**ORIGINAL ARTICLE**

# Women's Knowledge, Attitude, Beliefs and Misconceptions Regarding Breast Cancer in Pakistan

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## ABSTACT

Globally breast cancer is the commonest cancer among women and is known to be the leading cause of cancer related deaths in countries like Pakistan with low resources. To devise policies for the provision of health education to a community it is therefore important to first determine their level of knowledge regarding that particular health issue. This survey of open ended questions was conducted to determine the awareness level of people, to explore their knowledge, opinions and misconceptions about breast cancer and to provide basic information to the health care providers and policy makers to devise ways to address these deficiencies and misconceptions accordingly.

**Keywords:** Breast cancer, Women's knowledge, misconceptions

## INTRODUCTION

Cancer because of its significance in terms of both incidence and mortality is a specific chronic disease that warrants scrupulous reflection[4]. The etiopathogenesis of breast cancer involves multiple factors, some of which are not controllable[7]. Moreover, because of its associated issues of depression, disfigurement, body image and sexuality, misconceptions about fertility and contagiousity—coupled with overwhelming financial constraints—breast cancer is unique from other cancers[4]. This makes it an even more traumatic disease for a woman and her family and puts a far greater deal of responsibility on the shoulders of the health care providers to increase research, knowledge and skills not only to gather appropriate information about breast cancer, its various risk factors and early warning signs but also to spread awareness among population "at risk" on a greater scale and find advanced and more effective modalities of its management[7].

Globally, breast cancer is the most common cancer among women, comprising 23% of the female cancers. It is also known to bethe leading cause of cancer-related deaths in countries with low-resources[1]. An alarming indicator is that breast cancer incidence and mortality is expected to increase by 50% between 2002 and 2020 worldwide. These rising cancer rates are expected to be greater in developing countries, and are projected to reach a 55% increased incidence and 58% increased mortality in less than 20 years[27].According to World Health Organization report of year 2010about 5 lac women die from breast cancer annually and many more new cases are diagnosed[3]. It is estimated that approximately one million women develop breast cancer each year[3].

Pakistan is a developing country with limited resources[23].Breast cancer is the most common form of cancer among females in Pakistan. An estimated one third of all malignant cases are patients of breast cancer. The likelihood that a Pakistani woman will develop breast cancer is as high as 1 out of every 9 women[19].Pakistan has the highest incidence of carcinoma of breast among the Asian countries[23].The incidence of breast cancer in Pakistan is much higher than that in India—50/100,000 versus 19/100,000—despite the two countries' similar socio-cultural conditions[19]. Data analysis reveals that Pakistan has a younger patient population with larger tumors, higher grades, and more advanced disease stage on presentation than does the United States. Moreover receptor-negative tumors are also more common in our population[29].

Since the degree of success in treating breast cancer is influenced primarily by the stage at which intervention is introduced thus secondary prevention (early detection) is the mainstay[20]. Among the recorded approaches to control breast cancer, as proposed by the World Health Organization (WHO), early detection and screening offer the most immediate hope for a reduction in related morbidity and mortality[1]. Early detection and screening activities of breast cancer include breast self-examination (BSE), clinical breast examination (CBE), and screening mammography[3]. At present, routine mammographyfor screening purposes cannot be recommended in developing countries due tohuge financial constraints[2].Until achieving a well-functioning screening program for breast cancer in these countries, burden of breast cancer may

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decrease by rising general population's awareness about breast cancer and thereby increasing probability of early detection of breast tumor by detecting the palpable mass with smaller sizes[11].Thus with greater awareness of breast cancer and proper training in BSE combined with regular clinical breast examination, it is possible to diagnose breast cancer at earlier stages[25].

Despiteeasy availability of all the treatments for cancer, i.e., surgery, radiation therapy and chemotherapy, at different hospitals in Pakistan, people don't seek for medical consultation. This is mainly due to the presence of many social myths and fears about the disease. As a result when the health physician is contacted disease has reached advanced stage and is mostly incurable[8].

To device policies for the provision of health education to a community it is therefore important to first determine their level of knowledge regarding that particular health issue. Afew studies have already been done in Pakistan for this purpose but to our knowledge all of these surveys were based on questions which restricted the respondents to select from a list of pre-designed / concreteoptions to answer these questions.We decided to conduct a survey with open ended questions without giving any specific response options to the respondents.This method has a potential to reveal to the surveyors a variety of opinions and behaviors among the population which they had not anticipated.Therefore, this survey was conducted with the aim to determine theawareness level of people, to explore their knowledge, opinions and misconceptions about breast cancer and to provide basic information to the health care providers and policy makers to device ways to address these deficiencies and misconceptions accordingly.

## MATERIALS AND METHODS

This descriptive cross sectional study was carried out at Jinnah Hospital, Lahore from July' 2014 to April' 2015. 2000 femaleindividuals, 18 years of age or older,including both patients and their attendants visiting the outdoor departments or admitted in the indoor wards participated in the study.Moreover, subjects were also recruited in the study from outside the hospital premises e.g. people found in the public places and parks etc. Individuals under treatment for breast cancer,doctors, medical students, nurses and other staff linked to health care industry were excluded from the study to control bias. Subjects were also excluded if they were unwilling or uncooperative. Non-probability convenience sampling was used for this purpose.

The study was conducted after approval from the Institutional Ethical Committee. All subjects fulfilling the inclusion criteria were interviewed by trained interviewing team after obtaining verbal informed consent. A pre-tested questionnaire containing 18 open and closed ended questions was used for this purpose. The questions were formulated to judge the knowledge, attitude, beliefs and practices of the subjects regarding breast cancer. The interviewers were instructed not to give drop down menus or hints to the subjects as this could result in a biased judgment.

Participant's responses to 5 of the 18 questions were recorded in the form of a verbatim and were divided into 3 categories by emergent categorization for the purpose of analysis. Level of knowledge was then assigned on the basis of a defined criteria. This categorization and criteriafor assigning the level of knowledge is explained below in the tablesfrom 1-5:

Table 1: What are the symptoms of breast cancer?

| Ct | Response | Criteria | Level of knowledge |
|---|---|---|---|
| 1. | No idea, irrelevant answers. | Any one of the response | No knowledge |
| 2. | Lump / growth / mass / nodule in breast or axilla, wound / ulcer, nipple discharge / retraction, skin changes, thickening / hardening of skin, changes in breast consistency, weight loss. | Any 1 or 2 correct symptoms with or without wrong symptoms | Some knowledge |
| | | 3 or more correct symptoms with or without wrong symptoms | Good knowledge |
| 3. | There are no symptoms, painful lump, boil, , pimple, generalized swelling / enlargement of breast, scar, pus in wound, pus in breast, pus discharge, fever, redness, infection, abscess, depigmentation / blackening of skin, changes in breast, suffocation, chest pain, headache, dizziness, nausea, vomiting, cough, bleeding, itching, burning, body aches,heaviness in breast, hair loss, pain in axilla radiating to arm, back ache. | All the symptoms told were wrong, or based on misconceptions | Misconceptions |

Table 2:What do you know about breast cancer screening?

| Ct | Response | Criteria | Level of knowledge |
|---|---|---|---|
| 1. | No idea, vague answers. | Any one of the response | No knowledge |
| 2. | Mammogram, breast self-exam, clinical breast exam. | Any 1 correct answer with or without wrong answer | Some knowledge |
| | | 2 or more correct answer (mammogram) with or without wrong answer | Good knowledge |
| 3. | Cannot be screened, blood tests or other irrelevant investigations | All the answers told were wrong | Misconceptions |

Table 3:What do you know about treatment options available for breast cancer?

| Ct | Response | Criteria | Level of knowledge |
|---|---|---|---|
| 1. | No idea, irrelevant / vague answers. | Any one of the response | No knowledge |
| 2. | Chemotherapy, radiotherapy, surgery, lumpectomy, mastectomy, hormonal. | Any 1 or 2 correct options with or without wrong answers | Some knowledge |
| | | 3 or more correct options with or without wrong answers | Good knowledge |
| 3. | Cancer is untreatable, religious, spiritual, medicines, injections, homeopathic, herbal, Hakeem medicines, symptomatic. | All the options told were wrong | Misconceptions |

Table 4: What are the risk factors of breast cancer?

| Ct | Response | Criteria | Level of knowledge |
|---|---|---|---|
| 1. | No idea, irrelevant / vague answers | Any one of the response | No knowledge |
| 2. | Lack of breast feeding, hereditary / genetic factors, old age, early menarche, nulliparity, late first child birth, oral contraceptive pills, cigarette smoking, hormonal changes, lack of exercise, obesity. | Any 1 correct risk factor with or without wrong answers | Some knowledge |
| | | 2 or more correct risk factors with or without wrong answers | Good knowledge |
| 3. | No risk factors, trauma, infections, poor hygiene, breast feeding, doing heavy household chores, stress, tension, contaminated food / water, used syringes, dust, breast surgery, wearing black / tight under garments, insect bites, fashion and modern life style, eating spicy food / heavy diet, pregnancy, wearing under garments at night, taking bath during periods and within 40 days of child birth, small breasts, pollution, God's will, stomach problems, bad luck, evil powers, black magic, UV rays, irregular periods. | All the risk factors told were wrong | Misconceptions |

Table 5:What do you know about breast self-examination?

| Ct | Response | Criteria | Level of knowledge |
|---|---|---|---|
| 1. | No idea, irrelevant / vague answers. | Any one of the response | No knowledge |
| 2. | Steps from standard protocols of breast self-examination | Any 1 correct answer with or without wrong answer | Some knowledge |
| | | 2 or more correct answer with or without wrong answer | Good knowledge |
| 3. | Wrong | All the options told were wrong | Misconceptions |

Data obtained was analyzed by SPSS version 20.0. Categorical and quantitative variables were described as frequencies and percentages.Results were presented in the form of tables and diagrams.

## RESULTS

Table 6: Personal data of the study group

| Sr. no: | ITEM | CATEGORY | NUMBER | %age |
|---|---|---|---|---|
| 1. | Age | 18 – 29 years | 190 | 38.0 |
| | | 30 – 49 years | 222 | 44.4 |
| | | 50 – 69 years | 82 | 16.4 |
| | | 70 – 89 years | 6 | 1.2 |
| 2. | Education | Illiterate | 193 | 38.6 |
| | | Grades 1 – 5 | 62 | 12.4 |
| | | Grades 6 – 10 | 100 | 20.0 |
| | | Grades 11 – 12 | 48 | 9.6 |
| | | Grades $13^{+}$ | 97 | 19.4 |
| 3. | Employment status | Employed | 110 | 22.0 |
| | | Unemployed | 341 | 68.2 |
| | | Retired | 2 | 0.4 |
| | | Student | 47 | 9.4 |

It is observed from table (6) that 44.4 % of the subjects have age from 30 to 49 years. Most of them (61.4 %) were literate. High percentage of them (68.2 %) were unemployed.

It is observed from table (7) that most of the subjects had no knowledge regarding breast self-examination (96.0 %), breast cancer screening (84 %) and breast cancer risk factors (55.4 %). More than half of them had some knowledge regarding breast cancer symptoms (62.2 %) and treatment options (73.2 %).

Table 7: Level of knowledge regarding breast cancer symptoms, screening, treatment options, risk factors and breast self-examination

| Sr. no: | QUESTION | LEVEL OF KNOWLEDGE | %age |
|---|---|---|---|
| 1. | What are the symptoms of breast cancer? | No knowledge | 17.4 |
| | | Some knowledge | 62.2 |
| | | Good knowledge | 1.4 |
| | | Misconceptions | 19.0 |
| 2. | What do you know about breast cancer screening? | No knowledge | 84.0 |
| | | Some knowledge | 5.4 |
| | | Good knowledge | 0.6 |
| | | Misconceptions | 10.0 |
| 3. | What do you know about treatment options available for breast cancer? | No knowledge | 11.6 |
| | | Some knowledge | 73.2 |
| | | Good knowledge | 8.6 |
| | | Misconceptions | 6.6 |
| 4. | What are the risk factors of breast cancer? | No knowledge | 55.4 |
| | | Some knowledge | 18.4 |
| | | Good knowledge | 6.8 |
| | | Misconceptions | 19.4 |
| 5. | What do you know about breast self-examination? | No knowledge | 96.0 |
| | | Some knowledge | 3.2 |
| | | Good knowledge | 0.0 |
| | | Misconceptions | 0.8 |

Fig.1: Level of knowledge regarding breast cancer symptoms, screening, treatment options, risk factors and breast self-examination

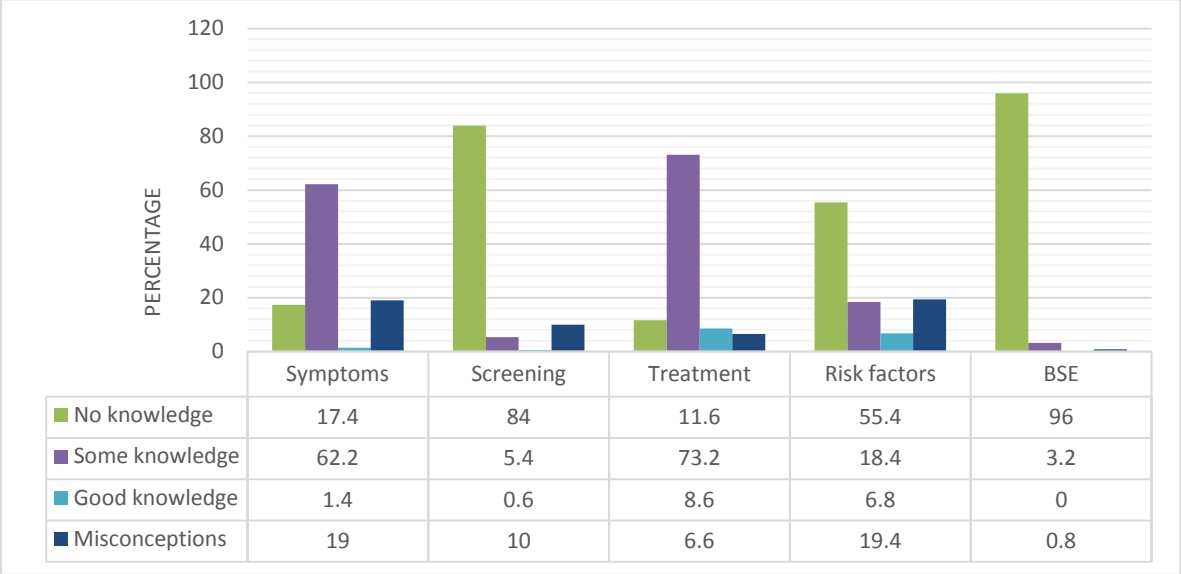



Fig. 1: Comparison of percentage of good knowledge for 5 questions

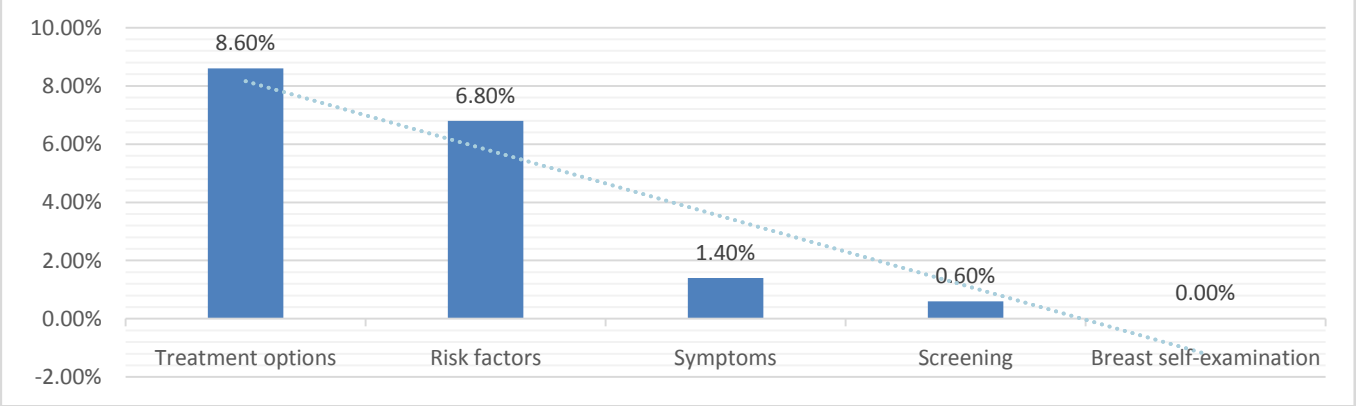


Fig.1 Less than 10% of the subjects had good knowledge regarding treatment options, risk factors, symptoms,screening and breast self-examination. Of these 5 items highest percentage was for knowledge about treatment options (8.60%) and lowest was for knowledge about breast self-examination (0.0 %).

Fig. 2:What is the prevalence of breast cancer in Pakistan?


It is clear from figure (2) that only 32.2 % of the subjects knew about the prevalence of breast cancer in Pakistan.

Fig. 3: What is the severity of breast cancer?

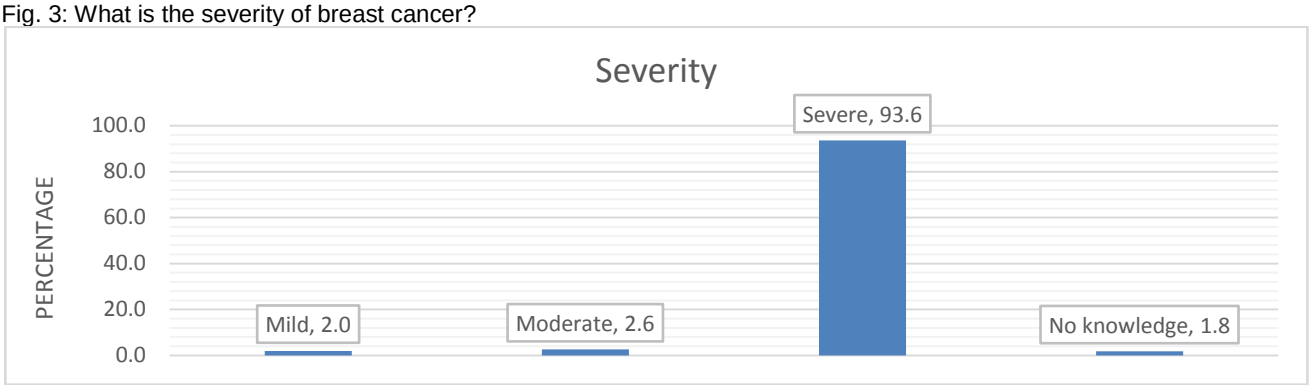
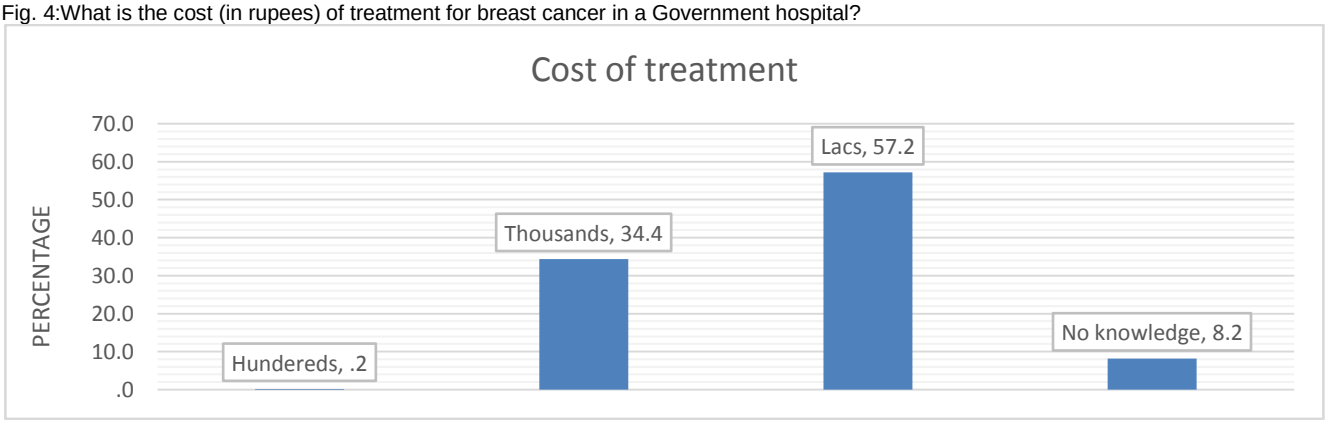



Fig. 3:Most of the subjects (93.6%) were of the view that breast cancer is a severe disease.

Table 8: Response of participants to selected questions regarding breast cancer

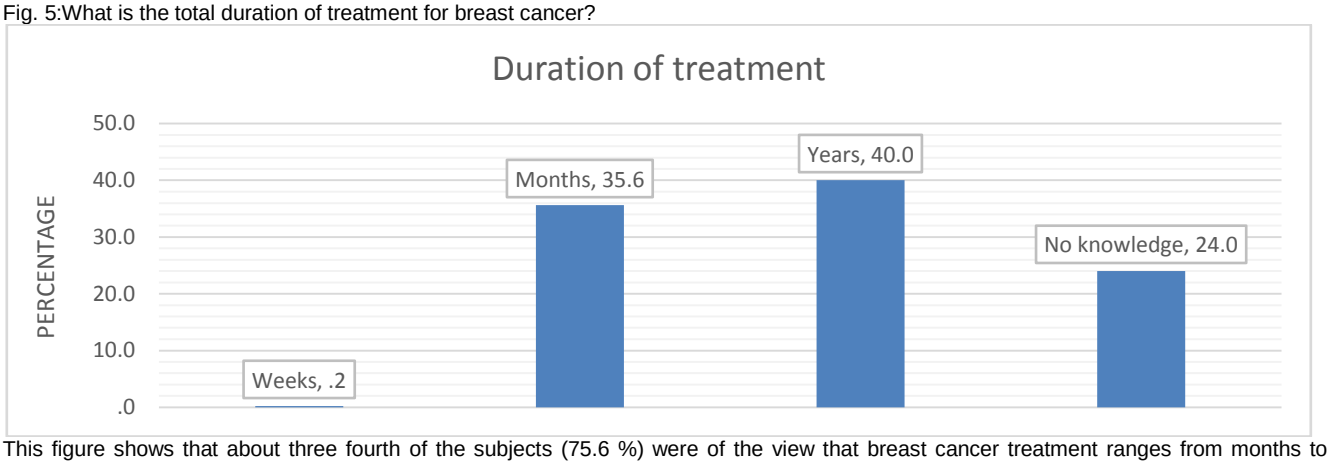
| Question | Responses (%age) | | | |
|---|---|---|---|---|
| | Yes | No | No knowledge | Other |
| Do you think that mastectomy is the treatment of every breast cancer? | 53.4 | 34.2 | 11.8 | 0.6 |
| Can a female breast be reconstructed? | 14.0 | 33.2 | 52.6 | 0.0 |
| Do you think that early presentation improves outcome? | 83.0 | 2.2 | 13.2 | 1.6 |
| Is it hereditary? | 55.4 | 31.8 | 12.6 | 0.2 |
| Is it contagious? | 39.6 | 57.2 | 3.2 | 0.0 |
| Can a women conceive after having breast cancer treatment? | 63.8 | 20.4 | 15.6 | 0.2 |

Fig. 4:What is the cost (in rupees) of treatment for breast cancer in a Government hospital?



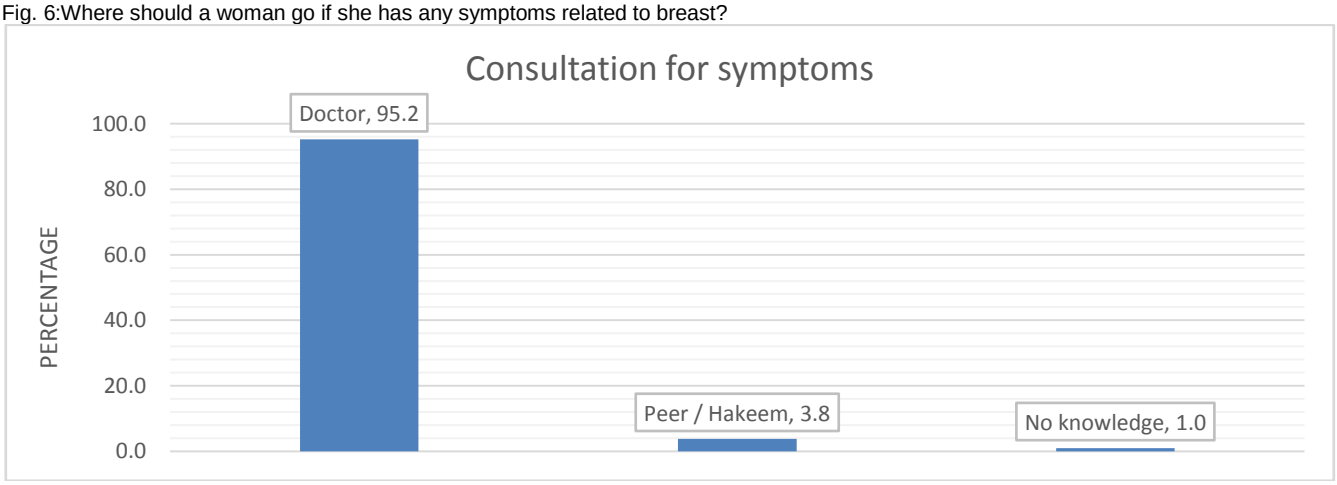

According to the figure, more than half (57.2%) of the subjects said that breast cancer has expensive treatment.

Fig. 5:What is the total duration of treatment for breast cancer?



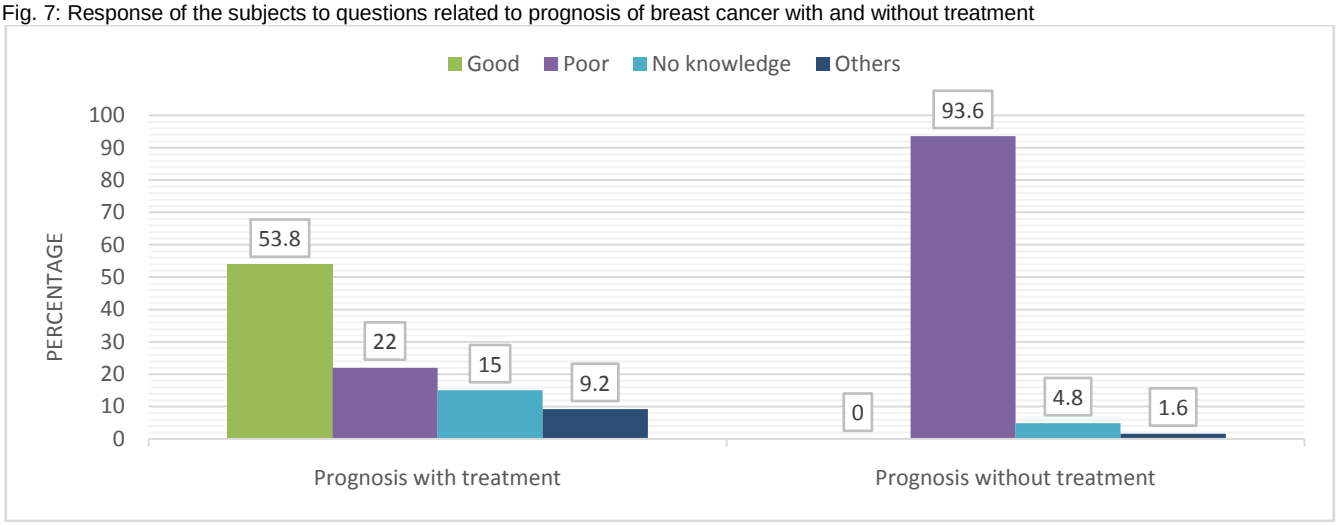

This figure shows that about three fourth of the subjects (75.6 %) were of the view that breast cancer treatment ranges from months to years.

Fig. 6:Where should a woman go if she has any symptoms related to breast?



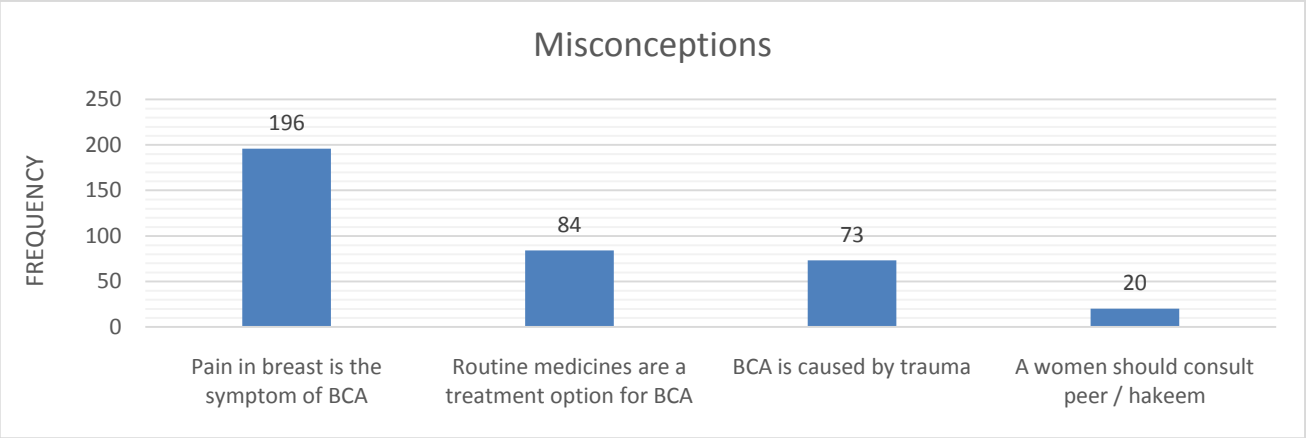

It is clear from the figure that most of the subjects (95.2 %) were of the view that women should consult doctors for any symptoms related to breast.

Fig. 7: Response of the subjects to questions related to prognosis of breast cancer with and without treatment




This figure shows that about half of the subjects (53.8%) said that breast cancer has a good prognosis following treatment and most of them (93.6%) said that breast cancer has a poor prognosis if not treated.

Fig. 8: Major misconceptions regarding various items in the survey (frequency)




BCA = Breast cancer

## DISCUSSION

This study was aimed to assess the awareness level of general public in Pakistan regarding various aspects of breast cancer. The results of the survey demonstrated that although most of the women had some knowledge regarding early symptoms and the treatment options of breast cancer, they were found to be deficient in basic knowledge regarding other important aspects i.e., screening, breast self-examination, risk factors and incidence of breast cancer in Pakistan. The results of our study are similar to those of other studies done in Pakistan where it was found that the women had poor knowledge of breast cancer[8,12,15,23].

It can also be inferred from the results of our study that women generally have positive health-seeking beliefs about breast cancer e.g., majority were of the view that a women should consult a doctor if she has any symptoms related to breast and early presentation improves outcome of the disease. Despite this fact, women still seek medical advice at an advanced stage of the disease in our part of the world. This attitude may be explained to some extent by our study results that most of the women believe that the treatment of breast cancer is expensive and takes a long time. Moreover, more than half of the women have no knowledge about breast reconstruction and they think that mastectomy is the treatment of every case of breast cancer.

Our results showed that a little less than two thirds (62.2%) of the women had some knowledge regarding early symptoms of breast cancer. This is far greater than a study done by Tazeem*et al* among antenatal women presenting to a tertiary care hospital in Karachi where it was found that less than one third (23%) females were knowledgeable about the early symptoms of breast cancer[15]. In the current study 57.6 % women told breast lump, 39.2 % pain in breast, 3.2% ulcer and 4.8 % nipple discharge as symptoms of BCA, while 17.4% had no idea about BCA symptoms. These results are comparable to a similar study conducted in a public hospital in Rawalpindi by Sara Ijaz Gilani *et al* where 54.6% females answered to breast lump, 44.7% to breast pain, 7% toulcer on breast and 4.5% to bloody discharge from nipple as symptoms of BCA while 19.2% had no knowledge about the symptoms of BCA[9].

Majority of the participants (84.2%) in our study had no idea about breast cancer screening methods including mammography whereas in a study done by Samina Khokher et al it was found that 60% of the respondents had not heard about mammography before.[23] This difference is due to the fact that the later study was conducted among college students in educational institutes of Lahore. These findings are in contrast to a study from Rawalpindi where only 31.6% of the respondents had no idea about diagnostic modalities for breast cancer[9].

In our study most of the women (60.6%) told surgery and comparable percentage of women told chemotherapy, radiotherapy and medicines (17.8%, 17.6% and 16.8% respectively) as treatment options of breast cancer while only 3.8% of the women told alternative therapy (religious/spiritual and homeopathic treatment). Somewhat comparable results were obtained in a study done by SheharBano*et al* where 42.4% identified surgical treatment, 9% radiotherapy, 24.3% some allopathic treatment with medicines and 1.8% identified alternative medicine (hakim, homeopathy, spiritual healing) as treatment modality[8]. In this study greater percentage (40.7%) of the participants had no knowledge about treatment options[8] when compared to our results where the percentage is far less (11.6%).

In a study conducted among educational institutions of Lahore it was found that college girls lacked knowledge about risk factors[23] that is similar to our results. Same results were obtained in a study by Afifa Akbar Ali *et al*[12] and Sara Ijaz Gilani *et al*[9]. In our study when participants were asked about their knowledge of risk factors of breast cancer 14.6% told trauma, 12.4% hereditary / genetic factors, 12% lack of breast feeding, 3.8% contraceptive pills and 1.6% advancing age as possible etiology of breast cancer. In addition to these, 2% and 1% women regarded poor hygiene and infections as risk factors of breast cancer respectively. These findings do not correspond to those of a study done by Sara Ijaz Gilani *et al* where participants gave different responses regarding risk factors i.e., 78.7% agreed to breast trauma, 30.5% to hereditary, 74.9% to lack of breast feeding, 33.4% to contraceptive pills and 67.7% to advancing age as risk factors. Moreover, participants also chose other risk factors i.e., smoking 75.7%, obesity 53%, first childbirth at age more than 30 years 45.1%, nulli parity 37.3%, menarche below 11 years 36.1% and magic/evil spirits 22%[9]. The difference might be due to the difference in data collection tool.

Majority of the women in our study had no knowledge regarding breast self-examination showing a dismal percentage of 96 % similar to a study where 88 % of the antenatal attendees were not aware of it. In another study a total of 28.3% women responded 'yes' to a question "Do you know about breast self-examination?"[9]. But in our study when women were asked "What do you know about breast self-examination?" only a few (3.2%) women were found to have some knowledge.

83% of the women in our study were of the view that early presentation improves outcome in case of breast carcinoma. This percentage is similar to other studies done by Tazeem Shahbaz *et al*[15], Shehar Bano *et al*[8] and Samina Khokher *et al*[23] (83.3%, 88% and 81% respectively). 95.2% women in the present study were of the view that a women should consult a doctor if she has any symptom related to breast this is similar to a study where 94.7% of the subjects were of the same view[9].39.6% women in our study sample think that breast cancer is contagious compared to another study by Afifa Akbar Ali *et al* where twenty five percent women think it as contagious. 32.2% women knew the incidence of breast cancer in Pakistan compared to a study where it was found that Women's life time risk of developing breast cancer was correctly answered by 40% of respondents[23].

Similar to the results of our study, other studies from Pakistan (Afifa Akbar Ali *et al*[12], Tazeem Shahbaz *et al*[15] and Samina Khokher *et al*[23]), India (Pawan Kumar Sharma *et al*[21]), Nigeria (Michael N Okobia *et al*[2]) and USA (Martha Nyanungo Sambanje *et al*[25]) reported that literacy was significantly correlated with a greater degree of knowledge about breast cancer. Similarly breast cancer knowledge was positively correlated with employment status of the women in our study and in other studies from Nigeria[2] and Pakistan[23] as well. However in another study from Pakistan no statistically significant difference was present based on the working status[12].

A similar study done among community-dwelling rural women in Medchal region of Andhra Pradesh showed that the participants had poor knowledge of breast cancer symptoms and risk factors for example 21.37% knew that breast cancer commonly presents as a painless breast lump while only 13.74% were aware that breast cancer could be inherited among families[21]. Results of our study are more promising where 57.6% women told painless breast lump as a symptom of breast carcinoma and 55.4% women knew that BCA is a heritable disease. Moreover, in this Indian study 70.23% of the participants reported consulting a doctor as the best approach in case a woman had any symptom related to breast[21] as compared to a greater percentage (95.2%) of Pakistani women. Results of a Nigerian study also showed that participants had poor knowledge of breast cancer symptoms and risk factors. Only 21.4% participants knew that BCA presents as a painless breast lump[2]. In this Nigerian study majority of the participants indicated visiting the doctor as the best approach to breast cancer careand 41.4% correctly noted that breast cancer is curable when detected early.

In a study done in Qatar to assess the awareness and knowledge of Arabic women about breast cancer screening it was found that the participants had rather poor knowledge where only 7.6% of the women interviewed were regarded as having basic knowledge of the most recent screening guidelines in Qatar for BSE, CBE and mammography[28]. Similar to our results where only 7.8% women have some knowledge regarding breast carcinoma screening.

A survey done in Alabama among college women showed low overall knowledge regarding breast cancer as the study participants answered just over half (57%) of the knowledge questions correctly[4]. These conclusions are similar in a study done in Angola among university students where it was found that participants had low level of knowledge regarding risk factors associated with breast cancer. In contrast to the participants of our study, a significant number of the participants (more than 80%) in this American study were

knowledgeable about breast self-examination. Furthermore, a majority of the participants (66%) were aware of the fact early diagnosis improves chances of survival[25] compared to our results where 83% participants are of the same view.

The most interesting feature of our study is that open ended questions were asked from the participants. However, this study has certain limitations in terms of generalizability as the sample did not necessarily represent the general population. This is because of the sampling method i.e., convenience sampling. In conclusion our results suggest that in Pakistan, women have low level of knowledge regarding breast cancer. Thus, to improve women's health and to decrease mortality rates from breast cancer it is necessary to improve women's knowledge regarding this important public health issue. Furthermore, we would also suggest that studies should be conducted to assess knowledge and attitude of men regarding breast cancer as in our society men influence most of the decision making regarding various issues including health issues.

## CONCLUSION & RECOMMENDATIONS

As the level of awareness among general public about cancer is insufficient, people should be given awareness about cancer prevention, risk factors, importance of routine medical checkup for early detection and availability of cancer treatments[8].

Health information provision or health education can bring about significant positive changes in health related behaviors. Formal education does not contribute as much to health knowledge, behaviors, or beliefs such as self-efficacy. Exposure to health-related information and subsequently enhanced awareness not only improves health knowledge but also encourages healthy practices[19]. Knowledge is a necessary predisposing factor for behavioral change[6]. Factors related to women's knowledge and beliefs about breast cancer and its management maycontribute significantly to medical help-seeking behaviors[2].

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