ጥቅም ሊኖር ቢችልም፡፡ በዚህ መጠይቅ ተሳታፊ የሚሆኑት በፈቃደኝነት ነው፡፡ ያለ መሳተፍ ወይም በመሀል የማቆም መብት አለዎት፡፡ ያለ ቅጣት፤ ቢሆንም ግን የእርሶ ትክክለኛ መረጃ ለዚህ ጥናት ጠቃሚ ነው፤ የራስ በራስ የጡት ምርመራ ተግባርን በሌሎች ላይ የተሻለ ለማድረግ በሚደረገው እንቅስቃሴ ላይ ትልቅ አስተዋጽኦ አለው፡፡

የሚሰጡን መረጃ ሚስጥራዊነቱ የተጠበቀ እና ለጥናታዊ ተግባር ብቻ የሚውል እና ለማንም የማይገለፅ ይሆናል፡፡ ተሳታፊዎችን ለመለየት ልዩ የመለያ ቁጥር ስለምንጠቀም ስሞትን መፃፍ አስፈላጊ አይደለም፡፡

በጥናቱ ለመሳተፍ ይስማማሉ?

ቃለ መጠይቅ አድራጊው ስም_____ፊርማ_____ቀን_____

ተቆጣጣሪ_____ፊርማ_____ቀን_____

ቃለመጠይቁ ሀ/ ተጠናቋል ለ/ አልተጠናቀቀም

Data Collection Instrument questioner

(Amharic Version)

ክፍልአንድ፡- ማህበራዊና የስነ ህዝብ መረጃ

ተ.ቁ	ጥያቄ	ምላሽ	መለያ
101	እድሜዎ ስንት ነው?	_____ዓመት	
102	ሐይማኖትዎ?	1. ኦርቶዶክስ 2. ፕሮቴስታንት 3. ካቶሊክ 4. ሙስሊም ሌላካለይጥቀሱ_____ 88	
103	የጋብቻ ሁኔት	5. ያላገባች 6. ያገባች 7. የፈታ/ች 8. የትዳር አጋር የሞተባት 9. ተለያይተው የሚኖሩ ሌላካለይጥቀሱ_____ 88	
104	የትምህርት ደረጃ	10. መደበኛ ትምህርት ያልተከታተለች/ሉ 11. ማንበብና መጻፍ 12. የመጀመሪያ ደረጃ 13. የሁለተኛ ደረጃ 14. ከፍተኛ ትምህርት (ኮሌጅ/ ዩኒቨርሲቲ/ ሌላ ካለ ይጥቀሱ_____ 88	
105	ወርሀዊ ገቢዎ ምን ያህል ነው	_____ብር	

ክፍል ሁለት፡ የቤተሰብ የጡት ካንሰርን በሽታ በተመለከተ

ተ.ቁ	ጥያቄ	ምላሽ	መለያ
201	በጡት ካንሰር የታመመ ሠው ያውቃሉ?	15. አውቃለሁ 16. አላውቅም	
202	በጡት ካንሰር የተያዘ የቤተሰብ አባል አለ?	17. አዎ 18. የለም	
203	ካለ በጡት ካንሰር የተያዘው የቤተሰብ አካል ማነው?	19. እናት 20. እህት 21. አክስት 22. ሴትአያት ሌላ ካለ ይጥቀሱ_____ 88	

ክፍል 3፡ ስለ ራስ በራስ የጡት ምርመራ እውቀትን በተመለከተ

ተ.ቁ	ጥያቄ	ምላሽ
301	ስለ ራስ በራስ የጡት ምርመራ ሰምተው ያውቃሉ?	23. አዎ 24. አላውቅም
302	የራስ በራስ የጡት ምርመራ ማድረግ ያለበት ማነው?	25. ሴት ብቻ 26. ወንድ ብቻ 27. ሴትም ወንድም
303	አንዲት ሴት ከየትኛው የእድሜ ደረጃ ጀምሮ የራስ በራስ የጡት ምርመራ ማድረግ መጀመር አለባት?	28. ከሀያ ዓመት በታች 29. ሀያ አመትና ከዚያ በላይ 30. ከ35 ዓመት ጀምሮ 31. ከ40 ዓመት ጀምሮ 32. አላውቅም ሌላ ካለ ይጥቀሱ_____ 88
304	የራስ በራስ የጡት ምርመራ በየስንት ጊዜ መተግበር አለበት?	33. በየወሩ 34. በየሶስት ወሩ 35. በየስድስት ወሩ 36. በየዓመቱ

		37. አልፎ አልፎ 38. አላውቅም ሌላካለይጥቀሱ_____ 88
305	አንዲት የወር አበባ በየወሩ በተመሳሳይ ጊዜ ያላት ሴት መቼ ነው የራስ በራስ የጡት ምርመራ ማድረግ ያለባት?	39.የወር አበባ ከመምጣቱ ጥቂት ቀናት በፊት 40.የወር አበባ ካበቃ ከ 5 እስከ 7 ቀናት ጊዜ ውስጥ 41.የወር አበባ ላይ እያለች 42.አላውቅም ሌላ ካለ ይጥቀሱ_____ 88
306	አንዲት የወር አበባዋ የተዘባረቀ ወይም ያረጠች ሴት መቼ ነው የራስ በራስ የጡት ምርመራ ማድረግ ያለባት	43.በማንኛውም ቀን በየወሩ 44. በተመሳሳይ ጊዜ በየወሩ 45. የወር አበባ ላይ እያለች 46. አላውቅም ሌላ ካለ ይጥቀሱ_____ 88
307	የራስ በራስ የጡት ምርመራ ሲደረግ መከተል ያለብን የሰውነት አቀማመጥ እንዴት ነው?	47.መስታወት ፊት ለፊት በመቆም/ በመቀመጥ 48.በጀርባ በመንጋለል 49.አላውቅም ሌላ ካለ ይጥቀሱ_____ 88
308	የራስ በራስ የጡት ምርመራ እንዴት ይተገበራል? (ከአንድ በላይ መልስ መስጠት ይቻላል)	50.መስታወት ፊት ለፊት ቆሞ በማየት 51.በመሀል ጣቶች በመዳሰስ 3. የጡትን ጫፍ በጣቶች ጫፍ በመጫን 4. አላውቅም ሌላ ካለ ይጥቀሱ_____ 88
309	የራስ በራስ የጡት ምርመራ ላይ ምንን መመልከት ያስፈልጋል (ከአንድ በላይ መልስ መስጠት ይቻላል)	52.የጡት ቅርፅና መጠን 53.ያልተለመደ የጡት ፈሳሽ 54.የቆዳ ለውጥ 55.የጡት እጢ 5. አላውቅም ሌላ ካለ ይጥቀሱ_____ 88

ክፍል 4፡ የራስ በራስ የጡት ምርመራን አመለካከት በተመለከተ

ተ.ቁ	ጥያቄ	በፍፁም አልስማማም	አልስማማም	ሀሳብ የለኝም	እስማማለሁ	በጣም እስማማለሁ
401	የጡት ካንሰር ሊይዘኝ ይችላል					
402	የጡት ካንሰር ገዳይ በሽታ ነው					
403	በየወሩ የራስ በራስ የጡት ምርመራ ማድረግ የጡት እጢን በጊዜው እንድናገኝ ያደርገኛል					
404	በየወሩ የራስ በራስ የጡት ምርመራን ማድረግ ማስታወስ አያስቸግረኝም					
405	የራስ በራስ የጡት ምርመራ በማድረግ በጡቴ ላይ ያለ ማንኛውም ለውጥ በደንብ መለየት እችላለሁ፡፡					
406	ከጤና ባለሙያ ጋር ስለ ራስ በራስ የጡት ምርመራ ማድረግ እፈልጋለሁ፡፡					

ክፍልአምስት፡- የራስ በራስ የጡት ምርመራ ተግባርን በተመለከተ

ተ.ቁ	ጥያቄ	ምላሽ	መለያ
501	የራስ በራስ የጡት ምርመራ አድርገው ያውቃሉ?	56. አዎ 57. አላውቅም	ወደ ጥያቄ 512
502	ለምንድን ነው የራስ በራስ የጡት ምርመራ የሚያደርጉት? (ከአንድ በላይ ምላሽ መስጠት ይቻላል)	58. ከዚህ በፊት የጡት ችግር ስለነበረብኝ 59. በቤተሰብ የጡት ካንሰር ስላለ 60. በጤና ባለሙያ ስለሚመከር 61. በጊዜ ለማወቅና እርምጃ ለመውሰድ 62. በጡት ካንሰር መያዙን ስለምፈራ ሌላካለይጥቀሱ_____ 88	
503	መቼ ነው የራስ በራስ የጡት ምርመራ ማድረግ የጀመሩት?	63. ከሀያ ዓመቴ በፊት 64. ከሀያ ዓመቴ ጀምሮ 65. ከአርባ ዓመቴ ጀምሮ 66. አላስታውስም ሌላ ካለ ይጥቀሱ_____ 88	
504	ባለፈው ዓመት ምን ያህል ጊዜ ተገበሩ?	_____ጊዜ	
505	የራስ በራስ የጡት ምርመራን በምን ያህል ጊዜ ይተገብራሉ?	67. በየወሩ 68. በየሶስት ወሩ 69. በየስድስት ወሩ 70. በዓመት 71. አልፎ አልፎ ሌላካለይጥቀሱ_____ 88	
506	መቼ ነው የራስ በራስ የጡት ምርመራ የሚያደርጉት?	72. የወር አበባ ከመምጣቱ ጥቂት ቀናት በፊት 73. ከአምስትና ሰባት ቀናት በኋላ 74. የወር አበባ ጊዜ ላይ እያለሁ 75. በየወሩ በተመሳሳይ ቀን 76. እርግጠኛ አይደለሁም ሌላካለይጥቀሱ_____ 88	

507	የራስ በራስ የጡት ምርመራ ላይ የትኛውን የሰውነት አቀማመጥ ይተገብራሉ?	77. መስታወት ፊት ለፊት በመቆም/በመቀመጥ 78. በጀርባ በመንጋለል 79. መስታወት ፊት ለፊት በመቆም (መቀመጥና በጀርባ በመንጋለል) ሌላ ካለ ይጥቀሱ_____ 88	
508	የራስ በራስ የጡት ምርመራን እንዴት ይተገብራሉ? (ከአንድ በላይ መልስ መስጠት ይቻላል)	80. መስታወት ፊት ለፊት ቆሞ /ቁጭ ብሎ በማየት 81. በመሀል ጣቶች የጡትን ዙሪያ በመዳሰስ 82. በእጅ ጣቶች የጡትን ጫፍ በመጫን ሌላ ካለ ይጥቀሱ_____ 88	
509	በአንድ ጊዜ አንዱን ብቻ ነው የሚመረምሩት?	83. አንድ በአንድ 84. ሁለቱንም በአንዴ	
510	የራስ በራስ የጡት ምርመራ ላይ ምን ተመለከቱ (ከአንድ በላይ መልስ መስጠት ይቻላል)	85. ከጡት ጫፍ የሚመጣ ፈሳሽ 86. የጡት እጢ 87. የቅርጽና የመጠን ለውጥ 88. የጡት ጫፍ ወደ ውስጥ መግባት 89. ምንም ለውጥ አላየሁም ሌላ ካለ ይጥቀሱ_____ 88	
511	በጡትዎ ላይ ለውጥ አግኝተው ከነበር ምን አደረጉ?	90. የባህል ሀኪሞችን አማከርኩ 91. ለጤና ባለሙያ አማከርኩ ሌላ ካለይ ጥቀሱ_____ 88	
512	የራስ በራስ የጡት ምርመራ ለምን አያደርጉም? (ከአንድ በላይ መልስ መስጠት ይቻላል)	92. የጡት ችግር ስለሌለብኝ 93. ያሳፍራል 94. የጡት ካንሰር እንዳይኖርብኝ ፈርቼ 95. እረሳለሁ 96. እንዴት እንደሚተገበር አላውቅም ሌላ ካለ ይጥቀሱ	

ስለ ትብብርዎ እጅግ በጣም አመሰግናለሁ።