

# Breast Cancer Awareness in Urban and Rural Females of Uttarakhand, India: A Cross-sectional Study

PREETI ACHARYA<sup>1</sup>, FARHANUL HUDA<sup>2</sup>, SURESH SHARMA<sup>3</sup>, SHASHANK VERMA<sup>4</sup>, MOHSIN HASSAN<sup>5</sup>, SUMMI KARN<sup>6</sup>, SAWAN DALAL<sup>7</sup>



## ABSTRACT

**Introduction:** The second most frequent cancer in women worldwide is breast cancer, which is also the most common cancer among Indian women. Unlike other cancers, breast cancer is eminently treatable, if detected at an early stage. Nevertheless, the need for culturally appropriate breast cancer education and intervention measures remains.

**Aim:** To compare breast cancer awareness in urban and rural females of Uttarakhand, India.

**Materials and Methods:** The present cross-sectional research was carried out in the Department of General Surgery, All India Institute of Medical Sciences, Rishikesh, Uttarakhand, India, between January 2017 and October 2017. The survey sample comprised 400 participants, 200 from cities and 200 from the countryside. All eligible participants were approached by briefing them about the study and providing them with the participant information document. A validated questionnaire divided into four parts was used for the present study. The first part consisted of demographic questions, the second part consisted of questions regarding knowledge of breast cancer, the third part comprised significant risk factors and the fourth part was about early warning signs and symptoms related to breast cancer detection. For gathering data, simple random

sampling was used, and participants from both urban and rural locations were included with no prior breast problems ruled out from history. The data was analysed using International Business Machines Statistical Package for Social Science (IBM SPSS) Statistics for Windows, software version 25.0.

**Results:** There were a total of 400 participants; 200 from the city and 200 from the countryside. The mean±Standard Deviation (SD) age of participants of rural areas was 33.4±2.1 years and of urban areas was 37.6±2.4 years. Living in an urban setting was associated with greater awareness of risk factors, such as breast lump (42%), nipple discharge (47.5%), and not breastfeeding (35%), in comparison to rural areas 39%, 46.5% and 21%, respectively. However, there were some misconceptions about a few risk factors, such as the use of oral contraceptives (6%), having children earlier in life (13%), and having more children overall (10%), that were linked to urban living.

**Conclusion:** The understanding of breast cancer risk factors was lower among rural women. However, the present study demonstrates a general lack of breast cancer awareness among female populations in both rural and urban areas. Therefore, the current study strongly advises starting vigorous campaigns to raise awareness of breast cancer in both the educated and uneducated female population.

**Keywords:** Breast self-examination, Mammogram, Nipple discharge, Oral contraceptive pills

## INTRODUCTION

Globally, breast cancer is the most frequently diagnosed malignancy, accounting for over two million cases every year [1]. Breast cancer is the second most commonly diagnosed cancer worldwide, including in low and middle-income countries [1]. As compared to other cancers, Disability-adjusted Life Years (DALYs) are lost more by women to breast cancer globally [2]. The incidence rates of breast cancer in our country display a 3-4-fold variation [3]. Differences in demographic (e.g., education), reproductive (e.g., age of first child and number of children), anthropometric (e.g., adiposity), and lifestyle (e.g., usage of cigarettes and alcohol) characteristics are among the causes of this variation [3].

The most widely used screening techniques are Breast Self-Examination (BSE), clinical breast examination, and mammography, among which BSE is a screening method that can be performed at home [4]. This is a basic, cheap, straightforward, and efficient approach for examining breast tissue for physical or visual abnormalities. Despite advancements in therapy, identifying breast cancer as early as possible is critical for improving overall health outcomes. Barriers such as 'low cancer awareness' among women, the presence of stigma, fear, gender inequity, and reduced engagement in screening behaviours, such as BSEs, have been contributing to high mortality rates [5].

Diagnosis at advanced stages of the disease usually contributes to the high mortality rate among women due to breast cancer [6]. This is most commonly attributed to low levels of awareness, difficult referral pathways to diagnosis, limited access to effective treatment at regional cancer centres, and incomplete treatment regimens [7]. Hence, awareness about the disease among women plays a very important role in its early diagnosis and helps them avoid risk factors associated with the disease. Sensitive awareness of breast cancer disease can assist women in adhering to its screening guidelines. This adherence will lead the population to the early diagnosis of breast cancer, which in turn will help the healthcare providers with better management of the patients, as well as, increase the surveillance rate of the patients [8].

It is crucial to comprehend the extent of cancer literacy among its population given the increased incidence of breast cancer and its proportionally greater mortality in India [9]. Breast cancer early identification, treatment, and prevention are greatly aided by public awareness of the disease. In contrast to other cancers, breast cancer is highly curable, if found early [10]. Assessing existing levels of cancer awareness is a prerequisite for planning comprehensive health programs, early detection, and treatment campaigns that effectively engage communities of women all over the country.

Various researches show a global lack of awareness among women regarding breast cancer, which is more prevalent among the Asian

population. In 2015, Gupta A et al., did a comprehensive study on the Indian population that indicated low cancer literacy of breast cancer risk factors among Indian women, regardless of their socio-economic and educational background [7]. A community-based study by Sunita S et al., from Visakhapatnam, Andhra Pradesh, India, showed a significant difference in awareness levels between urban literate women and rural literate women [11]. A cross-sectional study was carried out by Norlaili AA et al., in 2013 in five selected rural districts of Malaysia which showed a higher level of awareness in women with higher education levels. Women from rural areas showed a lower level of education [12].

Nevertheless, there is a need for culturally appropriate breast cancer education and intervention strategies. There is much less research done in Northern India regarding awareness of breast cancer and also a lack of comparative studies among rural and urban females [7,11]. Along with the high percentage of breast cancer patients who visit the breast clinic at the study institute in advanced stages prompted the undertaking of this study. The aim was to compare the degree of breast cancer awareness among urban and rural females in order to develop awareness-raising campaigns that would take into account each group's level of knowledge.

## MATERIALS AND METHODS

The present cross-sectional study was conducted in the Department of General Surgery, All India Institute of Medical Sciences, Rishikesh, Uttarakhand, India, from January 2017 to October 2017. The state approval of the Institutional Ethics Committee was obtained (28/IM/2016).

**Inclusion criteria:** The females with an age >18 years who gave written consent were included in the study.

**Exclusion criteria:** The participant or any of their family members who had benign or malignant breast disease and participants who visited a doctor due to breast-related symptoms was excluded from the study. The pathology related to the breast was excluded solely on the basis of a history of prior breast problems in the patient.

### Study Procedure

Simple random sampling was adopted for data collection. A quantitative research approach was conducted via a researcher-administered survey. Researchers used a prevalidated questionnaire. The questionnaire was given in two languages, Hindi (the local language) and English, to assess translation equivalency and appropriateness. Based on a simple random sampling method, 200 participants from rural areas and 200 from urban areas were invited to complete the questionnaire at the community level. The urban area was defined as cities and towns with a high population density, whereas, the rural area was defined as villages with a low population density. The urban area was considered as Rishikesh city in India and the rural areas i.e., 50 km around Rishikesh city. The researchers visited the households as a part of the breast awareness program of the study Institution. The principal investigator along with a female health worker visited rural and urban localities in coordination with Anganwadi workers and community health workers. All eligible participants were approached by briefing them about the study and providing them with the participant information document. It was explained that participation is voluntary. After taking informed consent from the participants, the questionnaire was given to them and was collected at the same visit. A breast cancer awareness pamphlet was given to each participant after completion of the questionnaire. Participant confidentiality was maintained throughout the study, to assess their knowledge regarding breast cancer screening tools.

For collecting information, the authors used a validated questionnaire to collect data from women in both urban and rural areas at the community level. The questionnaire was designed after discussing with external and internal experts in this field, as well as, with the help of a breast cancer awareness questionnaire used by Linsell

L et al., 2008 [13]. It was modified with necessary changes as per the regional socio-demographic status of Uttarakhand, India [14]. The questionnaire is composed of four parts. The first part consisted of demographic questions including age, marital status, occupation and level of education. While the second part consisted of questions regarding knowledge of breast cancer and relevant history, which includes risk factors. The third part comprises of knowledge regarding awareness of significant risk factors, like early menarche, late menopause, breastfeeding, use of oral contraceptive pills, hormone replacement therapy, exposure to radiation, age of first childbirth, and individual factors like lump/ pain in breast, nipple discharge, obesity and alcohol consumption. The fourth part consisted of awareness regarding early warning signs and symptoms related to breast cancer. The questionnaire data was anonymised, numbered, and assessed manually for errors, before being entered into a computer database for analysis.

## STATISTICAL ANALYSIS

Data analysis was done using IBM SPSS Statistics for Windows, software version 25.0 (Armonk, NY: IBM Corp.). Descriptive statistics and cross-tabulation were performed and the frequency and percentage were calculated to illustrate categorical variables. A p-value of <0.05 or lower was considered for the results to be significant. The test used was the Chi-square test and the Fisher's-exact test for calculating p-values.

## RESULTS

A total of 400 participants participated in the study, 200 from cities and 200 from the countryside. The mean±SD age of the participants from rural areas was 33.4±2.1 years and from urban areas was 37.6±2.4 years. The majority (64.5%) of the participants were married. Urban professionals and rural housewives made up the majority of the respondents. Almost half (50.5%) of the participants were uneducated from a rural area as shown in [Table/Fig-1].

Age (years) in Mean±SD		Rural population n (%)	Urban population n (%)
Variables		33.4±2.1	37.6±2.4
Marital status	Married	137 (68.5)	121 (60.5)
	Unmarried	55 (27.5)	73 (36.5)
	Divorced/separated	08 (04)	06 (03)
Occupation	Professional	0	76 (38)
	Clerical/shopkeeper/farmer	28 (14)	50 (25)
	Semiskilled worker	18 (09)	10 (05)
	Unskilled worker	17 (8.5)	0
	Housemaker	134 (67)	64 (32)
Level of education	Graduate/postgraduate	17 (8.5)	39 (19.5)
	High school	32 (16)	88 (44)
	Primary school or below	15 (7.5)	09 (4.5)
	Middle school	35 (17.5)	33 (16.5)
	Uneducated	101 (50.5)	14 (07)

[Table/Fig-1]: Demographic characteristics of the participants.

Regarding the knowledge of breast cancer and risk factors, most of the participants were aware of the term breast cancer i.e., 56.5% from rural areas and 90.5% from urban areas. Almost half of the participants had a current or past history related to breast problems. Almost one-third of the participants were aware that a history of a breast lump is a risk factor for breast cancer as shown in [Table/Fig-2]. A very small portion of the respondents had knowledge of risk factors like early menarche, late menopause, oral contraceptive pills and hormone replacement therapy. However, no breastfeeding was the most familiar risk factor among both populations, and radiation exposure was the least known risk factor. Furthermore, risk factors including clinical symptoms like lump/pain in the breast and nipple

discharge were found to be known by around half of the participants. Paradoxically, use of tight undergarments is thought to be a significant risk factor in both rural and urban areas shown in [Table/Fig-3].

Questions		Rural population n (%)	Urban population n (%)	p-value (Chi-square test)
Have you ever heard about breast cancer	Yes	113 (56.5)	181 (90.5)	<b>&lt;0.00001</b>
	No	21 (10.5)	06 (03)	
	Don't know	66 (33)	13 (6.5)	
What do you think about breast cancer? How common is it?	Rare disease among women	54 (27)	52 (26)	<b>0.025207</b>
	Relatively common disease among women	55 (27.5)	79 (39.5)	
	Don't know	91 (45.5)	69 (34.5)	
Is the history of breast lump a risk factor for breast cancer	Yes	70 (35)	95 (47.5)	<b>0.038715</b>
	No	44 (22)	34 (17)	
	Don't know	86 (43)	71 (35.5)	

**[Table/Fig-2]:** Participant's knowledge of breast cancer and its risk factors. The p-values in bold font indicates statistically significant values

Reason for breast cancer		Rural population n (%)	Urban population n (%)	p-value
Early menarche	Is a reason	01 (0.5)	10 (05)	<b>0.00001</b> (Fisher-exact test)
	Not a reason	03 (1.5)	19 (9.5)	
	No relation	27 (13.5)	54 (27)	
	Don't know	169 (84.5)	117 (58.5)	
Late menopause	Is a reason	04 (02)	31 (15.5)	<b>0.00001</b> (Fisher-exact test)
	Not a reason	23 (11.5)	75 (37.5)	
	No relation	19 (9.5)	55 (27.5)	
	Don't know	154 (77)	39 (19.5)	
No breastfeeding	Is a reason	42 (21)	70 (35)	<b>0.00001</b> (Chi-square test)
	Not a reason	16 (08)	80 (40)	
	No relation	24 (12)	21 (10.5)	
	Don't know	118 (59.5)	29 (14.5)	
Use of oral contraceptive pills	Is a reason	02 (01)	12 (06)	<b>0.00001</b> (Fisher-exact test)
	Not a reason	06 (03)	47 (23.5)	
	No relation	25 (12.5)	49 (24.5)	
	Don't know	167 (83.5)	92 (46)	
Hormone replacement therapy	Is a reason	10 (05)	12 (06)	0.654265 (Fisher-exact test)
	Not a reason	00 (00)	00 (00)	
	No relation	04 (02)	02 (01)	
	Don't know	186 (93)	186 (93)	
Exposure to X-rays	Is a reason	37 (18.5)	31 (15.5)	0.136277 (Chi-square test)
	Not a reason	67 (33.5)	65 (32.5)	
	No relation	11 (5.5)	24 (12)	
	Don't know	85 (42.5)	80 (40)	
Having children at a younger age	Is a reason	06 (03)	26 (13)	<b>0.00001</b> (Chi-square test)
	Not a reason	107 (53.5)	154 (74)	
	No relation	09 (4.5)	11 (5.5)	
	Don't know	78 (39)	09 (4.5)	
Having first child/ pregnancy at higher age	Is a reason	04 (02)	15 (7.5)	<b>0.000018</b> (Fisher-exact test)
	Not a reason	74 (37)	36 (18)	
	No relation	31 (15.5)	51 (25.5)	
	Don't know	91 (45.5)	98 (49)	
Having more children	Is a reason	06 (03)	20 (10)	<b>0.00001</b> (Chi-square test)
	Not a reason	36 (18)	18 (09)	
	No relation	144 (72)	59 (29.5)	
	Don't know	14 (±07)	103 (±51.5)	

Frequent Abortion	Is a reason	07 (±3.5)	05 (±2.5)	<b>0.033238</b> (Chi-square test)
	Not a reason	18 (±09)	30 (±15)	
	No relation	05 (±2.5)	14 (±07)	
	Don't know	170 (±85)	151 (±75.5)	
Lump/pain in the breast	Is a reason	78 (±39)	84 (±42)	<b>0.003024</b> (Chi-square test)
	Not a reason	69 (±34.5)	40 (±20)	
	No relation	14 (±07)	29 (±14.5)	
	Don't know	39 (±19.5)	47 (±23.5)	
Nipple discharge	Is a reason	93 (±46.5)	94 (±47.5)	0.207365 (Chi-square test)
	Not a reason	44 (±22)	34 (±17)	
	No relation	23 (±11.5)	17 (±8.5)	
	Don't know	40 (±20)	55 (±27.5)	
Alcohol consumption	Is a reason	57 (±28.5)	34 (±17)	<b>0.00001</b> (Chi-square test)
	Not a reason	18 (±09)	51 (±25.5)	
	No relation	13 (±6.5)	26 (±13)	
	Don't know	112 (±56)	89 (±44.5)	
Obesity	Is a reason	17 (±8.5)	41 (±20.5)	<b>0.00001</b> (Chi-square test)
	Not a reason	35 (±17.5)	57 (±28.5)	
	No relation	22 (±11)	42 (±21)	
	Don't know	126 (±63)	60 (±30)	
Use of tight inner garments	Is a reason	61 (±30.5)	54 (±27)	<b>0.017876</b> (Chi-square test)
	Not a reason	23 (±11.5)	22 (±11)	
	No relation	80 (±40)	106 (±53)	
	Don't know	36 (±18)	18 (±09)	
Excessive exposure to sunlight	Is a reason	11 (±5.5)	53 (±26.5)	<b>0.00001</b> (Chi-square test)
	Not a reason	88 (±44)	48 (±24)	
	No relation	64 (±32)	59 (±29.5)	
	Don't know	37 (±18.5)	40 (±20)	

**[Table/Fig-3]:** Participant's knowledge of significant risk factors (which of these do you think is a reason/not a reason for breast cancer?). The p-values in bold font indicates statistically significant values

Most of the participants were unknown of the early warning signs of breast cancer like pain in one breast, cyclical or monthly pain in both breasts, and a lump in the neck/ armpit. But the significant finding was that about half of the participants were aware of some warning signs of breast cancer like nipple discharge, skin changes of the breast, and breast lump. There was a significant difference between participants in the rural and urban areas regarding knowledge of breast lumps as a warning sign as shown in [Table/Fig-4].

Early warning signs of breast cancer		Rural population n (%)	Urban population n (%)	p-value
Pain in one breast	Yes	41 (20.5)	122 (61)	<b>0.00001</b> (Chi-square test)
	No	159 (79.5)	78 (39)	
Cyclical/monthly pain in both breast	Yes	64 (32)	48 (24)	0.074791 (Chi-square test)
	No	136 (68)	152 (76)	
Nipple discharge in non-pregnant females	Yes	95 (47.5)	88 (44)	0.482341 (Chi-square test)
	No	105 (52.5)	112 (56)	
Lump in neck/ armpit	Yes	23 (11.5)	18 (09)	0.409795 (Chi-square test)
	No	177 (88.5)	182 (91)	
Skin changes of breast	Yes	109 (54.5)	103 (51.5)	0.547785 (Chi-square test)
	No	91 (45.5)	97 (48.5)	
Breast lump	Yes	117 (58.5)	169 (84.5)	<b>0.00001</b> (Chi-square test)
	No	83 (41.5)	31 (15.5)	
Asymmetry of breasts since childhood	Yes	88 (44)	109 (54.5)	<b>0.035708</b> (Chi-square test)
	No	112 (56)	91 (45.5)	

**[Table/Fig-4]:** Participant's knowledge of early warning signs (Which of the following do you think are early warning signs of breast cancer?). The p-values in bold font indicates statistically significant values

Most of the participants were unknown regarding knowledge of breast cancer screening tools. In the present study, the authors found a significant difference between rural and urban females regarding terms like mammogram, screening tools and BSE. More knowledge was found to be in urban females. On the other hand, approximately two-thirds (63%) of the individuals from the urban population believed that BSE is significant. On asking the reason for not performing BSE, it was found that, most females thought that it was unnecessary ( $p$ -value  $< 0.05$ ) as shown in [Table/Fig-5]. Most of the participants got sources of information from newspapers/magazines i.e., 22.5% from the rural area and 50% from the urban area. In the urban area, participants got information from screening camps (21%) and from the school curriculum (5.5%).

Questions		Rural population n (%)	Urban population n (%)	p-value
Are you aware of detection methods for breast cancer?	Yes	17 (8.5)	109 (54.5)	<b>0.00001</b> (Chi-square test)
	No	138 (69)	66 (33)	
	Don't know	45 (22.5)	25 (12.5)	
Have you heard of mammogram?	Yes	04 (02)	73 (36.5)	<b>0.00001</b> (Fisher-exact test)
	No	196 (98)	127 (63.5)	
Do you think mammograms are an effective screening method?	Yes	04 (02)	40 (20)	<b>0.00001</b> (Fisher-exact test)
	No	00 (00)	29 (14.5)	
	Don't know	196 (98)	131 (65.5)	
Do you know any other screening method for breast carcinoma?	Yes	00 (00)	97 (48.5)	<b>0.00001</b> (Fisher-exact test)
	No	200 (100)	59 (29.5)	
	Don't know	00 (00)	44 (22)	
Do you know how to perform Breast Self-Examination (BSE)?	Yes	17 (8.5)	120 (60)	<b>0.00001</b> (Chi-square test)
	No	183 (91.5)	80 (40)	
Do you feel performing BSE is important?	Yes	38 (19)	126 (63)	<b>0.00001</b> (Chi-square test)
	No	162 (81)	74 (37)	
Have you ever examined your breast?	Yes, monthly	06 (03)	30 (15)	<b>0.00001</b> (Chi-square test)
	Yes, but sometimes	11 (5.5)	90 (45)	
	No	183 (91.5)	80 (40)	
Your reason for not performing BSE	Never felt necessary	80 (40)	50 (25)	<b>0.00001</b> (Chi-square test)
	Don't know how to do	05 (2.5)	26 (13)	
	I feel shy to do it	16 (08)	29 (14.5)	
	Unaware of proper technique	14 (07)	38 (19)	
	I don't think young people can get cancer	74 (37)	51 (25.5)	
	I have not heard of it before	11 (5.5)	06 (03)	
Your source of information	TV	92 (46)	12 (06)	<b>0.00001</b> (Fisher-exact test)
Newspaper/magazine	45 (22.5)	100 (50)		
Friend or relative with cancer	17 (8.5)	35 (17.5)		
Medical professionals	46 (23)	00 (00)		
Previous screening camps	00 (00)	42 (21)		
School curriculum	00 (00)	11 (5.5)		

Your response if you find a breast lump	Do nothing	22 (11)	14 (07)	<b>0.00001</b> (Chi-square test)
	Inform a friend or female family member	117 (58.5)	32 (16)	
	Consult an allopathic doctor	35 (17.5)	86 (43)	
	Consult an ayurvedic doctor	26 (13)	68 (34)	

**[Table/Fig-5]:** Participant's knowledge of breast cancer screening tools. The p-values in bold font indicates statistically significant values

## DISCUSSION

The purpose of the present study was to compare and evaluate the awareness, knowledge, and understanding of breast cancer among urban and rural females. The majority of responders were professionals from urban areas and rural homemakers. Women who live in urban areas tend to be more knowledgeable about breast cancer risk factors than women who live in rural areas. Urban women, however, were more likely to have some misconceptions about the risk factors for breast cancer.

Similar to the present study, a systematic review on English language publications by Pal A et al., on the Indian population reported that 62.99% of females had no knowledge about breast cancer [15]. A cross-sectional study was conducted by Osei-Afriyie S et al., in Ghana among 385 female undergraduate students using a pretested questionnaire in 2021. The breast cancer awareness level was 73%, with the source of information being social media [16]. Gebresillassie BM et al., in Ethiopia with 300 students, conducted a cross-sectional survey. It reported that more than two-thirds of the participants were aware of factors such as old age, family history, and smoking as risk factors for breast cancer [17].

A cross-sectional study by Tazhibi M and Feizi A including 2250 women in an institute of cancer research in Isfahan, Iran, showed an awareness level of breast cancer in 33.2% of the population [18]. A study from Delhi, India at the community level included 2017 volunteers reported that awareness of breast cancer among the urban population was as low as 40% [19]. A descriptive, cross-sectional study was carried out in rural and urban field practice areas of the Department of Community Medicine, Andhra Medical College, Visakhapatnam, Andhra Pradesh, showed 26% of rural, and 76% of urban women were aware of breast cancer [11]. A cross-sectional study including 300 women (200 from urban and 100 from rural) done in Nigeria by Gilbert WE in 2012 showed the awareness level of breast cancer is better than cervical cancer but overall knowledge of breast cancer awareness was low [20]. A cross-sectional study by Norlaili AA et al., in Malaysia that included 1960 women interviewed face-to-face using a semi-structured questionnaire from 2009 to 2010 in five selected rural districts. The women who lived in urban areas and who had greater levels of education corresponded to a higher degree of awareness [12].

These results are different when compared to the present study, as the study population had a slightly lower level of awareness. The current compared results between urban and rural females, in which there is a significant difference which was not done in the above-mentioned study. There is a stark contrast between the findings of the above-mentioned studies [11,15,19]. This study age group has a wider range than that of the two previous studies, which were done in developing countries and involved women in their mid-thirties. The women recruited for these studies were from educational institutions. In the present study, urban women had better knowledge of the risk factors for breast cancer than rural women did (39%, 46.5%, and 21% respectively); however, the level of knowledge was subpar compared to other studies in India. These risk factors included breast lumps (42%), nipple discharge (47.5%), not breastfeeding (35%) and others.

In spite of all these studies, there is relatively little understanding regarding disparity in breast cancer knowledge between women in urban and rural settings. Particularly in rural areas, it has been shown that sentiments of shyness and embarrassment are still common during a breast examination. This shows that many women find it challenging to express their experiences with medical professionals and even family members, indicating that open discussion of breast-related concerns is not practiced. The likelihood of a late diagnosis is also increased by the absence of a government programme for breast cancer education and screening.

### Limitation(s)

The limitation of the present study was its reduced sample size and it being a single-centre study. Thus, the results of the present study cannot be applied to the entire nation. The study was based on the questionnaire, therefore recall biases cannot be ignored. Therefore, the present study recommends a similar multi-centre study to find out the level of breast cancer awareness in the whole nation.

### CONCLUSION(S)

The advantage of breast cancer awareness is early detection and prevention. However, both rural and urban female populations have a generally low degree of breast cancer awareness. Inadequate breast cancer awareness programs may be the cause of a low level of awareness. These results imply the necessity of more public awareness-raising and education initiatives. Therefore, the present study recommends active campaigns to raise awareness of breast cancer in both the educated and uneducated female population. Subsequent assessment to measure the effectiveness of these educational programme is also needed.

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#### PARTICULARS OF CONTRIBUTORS:

1. Junior Resident, Department of General Surgery, All India Institute of Medical Sciences, Rishikesh, Uttarakhand, India.
2. Additional Professor, Department of General Surgery, All India Institute of Medical Sciences, Rishikesh, Uttarakhand, India.
3. Principal, Department of College of Nursing, All India Institute of Medical Sciences, Rishikesh, Uttarakhand, India.
4. Senior Resident, Department of General Surgery, Dr. Ram Manohar Lohia Institute of Medical Sciences, Lucknow, Uttar Pradesh, India.
5. Junior Resident, Department of General Surgery, All India Institute of Medical Sciences, Rishikesh, Uttarakhand, India.
6. Junior Resident, Department of General Surgery, All India Institute of Medical Sciences, Rishikesh, Uttarakhand, India.
7. Junior Resident, Department of CTVS, All India Institute of Medical Sciences, Rishikesh, Uttarakhand, India.

#### NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Farhanul Huda,  
H. No. 6682, Street Virbhadra Road, Shivaji Nagar, Near Barrage, Sturida Colony,  
Rishikesh-249203, Uttarakhand, India.  
E-mail: farhanul1973huda@gmail.com

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