

Prevalence of Breast Tumors and Methods of Prevention: A Cross-sectional Study

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RESERACH

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ABSTRACT

Background

Breast cancer is one of the most prevalent forms of cancer in women and one of the most severe and significant public health concerns in developing nations. This study aimed to determine the prevalence of breast tumors and women's preventive behavior.

Methods

A descriptive, correlational cross-sectional design was employed for this study. The study was conducted at (jeddah). Participants were selected during the period from September to November 2022. Population of this study were adult women (Aged >18 years) at KSA. Study instruments consisted of the following domains sociodemographic data, anthropometric measurements, information related to menstrual cycle and pregnancy, obstetric history, family history, practices of breast self-examination, procedures of early detection and knowledge,

attitude and practice assessment for methods of prevention.

Results

The study included 420 women of different ages. Breast cancer was found among 82 women (19.5 Per Cent). The mean age among all study participants was 33.96 + 14.79 years with median age of 28 years. More than half of study participants had normal BMI (n= 220, 52.4 Per Cent) while third participants were overweight (n= 136, 32.4 Per Cent). Among participants, 18.1 Per Cent had a history of post-partum complications, 38.3 Per Cent had undergone previous surgery, 1.4 Per Cent had experienced vascular moles, 18.6 Per Cent had a history of fibroid uterus, 6 Per Cent had cervical polyps, and 5 Per Cent had endometriosis. Table 3 presents obstetric history among study participants. More than half of study participants underwent previous hysteroscopy (n= 235, 56 Per Cent). On the other hand, 81 women had a family history of breast cancer (19.3 Per Cent). Most of women in this study perform self-examination of the breast (n= 300, 71.4 Per Cent) and 102 women underwent fine needle aspiration procedure (FNA) (24.3 Per Cent). The FNA result was positive among 81 women. Furthermore, 124 women underwent mammography (29.5 Per Cent) and the result was positive among 67 participants. Breast cancer is found among 82 women (19.5 Per Cent). Women in this study agreed that they should have clinical breast examination at any time (n= 191, 45.5 Per Cent) while other women believed they should have this examination in certain circumstances such as mastodynia (n= 61, 14.5 Per Cent), history of benign breast tumors (n= 38, 9 Per Cent), obesity (n= 37, 8.8 Per Cent) and family history of breast cancer (n= 32, 7.6 Per Cent).

Conclusion

Breast cancer prevalence was 19.5 Per Cent. Urban residency was predominant, with varying educational levels. Marital status, income, family size, and work differed among participants. Chronic conditions and diverse anthropometric measurements were observed. Obstetric history showed early marriage and delivery ages, limited abortions, and varied complications. Family history indicated links to chronic diseases and cancers. Participants exhibited awareness about breast cancer risk factors and methods for early detection.

Key Words

Breast Tumors, Needle aspiration procedure.

Introduction

The most harmful illness that may impact individuals is cancer since it can cause them to suffer more than they would otherwise. Cancers have a detrimental impact on one's quality of life and may ultimately result in a terrible and untimely death¹. Cancer is now classified as the fourth leading cause of mortality in the world². Developing nations have the highest incidence, and it is estimated that by the year 2020, up to 70 Per Cent of newly diagnosed cases will be in the third world or people in countries with low socioeconomic development. This is based on an analysis that looked at the distribution of newly diagnosed cases between countries³.

Cancer of the breast is the most frequent kind of cancer to strike women all around the globe^{4,5}. The rate of breast cancer diagnoses among women of all ages has been on the rise, although those aged 60–69 are at the greatest risk of developing the disease⁶. Over the course of the previous three decades, it was discovered that breast cancer accounted for 19.4 Per Cent of all newly diagnosed malignancies, 34.7 Per Cent of female's cancers, and 22.5 Per Cent of fatalities attributable to malignancy. The mortality rate associated with breast cancer may be decreased with the use of screening tests, early discovery of the disease, and adequate treatment⁷⁻¹⁰.

In middle-income and low-income countries, the difficulty of making an early diagnosis of breast cancer is thought to be at least partially attributable to the absence of public health awareness campaigns [4]. As a direct consequence of a discernible increase in the incidence rates among females of younger ages and the late diagnosis of cancer, breast cancer screening is currently receiving an increased amount

of focus in a great number of developing nations, including India. This is one of the reasons why¹¹.

Breast self-examination (BSE), clinical breast examination (CBE), and mammography are the three methods that are accessible to be used as screening tests for breast cancer. Each of these methods has been shown to be efficient in terms of cost. These methods contribute to the diagnosis of the asymptomatic disease¹²⁻¹⁵. The breast self-examination (BSE) is one of the crucial and straightforward methods for the early diagnosis of breast cancer that may be carried out by the patient herself. Even while frequent breast self-examination (BSE) in women does not guarantee the detection of breast cancer, some studies suggest that women may find up to 90 percent of breast cancers on their own. However, this does not mean that women will always find the disease¹⁶. CBE and mammography are two more diagnostic and preventative procedures; both of these procedures need the use of specialized equipment and a trip to the doctor's office¹⁷. On CBE, this is the most effective tool for health care professionals to provide guidance to women regarding the risks of breast cancer and the early detection methods available¹⁸. CBE is a procedure that can be carried out by physicians, but there is also CBE that can be carried out by nurses. The CBE should be conducted on females beginning in their 20s at a frequency of once every three years until they reach their 40s, at which point the frequency should rise to once per year. Regarding mammography, the findings of several research demonstrated the impact that screening with mammography has on lowering the death rates associated with breast cancer and enhancing the treatment options available to people who have the disease. However, people of all ages should probably avoid doing this. CBE has the benefit of being less expensive than mammography, and as a result, it is possible that it is a more effective screening test than mammography.

The public as a whole has varying degrees of knowledge, attitudes, and practices with respect to the various methods of breast cancer detection¹⁹. According to the findings of a research that took place at health facilities in Tabriz, Iran, in the year 2012, about 18.8 Per Cent of women in Iran undertake BSE monthly, 19.1 Per Cent of women had CBE annually by referral of health professionals, and 3.3 Per Cent of women performed mammograms. According to the findings of a research carried out in Saudi Arabia using an online questionnaire, about 20.8 Per Cent of women engaged in BSE, 19.8 Per Cent had CBE, and 13 Per Cent had

mammograms²⁰. It was discovered that only 4.4 Per Cent of women are aware that mammography is a screening test for breast cancer, while 39.8 Per Cent of women know BSE and the correct way to perform it, and 35 Per Cent practice BSE. In addition, 45.6 Per Cent of women have knowledge about CBE²¹. This research is being conducted in order to report on the knowledge and practice about BSE among women, as well as to assess the prevalence of conducting CBE and mammography among those participants. Thus, the purpose of the current study is to determine the prevalence of breast tumors and women's preventive behavior.

Methods

Study design and settings

A descriptive, correlational cross-sectional design was employed for this study. Since this study aimed to determine the prevalence of breast tumors and methods of prevention at a single point of measurement, this is the most appropriate design. This enables the researcher to measure the effect and the outcome at a single point of time. This study design gives reliable results with short time and less effort. The study was conducted at (place). Participants were selected during the period from September to November 2022.

Population

Adult women (Aged >18 years) at city.

Sampling and sample size

Study participants were selected by non-probability convenient sampling technique. Sample size was determined according to the total number of adult women in city with a confidence level of 95 Per Cent and marginal error of 5 Per Cent.

Data collection

Data was collected using a questionnaire filled through a self-administered approach.

Instruments

Study instruments consisted of the following domains:

- Sociodemographic data
- Anthropometric measurements
- Information related to menstrual cycle and pregnancy
- Obstetric history
- Family history
- Practices of breast self-examination
- Procedures of early detection
- Knowledge, attitude and practice assessment for methods of prevention.

Statistical analysis

Data obtained from questionnaire were entered and analyzed using SPSS program version 23 computer software. Sociodemographic data are presented using descriptive statistics as means, median, percentages and standard deviation. Independent T test and one-way Anova are used to show statistical significance among participants characteristics. Chi square test is used to show relationship between categorical variables.

Ethical Considerations

An approved permission was gained from (institution) to collect quantitative data from adult women. After explanation of study objectives, participants were asked to volunteer to participate at our study. In addition, verbal informed consent was gained from participants before asking questions.

Results

Demographic characteristics

The study included 420 women of different ages. Breast cancer was found among 82 women (19.5 Per Cent). The mean age among all study participants was 33.96 + 14.79 years with median age of 28 years. Participants' age ranged from 16 to 84 years. Most participants lives in urban areas (n= 361, 86 Per Cent). Two thirds of study participants had an educational level of bachelor degree (n= 279, 66.4 Per Cent). More than one third of participants were married (n= 165, 39.3 Per Cent). Most of study participants had an average monthly income (n= 332, 79 Per Cent). Number of family members ranged from one to 13 members. One fifth of women in this study are working (n= 96, 22.9 Per Cent). The most frequent comorbid condition among study participants was diabetes mellitus (n= 33, 7.9 Per Cent), but most of the time, it was associated with other comorbidities as presented in table 1. More than one third of participants are on regular medications (n= 151, 36 Per Cent). In addition, 29 participants are smokers (6.9 Per Cent). Table 1 shows demographic characteristics of study participants.

Anthropometric measurements

Anthropometric measurements were investigated among study participants. The mean weight among study participants was 66.19 + 13.87 with median weight of 61 kg. The mean height among study participants was 160.35 + 5.6 with median height of 159 cm. The mean body mass index among study participants was 25.61 + 4.43 with median BMI of 24.65 kg/m². Table 2 presents central tendency and measures of dispersion of anthropometric measurements of study participant. More than half of study participants had

normal BMI (n= 220, 52.4 Per Cent) while third participants were overweight (n= 136, 32.4 Per Cent). Furthermore, 58 participants were obese (13.8 Per Cent) and four participants were morbidly obese (1 Per Cent).

Obstetric history

The mean age at menarche was 11.39 + 1.23 years and the oldest age of menarche was 14 years. More than half of participants had a regular menstrual history (n= 248, 59 Per Cent). Among participants with menopause, the mean age was 43.02 + 13.26 with median age of 50 years. Most used birth control methods was oral contraceptive pills (n= 87, 20.6 Per Cent) followed by intrauterine device (IUD) (n= 42, 10 Per Cent). The study participants had an early age of first marriage (mean 13.39 years) and first delivery (mean 14.58 years). Most participants had no abortions (81.4 Per Cent), while 15.7 Per Cent had 1-3 abortions, and 2.9 Per Cent had 4-5 abortions. Among participants, 18.1 Per Cent had a history of post-partum complications, 38.3 Per Cent had undergone previous surgery, 1.4 Per Cent had experienced vascular moles, 18.6 Per Cent had a history of fibroid uterus, 6 Per Cent had cervical polyps, and 5 Per Cent had endometriosis. Table 3 presents obstetric history among study participants. More than half of study participants underwent previous hysteroscopy (n= 235, 56 Per Cent).

Family history of chronic diseases and cancer

Most of study participants had family history of chronic conditions such as diabetes mellitus (n= 41, 9.8 Per Cent) and hypertension (n= 36, 8.6 Per Cent) while 303 participants had no family history of any chronic conditions (72.1 Per Cent). On the other hand, 81 women had a family history of breast cancer (19.3 Per Cent), 14 women with family history of cervical cancer (3.3 Per Cent), 19 women with family history of endometrial cancer (4.5 Per Cent) and five women with family history of ovarian cancer (1.2 Per Cent). Most of these family history were either first or second degree.

Breast cancer

Most of women in this study perform self-examination of the breast (n= 300, 71.4 Per Cent) and 102 women underwent fine needle aspiration procedure (FNA) (24.3 Per Cent). The FNA result was positive among 81 women. Furthermore, 124 women underwent mammography (29.5 Per Cent) and the result was positive among 67 participants. Breast cancer is found among 82 women (19.5 Per Cent).

Knowledge about methods of breast cancer prevention

Majority of women in this study were aware of ministerial circular, which aims widespread screening for breast cancer

in basic health care establishments (n= 416, 99 Per Cent). Their perception of risk factors is demonstrated in figure 1.

Table 4 illustrates participants' knowledge on breast self-examination and mammography. About half strongly agree that breast cancer is a public health issue, while a similar portion agrees. Nearly half also find breast self-examination essential for early diagnosis. Similarly, approximately half recognize the importance of clinical breast examination. For mammography screening, a significant portion agrees it's crucial, with a smaller percentage neutral or unsure. Minimal disagreement is observed across these perceptions of breast cancer detection methods.

Women in this study agreed that they should have clinical breast examination at any time (n= 191, 45.5 Per Cent) while other women believed they should have this examination in certain circumstances such as mastodynia (n= 61, 14.5 Per Cent), history of benign breast tumors (n= 38, 9 Per Cent), obesity (n= 37, 8.8 Per Cent) and family history of breast cancer (n= 32, 7.6 Per Cent).

Discussion

The current research set out to investigate breast cancer prevalence among women and their knowledge level regarding preventive measures and other associated factors. In this research, most of women had a clinical breast exam at some point. In line with prior research, the current study found a relatively low incidence of clinical breast examination (29.5 Per Cent). However, this rate is greater than that shown in previous studies done in other cities in Iran and elsewhere. It has been observed that in the cities of Lorestan, Rasht, and Mazandaran, the rates of clinical breast examination are 20.7 Per Cent, 28.3 Per Cent, and 20.7 Per Cent. Furthermore, 25 Per Cent and 29.9 Per Cent, respectively, of clinical breast examination rates have been recorded for Turkey and Qatar.

The findings suggest that the chance of undergoing a clinical breast examination increases with age. Research by Ghanbari et al. in 2020 [4], Mittra et al. in 2021, and Asghari et al. in 2016 all come to the same conclusion. The likelihood of engaging in care behaviors and breast screening tests including self-examinations, clinical exams, and mammograms increases with age because of the higher risk of developing breast cancer as one ages. These findings corroborate those of earlier research.

An further consideration is that older adults are less likely to have both a breast self-examination and a mammogram^{21,22}. Lack of attention to health in old age, difficulty to travel

to medical institutions, and a lack of resources are all possible causes. However, primary care providers, family doctors, the government, and health authorities need to pay greater attention to the low incidence of clinical breast exams; women should be educated about the dangers of breast cancer and the value of undergoing clinical breast examinations. Multiple studies have shown that a women's socioeconomic level is a significant factor in determining whether or not they will have a mammogram or undergo breast screening²³⁻²⁵.

The current study's findings corroborated those of a 2017 study by Takkar et al., which found that women living in urban areas were more likely to have a clinical breast examination than those living in rural areas²⁶. This is likely because urban women have easier access to medical care and are more knowledgeable about the importance of clinical breast examinations.

The married women in this research examined their breasts more often than the single women or those without children. El Asmar et al. (2018), Tahergorabi et al. (2021) [5], and Hanske et al. (2016) all found similar things^{27,28}. Because they are less concerned about the possibility of breast diseases and may believe that the hormonal changes in the body after marriage are a cause of breast cancer and that they will not be affected by breast cancer because they are unmarried, single women tend to have far fewer clinical breast examinations than married women do.

Based on the results of our research, we can say that the likelihood of a person with breast difficulties having a clinical breast examination performed is more than 15 times higher than that of a person without breast problems. Only a small number of studies have looked at the components that go into clinical breast exams, although several have shown a link between mammography and breast discomfort and pain²⁹. Women who have breast pain or discomfort are especially attuned to their bodies, making it crucial that they get accurate information about their health so that they may take preventative measures before serious complications arise.

Consistent with previous research, this study found that those who rated their own risk of developing breast cancer as higher were more likely to seek medical attention for a clinical examination than those who rated their risk as lower³⁰⁻³⁴. It is important to increase people's perceived sensitivity and severity by informing them and providing them with appropriate information on the significance of the need for breast examination because, in theory, these

characteristics lead to greater screening and preventive behaviors.

Additional evidence suggests that individuals who report less issues and hurdles are more open to undergoing a clinical breast examination. Previous research have shown that clinical breast examination and mammography are more likely to be performed when individuals have an accurate knowledge of obstacles and perceive less hurdles³⁵⁻³⁸. The health belief model postulates that people will be less proactive about their health if they perceive a lower threat level and face more hurdles to screening. Thus, greater effort and intervention is needed to encourage healthier lifestyle choices and avert the spread of preventable diseases. Therefore, frequent clinical breast examination and mammography rely heavily on decreased perceived obstacles.

Women's belief in a predetermined and inevitable fate, or fatalism, was found to be a factor in whether or not they sought out a clinical breast examination; those with a weaker belief in fatalism were found to be four times more likely to seek one out than those with a stronger belief. Consistent with the current study's findings, prior research has shown that religiousness and fatalism are factors that prevent women from engaging in breast cancer screening practices including clinical breast examination and mammography³⁹⁻⁴¹.

Conclusion

The study involved 420 women of different ages, revealing a breast cancer prevalence of 19.5 Per Cent. Urban residency was predominant, with varying educational levels. Marital status, income, family size, and work differed among participants. Chronic conditions and diverse anthropometric measurements were observed. Obstetric history showed early marriage and delivery ages, limited abortions, and varied complications. Family history indicated links to chronic diseases and cancers. Participants exhibited awareness about breast cancer risk factors and methods for early detection.

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Tables & Figures

Table 1: Demographic characteristics of study participants

	Variable	Percent	Frequency
Age	<20 years	64	15.2
	20-40 years	241	57.4
	41-60 years	86	20.5
	>60 years	29	6.9
Residency place	Urban	361	86
	Rural	59	14
Educational level	Illiterate	16	3.8
	Primary school	31	7.4
	High school	86	20.5
	Bachelor degree	287	68.3
Marital status	Single	215	51.2
	Married	165	39.3
	Divorced	17	4
	Widow	23	5.5
Monthly income	Low	44	10.5
	Middle	332	79
	High	44	10.5
Number of family members	<3 members	40	9.5
	3-7 members	226	53.8
	>7 members	154	36.7
Working status	Working	96	22.9
	No work	324	77.1
Chronic conditions	DM only	33	7.9
	DM and hypertension	15	3.6
	DM, hypertension and Cardiovascular disease	16	3.8
	HTN only	10	2.4
	Lung diseases	7	1.7
Use of chronic medications	Yes	151	36
	No	269	64
Smoking status	Smoker	29	6.9
	Non-smoker	391	93.1

Table 2: Central tendency and measures of dispersion of anthropometric measurements.

Measure	Mean + SD	Median	Range	Interquartile range
Weight (kg)	66.19 ± 13.87	61	40-112	56-74
Height (cm)	160.35 ± 5.6	159	140-179	156-161
BMI (Kg/m²)	25.61 ± 4.43	24.65	19.23-43.75	22.15-28.11
Waist circumference (cm)	33.48 ± 6.22	33	20-144	31-36
Mid-upper arm circumference (cm)	22.34 ± 2.31	21	Dec-33	21-24

Table 3: Obstetric history among study participants.

Age of first marriage (mean ± SD)		13.39 ± 2.75
Age of first delivery (mean ± SD)		14.58 ± 2.37
Number of abortions	None	342 (81.4 Per Cent)
	1-3	66 (15.7 Per Cent)
	4-5	12 (2.9 Per Cent)
Obstetric history		Yes No
History of post-partum complication		76 (18.1 Per Cent) 344 (81.9 Per Cent)
History of previous surgery		161 (38.3 Per Cent) 259 (61.7 Per Cent)
History of vascular mole		6 (1.4 Per Cent) 414 (98.6 Per Cent)
History of fibroid uterus		78 (18.6 Per Cent) 352 (81.4 Per Cent)
History of cervical polyps		25 (6 Per Cent) 395 (94 Per Cent)
History of endometriosis		21 (5 Per Cent) 399 (95 Per Cent)

Table 4: Participants’ knowledge about breast self-examination and mammography.

Item	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Breast cancer is a public health problem	214 (51 Per Cent)	205 (48.8 Per Cent)	-	1 (0.2 Per Cent)	-
Breast self-examination is important for early diagnosis of breast cancer	206 (49 Per Cent)	212 (50.5 Per Cent)	-	2 (0.5 Per Cent)	-
Clinical breast examination is important for early diagnosis of breast cancer	213 (50.7 Per Cent)	204 (48.6 Per Cent)	3 (0.7 Per Cent)	-	-
Mammography screening is important for breast cancer Practices	192 (45.7 Per Cent)	209 (49.8 Per Cent)	19 (4.5 Per Cent)	-	-

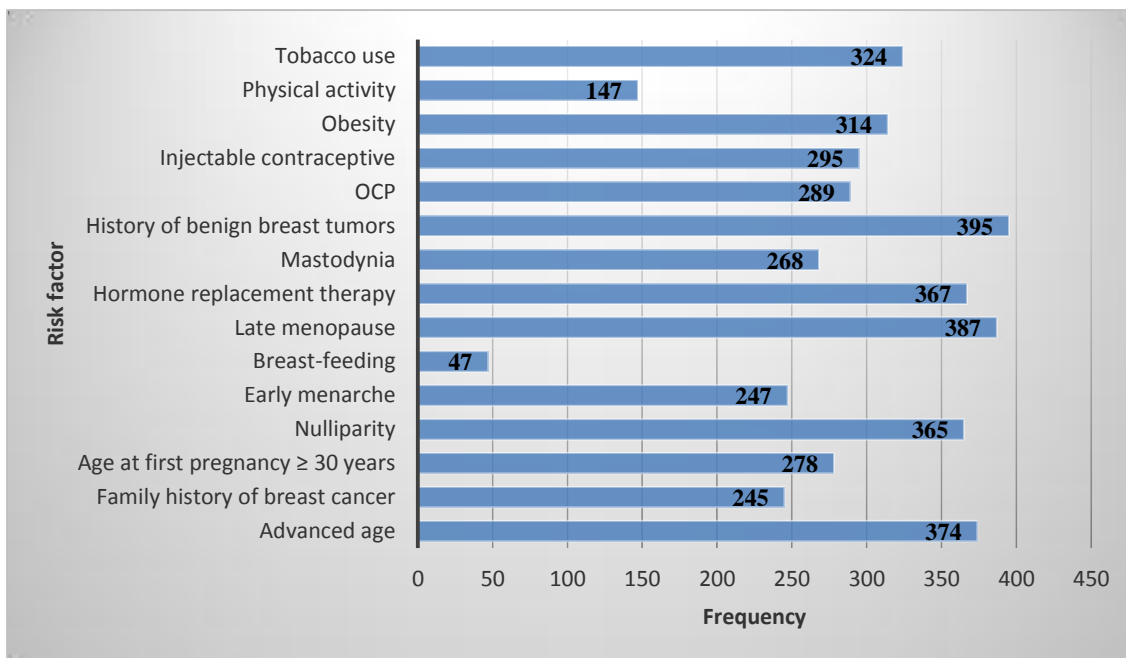


Figure 1: Women perception toward risk factors of breast cancer