

## RESEARCH COMMUNICATION

# Knowledge, Attitude and Preventive Practices of Women for Breast cancer in the Educational Institutions of Lahore, Pakistan

Samina Khokher<sup>1\*</sup>, Warda Qureshi<sup>2</sup>, Saqib Mahmood<sup>3</sup>, Afaf Saleem<sup>4</sup>, Sumbal Mahmud<sup>5</sup>

### Abstract

Breast cancer incidence rates, pattern of presentation and survival rates vary worldwide. High incidence, advanced stage disease presentation and low survival rates have been reported from Pakistan. Lack of awareness and screening facilities along with poor socioeconomic status are the main causes. A survey based upon multiple choice questionnaires was conducted during an awareness campaign in women educational institutions of Lahore, to assess the baseline knowledge, attitude towards breast self examination (BSE), clinical breast examination (CBE) and source of information used by them. 1155 filled questionnaires were analyzed by SPSS version 12. Majority (83.7%) of the respondents were <30 years old, 60% had >10 and 31.5% had >14 years of education. Only 27% had “good” while 14% had “poor” and 59% had “fair” knowledge scores about breast cancer. Television was the most commonly cited source of information but was associated with lower knowledge score. The knowledge scores and practice of BSE had a positive association with education level. The respondents had better knowledge of life time risk and association of early diagnosis with better chances of cure, but worse knowledge of risk factors as compared to women in educational institutions of other countries. Generally the respondents of present study had low level of knowledge of breast cancer. Properly designed awareness campaign on television and in educational institutions can be effective to raise the knowledge level, the best long term strategy for this purpose.

**Key words:** Breast cancer - knowledge - preventive practices - educational institutions - Lahore, Pakistan

*Asian Pacific J Cancer Prev*, 12, 2419- 2424

### Introduction

Breast cancer is the most frequent cancer and the second major cause of deaths due to cancer in the women worldwide. 519,000 women died in 2004 due to Breast Cancer and 69% of these deaths occurred in the developing countries (WHO 2008a). The incidence as well as the survival rates vary worldwide with marked geographical variations. The age standardized rate is the highest at 99.4 per 100,000 in North America, while lower rates have been reported from African and Asian countries. Lowest reported is from central Africa where it is 16.5 per 100,000. Breast cancer survival rates on the other hand range from over 80% in North America, Sweden and Japan to around 60% in the middle income countries, to below 40% in the low income countries (Coleman et al., 2008). The low survival rates in these regions are explained by the lack of awareness and lack of screening-program resulting in a high proportion of

women presenting with late stage disease and the lack of adequate facilities for their diagnosis and treatment (WHO 2008b).

Pakistan is a developing country with limited resources. It has the highest incidence of breast cancer among the Asian countries, the ASR being 69.1 per 100,000 averaged over the years 1998-2002 (Bhurgri et al., 2006). It is also the commonest cause of cancer related deaths in females and typically breast cancer in this region is characterized by aggressive disease affecting younger age women with late stage presentations (Malik, 2002; Naeem et al., 2008; Khokher et al., 2010). Fifty to seventy percent of the breast cancer patients present when the disease is at an advanced stage (Ghumro et al., 2002; Gilani et al., 2003; Aziz et al., 2008). Lack of awareness in addition to low socioeconomic status and poor access to health care facilities are reported as the major causes of this picture (Aziz et al., 2004). Negative socio-cultural perception about breast cancer and strong

<sup>1</sup>Surgical Division, INMOL, <sup>2</sup>Department of Microbiology and Molecular Genetics, University of the Punjab, <sup>3</sup>Department of Human Genetics and Molecular Biology, University of Health Sciences, <sup>4</sup>Central Park Medical College, <sup>5</sup>Research and Development Division, INMOL, Lahore, Pakistan \*For correspondence: drsamkhokher@yahoo.com

belief in traditional medicine has also been reported as the reason for delay in presentation in the developing countries (Odusanya and Tayo, 2001). The data suggests that factors related to women’s knowledge and belief about breast cancer and its management contributes significantly to the medical help seeking behavior. In the developing countries with limited health resources and lack of organized screening programs women need to be “breast aware” (Okobia et al., 2006) to seek medical help early in the course of disease. Awareness and knowledge about breast cancer as well as the attitudes and practices of women however vary among communities and populations worldwide.

The Breast Health Global Initiative (BHGI) was developed in 2006 which proposed breast cancer awareness and breast self examination (BSE) as a means of early diagnosis in countries with limited resources (Anderson et al., 2006). This resulted in many breast cancer awareness talks and activities in the developing countries including Pakistan. A series of lectures were delivered in this context, in the women educational institutions of Lahore, Pakistan, during 2009. The present study was conducted during this awareness campaign to assess the baseline knowledge of breast cancer, the attitude and practice of BSE and clinical breast examination (CBE) and to examine these variables in relation to the socio-demographic characteristics, so that women groups lacking breast cancer awareness are identified. The survey also intended to identify the source of information used by these women and thus the most suitable medium for future activities to raise their awareness level.

### Materials and Methods

A multiple choice questionnaire was designed in local language Urdu consisting of 13 questions. Each question had a statement as stem followed by multiple answer options to be tick marked by the participant. First three questions were related to the socio-demographic profile of the participant followed by one question each on participants own perception of her knowledge level and of mammography, source of her information and whether she has ever had BSE or CBE. Last five questions were formatted to assess their knowledge about basic breast cancer facts. These include, a question whether mammography is harmful, a question regarding knowledge of life time risk of breast cancer, a question related to the symptoms of breast cancer, a question related to the most important risk factor for developing breast cancer and the last question asked whether breast cancer is curable when diagnosed early versus at any stage.

The activity was arranged in lecture halls of five women educational institutions of Lahore ; Lahore College for Women University, Samanabad College for Girls, Kinnaird College University, Ayesha Model Degree College and Home Economics College Lahore,

and at Punjab University at different times from February 2009 to December 2009. The students, faculty members and the non faculty female employees of the respective educational institutes participate in the lectures. The questionnaires were distributed to the participating audience during the preparatory session of the lecture and collected back during the introductory session of the lecture. Informed consent of the participants was taken to be included in the study. Confidentiality was maintained by keeping the questionnaires anonymous and not having any names or identification tags.

Data were entered and analyzed on SPSS Version 12. The five test questions for assessing the knowledge of the respondent were marked as a score of 1 for each correct answer and zero for each incorrect answer. Score of <1 was graded as poor, 2-3 as fair and >4 as good.

### Results

A total of 1,155 questionnaires were analyzed. 917/1,155 (79.3%) participants filled the complete questionnaire and answered all the questions. Majority of the respondents were below 30 years of age (83.7%), with education between 10-14 years (59.7%) and majority of them (59.7%) were students. Among them 64% considered themselves knowledgeable about breast cancer while 34.4% had self perception of being deficient on the subject. Television and hearsay were the most common sources of information. Majority (60%) of the respondents had not heard about mammography before. Majority of the older participants (>31 years) practiced BSE (56.9) compared with a minority (30.8%) of the young (<30 years). The highest frequency of BSE (57%) was found among the professional women on job and in the most educated women group (46.9%) having >14 years of education. Majority of the women had never undergone CBE among the older age group (59.3%) as well as the young (90.6%).

Figure 1 shows the frequency of correct answers of the five questions related to the knowledge of breast cancer. Table 1 shows the relationship of the knowledge scores with their socio-demographic features. Although television was the source of information in majority of the participants but only 17% of those citing television as the source of their information had good knowledge

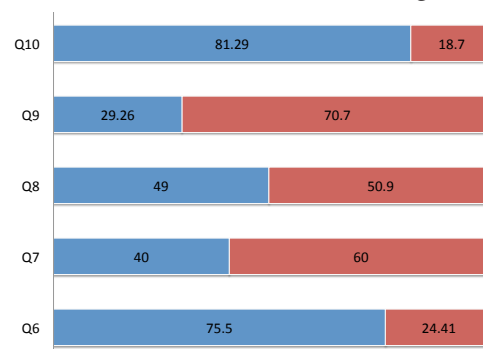


Figure 1. Frequency of Correct Answers (blue correct, red incorrect)

**Table 1. The Practice of BSE and CBE in the Various Socio-demographic Groups**

Respondents Features		BSE						CBE					
		Yes		No		NA		Yes		No		NA	
Age groups	Young (<30)	298	31%	662	68%	7	1%	89	9%	877	91%	1	0%
	Old (>31)	98	57%	71	41%	3	2%	68	40%	102	59%	2	1%
Education groups	≤ 10yrs	20	29%	49	70%	1	1%	15	21%	54	77%	1	1%
	10 -14 yrs	206	29%	478	69%	5	1%	72	10%	617	90%	0	0%
	≥ 14 yrs	171	47%	189	52%	4	1%	66	18%	296	81%	2	1%
Profession	Job	146	57%	108	42%	2	1%	67	26%	187	73%	2	1%
	House wife	68	42%	93	57%	2	1%	45	28%	117	72%	1	1%
	Student	170	25%	514	74%	6	1%	35	5%	655	95%	0	0%

NA, not answered

**Table 2. Socio-demographic Features and Source of Information in Relation to the Knowledge Scores**

Feature	Poor	Fair	Good	Total
<b>Age</b>				
< 20 years	67 12%	335 58%	172 30%	573
20-30 years	60 15%	229 58%	105 27%	394
31-50 years	23 17%	87 64%	27 20%	137
>50 years	5 14%	24 69%	6 17%	35
Not Answered	4 25%	11 69%	1 6%	16
<b>Education</b>				
< 10 years	15 21%	41 59%	14 20%	70
10-14 years	92 13%	412 60%	185 27%	689
> 14 years	40 11%	213 59%	111 30%	364
Not Answered	12 38%	19 59%	1 3%	32
<b>Profession</b>				
On Job	33 13%	144 56%	79 31%	256
House wife	34 21%	103 63%	26 16%	163
Student	89 13%	410 59%	191 28%	690
Not Answered	3 7%	28 61%	15 33%	46
<b>Source of Information</b>				
Newspress	13 11%	65 54%	42 35%	120
T.V	49 14%	233 69%	58 17%	340
Internet	9 10%	53 60%	27 30%	89
Hearsay	55 17%	186 56%	90 27%	331
Education	18 12%	78 52%	55 36%	151
>one source	6 8%	45 58%	27 35%	78
Not Answered	9 20%	25 54%	12 26%	46

about this disease (Table 2) this in relation to the sources of information used by them. As a whole, on a three point scale the breast cancer related knowledge of the participants was “Poor” in 14%, “Fair” in 59% and “Good” in 27% of the respondents.

## Discussion

Data regarding knowledge, attitude and preventive practices for breast cancer in Pakistan is limited. There are some reports of these practices in the health care professionals (Pervez et al., 2001; Ahmed et al., 2006; Kumar et al., 2009) and other social strata of women (Jaffary et al., 2005). They reveal low level of awareness and practice of screening methods among the local women. To the authors knowledge there is no such report of a study done in the local educational institutions. Similar studies however have been reported from educational institutions of New England (Burak and

Boone, 2008) Yemen (Ahmed, 2010), Malaysia (Hadi et al., 2010) and India (Yadav and Jaroli, 2010).

During the last few decades breast cancer has attracted a large amount of attention and media coverage all over the world. Many types of awareness activities and presentations have been made in the print media as well as television and radio broadcasts in Pakistan as well. Having exposed to these activities, 64% of the respondents of the present study thought them to be knowledgeable but only 31% of them had good knowledge score. Among the respondents having perception of not being knowledgeable 19.5% had a good knowledge score. The majority of both groups (60% vs 58%) had barely fair knowledge score. This reflects the inadequacy and ineffectiveness of the awareness activity to which the local women have been exposed to so far.

The important sources of breast cancer awareness and knowledge for the women in Pakistan are television, print and electronic media, education and interaction with health care professionals. Awareness campaigns using leaflets and print media have not been found effective, as either they are not being read by the target population or they are not being interpreted properly (Murphy and Smith, 1993). Television and radio broadcasts on the other hand have been found to be more effective media for health education (Grunfield et al., 2002). Television and radio broadcasts for awareness activities, suit the women population of Pakistan very well because of easy access and non reliance on literacy. A study from the neighbor country India reports television to be the most common medium through which women heard about breast cancer (Somdatta and Baridalayne, 2008). The same was the case with Yemen university students, 82% of whom stated mass media (Television or radio) as their source of information. In the present study television was the most commonly cited (29.4%) source of information among the respondents. However this group of women had lowest (17%) good knowledge score. It can therefore be an effective media for awareness campaign with regard to access but the quality and content of these awareness talks needs to be improved and should be in the easy native language that is understood by females of all socioeconomic and literacy groups.

Concerns have been raised regarding misleading presentations in the popular magazines regarding breast cancer (Burke et al., 2001) and of using them primarily

for commercial gains (2006). The same applies to the other media used for awareness activities. The activities on television need to be properly designed for the local target population and address the social taboos and myths rampant in the society.

The next commonly cited source of information, "hearsay" (information from person to person) is a reflection of the local culture and taboos. Culturally women are reluctant to consult male health care professionals for problems related to breast (Hussain and Ansari, 1996). Many of them rely on inter personal exchange of experiences and knowledge rather than medical advice. Only 27% of these women secured good knowledge score.

Although only 13% of the respondents cited education as their source of information but these respondents showed the highest good knowledge score (36.4%) in the women population of this study. This demonstrates a positive association between the years of education and the knowledge of breast cancer. From this it is inferred that without education, the local women lack knowledge and become more vulnerable to hearsay wisdom or traditional medicines. The positive association of education level and employment status with the breast cancer knowledge found here is in conformity with the previous reports (Alsaif, 2004; Jaffary et al., 2005; Parsa and Kandiah, 2005; Okobia et al., 2006; Somdatta and Baridalyne, 2008; Bouton et al., 2010).

The role of BSE in detecting breast cancer at an early stage is controversial (Hackshaw and Paul, 2003; Knutson and Steiner, 2007). The American cancer society does not recommend it for screening as it increases anxiety and does not improve survival (Larkin, 2001), however in the low resource countries with no mammography based screening program, BSE is recommended because it makes the women "Breast aware" (Okobia et al., 2006). The frequency of BSE ranged from 25% to 57% in the present study showing positive association with age (57% Vs 41%) and employment (57% Vs 42%). The highest frequency of BSE in the women groups of our study (57%) was lower than that reported in a report from Malaysia where 62% of women practiced BSE (Rahman, 2003). It is also less than the 62% frequency reported for the student nurses in Saudi Arabia (Alsaif, 2004), 66% for nurses in Pakistan (Kumar et al 2009) and the 94% reported for the nurses in Singapore (Chong et al., 2002). However this frequency is higher than the 23% found in the women of Zahedan, Iran (Heidari et al., 2008) and the 24.4% reported for the university students of Malaysia (Hadi et al 2010) and the 41% reported for the college women of New England (Burak and Boone, 2008).

The practice of BSE also had a positive association with the years of education of the respondents in the present study; 28% of those with less than 10 years of education, 29% with 10 to 14 years of education and 47% with more than 14 years of education practiced BSE. Education therefore is associated with a positive change in the attitude and helps making the women

breast aware. In a similar study carried out in the health care professionals (Kumar et al., 2009), medical students were found to be more knowledgeable than the nurses and others. It is unfortunate that literacy rate of women in Pakistan is only 31.5% as compared to 60.6% in the men of Pakistan (Wikipedia, 2011). Measures to increase the literacy rate of local women population appears to be the best long term as well as the most effective measure to increase the level of awareness and to bring a positive change in the attitude of local women. Majority of the local women however have access to television and mass media campaigns have been shown to produce positive changes in the health related behavior across large populations (Wakefield et al., 2010). Therefore as a short term measure we can increase as well as improve the awareness activities on this medium.

CBE is recommended once every three years in girls >20 years of age and once every year in women >40 years of age by the American Cancer Society (Smith et al., 2004). It is being explored as a promising approach in a large trial in India (Mittra et al., 2010). CBE had a positive association with the age (39% in the old compared to 9% in the young) in our study, but no specific association with the years of education was found and only a minority of women had ever had CBE. However the frequency of CBE in the older age group was found to be more than previously reported (6.9%) by a study conducted in the women coming to a hospital in Lahore, Pakistan (Maqsood et al., 2009). The frequency of CBE in the younger women of the present study was also more than the 4% reported in the women of Zahedan, Iran (Heidari et al., 2008).

Advances in the radiologic imaging have made the diagnosis of breast cancer possible at preclinical and asymptomatic stage. Many countries in the developed world have organized screening mammography programs (Lam, 2004) resulting in diagnosis of breast cancer at very early stage, when it is only a few mm in size. Adopting mammography screening guidelines designed for the developed countries are not beneficial in the developing countries because of younger age of patients as well as limited resource availability (Ibrahim et al., 2009). Limited facility of mammography for opportunistic screening and diagnostic workup is available in the hospitals at Lahore. Recently mammography is also being talked about in the breast cancer awareness activities. In the present study 60% of the respondents had no clue about mammography compared with 71% of the urban women in India (Garg et al., 2009) and 24% thought that mammography is harmful compared to 14% of the Turkish women (Akan et al., 2008).

Family history was correctly identified as a risk factor by 29% of respondents in our study compared with 39% of the urban Indian women (Garg et al., 2009), 47% of Turkish women (Akan et al., 2008), 91.5% of Malaysian university students and 93% of college women in New England (Burak and Boone, 2008). Women's life time risk of developing breast cancer was correctly answered



by 40% of respondents in our study compared with 31% of the college women in Rajasthan, India (Yadav and Jaroli, 2010), 30% of Turkish women (Akan et al., 2008) and 13% of university students of Malaysia (Hadi et al., 2010). A large percentage of women (81%) was aware of the fact that breast cancer can be cured if diagnosed and treated at an early stage compared with 41% of Nigerian women (Okobia et al., 2006). The women from educational institutions of Lahore therefore differ from other women with regard to better knowledge of lifetime risk and association of early diagnosis with better chances of cure. However they lacked knowledge on risk factors.

A three point scale was used in the present study to assess the breast cancer related knowledge of the participants and 14%, 59% and 27% respondents had "Poor", "Fair" and "Good" knowledge scores respectively. This shows better knowledge scores when compared with the university students of Yemen (Ahmed, 2010), who had scores of 59%, 40% and 1.4% ranging from "Poor" to "Good" knowledge. On a five point scale Malaysian university students had 10.8%, 20.4%, 50%, 18% and 0.8% scores ranging from "Very poor" to "Very good". Considering the extreme groups together for Malaysian students (31.2%, 50% and 18.8%), the women in educational institutions of Lahore, Pakistan may be assessed as being more knowledgeable about breast cancer as compared to them also.

In conclusion, women in educational institutions of Lahore, Pakistan have low level of breast cancer awareness but it is higher than the college/university students of other developing countries. The knowledge level of these women has a positive association with their years of education. There is a need to raise their awareness level for which campaign through television can be the most effective short term measure. Raising the literacy rate and education level of local women however remains the best long term strategy.

## Acknowledgement

The lectures were arranged by INMOL, a cancer hospital of PAEC, in collaboration with Pink Ribbon, National Breast Cancer Awareness Campaign, at Lahore College for Women University, Kinnaird College University and Home Economics College Lahore. The lectures at Samanabad College for Girls and Punjab University were arranged by INMOL in collaboration with Sanofi Aventis Pharmaceutical Company. The activity at Ayesha Model Degree College was organized by the principal author and college authorities. There were no grants or financial benefits and authors declare no competing interests.

## References

Ahmed BA (2010). Awareness and practice of breast cancer and breast self examination among university students in Yemen. *Asian Pac J Cancer Prev*, **11**, 101-5.  
 Ahmed F, Mahmud S, Hatcher J, Khan SM (2006) Breast cancer risk factor knowledge among nurses in teaching

hospitals of Karachi, Pakistan: a cross sectional study. *BMC Nursing*, **5**, 6.  
 Alsaif AA (2004). Breast self examination among Saudi female nursing students in Saudi Arabia. *Saudi Med J*, **25**, 1574-8.  
 Global Summit Health Care Systems and Public Policy Panel (2008). Breast Cancer in Limited Resource Countries: Health Care Systems and Publicity. *Breast J*, **12 Suppl 1**, 154-69.  
 Aziz Z, Iqbal J, Akram M (2008). Effect of social class disparities on disease stage, quality of treatment and survival outcomes in breast cancer patients from developing countries. *Breast*, **14**, 372-5.  
 Aziz Z, Sara S, Akram M, Saeed A (2004). Socioeconomic status and breast cancer survival in Pakistani women. *J Pak Med Assoc*, **54**, 448-53.  
 Bhurgri Y, Bhurgri A, Nishter S, et al (2006). Pakistan - country profile of cancer and cancer control 1995-2004. *J Pak Med Assoc*, **56**, 124-30.  
 Bouton ME, Nodora J, Hsu C et al (2010). Understanding breast cancer concepts in an undereducated county hospital populatio. *J Surg Oncol*, **102**, 398-403.  
 Burak L, Boone B (2008). College women and breast cancer: knowledge behaviour and beliefs regarding risk reduction. *Am J Health Educ*, **39**, 206-12.  
 Burke W, Oslen AH, Pinsky LE, Reynolds SE, Press NA (2001). Misleading presentation of breast cancer in popular magazines. *Eff Clin Pract*, **4**, 58-64.  
 Chong PN, Krishnan M, Hong CY, Swah TS, (2002), Knowledge and practice of breast cancer screening amongst public health nurses in Singapore. *Singapore Med J*, **43**, 509-16.  
 Coleman MP, Quaresma F, Berrino J, et al (2008). Cancer survival in five continents: a worldwide population based study (CONCORD). *Lancet Oncol*, **9**, 730-56.  
 Garg P, Bansal M, Garg M, et al (2009). Creating awareness about the painless nature of early breast cancer lump is important in low income countries. *Breast J*, **16**, 101-2.  
 Gilani SI, Khurram M, Mazhar T, et al (2010). Knowledge attitude and practice of a Pakistani female cohort towards breast cancer. *J Pak Med Assoc*, **60**, 205-8.  
 Grunfeld EA, Ramirez AJ, Hunter MS, et al (2002). Women's knowledge and beliefs regarding breast cancer. *Br J Cancer*, **86**, 1373-8.  
 Ghumro AA, Khaskheli NM, Memon AA (2002) Clinical profile of patients with breast cancer. *J Coll Physicians Surg Pak*, **12**, 28-31.  
 Hackshaw AK, Paul EA (2003). Breast Self examination and death from breast cancer: a metaanalysis. *Br J Cancer*, **88**, 1047-53.  
 Hadi MA, Hassali MA, Shafie AA, Awaisu A (2010). Evaluation of breast cancer awareness among female university students in Malaysia. *Pharmacy Practice (Internet)*, **8**, 29-34.  
 Heidari Z, Mahmoudzadeh-Sagheb HR, Sakhavar N (2008). Breast Cancer screening knowledge and practice among women in southeast of Iran. *Acta Medica Iranica*, **46**, 321-8.  
 Hussain MM, Ansari AK, (1996), Late presentation of carcinoma breast in Pakistani women. *Pak Armed Forces Med J*, **46**, 11-5  
 Ibrahim NA, Odusanya OO (2009). Knowledge of risk factors, beliefs and practices of female healthcare professionals towards breast cancer in a tertiary institution in Lagos Nigeria. *BMC Cancer*, **9**, 76.

- Jaffary A, Mansuri F, Shamim S (2005). Knowledge attitudes and practices regarding breast cancer screening in women of various social strata. *J Surg Pak*, **10**, 44-7.
- Khokher S, Mahmood S, Khan SA (2010). Response to Neoadjuvant chemotherapy in patients with advanced breast cancer: A local hospital experience. *Asian Pac J Cancer Prev*, **11**, 303-8.
- Knutson D, Steiner E (2007). Screening for breast cancer: current recommendations and future directions. *Am Fam Physician*, **75**, 1660-7.
- Kumar S, Imam AM, Manzoor NF, et al (2009). Knowledge attitude and preventive practices for breast cancer among health care professionals at Agha Khan Hospital Karachi. *JPMA*, **59**, 474-8.
- Lam HS (2004). Update in breast cancer screening. *J HK Coll Radiol*, **7**, 171-80.
- Larkin M (2001). Breast self examination does more harm than good, says task force. *Lancet*, **357**, 2109.
- Malik IA (2002). Clinico-pathological features of breast cancer in Pakistan. *J Pak Med Assoc*, **52**, 100-4.
- Maqsood B, Zeeshan MM, Rehman F, et al (2009). Breast cancer screening practices and awareness in women admitted to a tertiary care hospital of Lahore, Pakistan. *J Pak Med Assoc*, **59**, 418-21.
- Mitra I, Mishra GA, Singh S, et al (2010). A cluster randomized controlled trial of breast and cervix cancer screening in Mumbai, India: methodology and interim results after three rounds of screening. *Int J Cancer*, **126**, 976-84.
- Naeem M, Khan N, Aman Z, et al (2008). Pattern of breast cancer experience at lady reading hospital, Peshawar. *J Ayub Med Coll Abbottabad*, **20**, 22-5.
- Oduşanya OO, Tayo OO (2001) Breast cancer knowledge attitudes and practice among nurses in Lagos, Nigeria. *Acta Oncol*, **40**, 844-8.
- Okobia MN, Bunker CH, Okonofua FE, Osime U (2006). Knowledge, attitude and practice of Nigerian women towards breast cancer; a cross sectional study. *World J Surg Oncol*, **1**, 4-11.
- Parsa P, Kandiah M (2005). Breast cancer knowledge, perception and breast self examination practices among Iranian women. *Int Med J*, **4**, 17-24.
- Parvez T, Anwar M (2005). Knowledge attitude and preventive practices for breast cancer. *JCPSP*, **11**, 363-6.
- Rahman JA (2003). Knowledge attitude and practice on breast cancer among female population of Alur Batu village, Kuantan and its related factors in June 2003. *Singapore Med J*, **10**, 90-4.
- Smith RA, Cokkinides V, Eyre HJ (2005). American Cancer Society guidelines for the early detection of cancer. *Ca Cancer J Clin*, **55**, 31-44.
- Somdatta P, Baridalyne N (2008). Awareness of breast cancer in women of an urban resettlement colony. *Indian J Cancer*, **45**, 149-53
- Wakefield MA, Loken B, Hornick RC (2010). Use of mass media campaigns to change health behaviour. *Lancet*, **376**, 1261-71.
- WHO (2008a) The Global Burden of Disease : 2004 Available from: [www.who.int/healthinfo/global\\_burden\\_disease/2004\\_report](http://www.who.int/healthinfo/global_burden_disease/2004_report)
- WHO (2008b). Screening for breast cancer. [Online] Available from: <http://www.who.int/cancer/detection/breastcancer/en/>. Accessed on 25-11-2010.
- Yadav P, Jaroli DP (2010). Breast cancer: awareness and risk factors in college going younger age group women in Rajasthan. *Asian Pacific J Cancer Prev*, **11**, 319-22.