

Epidemiological Study on Breast Cancer Associated Risk Factors and Screening Practices Among Women in Mbaise Imo State, Nigeria

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Abstract:-

Background of the study

Breast cancer is cancers that originate from breast tissues, most commonly from the inner lining of milk ducts or the milk supplying ducts of the lobules. The modification/mutation of DNA and/or RNA causes formation of cancer cells from normal cells. This study is aimed to assess the awareness of the risk factors of breast cancer and screening practices among women in Mbaise, Imo State, Nigeria.

➤ Methods

The study is a descriptive cross-sectional survey that uses structured self-administered questionnaire. Multistage simple random sampling technique was used to select four hundred women from the three LGAs in Mbaise, Imo State, Nigeria. The structured questionnaire was designed into various sections, which included characteristics of respondents; habits of respondents; awareness on risk factors of breast cancer; factors that are helpful in the recovery of patients from breast cancer; and level of awareness of screening practices and breast self-examination (BSE) practice.

➤ Results

From the research, 260 (65%) of the women who participated in this research fell within the age range of 18–30. At least 40 (10%) of the respondents were within the age range of 31–50, while at least 40 (10%) were those within the age range of 51–65. Married women dominated 210 (52.5%) of the research. 160 (40%) women in this study were educated at secondary level, 100 (25%) at tertiary institutions, and primary 80 (20%), while a few 60 (15%) were illiterate etc.

➤ Conclusion

This study revealed a low level of awareness about risk factors and the practice of breast self-examination (BSE) among women in Mbaise, Imo State, Nigeria. Hence, they suggested the need for regular updates

through seminars/workshops for health workers focused on breast cancer education and screening practices.

Keywords:- Breast Cancer - Breast Self-Examination, Knowledge, Risk Factor, Screening Practises, Nigeria.

I. INTRODUCTION

Breast cancer refers to cancers that originate from breast tissue, most commonly from the inner lining of milk ducts or milk supplying lobules [1]. The modification/mutation of DNA and/or RNA causes the formation of cancer cells from normal cells [1]. These modifications/mutations can occur rapidly due to entropy increase or they may be induced by other factors such as electromagnetic radiation (microwaves, X-rays, gamma-rays, ultraviolet-rays etc.), nuclear radiation, chemicals in the air, water, and food, mechanical cell-level injury, free radicals, viruses, bacteria, fungi, and parasites due to tissue inflammation and ageing of DNA and RNA. These can cause mutations that can trigger cancer [2, 3].

There are two classifications of breast cancer: non-invasive and invasive. Non-invasive breast cancer or in situ carcinoma is located in the breasts [1]. It can only be detected by a mammogram, not by palpating the breast. Invasive breast cancer extends beyond the breast. Invasive ductal carcinoma is the most common form of breast cancer, and it develops in the cells of the ducts [2].

For females, the most diagnosed cancer is breast cancer which is also the leading cause of cancer death among females, and represent 23% of the total cancer cases and 14% of the cancer deaths [1-4]. Breast cancer is now also the leading cause of death among women from all cancers in developing countries. However, the breast cancer mortality rates found among African women are higher than those of women living in Western countries [3].

The burden of breast cancer was 1.38 million, which occupies second place among all cancers. The estimated number of new cases in developed and developing regions is

1:4 in a population of 6,900,000 [2]. The incidence rate was high, greater than 80 per 100,000 in developed regions except Japan, and low in most developing regions, less than 40 per 100,000. However, in Eastern Africa and Western Europe, rates ranged from 19.3 to 89.9 per 100,000 women [5, 6].

In defined order, the most common and most commonly used breast cancer screening methods in the world are self-examination, clinical breast examination, and mammography. Mammography is currently the only recommended imaging method for breast cancer screening. The American Cancer Society recommends mammograms for all females from the start of age 40 to be conducted every year and to be continued as long as a woman is in good health [7, 8]. A clinical breast exam (CBE) is recommended every year for women aged 40 and more in addition [9-13]. Mammography screening has been recommended for women aged 40 years and older by all major US medical organizations. Screening mammography is very useful as it reduces mortality from breast cancer by about 20–35% in women aged 50–69 years and slightly less in women aged 40–49 years at a period of 14 years of follow-up [9].

Gender, age, race, family history and genetic factors; personal health history like early menarche and late menopause; reproductive history; certain genome changes; dense breast tissue; lack of physical activity; poor diet; obesity; lack of awareness; alcoholism; exposure to radiation and nulliparous; poor breast feeding; oral contraceptive and lifestyle [14]. An earlier study, discovered that literacy and employment increased the breast cancer risk factor by approximately 25%. Staying single with a delayed marriage and a higher income group may increase the risk of breast cancer [3].

A study has revealed that those susceptible to breast cancer are between the ages of 40s and 50s in Asian countries, a decade earlier than in western countries, where the peak age is somewhere between 60 and 70 years old. Other studies have shown that unmarried women and nulliparous women had a 2–fold higher risk of breast cancer than multi-parous women and also had a higher incidence of late marriage (above 30 years) and late age at first pregnancy (above 30 years) [10]. Furthermore, research has shown that 20.7% of 226 breast cancer patients had a positive family history. 87% of non-vegetarians were at higher risk for all types of cancer over all.

A study found that breast feeding duration and breast cancer risk are inversely proportional [6]. The increase in the incidence of cancer have revealed that cancer patients are diagnosed at later and untreatable stages. However, there is a fair chance of survival if it is detected early and treated properly.

Hence, early detection and effective treatment are very important to reduce the breast cancer morbidity and mortality rates. Breast self-examination and mammography are believed to be effective techniques for ensuring early detection of breast cancer. Furthermore, the most important factors for female motivation for disease prevention, early

detection, and management is breast cancer risk factors and their perception of their personal risk [10, 11]. On the other hand, poor knowledge about breast cancer and the associated risk factors has been identified as important factors which can prevent women from participating in screening for breast cancer.

However, creating awareness about the risk factors of breast cancer and feasible screening practices such as BSE is critical in reducing the incidence. The procedures seem to have inadequate reach among the general female population in Mbaise. Most women are not aware of breast cancer, the importance of medical programs and care due to illiteracy. The consequences of this are the development of an advanced stage with poor treatment outcome. Further addition to the delayed treatment which can ultimately result in financial and psychological constraints is non-adaptability to the screening process along with lower concerns for Nigerian society. The present study included students, housewives, teachers, and working women in the age group of 18–65 years in Mbaise. The women represent various cultures, traditions, and habits to make Mbaise a multicultural place. Therefore, our study aims to assess knowledge and awareness about the risk factors and screening practices for early detection of breast cancer among women in Mbaise, Imo State, Nigeria.

II. METHODS

➤ *Study Area*

Mbaise, Imo State, Nigeria

➤ *Sampling/Sample size*

The participants were randomly selected from the three local government areas (LGAs) in Mbaise (Aboh Mbaise Local Government Area, Ahiazu Mbaise Local Government Area, and Ezinihitte Mbaise Local Government Area). Participants were 400 women within the age range of 18–65 years.

➤ *Research Design*

This study is a descriptive cross-sectional survey that made use of well-structured self-administered questionnaire. Four hundred women from the three LGAs in Mbaise were selected using a multistage simple random sampling technique. The structured questionnaire was designed into various sections, which included characteristics of respondents; habits of respondents; awareness on risk factors of breast cancer; factors that aid recovery of patients from breast cancer; and level of awareness of screening and breast self-examination (BSE) practices.

➤ *Data/Statistical Analysis*

The data was entered, cleaned, and analysed using statistical software for social sciences version 25.0. Contingency tables were used to show the distribution of data. Mean and standard deviation was used to summarize quantitative data, qualitative analysis with proportions and percentages. Chi-square will be used to carry out statistical analysis in order to determine the effect of the different variables on the vaccination of children. The level of significance was 0.05.

➤ *Ethical Consideration*

Ethical clearance for the study was obtained from the Ethical Committee of Abia State University, Uturu, Nigeria. Furthermore, the respondents gave verbal informed consents after explaining to them the importance, advantages and disadvantages of the study. They were also informed that they could decide not to participate in the study without any consequence. Historical and personal data confidentiality of the respondents was ensured throughout the study.

III. RESULTS

➤ *Socio-demographic information of the respondents*

Table 1 below shows the socio-demographics of the study. 260 (65%) of the women who participated in this research fell within the age range of 18-30, 100 (25%) were within the age range 31-50, and the least 40 (10%) were those within the age range 51-65. The minimum age was 18 years, and the maximum age was 65 years respectively, while the maximum proportion of women was aged between 18 and 30 years (66%) (See figure 1 below).

Married women dominated with 210 (52.5%), unmarried women were 170 (42.5%), and the widowed were at least 20 (5%). Also, 160 (40%) of the respondents in the study were educated at secondary level, 100 (25%) at tertiary institutions, and primary 80 (20%) respondents, while 60 (15%) were illiterate. (See figure 2). Students made up 190 (47.55% of the participants in this study), housewives made up 130 (32.5%), and employed people made up 80 (20%). According to the religion of the participants in this study, Christians were 380 (95%), traditionalists were 18 (4.5%), and Muslims were 2 (0.5%). The urban dwellers were 290 (72.5%), while 110 (27.5%) were rural dwellers.

➤ *Information about the habits of respondents' daily life activities*

Based on stressful life among the participants, 240 (60%) of women sometimes had a stressful life, whereas 120 (30%) had stress often; however, 40 (10%) felt no stress in their day to-day life.

According to physical exercise, 210 (52%) women were involved in physical exercise quite often whereas 170 (42.5%) sometimes engaged in physical exercise, and 20 (5%) of the women didn't have a habit with any physical exercise (See Table 2). Furthermore, 170 (42.5%) of the participants' water sources were tap water, 160 (40%) for (reverse osmosis), 68 (17%) for underground water, and at least 2 (0.5%) for pond water (Table 2).

The use of fruits and vegetables was very high among the participants; 394 (98.5%) responded yes and only a few 6 (1.5%) responded that they never used vegetables and fruits (Table 2). Soya food was occasionally 230 (57.5%) used by the participants. 108 (27%) often used soya food, while 62 (15.5%) never used soya food.

Women who never consumed non-vegetarian diets in their daily lives were 192 (48%). Those who used non-vegetarian food sometimes were 158 (39.5%), while 50 (12.5%) of the respondents often used non-vegetarian food. Majority of the women (95.4%) had never taken alcohol, followed by 140 (35%) who often take alcohol, 50 (12.5%) occasionally take alcohol while 30 (7.5%) were ex-drinker. Majority of the women 376 (94%) in this study had never smoked, 10 (2.5%) smoke sometimes, 8 (2%) often smoke while ex-smokers were 6 (1.5%). Lastly, 260 (65%) of the proportion of women sometimes use cosmetics, 84 (21%) never used cosmetics while 56 (14%) often use cosmetics.

➤ *Respondents' Awareness of Risk Factors of Breast Cancer*

The risk factors for breast cancer were classified into three groups: (i) age, marriage & heredity, (ii) physical & chemical, and (iii) lifestyle factors. According to age, marriage & heredity factors, 212 (53%) of the respondents were above 40 years, heredity 200 (50%), hormone therapy 140 (35%), late marriage 134 (33.5%), null parity 130 (32.5%), menopause after 55 years 102 (25.5%), while the least was menarche below 12 years (Table 3).

Based on physical and chemical factors, alcohol had 264 (66%), smoking 260 (65%). Radiation had 174 (43.5%), pesticides/chemicals had 160 (40%), and cosmetics had at least 110 (27.5%). Obesity was 180 (45%), followed by lack of physical activity 162 (40.5%), sedentary lifestyle 160 (40%), stressful life 152 (38%), injury/accident in breast 150 (37.5%), packed food 112 (28%), and red meat the least at 110 (27.5%) (Table 3).

➤ *Factors that aid the Recovery of Patients from Breast Cancer*

The factors were assessed by enquiring from women which factors they thought could help the cure of breast cancer. In respect to table 4, doctor support respondents were (95%) and family support was given a high (93.5%) value for the recovery of patients suffering from breast cancer. These factors were very significant. 264 (66%) of participants responded that spirituality and prayer act as supportive factors for breast cancer, this opinion can be linked with the fact that churches are rampant in Mbaise. Change in an active lifestyle 332 (83%) may help as a protective factor. Hence, scientific (as they include doctors), social and spiritual approaches are coping factors that gives patients confidence. (See Table 4).

➤ *Awareness of Screening Practices and BSE Practices*

In this study, it was found that 102 (25.5%) were aware of the screening practices, i.e., mammography, while 298 (74.5%) were not aware of the screening practices (Table 5).

Only 186 (46.5%) of the participants were aware of BSE performance, while the remaining 214 (53.5%) were not. In this study, 122 (30.5%) perform BSE once every year while 278 (69.5%) do not perform it once every year (See Figure 3).

IV. DISCUSSION

This study found that 25.5% of women were aware of screening practices, i.e., mammography, whereas it was significantly higher (89%) among nursing students of Himachal Pradesh and followed by 67.1% among teachers of Delhi. This study is in line with the studies of [15] and Nigerian women [12], which were 25% and 21.6%, respectively.

In Mbaise, awareness of BSE and its performance once a year was 46.5% and 30.5%, respectively, compared to 97% and 54% in Himachal Pradesh nursing students, 42% and 15% in Mumbai women, 36% and 13.3% in Delhi teachers, 37.5% and 17% in Turkish, and 52.8% and 51.6% in Nigerian women, respectively. Most women disregard BSE performance due to a lack of knowledge and awareness about BSE.

Only 30.5% of women performed breast self-examination at least once a year due to the fact that a family member was exposed to cancer and doctors had advised them to do so. Not knowing how to perform breast self-examination has been the main reason for the non-performance. It is important to obviate their fears by demonstrating the correct method of BSE performance. Healthcare workers should be involved in teaching programs to promote breast self-examination. A study revealed that the Health Belief Model was applied to the practice of BSE and to promote it to overcome the practical barriers of BSE practice.

Based on age, marriage and related risk factors and heredity, the least awareness factors were early menarche (15%), followed by late menopause (25.5%), null parity (32.5%), late marriage (33.5%) and hormone therapy (35%). The most well-known risk factors were older age (53%) and hereditary (50%). Similar results had been reported previously as awareness of the factor of hereditary in Delhi, Mumbai and the Arab country of Kuwait City were 58%, 42.5% and 54.2%, respectively.

Furthermore, 7.7% of Delhi teachers and 35.4% of Kuwait City women reported being aware of early menarche and being over the age of forty. This study discovered the disparity in awareness of many women on the association of these risk factors capable of causing breast cancer. However, it was found that being above 40 years and heredity factors are the most identified risk factors.

Based on physical and chemical risk factors, alcohol use was (66%) Smoking (65%) was the highest recorded risk factor, followed by exposure to radiation (43.5%). The least recorded risk factors were pesticide usage (40%) and cosmetics (27.5%). However, a small fraction of women were not aware of physical and chemical factors as causative factors for breast cancer, as shown in table 3. The study in Mumbai showed similar results. Alcohol (85%) and smoking (74%) were well-known risk factors. 36% of women reported radiation exposure as being a risk factor.

Obesity (45%), stressful life (40.5%), and lack of physical exercise (40%) as shown in table 3 were the most common risk factors according to the lifestyle-related risk factors. The lowest known risk factors discovered were injury/accident in the breast (38%), packed food (28%), and red meat (27.5%). Injury/accident to the breast as a causative factor was reported by 39.4% of women. According to past studies, obesity was not considered as a risk factor, but 15% of women considered modern living as a risk factor for breast cancer.

V. CONCLUSION

The study revealed the level of awareness on risk factors and practice of breast self-examination among women in Mbaise, Imo State, Nigeria as being low. Therefore, factors interfering with the practice of BSE should be properly addressed. Electronic media such as radio and television should be used to encourage BSE practice. Government and non-government organizations should work hand in hand with the medical teams (doctors, nurses, etc.) in hospitals and clinics. Hence, there is a need for regular updates through seminars/workshops for health workers focusing on breast cancer education and screening practices to support the reduction of the rate and ensure early diagnosis.

Ethics Approval and Consent to Participate
Not Applicable

Consent to Publish
Not Applicable

Availability of Data and Material
The data set from the study are available to the corresponding author upon request.

Competing Interests
The Authors have declared they have no competing interests.

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Not Applicable

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Table 1: Socio-Demographic Data

Variables	Frequency (n=400)	Percentage
Age group (years)		
18-30	260	65%
31-50	100	25%
51-65	40	10%
Marital status		
Married	210	52.5%
Unmarried	170	42.5%
Widowed	20	5%
Educational qualification		
Illiterate	60	15%
Primary	80	20%
Secondary	160	40%
Tertiary	100	25%
Occupation		
Student	190	47.5%
House wife	130	32.5%
Employed	80	20%
Religion		
Christian	380	95%
Muslim	2	0.5%
Traditionalist	18	4.5%
Residence		
Urban	290	72.5%
Rural	110	27.5%

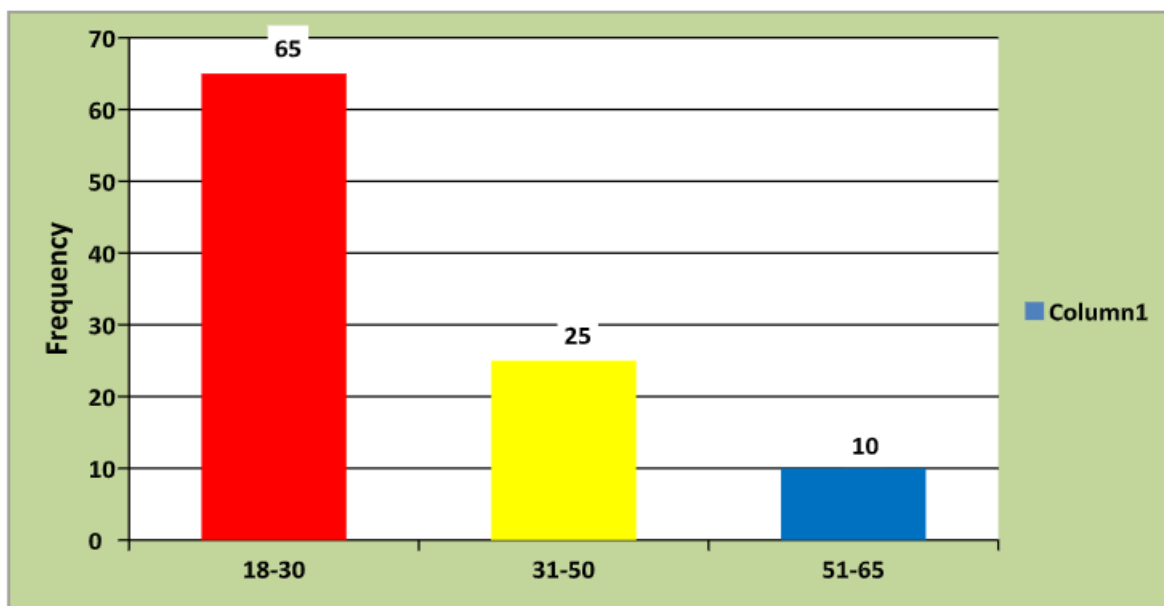


Fig 1: Age range of respondents

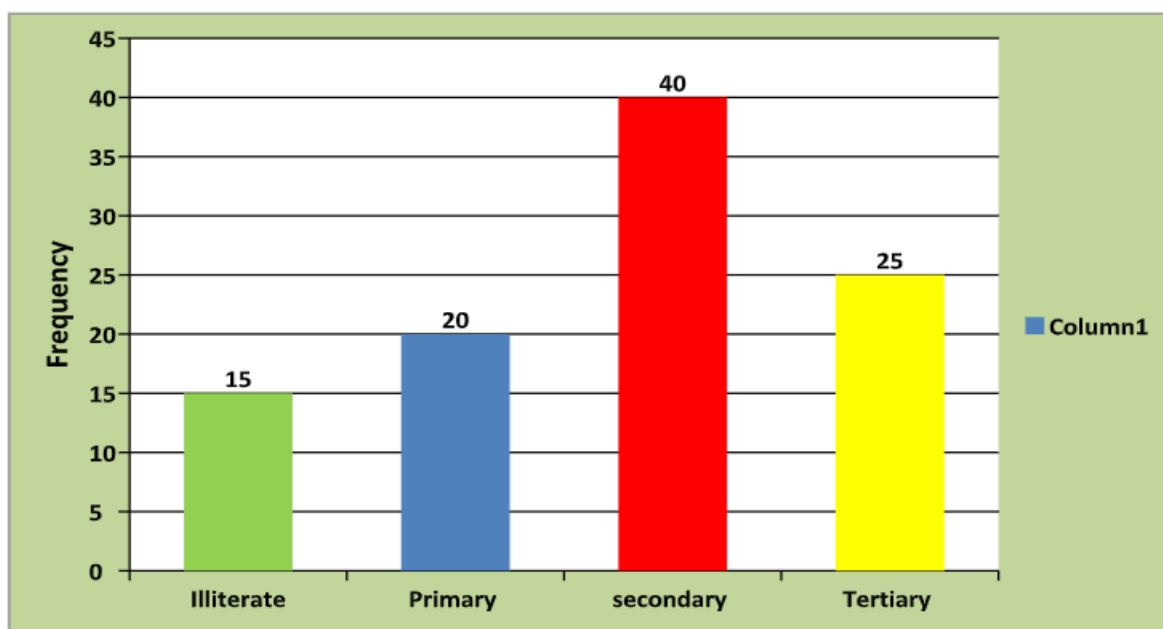


Fig 2: Educational Qualification of Respondents

Table 2: Information about Habits of Respondents Daily Life Activities.

Variables	Frequency (n=400)	Percentage
Do you feel stressful life		
Often	120	30%
Sometimes	240	60%
Never	40	100%
Habitual with physical exercise		
Often	210	52.5%
Sometimes	170	42.5%
Never	20	5%
Drinking water source		
RO	160	40%
Tap water	170	42.5%
Soil water or well	68	17%
Pond water	2	0.5%
Use of vegetables and fruits		

Yes	394	98.5%
No	6	1.5%
Use of soya food		
Often	108	27%
Sometimes	230	57.5%
Never	62	15.5%
Use of non-vegetarian food		
Often	50	12.5%
Sometimes	158	39.5%
Never	192	48%
Habitual with alcohol		
Often	140	35%
Sometimes	50	12.5%
Never	180	45%
Ex-drinker	30	7.5%
Habitual with smoke		
Often	8	2%
Sometimes	10	2.5%
Never	376	94%
Ex-smoker	6	1.5%
Use of cosmetics		
Often	56	14%
Sometimes	260	65%
Never	84	21%

Table 3: Awareness about Risk Factors of Breast Cancer

Groups	Risk factor	N = 400		
		Yes (%)	No (%)	Can't say (%)
Group I Age, marriage & heredity factors	Age above 40 years	212 (53)	86 (21.5)	102 (25.5)
	Menarche below 12 years	60 (15)	218 (54.5)	122 (30.5)
	Menopause after 55 years	102 (25.5)	184 (46)	114 (28.5)
	Late marriage	134 (33.5)	154 (38.5)	112 (28)
	Null parity	130 (32.5)	156 (39)	114 (28.5)
	Hormone therapy	140 (35)	132 (33)	128 (32)
	Heredity	200 (50)	106 (26.5)	94 (23.5)
Group II Physical & chemical factors	Alcohol	264 (66)	42 (10.5)	94 (23.5)
	Smoking	260 (65)	40 (10)	100 (25)
	Pesticides/chemicals	160 (40)	138 (34.5)	102 (25.5)
	Cosmetics	110 (27.5)	160 (40)	130 (32.5)
	Radiation exposure	174 (43.5)	100 (25)	126 (31.5)
Group III Life style factors	Sedentary life style	160 (40)	108 (27)	132 (33)
	Obesity	180 (45)	112 (28)	108 (27)
	Stressful life	162 (40.5)	114 (28.5)	124 (31)
	Injury/accident in breast	152 (38)	116 (29)	132 (33)
	Lack of physical exercise	160 (40)	108 (27)	132 (33)
	Red meat	110 (27.5)	128 (32)	162 (40.5)
	Packed food	112 (28)	152 (38)	136 (34)

Table 4: Factors that are Helpful in the Recovery of Patients from Breast Cancer

Groups	Recovery factor	N = 400		
		Yes (%)	No (%)	Can't say (%)
Spirituality	Spirituality	260 (65)	78 (19.5)	62 (15.5)
	Prayer	264 (66)	82 (20.5)	54 (13.5)
Doctor's support	Doctor's support	380 (95)	6 (1.5)	14 (3.5)
Family support	Family	374 (93.5)	14 (3.5)	12 (3)
	Spouse	362 (90.5)	18 (4.5)	20 (5)
Life style	Physical exercise	332 (83)	42 (10.5)	26 (6.5)
	Modern life	326 (81.5)	44 (11)	30 (7.5)

Table 5: Awareness of Screening Practices and BSE Practices

Variables	Response	Frequency (n=400)	Percentage
Are you aware of the screening practices i.e. mammography?	Yes	102	25.5%
	No	298	74.5%
Are you aware of performance of BSE?	Yes	186	46.5%
	No	214	53.5%
Do you perform BSE once every year?	Yes	122	30.5%
	No	278	69.5%

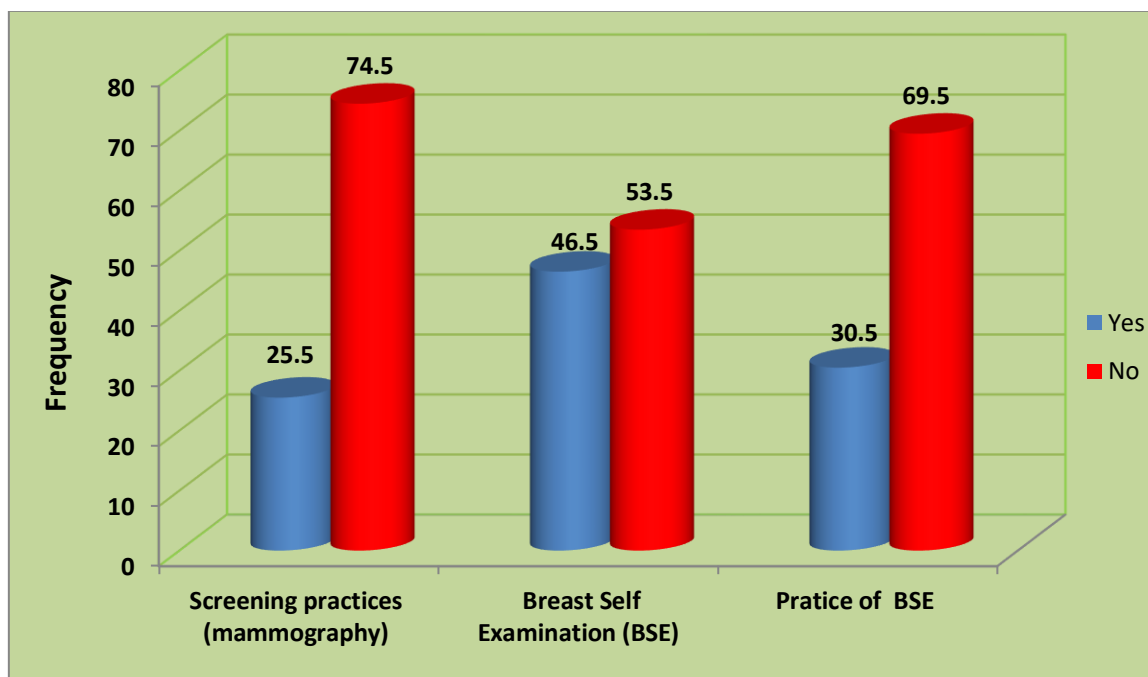


Figure 3: Awareness of screening practices, breast self-examination and its practice