

# Awareness and Screening of Breast Cancer Among Rural Areas of Islamabad Capital Territory, Pakistan

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## Author Contribution

<sup>1</sup>Contributed towards conception and design of work and acquisition of the data

<sup>2</sup>Drafting of the manuscript and analysis of data for work

<sup>3</sup>Revision and critical analysis of the work

<sup>4</sup>Final review and approval of the manuscript

## How to Cite this Manuscript

Majeed AI, Jadoon M, Riazuddin S, Akram J. Awareness and Screening of Breast Cancer Among Rural Areas of Islamabad Capital Territory, Pakistan. *Ann. Pak. Inst. Med. Sci.* 2017; 13(1):103-107.

Funding Source: Nil

Conflict of Interest: Nil

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## ABSTRACT

**Objective:** This study is the analysis of public awareness and screening campaign conducted under federal breast cancer screening program in the rural areas of Islamabad Capital Territory from October 2015 to December 2016.

**Design:** Retrospective analysis

**Place and Duration of Study:** Federal Breast Cancer Screening Centre, Pakistan Institute of Medical Sciences from October 2015 to December 2016.

**Methodology:** This awareness program was conducted in two phases. During phase, I, lady health workers and lady health visitors of the basic health units and rural health centers were trained for self-breast and clinical examination followed by mass awareness campaigns at their respective health centers. Phase-II of the program involved clinical examination and screening of the women by mammography and ultrasound followed by confirmation by guided histopathological procedures.

**Results:** A total of 273 health workers were trained. Clinical examination was offered to 5000 of the 317,332-registered female population, followed by mammography and breast ultrasound of 1402 cases. A total of 333 women presented malformations in breast tissues, of which 146 (43.8%) were confirmed as breast cancer by radiography and histopathological examination. Among these, 133 (39.9%) were of age  $\geq 40$  while 13 (4.9%) were  $< 40$  years of age.

**Conclusion:** Our study indicates that there is general lack of knowledge regarding breast cancer risk factors, warning signs and role of early diagnosis in increasing chances of survival. Therefore, it is highlighted that awareness campaigns should be continued and organized to approach a large number of female population in the underprivileged areas and educated them about self-breast examination and screening upon detecting any warning signs.

**Keywords:** Awareness, Breast cancer, Screening, rural areas.

## Introduction

Cancer is a group of diseases characterized by uncontrolled proliferation of cells in the body leading to the formation of a lump or mass called tumor and named after the part of the body where it originates. Of the different types of cancers, breast cancer is one of the

most commonly encountered neoplasm in women both in developed as well as developing the world. It is estimated that nearly 1.8 million new cases of breast cancer were diagnosed by 2013, with an over 8 million deaths worldwide in 2013.<sup>1</sup> Our country Pakistan has,

unfortunately, highest incidence rate of breast cancer in Asia, with at least 90,000 women suffering from the disease annually.<sup>2</sup>

Breast cancer is usually detected either after the development of a lump or during a screening examination. The risk factors for breast cancer are well known and include family history, prolonged exposure to endogenous estrogens, oral contraceptives, early menarche, late menopause, obesity after menopause, late age at first childbirth, lack of breastfeeding, physical inactivity, and alcohol consumption.<sup>3</sup>

The importance of breast cancer as a high incidence disease is equally bold in developed as well as developing countries. Studies have shown that early detection of breast cancer is highly instrumental in reducing the mortality rate and improving disease prognosis.<sup>4</sup> Therefore; it is imperative to conduct high-quality screening as well as carry out population-based studies in a geographically demarcated area thereby providing statistics and trends on incidence, mortality, survival rate and putative risk factors.

Pakistan is a developing country with a high burden of breast cancer. With one in every nine women suffering from breast cancer, the incidence is recorded to be highest in Asia; 2.5 times higher than the neighboring countries India and Iran.<sup>2</sup> Studies conducted on different aspects of breast cancer in Pakistan highlighted several contributing factors such as genetic mutations and focused on conducting effective screening programs, monitoring and public education and awareness campaigns for early breast cancer detection.<sup>2-5</sup> Therefore; awareness and screening campaigns are being conducted in the Islamabad Capital Territory by Federal Breast Cancer Screening Centre, Pakistan Institute of Medical Sciences, Islamabad for early breast cancer detection.

## Methodology

The present study is a retrospective, observational study based on pilot scale data retrieved from Federal Breast Cancer Screening Centre, Pakistan Institute of Medical Sciences (PIMS), Islamabad from October 2015 to December 2016, providing information about the role of awareness and screening campaigns in early detection and effective management of the disease in the region.

This center is running awareness campaigns and conducting screening for early breast cancer detection among the female population of the rural areas of the ICT. It was divided into two phase which were both conducted in parallel. During phase-I, lady health

visitors (LHVs) and Lady health workers (LHWs) of all the Basic health units (BHUs) and Rural health centers (RHCs) of the ICT region were trained by the general surgeons, radiologists and gynecologists about the symptoms of the breast cancer, its examination and management, followed by public awareness campaigns. During the campaigns, the female population of the selected areas were invited to their respective health centers after motivation by trained LHVs and LHWs and given short lectures about different aspects of breast cancer including risk factors, early warning signs, screening and therapeutic approaches. During phase-II, community-based screening of every willing female participant, of age 40 or above, was conducted for early breast cancer detection. Any female under the age of 40, willing for screening and/or presenting breast lump with or without a family history of breast cancer were also considered for screening. All the women over the age of 40 were however; specifically convinced for screening. Participants over the age of 40, were offered general breast examination followed by mammography (mammography system Helianthus Bym, Metaltronica). For participants under the age of 40, general breast examination followed by breast ultrasound (Ultrasound system LOGIQ S7) was conducted. Guided procedures such as trucut biopsy and fine needle aspiration cytology (FNAC) were conducted for confirmation. All the screening and guided procedures were conducted at Federal Breast Cancer Screening Centre, PIMS, Islamabad.

## Results

During phase-I, awareness campaigns were conducted through which a total of 273 LHWs/LHVs in a total of 14 BHUs and 03 RHCs of the rural areas were trained. These health workers conducted a total of 100 field visits in their respective regions along with the professionals under public awareness and screening campaigns. Table 1 shows the number of lady health workers trained in different regions and approximate female population.

During phase-II of the campaign, entire female population of the rural areas of the ICT region was targeted for providing awareness and motivated for screening. Brief educational lectures were delivered by healthcare professionals regarding self-breast examination, risk factors, early warning signs and role of early detection in improving chances of survival. Besides, a total of 5000 women were examined clinically and treated generally at different health centers. Of these,

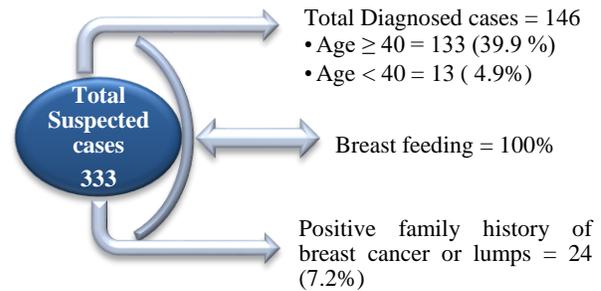
1402 were offered mammography. Suspicious lumps or breast malformations were detected in 333 of the screened women. These cases were proceeded further for histopathological examination leading to confirmation of 146 (43.8%) cases as breast cancer. Among these, 133 (39.9%) were of age  $\geq 40$  while 13 (4.9%) were below 40 years of age. All but one diagnosed case of age  $\geq 40$  was unmarried while only two cases under the age of 40 were unmarried. Breast feeding history was positive for all the married cases. Family history of breast cancer or lumps was found among 24 (7.2%) of the suspected cases.

**Table 1: List of BHUs/RHCs, number of lady health workers and approximate female population targeted during Phase-I of awareness campaigns**

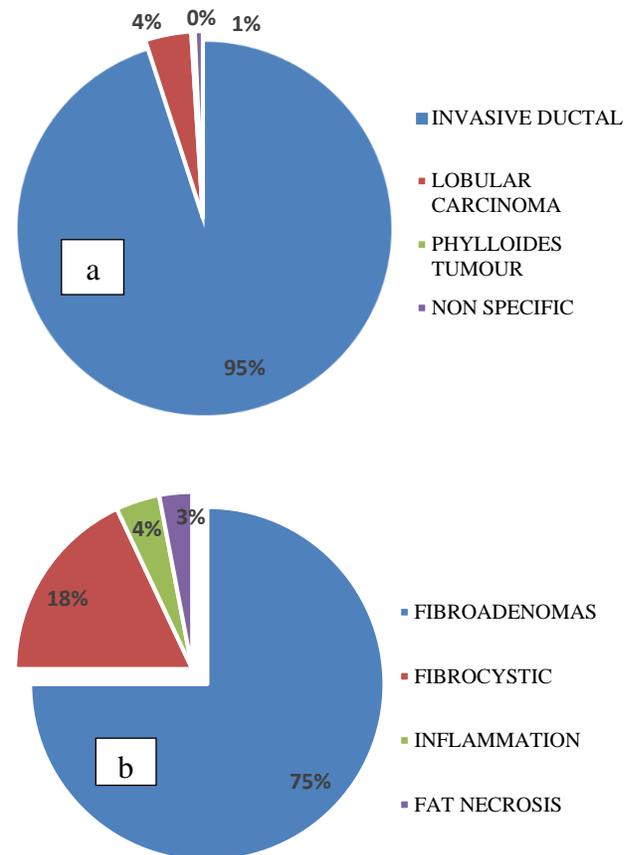
BHUs/RHCs	LHWs /LHV's	Total Female Population (approximate)
Bara Kahu	39	50,000
Bimbar Tarar	10	12,000
Chirrah	26	30,000
Pind Bhaghwal	16	18,000
Tumair	12	6,000
Tarlai	33	43,000
Shah Allah Dita	07	3,000
Rawat	20	25,000
Jagiot	22	27,000
Sihala	16	22,000
Gokina	05	3,000
G-7 Dispensary	21	26,000
Shadra	04	27,000
Sohan	17	20,000
Ghagri	05	5,000
G-9 Dispensary	11	11,632
Bukar	09	13,000
Grand total	273	317,332

Figure 1 summarizes the findings of phase-II of the study. The diagnosed cases were provided counselling by the experts and offered follow up examination and advice. Histopathological examination revealed that invasive ductal carcinoma is the most frequently encountered upon performing biopsy (Figure 2a) while fibroadenomas were frequently detected by FNAC (Figure 2). The study could not reveal any significant information about the

specific risk factors, early warning signs or clinical presentation of the diseases among the local population.



**Figure 1: Summarized results showing statistics of breast cancer in rural areas of ICT region**



**Figure 2: Pie chart showing relative percentages of different types of histopathological presentations (a) Detected by biopsy (b) detected by fine needle aspiration cytology**

## Discussion

Breast cancer is one of the most frequently diagnosed malignancy among Pakistani female.<sup>6</sup> Studies reveal a rise in breast cancer cases particularly at a younger age<sup>7</sup>

and advocate an urgent need to develop preventive measures and suggest legislative changes to tackle this issue. One of the strategies is to educate the general public and create awareness about the screening and its role in early breast cancer detection and management. This study is based on one such awareness program conducted to educate women in the under privileged areas of the federal capital Islamabad, Pakistan. For administrative purposes, the capital territory is divided into urban and rural areas. The basic health services in the rural areas are ensured through the dedicated health centers designated as Basic Health Units (BHUs) and Rural Health Centers (RHUs). These centers are managed through trained professionals, paramedical staff and personals for door to door visit regarded as Lady Health Workers (LHWs) and Lady Health Visitors (LHVs). The LHVs and LHWs are the key units for conducting any public awareness campaigns since they are trusted by the community and are quiet instrumental in delivering primary health care services.<sup>8</sup> Therefore in this awareness program, phase-I was conducted for training of all the registered LHWs and LHVs of the rural areas. A total of 273 workers were trained who then conducted field visits for educating the female population of their respective regions and invited and convinced them to be part of free of cost screening camps. Consequently, a total of 5000 women of the registered 317,332 female population visited the awareness camps. The aim was to educate the entire female population of the region over a period of five years. However; the social factors such as hesitation in visiting the health centers, lack of basic education and incompliance towards personal health were some of the factors which made it hard to convince the women to attend the awareness/screening camps, thus leading to relatively low turnout. Of the women attending awareness camps, 1402 women were offered mammography. This screening resulted in detection of 333 suspected cases of which 146 were confirmed as breast cancers.

The findings of this retrospective analysis could be correlated with previous studies from Pakistan. According to Moore and colleagues, Pakistan has highest age standardized rate of breast cancer; 69 per 100,000; in South Asia.<sup>9</sup> Several independent studies conducted in different regions of the country present population based statistics. Bhurguri and colleagues reported that breast cancer has highest age standardized incidence rate among all the detected cancer cases in female population of Hyderabad region.<sup>10</sup> Similar findings were reported from Karachi region after a retrospective analysis of nine years data of cancer patients of both genders.<sup>(11)</sup> A study

conducted in Quetta, Baluchistan shows that among detected cases of breast cancer, invasive ductal carcinoma (IDC) was the most common type followed by invasive lobular carcinoma (ILC).<sup>12</sup> These findings are consisted with our study which revealed invasive ductal carcinoma as the most frequently encountered type among the breast cancer cases of the rural ICT region.

This study could not highlight any possible risk factors or likely contributors of high prevalence of breast cancer in the country. Although information about breast feeding, marital status and positive family history of breast cancer was obtained but no significant conclusion could be deduced from the limited information. Studies conducted earlier however; recognize positive family history of breast cancer, single marital status, late menopause ( at age > 50 years), early menarche (< 11 years), age  $\geq$  30 at first live birth, lack of breast feeding, less parity, increased body mass index, smoking and genetic susceptibility as the likely contributors of high incidence of breast cancer in Pakistan.<sup>2-5-13)</sup> The survival rate of a women affected with breast cancer is highly dependent on the stage of cancer at the time of diagnosis rather than tumor characteristics. An early detection can lead to cost effective treatment and increased chance of survival.<sup>14</sup> A study conducted earlier by Majeed and colleagues has already established the role of radiography such as mammography in early detection of breast cancer.<sup>(15)</sup>

## Conclusion

This study concludes that although the prevalence of breast cancer is high in Pakistan, an effective public awareness and screening campaign can lead to early detection, improved diagnosis and hence increased survival from an otherwise deadly disease. Therefore, in order to tackle the alarming increase of breast cancer, educational and screening programs should be emphasized and conducted more often particularly for low educated and under privileged female population. Moreover; a general practice to register all the diagnosed cases of breast cancer should be introduced throughout the country, among all the ethnicities/races and socioeconomic classes to monitor the role of environmental factors and genetic variability in contributing towards high incidence. This could not only help to elucidate the most crucial risk factors but devise improvised monitoring and controlling programs at the national level.

## References

1. Collaboration GB of DC. Europe PMC Funders Group The

- Global Burden of Cancer 2013. *JAMA Oncol.* 2015;1(January 2014):505–27.
2. Asif HM, Sultana S, Akhtar N, Rehman JU, Rehman RU. Prevalence, risk factors and disease knowledge of breast cancer in Pakistan. *Asian Pac J Cancer Prev [Internet]*. 2014;15(11):4411–6. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/24969861>
  3. Ghoncheh M, Pournamdar Z, Salehiniya H. Incidence and Mortality and Epidemiology of Breast Cancer in the World. *Asian Pac J Cancer Prev.* 2016;17:43–6.
  4. Rahimzadeh M, Pourhoseingholi MA, Kavehie B. Survival Rates for Breast Cancer in Iranian Patients: a Meta- Analysis. *Asian Pac J Cancer Prev [Internet]*. 2016;17(4):2223–7. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/27221922>
  5. Azeem Z, Farooq A, Naveed AK, Ahmad T. Breast and ovarian cancer risk due to prevalence of BRCA1 and BRCA2 variants in pakistani population: A Pakistani database report. *J Oncol.* 2011;2011.
  6. Bano R, Ismail M, Nadeem A, Khan MH, Rashid H. Potential Risk Factors for Breast Cancer in Pakistani Women. *Asian Pac J Cancer Prev.* 2016;17(9):4307–12.
  7. Rashid MU, Gull S, Asghar K, Muhammad N, Amin A, Hamann U. Prevalence of TP53 germ line mutations in young Pakistani breast cancer patients. *Fam Cancer.* 2012;11(2):307–11.
  8. Hafeez A, Mohamud BK, Shiekh MR, Shah SAI, Jooma R. Lady health workers programme in Pakistan: Challenges, achievements and the way forward. *J Pak Med Assoc.* 2011;61(3):210–5.
  9. Moore MA, Ariyaratne Y, Badar F, Bhurgri Y, Datta K MA. Cancer epidemiology in South Asia - past, present and future.
  10. Bhurgri Y, Bhurgri A, Pervez S, Bhurgri M, Kayani N, Ahmed R, et al. Cancer Profile of Hyderabad , Pakistan 1998-2002. 2005;6:474–80.
  11. Hanif M, Zaidi P, Kamal S, Hameed A. Institution-based Cancer Incidence in a Local Population in Pakistan : Nine Year Data Analysis. 2009;10:227–30.
  12. Baloch AH, Shuja J, Daud S, Ahmed M, Ahmad A, Tareen M, et al. Various Aspects , Patterns and Risk Factors in Breast Cancer Patients of Balochistan. 2012;13:4013–6.
  13. Butt Z, Haider SF, Arif S, Khan MR, Ashfaq U, Shahbaz U, et al. e Breast cancer risk factors : A comparison between pre-menopausal and post-menopausal women. 62(2):120–4.
  14. Downing A, Prakash K, Gilthorpe MS, Mikeljevic JS, Forman D. Socioeconomic background in relation to stage at diagnosis , treatment and survival in women with breast cancer. 2007;836–40.
  15. Majeed AI, Naz N, Arif M, Majeed A. Diagnostic acuracy of mammgraphy in detecting breast cancer keeping histopathology as gold standarad. *Ann Pakistan Inst Med Sci.* 2016;12(2):118–21.