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Study On Assessment Of Knowledge, Attitude And Practice On Breast Cancer Among Women In Government Hospital In Bangladesh

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ABSTRACT

Breast Cancer is the most common cancer in women, worldwide. Bangladesh has one of the highest incidences of breast cancer in Asia. The present study has conducted to assess the knowledge, attitude and practices towards breast cancer early detection methods among female of reproductive ages in the urban and rural areas of 2 districts in Bangladesh. From the study area, Dhaka Medical College Hospital and Rajshahi Medical College Hospital. Two types of participants were selected, one types of participants were from urban areas and other types of participants were from rural areas. Total 357 women were selected from outpatient units of the selected hospitals. In this study participants were women with the inclusion criteria of 15–49 years age range. From the result it was found that both rural and urban women had poor knowledge of breast cancer though the majority of the participants have heard about breast cancer but very few percentages of urban and rural educated women of them have a thorough understanding of the disease. Knowledge of breast cancer risk factors is little bit satisfactory in case of urban women but inadequate among a large percentage of rural women. Breast cancer awareness programs on the symptoms, screening, and prevention should be initiated especially at the community level. Additionally, health education might play a significant role in promoting good practices among young women especially personal hygiene, self-examination of breasts, and other screening programs for ensuring early detection and starting of the treatment. The study revealed that the efforts should be made by Government and Non-Governmental agencies to improve breast cancer knowledge among the mass reproductive aged women in Bangladesh. Programmes to educate religious leaders and alternative medical practitioners about breast cancer should be encouraged. The advantage of early presentation and treatment of patients suffering from breast cancer should be emphasized during such interactions.

Key words: Breast Cancer, Knowledge, Screening Tests, Sign and Symptoms.

INTRODUCTION

Cancer is a group of diseases characterized by the uncontrolled growth and multiply of abnormal cells. If the spread is not controlled, it can result in death. Breast cancer (BC) is an explosion of malignant cells that arises in the breast tissue and the term represents a range of disease, from non-invasive to invasive carcinoma. Breast cancer is one of the major hidden burdens worldwide which develops tumors in the mammary gland and disrupts the usual function of breast tissue. It is the most common cancer in females in more than 150 countries including the developed and developing world (Mehejabin, F., & Rahman, M. S., 2022).It has mostly been diagnosed among women and a study conducted in the United States showed that women are 100 times more likely to develop breast cancer than men (Bellah SFet al., 2016). Globally, 2.1 million females were diagnosed with breast cancer in 2018(Bray F, et al., 2018) and the number was over 2.3 million in 2020, accounting for nearly 11.7% of all new cancer cases worldwide (Alam NE, 2021). The World Health Organization (WHO) reported that almost 627,000 women have died of breast cancer which accounted for 15% of total cancers death worldwide in 2018 (Amin MN, et al., 2020). A study in South

Asian countries found a total of 200,000 breast cancer cases among which 97,500 patients had died only in 2012 (Hossain MS, et al., 2014). The prevalence of breast cancer has been 32.8% in Bangladesh for the last 5 years and is responsible for about 69% of women's death (Shamsi T, 2021).

There were 12,764 new cases had detected only in the year 2018. A recent study found the overall incidence of breast cancer was 22.5 per 100,000 women.4 However, women of reproductive age (15-49) are most vulnerable to developing breast cancer possessing an occurrence rate of 19.3 per 100,000 (Begum SA, et al., 2021) and the death rate was 21% in 2010 in Bangladesh (Measure Evaluation, 2012). The presence of a lump in the breast and bloody discharge from the nipple are two major symptoms of breast cancer (Kanaga KC, 2011). It can be detected at an early stage using screening tests like breast self-examination (BSE), clinical breast examination (CBE), and mammography (Karayurt Ö, 2008). Therefore, knowledge about breast self-examination is essential for women living in areas with fewer diagnostic facilities like Bangladesh.

Age is a potential risk factor for developing breast cancer and the risk increases with increased age. The literature stated that 30 years older women are 10 times more and 40 years older are 40 times more likely to develop breast cancer compared to those who are 20 years old(PATH, 2021). A verbal autopsy report stated that, due to breast cancer, the mortality rate was 62% among women who are under 50 years old in Bangladesh (Hossain MS, 2014). The genetic mutation of two genes called BRCA 1 and BRCA 2 influences the development of breast cancer in humans (Mehrgou A, and Akouchekian M, 2016).

Other genetic factors implicated in the development of breast cancer include mutations in the p53gene, various cell cycle checkpoints in the kinase gene (CHEK2), and phosphatase and tensin homolog (PTEN) gene(Riscuta G, and Dumitrescu RG, 2012). Apart from the genetic factor, different reproductive and no reproductive factors are strongly associated with the development of breast cancer. The reproductive factors included menopausal hormone therapy, first pregnancy, breastfeeding, parity, and so forth, whereas, no reproductive factors include a personal history of breast cancer, family history, gender, body mass index (BMI), and others (Mehrgou A, and Akouchekian M, 2016). The lack of knowledge, limited access to proper treatment, and negligence of community towards breast cancer are also responsible for the higher mortality rates of breast cancer in Bangladesh.

Despite being a burden on society, this disease is getting less discussed among the people. As a result, they have reported possessing improper knowledge regarding the causes and associated risk factors. Furthermore, communities are unaware of the self-diagnosis and available treatment of breast cancer which caused a delay in starting treatment. In addition, unfriendly society and surroundings make it difficult for women to discuss any initial symptoms or changes in their breasts with others. For that reason, delay in presentation in the advanced stage is very common in Bangladesh (Shamsi T, 2021).

A study found that 50% of breast cancer patients have died due to their late presentation with advanced stages (Steiness HS, et al., 2018). The risk of breast cancer could be reduced especially the modifiable risk factors, through controlling weight, alcohol consumption, regular physical activity, and proper diet (Agide FD, et al., 2018). However, previous studies found a low level of knowledge of symptoms and risk factors of breast cancer among women in the community which shot-up the rate of incidence (Prusty RK, et al. 2020). Considering all these scenarios, it is crucial to evaluate the knowledge of breast cancer among the risk groups. In this regard, this study aimed to determine the knowledge and perception of women regarding different aspects of breast cancer in an area with a scarcity of literature. To our knowledge, no other study has been conducted on this topic in the Chattogram region. Therefore, this study will help to understand the present status and provide a baseline for future research work and strategies to reduce the incidence of breast cancer.

Breast cancer is a significant health concern in Bangladesh, being the most common cancer among women, with high prevalence, especially in younger age groups (under 40), often detected at advanced stages due to low awareness and resource limitations. The Bangladesh government and organizations like WHO and British Council are working on strengthening early detection through screening programs (CBE, mammography) and training healthcare workers, emphasizing self-examination, regular screening, and awareness campaigns to improve outcomes. Breast cancer is the most common cancer among women in

Bangladesh, with an estimated 13,000+ new cases diagnosed annually. It accounts for a significant portion of cancer-related deaths in the country, often due to late-stage diagnosis and limited access to healthcare.

RESEARCH QUESTIONS

1. What is the knowledge of rural and urban women about breast cancer?
2. What are the perceptions of rural and urban women about the sign and symptoms of breast cancer?
3. What are the ideas of rural and urban women about the tests of breast cancer?

OBJECTIVES OF THE STUDY

General objective

To assess the knowledge, attitude and practices towards breast cancer early detection methods among female of reproductive ages in the urban and rural areas of 2 districts in Bangladesh.

Specific objectives of the Study

The specific objectives of the study are as follows:

1. To find out the knowledge of rural and urban women about breast cancer
2. To identify the perception of rural and urban women about the sign and symptoms of breast cancer
3. To assess the ideas of rural and urban women about the tests of breast cancer

OPERATIONAL DEFINITION

Good knowledge: is defined as knowledge score of greater than or equal to the mean knowledge score.
Poor knowledge: is defined as knowledge score of less than the mean knowledge score.
Positive attitude: is defined as an attitude score of greater than or equal to the mean attitude score.
Negative attitude- is defined as an attitude score of less than the mean attitude score.
Practice: is defined as a practice or use of any of early detection methods like that of BSE, CBE or Mammography.

METHODOLOGY OF THE STUDY

1. Study design

This study was hospital based descriptive cross-sectional type. In this study, survey was done on knowledge and perception of breast cancer among women of reproductive age at urban and rural areas of Dhaka and Rajshahi district in Bangladesh. The study was conducted between December 2022 and December 2024. From the study area two Government Medical College Hospitals were selected such as Dhaka Medical College Hospital and Rajshahi Medical College Hospital. Two types of participants or respondents were selected one types of participants were taken from urban areas and other types of participants were taken from rural areas. Total 357 women were regularly visited in outpatient units of the hospitals to pursue various reproductive health care services. The patients as well as other females attending with them, were interviewed in this study.

2. Study population

In this study participants were women with the inclusion criteria of 15–49 years age range. This range is considered the reproductive age of women in Bangladesh. Therefore, the participants out of this age range were excluded from this study. A no probability convenient sampling technique where samples were used based on the inclusion and exclusion criteria. The sample size of 377 was estimated based on a 50% response distribution, a 5% margin of error, and a 95% confidence interval. The expected response proportion of 50% was assumed based on the fact that both responses and response rates were completely unknown since there are no previously published similar studies in the study area.

3. Questionnaire design and data collection

In this study, data were collected through. A comprehensive literature review was performed before designing the questionnaire. Although the questionnaire was designed in English later it was translated into the Bengali language for collecting the data from the participants. The questionnaire was divided into three parts where the first part included participants' socio-demographic characteristics. In the second part of the questionnaire, their basic knowledge about the cause, clinical signs, and prevention of breast cancer was checked. Finally, their perception of breast cancer was investigated in the third part of the questionnaire. The knowledge regarding breast cancer had assessed by questioning about mammary tumor virus, modes of

transmission of breast cancer, sources of their information, knowledge of preventive methods; attitudes and misconceptions towards breast cancer; and symptoms of breast cancer (for instance nipple discharge, pain in breast, discoloration, lump, change in breast shape, etc.). Most of the questions were close-ended questions with Yes and No answers. Few questions were designed based on the multiple-choice options where participants were allowed to choose more than one answer. These questionnaires were provided to those people who have selective criteria matched with this study.

This survey has been conducted as a questionnaire-based interview. Before starting the interview, respondents were given detailed knowledge regarding this study so that people can understand the importance of this study and feel interested to participate. Moreover, every question was asked by the primary researcher to avoid all sorts of biases. The draft questionnaire was revised by a physician and an epidemiologist to identify ambiguity and assess content validity. After that, the questionnaire was tested among 10 respondents to check the language suitability and the appropriateness of the questions. Slight modifications of language were recorded during the pilot phase, and were addressed in the final questionnaire. The pilot responses were excluded from the current analysis.

4. Data management and analysis

Data collected from the study areas by using the questionnaires were analyzed using Microsoft Excel and Statistical Package for Social Sciences (SPSS version 20). Data were summarized by using descriptive statistics and presented in tables and figures. Inferential analysis has been employed for accepting or rejecting the hypothesis of the study. Through reviewing previous literature on risk factors of breast cancer we identified the three most significant risk factors – obesity, menopause, and oral contraceptives for developing breast cancer. Therefore, this study used these three risk factors to assess the knowledge of participants regarding the risk factors of breast cancer. The participants who self-reported knowing the following risk factors were given one score and marked with zero scores for not knowing about a risk factor. Finally, participants were categorized as having good and poor knowledge based on three responses. Participants possessing two to three positive responses were considered to have had "good knowledge" of risk factors. On the other hand, participants with none to only one positive response were marked as having poor knowledge. The socio-demographic variables were considered as indicator variables whereas the knowledge of the risk factors was considered as outcome variables.

RESULTS AND DISCUSSION

1. Demographic characteristics of the study participants

Age of the participants

Table 1: Age of rural and urban participants

Age	Rural (%)	Urban (%)	Total (%)
Up to 30 years	106 (61.27)	112(60.87)	218 (61.06)
31-49 years	67 (38.79)	72 (39.13)	139 (38.94)

Age of the participants has shown in the above table 1. From the result it was found that in case of rural areas, 106 (61.27%) participants were age group up to 30 years and 67 (38.79) participants were age group31-49 years. In case of urban areas, 112 (60.87) participants were age group up to 30 years and 72 (39.13%) participants were age group31-49 years.

Marital status of the participants

Table 2: Marital status of rural and urban participants

Marital status	Rural (%)	Urban (%)	Total (%)
Married	140 (80.92	160 (86.95)	300 (84.04%)
Never married	18(10.40)	16(8.70)	34(9.52)
Divorced	15(8.68)	8(4.35)	23(6.44)

Marital status of the participants has shown in the above table 2. From the result it was found that in case of rural areas, 140 (80.92%) participants were married, 18 (10.40%) participants never married and 15 (8.68%) participants were divorced. In case of urban areas, 160 (86.95%) participants were married, 16(8.70%) participants never married and 8 (4.35%) participants were divorced.

Educational status of participants

Table 3: Educational status of rural and urban participants

Participants' education	Rural (%)	Urban (%)	Total (%)
Primary	22(12.72)	19(10.33)	41(11.49)
Secondary and higher secondary	145(83.81)	129(70.11)	274(76.75)
Graduation and above	6(3.47)	36(19.56)	42(11.76)

Educational status of participants has shown in the above table 3. From the result it was found that in case of rural areas, 22 (12.72%) participants completed primary education, 145(83.81%)participants completed secondary and higher education and 6(3.47%) participants completed Graduation and above level of education. In case of urban areas, 19 (10.33%) participants completed primary education, 129 (70.11%) participants completed secondary and higher education and 36 (19.56%) participants completed Graduation and above level of education.

Occupation of the participants

Table 4: Occupation of rural and urban participants

Participants' occupation	Rural (%)	Urban (%)	Total (%)
Housewife	144(83.24)	128(63.57)	272(76.19)
Service holder	5(2.89)	35(19.02)	40(11.20)
Student	13(7.51)	17(9.24)	30(8.40)
Others	11(6.36)	4(2.17)	15(4.21)

Occupation of the participants has shown in the above table 4. From the result it was found that in case of rural areas, 144 (83.24 %) participants were housewife, 5 (2.89%) participants were service holder, 13 (7.51%) participants were student and 11 (6.36%) participants were from others occupation. in case of urban areas, 128 (63.57) participants were housewife, 35 (19.02%) participants were service holder, 17 (9.24) participants were student and 4 (2.17%) participants were from others occupation.

Husband's education of the participants

Table 5: Husband's education of rural and urban participants

Husband's education	Rural (%)	Urban (%)	Total (%)
Primary	86(61.43)	43(27.39)	129(43.44)
Secondary and higher secondary	37(26.43)	53(33.76)	90(30.30)
Graduation and above	13(9.28)	56(35.67)	69(23.23)
Didn't respond	4(2.86)	5(3.18)	9(3.03)

Husband's education of the has shown in the above table 5. From the result it was found that in case of rural areas, 86(61.43%) participants' husbands completed primary education, 37(26.43%) participants' husbands completed secondary and higher education and 13(9.28%) participants' husbands completed Graduation and above level of education and 4(2.86%) participants' husbands didn't respond. In case of urban areas, 43(27.39%) participants' husbands completed primary education, 53(33.76%) participants' husbands completed secondary and higher education and 56(35.67%) participants' husbands completed Graduation and above level of education and 5(3.18%) participants' husbands didn't respond.

Husband's occupation of the participants

Table 6: Husband's occupation of rural and urban participants

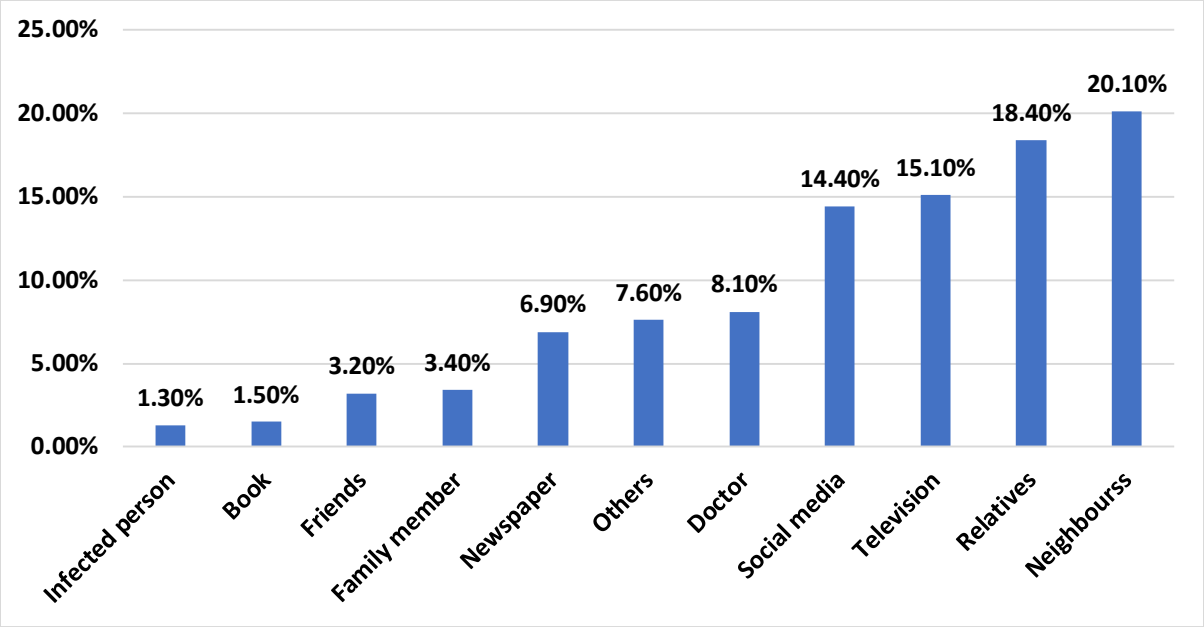
Husband's occupation	Rural (%)	Urban (%)	Total (%)
Unemployed	3(2.14)	3(1.91)	6(2.02)
Service holder	52(37.14)	62(39.49)	114(38.38)
Business	41(29.29)	50(31.85)	91(30.64)
Other	44(31.43)	42(26.75)	86(28.96)
Total	140(100)	157(100)	297(100)

Husband's occupation of the participants has shown in the above table 6. From the result it was found that in case of rural areas, 3(2.14%) participants' husbands were unemployed, 52(37.14%) participants' husbands

were service holders, 41(29.29) participants' husbands were business men and 44(31.43%) participants' husbands were from other occupation. in case of urban areas, 3(1.91%) participants' husbands were unemployed, 62(39.49%) participants' husbands were service holders, 50(31.85%) participants' husbands were business men and 42(26.75%) participants' husbands were from other occupation.

2. Source used to know about breast cancer by participants

Figure 1: Knowledge of rural and urban women about the symptoms of breast cancer



The Figure 1 represents the source of getting information about breast cancer marked by the participants. From the result it was found that 20.10% participants replied that they knew about breast cancer from neighbors, 18.40% participants replied that they knew about breast cancer from relatives. On the other hand, 15.10% participants replied that they knew about breast cancer from television followed by social media (14.40%), doctor (8.10%), others (7.60%), newspapers (6.90%), family member (3.40%), friends (3.20%), book (1.50%) and infected person (1.30%).

3. General knowledge of participants in breast cancer

Table 7: Knowledge of participants about breast cancer

Know about breast cancer	Rural (%)	Urban (%)	Total (%)
Yes	98(56.65)	129(70.10)	227(63.59)
No	75(43.35)	55(29.90)	130(36.41)

Knowledge of participants about breast cancer has shown in the above table 7. From the result it was found that in case of rural areas, 98(56.65%) participants knew about breast cancer but 75(43.35%) participants did not know about breast cancer. On the other hand, in case of urban areas, 129(70.10%) participants knew about breast cancer but 55(29.90%) participants did not know about breast cancer.

Table 8: Whether breast cancer can be detected at primary stage

Participants 'opinion	Rural (%)	Urban (%)	Total (%)
Yes	55(31.79)	85(46.20)	140(39.21)
No	118(68.21)	99(53.80)	217(60.79)

Whether breast cancer can be detected at primary stage has shown in the above table 8. From the result it was found that in case of rural areas,55(31.79%) participants knew breast cancer can be detected at primary stage but 118(68.21%)participants did not know breast cancer can be detected at primary stage. On the other hand, in case of urban areas, 55(31.79%) participants knew that breast cancer can be detected at primary stage but 99(53.80%) participants did not know that breast cancer can be detected at primary stage.

Table 9: Whether mouse mammary tumor virus can cause breast cancer

Participants 'opinion	Rural (%)	Urban (%)	Total (%)
Yes	1(0.58)	1(0.54)	2(0.56)
No	172(99.42)	183(99.46)	355(99.44)

Whether Mouse mammary tumor virus can cause breast cancer stage has shown in the above table 9. From the result it was found that in case of rural areas, 1(0.58%) participants knew that mouse mammary tumor virus can cause breast cancer but 172(99.42%) participants did not know that mouse mammary tumor virus can cause breast cancer. On the other hand, in case of rural areas, 1(0.54%) participants knew that mouse mammary tumor virus can cause breast cancer but 183(99.46%) participants did not know that mouse mammary tumor virus can cause breast cancer.

Table 10: Whether breast cancer is curable

Respondents' opinion	Rural (%)	Urban (%)	Total (%)
Yes	70(40.46)	93(50.54)	163(45.04)
No	103(59.54)	91(49.46)	194(54.96)

Whether Breast cancer is curable has shown in the above table 10. From the result it was found that in case of rural areas, 70(40.46%) participants knew that breast cancer is curable but 103(59.54%) participants did not know that breast cancer is curable. On the other hand, in case of urban areas, 93(50.54%) participants knew that breast cancer is curable but 91(49.46%) participants did not know that breast cancer is curable.

Table 11: Knowledge of participants about the breast cancer screening test

Participants 'opinion	Rural (%)	Urban (%)	Total (%)
Yes	11(6.36)	34(18.48)	45(12.61)
No	162(93.64)	150(81.52)	312(87.39)

Knowledge of participants about the breast cancer screening test has shown in the above table 11. From the result it was found that in case of rural areas, 11(6.36%) participants knew about the breast cancer screening test but 162(93.64%) participants did not know about the breast cancer screening test. On the other hand, in case of urban areas, 34(18.48%) participants knew about the breast cancer screening test but 150(81.52%) participants did not know about the breast cancer screening test.

Table 12: Whether participants know the name of any screening test

Participants 'opinion	Rural (%)	Urban (%)	Total (%)
Mammogram	1(7.69)	8(15.38)	9(13.85)
Breast self-examination	6(46.15)	18(34.62)	24(36.92)
Breast ultrasound	5(38.46)	20(38.46)	25(38.46)
Biopsy	0(0)	2(3.45)	2(3.08)
Breast MRI	1(7.69)	4(7.70)	5(7.69)

Abbreviation: MRI means magnetic resonance imaging

Whether participants know the name of any screening test has shown in the above table 12. From the result it was found that in case of rural areas, only 1 (7.69%) participants knew about mammogram, 6 (46.15%) participants knew about breast self-examination, 5 (38.46%) participants knew about breast ultrasound, No participants knew about biopsy and only 1 (7.69%) participants knew about breast MRI. On the other hand, in case of urban areas, 8 (15.38%) participants knew about mammogram, 18 (34.62%) participants knew about breast self-examination, 20 (38.46%) participants knew about breast ultrasound, 2 (3.45%) participants knew about biopsy and 4 (7.70%) participants knew about breast MRI.

Figure 2: Knowledge of rural and urban women about the symptoms of breast cancer.

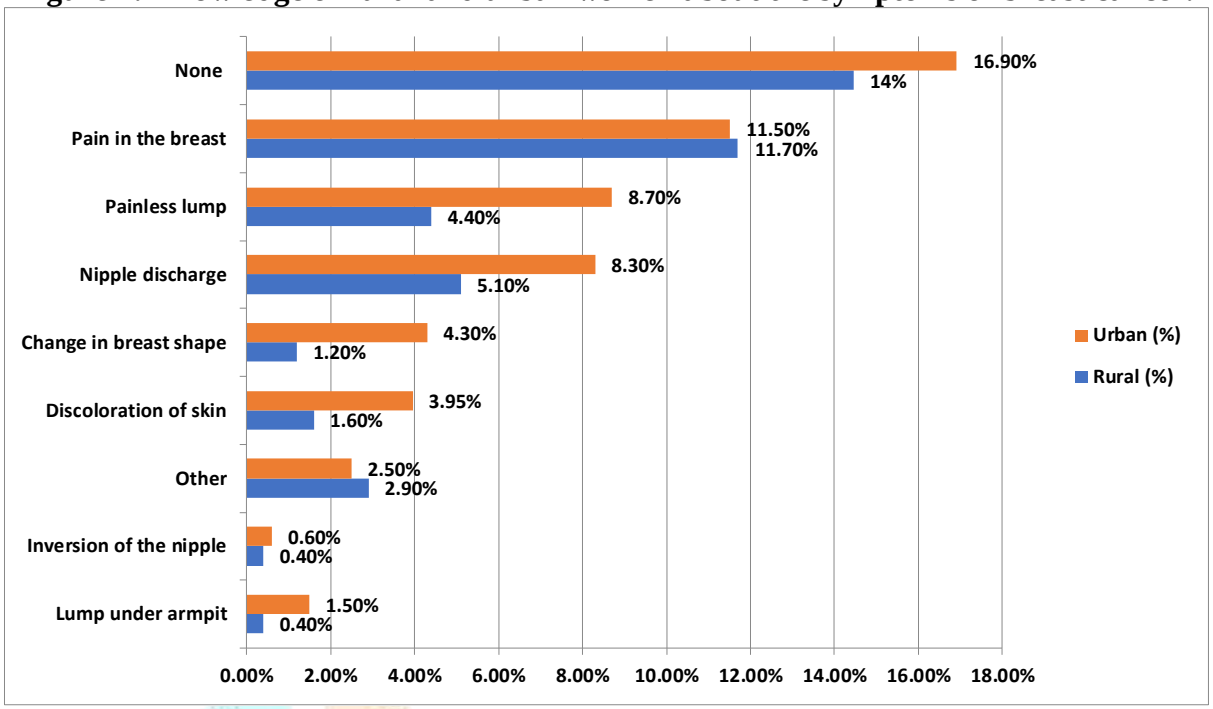
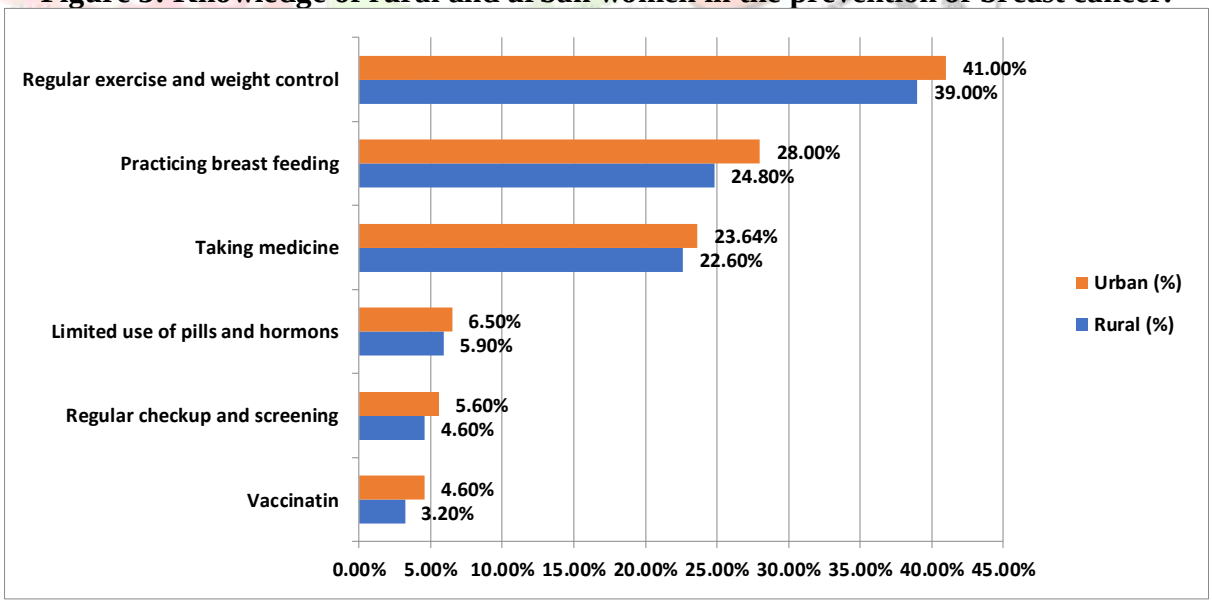


Figure 2 shows the comparison of the knowledge regarding the symptoms of breast cancer between rural and urban people. People living in urban areas were found to be more aware of breast cancer symptom than rural women. From the result it was found that in case of rural areas, only 0.4% participants knew about lump under armpit, 0.4% participants knew about inversion of the nipple, 2.90% participants replied other symptoms, 1.6% participants replied discoloration of skin, 1.20% participants replied change in breast shape, 5.10% participants replied nipple discharge, 4.40% participants replied painless lump, 11.70% participants replied pain in the breast and14% participants did not know about the symptoms of breast cancer. On the other hand, in case of urban areas, only 1.50% participants knew about lump under armpit, 0.60% participants knew about inversion of the nipple, 2.50% participants replied other symptoms, 3.95% participants replied discoloration of skin, 4.30% participants replied change in breast shape, 8.30% participants replied nipple discharge, 8.70% participants replied painless lump, 11.50% participants replied pain in the breast and 16.90% participants did not know about the symptoms of breast cancer.

Figure 3: Knowledge of rural and urban women in the prevention of breast cancer.

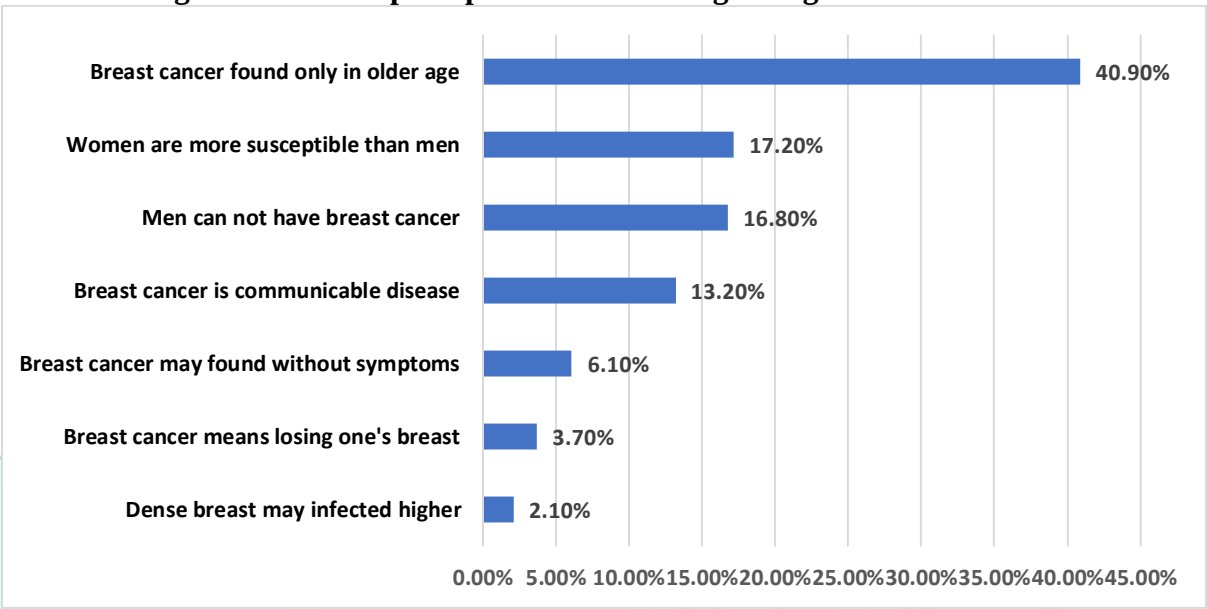


Knowledge of rural and urban women in the prevention of breast cancer has shown in the above figure 3. From the result it was found that in case of rural areas, only 3.20% participants replied that vaccination is the prevention of breast cancer, 4.60% participants replied that regular checkup and screening is the prevention of breast cancer, 5.90% participants replied that limited use of pills and hormons is the prevention of breast cancer, 22.60% participants replied that taking medicine is the prevention of breast cancer, 24.80% participants replied that practicing breast feeding is the prevention of breast cancer and 39%

participants replied that regular exercise and weight control is the prevention of breast cancer. On the other hand in case of rural areas, only 4.60% participants replied that vaccination is the prevention of breast cancer, 5.60% participants replied that regular checkup and screening is the prevention of breast cancer, 6.50%participants replied that limited use of pills and hormons is the prevention of breast cancer, 23.64% participants replied that taking medicine is the prevention of breast cancer, 28.0%participants replied that practicing breast feeding is the prevention of breast cancer and 41%participants replied that regular exercise and weight control is the prevention of breast cancer.

4. The perception of participants on breast cancer

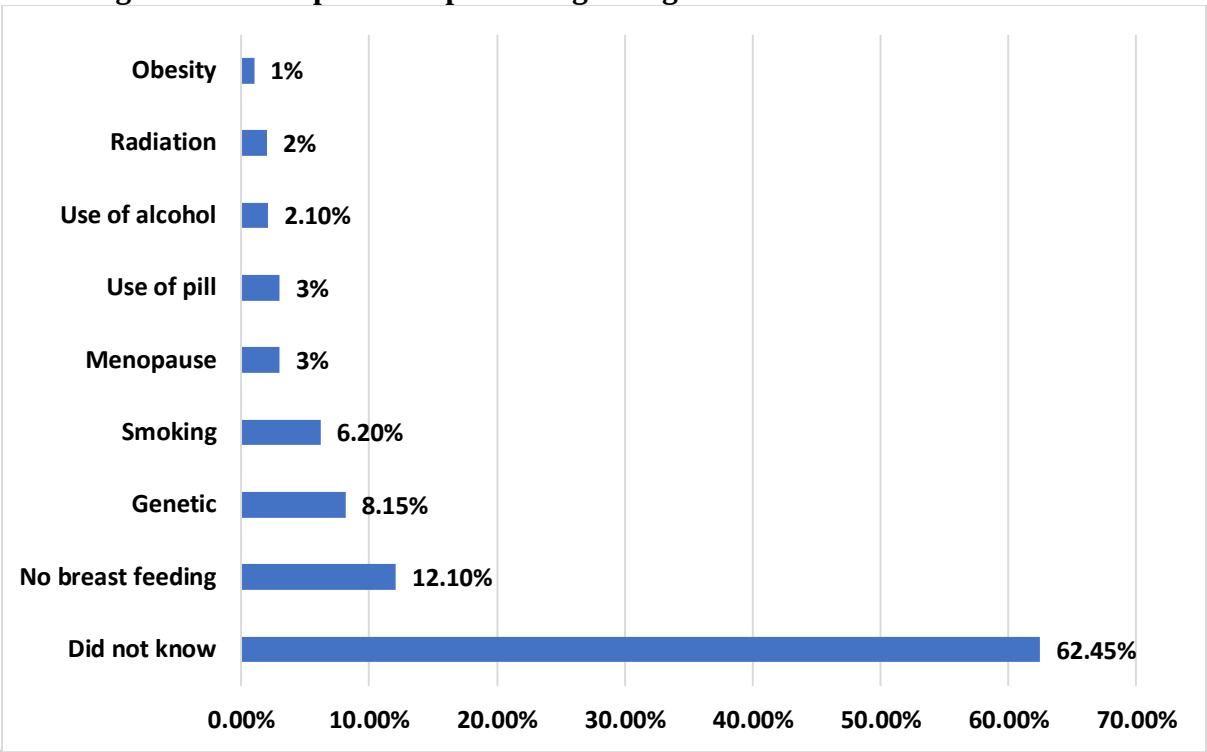
Figure 4: Overall perception of women regarding the breast cancer



The overall perception of participants regarding breast cancer has described in the Figure 4. From the result it was found that40.90%participants replied that breast cancer found only in older age, 17.20% %participants replied that women are more susceptible than men, 16.80% participants replied that men cannot have breast cancer, 13.20% participants replied that breast cancer is communicable disease, 6.10% participants replied that breast cancer may found without symptoms, 3.70% participants replied that breast cancer means losing one's breast and 2.10% participants replied that dense breast may infected higher.

5. Knowledge of participants regarding the risk factors of breast cancer

Figure 5: Participants' responses regarding the risk factors of breast cancer



The bar diagram in Figure 5 described participants' responses regarding the risk factors of breast cancer. From the result it was found that that majority of participants (62.45%) did not know the risk factor of breast cancer, 12.10% participants replied that no breast feeding is a risk factor of breast cancer, 8.15% participants replied that genetic matter is a risk factor of breast cancer, 3% participants replied that menopause is a risk factor of breast cancer, 3% participants replied that use of pill is a risk factor of breast cancer, 2.10% participants replied that use of alcohol is a risk factor of breast cancer, 2% participants replied that radiation is a risk factor of breast cancer and only 1% participants replied that obesity is a risk factor of breast cancer.

DISCUSSION

This study explored the knowledge of different features of breast cancer among Bangladeshi women. The study also focused on the awareness of the factors that could significantly increase their risk of developing breast cancer. In the sense of the findings of the study, more than half of the participants had no idea about the risk factors of breast cancer and the knowledge was noticeably low. The findings of this study which was supported by previous study conducted in Bangladesh (Amin MN, et al., 2020) and another study conducted in Ethiopia (Melaku Gebresillassie B, et al., 2018). Results revealed that neighbors and relatives were the most important sources from which the majority of the respondents came to know about breast cancer. It indicates that neighbors and relatives play an important role to make other people more aware of breast cancer. In addition, television and social media were also marked by the study participants which was consistent with the previous study conducted in India (Prusty RK, et al., 2020) where television played a vital role in increasing the awareness among the participants. Although three-fourth of the total participants had ever heard of breast cancer, a majority of them had no detailed knowledge about it.

A previous study conducted in Bangladesh also found a good number of respondents (77.4%) were acquainted with breast cancer (Tithi SS, et al. 2018). Similarly, in another study, 71.8% of the women have found to know about breast cancer (Sah SKet al., 2019). However, the scenario was observed completely different in a community-based study, conducted in Mumbai, India where nearly half of the participants did not hear about this type of cancer. (Prusty RK, et al., 2020). The difference could be due to the difference in target participants and study location.

Analysis revealed that a good proportion of women believed that breast cancer is detectable at an early age. Along with that, participants thought it can be cured if people take treatment on time. This finding was found to be concordant with a study done in Dhaka Medical College Hospital, Bangladesh where 51.43% of

the women reported breast cancer is possible to cure if it is detected early (Chowdhury S, et al., 2011). Regarding the knowledge of screening tests, only a small proportion of the people reported having proper knowledge about breast cancer examination. Across-sectional study conducted in a small area of Bangladesh also demonstrated that 19.7% of the participants had a good knowledge of breast cancer examination (Alam NE et al., 2021). However, this percentage was found to be higher (64.2%) in another study done in seven districts of Bangladesh (Islam RM, et al., 2016).

A small number of women were recognized that they know about screening tests for breast cancer and a few of them were found to have heard of different screening tests in which breast ultrasound and breast self-examination were most familiar. Similarly, a cross-sectional study done in Delhi, India found limited knowledge of women in breast self-examination (Somdatta P et al., 2008). However, this finding was opposite to a previous study conducted in rural Egypt where 91% of the participants were familiar with breast self-examination.33 However, another study demonstrated that 60% of the participants were not aware of the breast self-examination (Nabi MG et al., 2016).

Participants were identified a number of symptoms where pain in the breast had taken as the most known symptom which was supported by the similar finding of a previous study in Pakistan (Noreen Met al., 2015). On the other hand, a low percentage of women considered pulling inversion of the nipple, lump under the armpit, discoloration of the breast, and change in shape as the symptom of breast cancer.

The literature stated that the majority of the participants were not aware of changes in breast shape, nipple inversion, change in color of the nipple, etc. as dangerous symptoms (Shinde SD et al., 2017). Nonetheless, a study in North India assessed that two-fourths of the population identified a change in shape, and less than half was detected nipple discharge (Nabi MG et al., 2016).

A lump in the breast was found to be the most common symptom in another study conducted in Southeast Ethiopia among women (Hussen A et al., (2019). The knowledge regarding the preventive method was foundmore likely to be similar among rural and burdened women where nearly half of the respondents considered regular physical exercise and weight control as the best methods to prevent this type of cancer. A descriptive cross-sectional study also delineated a similar finding where 42.7% of the population agreed being physically active could be one of the most effective measures against breast cancer (Sah SK. et. al, 2019). Among the study participants, approximately half of the women thought breast cancer can only be found in older age which contradicts the result of another study done in Saudi Arabia where the older people did not consider themselves as more vulnerable than the other (Parveen R, Latifa Saad AS. (2013). Furthermore, a large proportion of the women thought breast cancer can only be detected in women but not in men.

However, some women also reported that breast cancer could be a communicable disease. Nonetheless, the finding of a previous study was not concordant with our result where most of the women strongly replied that breast cancer cannot be restricted to women and more than half of them also reported breast cancer as a non-communicable disease (Sah SK. et. al., 2019).

This study highlighted a low level of knowledge regarding the potential risk factors of breast cancer among the respondents. Only a small proportion of women acknowledged that not breastfeeding could be one of the risk factors followed by other risks including genetic factors, smoking, and menopause. The finding was found to be similar to previous studies (Islam MS, 2019) and Izanloo A et al., 2018).Previous literature reported menopause, obesity, and the use of oral contraceptives as the most significant risk factor for breast cancer (Asaduzzaman M et al., 2020) and (Ahmed K et al., 2015).Finally, the findings of this study would contribute to promoting interventions aimed at increasing women's awareness and knowledge about breast cancer and its associated significant risk factors.

CONCLUSION AND RECOMMENDATIONS

Analysis revealed poor knowledge of breast cancer in both rural and urban women. Although the majority of the participants have heard about breast cancer, only a small percentage of urban educated women them have a thorough understanding of the disease. In these consequences, breast cancer awareness programs on the symptoms, screening, and prevention should be initiated especially at the community level. Additionally, health education might play a significant role in promoting good practices among young

women especially personal hygiene, self-examination of breasts, and other screening programs for ensuring early detection and starting of the treatment. Knowledge of breast cancer risk factors is little bit satisfactory in case of urban women but inadequate among a large percentage of rural women. Considering their leading role in breast cancer knowledge, attitudes and awareness and information, efforts should be made by Government and Non-Governmental agencies to improve breast cancer knowledge among the mass reproductive aged women in Bangladesh. Significant proportion of participants in this study believed in the role of prayer and alternative medical therapy in the cure of cancer. This is a reflection of high level of spirituality and belief in tradition among Bangladeshi women. Programmes to educate religious leaders and alternative medical practitioners about breast cancer should be encouraged. The advantage of early presentation and treatment of patients suffering from breast cancer should be emphasized during such interactions.

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