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# Knowledge of breast cancer risk factors and methods for its early detection among the primary health-care workers in Shimla, Himachal Pradesh

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## Abstract:

**BACKGROUND:** Breast cancer is an increasing health problem in India. Screening for early detection should lead to a reduction in mortality from the disease. Majority of the population, especially in rural areas, contact health-care system through primary health-care workers.

**AIM:** To know the knowledge of breast cancer risk factors and methods for its early detection among the primary health-care workers in Shimla district, Himachal Pradesh.

**MATERIALS AND METHODS:** A descriptive cross-sectional study questionnaire study was conducted among primary health-care workers (both males and females) in Shimla district, Himachal Pradesh. The data were analyzed using SPSS software version 16. The statistical tests used were *t*-test, ANOVA, and Fisher's exact test. *P* = 0.05 was considered statistically significant.

**RESULTS:** Out of a total of 120 patients, there were 46 males (38.3%) and 74 females (61.7%). The mean age of the population was  $48.5 \pm 5.3$  years, with a range of 25 and 57 years. The mean knowledge score percent of the present population was  $71.04 \pm 18.3$ . The mean knowledge score was higher among males ( $73.9 \pm 19.8$ ) as compared to females ( $69.2 \pm 17.2$ ). Approximately 43.3% of the participants had very good knowledge about risk factors followed by 31.7% having excellent knowledge, 20% having good knowledge, and 5% having poor knowledge.

**CONCLUSION:** The overall mean knowledge percent about breast cancers among primary health-care workers in this study was very good, slightly higher among males and postgraduates, but to make it universal, reinforcement of educational programs can be planned for them.

## Keywords:

Breast cancer, breast self-examination, knowledge

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## Introduction

Breast cancer is a major challenge for public health. Worldwide, it is the first cause of female death cancer with 522,000 deaths estimated in 2012.<sup>[1]</sup> There is huge inequality between rich and poor countries. Incidence rates remain the highest in more

developed regions, but mortality is much higher in poor countries due to a lack of early detection and access to treatment.<sup>[2]</sup>

Breast cancer is an increasing health problem in India too. The trend of rising incidence rates is likely to continue due to further changes in lifestyle factors such as childbearing and dietary habits. In

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India, the age-adjusted incidence rate of breast cancer is 25.8/100,000.<sup>[3]</sup> There is a significant increase in the incidence and cancer associated morbidity and mortality in the Indian subcontinent as described in global and Indian studies.<sup>[3-7]</sup> The hospital-based prevalence of breast cancer in Himachal is 1.24/1 million female population.<sup>[8]</sup> It has been observed that more than half of the patients present in Stages III and IV,<sup>[9]</sup> and the availability and level of facilities for treatment are variable.<sup>[10]</sup> Survival rates are consequently low,<sup>[11]</sup> and there is a clear need to improve the availability and accessibility of facilities for diagnosis and treatment, as well as education and awareness.<sup>[12]</sup>

Effective early cancer detection efforts at the primary care level is critically important for the success of clinical early diagnosis because more than 90% of patient contacts within any health-care system in the world occur at the primary care level in primary health centers (PHCs), dispensaries, and subcenters. Millions of people interact with primary care service providers on a daily basis, which provides a highly useful platform within health services to improve population awareness of breast cancers, to provide simple screening tests and refer clinically suspect patients for diagnosis and treatment in the secondary or tertiary care levels as deemed appropriate, provided health workers at the primary care level are knowledgeable about breast cancer risk factors and the importance of early detection through screening.

Various studies across the world have reported poor to good knowledge about breast cancer risk factors among the primary health-care workers.<sup>[13,14]</sup> However, no such study has been conducted in the state of Himachal Pradesh earlier; hence, the present study was sought to assess the knowledge of breast cancer risk factors and methods for its early detection among the primary health-care workers in Shimla district, Himachal Pradesh.

## Materials and Methods

A cross-sectional study was conducted among multipurpose health-care workers (both males and females) in Shimla district, Himachal Pradesh. Prior permission was taken from the Chief Medical Officer, Shimla district, to conduct the study.

For administrative purposes, Shimla district is divided into nine developmental blocks, namely Mashobra, Rampur, Jubbal, Rohru, Theog, Chopal, Basantpur, Nankhari, and Chuara.<sup>[15]</sup> Four blocks, namely, Mashobra, Rampur, Mathiana, and Nankhari, were selected randomly to conduct the study. All the health workers working in the subcenters, PHCs, community health centers, and civil hospitals in these blocks were invited

to participate in the study. Those health personnel who were willing to participate were included in the study.

A pretested, self-administered questionnaire was the tool for data collection. The questionnaire was in three parts. The first part was to elicit sociodemographic data on age, gender, marital status, qualification of each study participant, and years of job. Questions relating to the knowledge of breast cancer risk factors and early symptoms were asked in the second part. There were eight questions on the risk of breast cancer knowledge (knowledge regarding family history of breast cancer; hormones and reproductive factors; ionizing radiation; diet and diet-related factors; benign breast diseases; increase in age; gender; lack of exercise) and four questions on the early symptoms of breast cancer (breast lump, axillary mass, deformation of breast shape, bloody nipple discharge, and erythema). These questions were answered with the options "Yes or No." For each "Yes" answer, a score of 1 was given and for each "No" answer, a score of 0 was given. Hence, the total score ranged from 0 to 8 for knowledge of risk factors. The scores were transformed into percentages of correct answers. Those having <40% were considered to have poor knowledge, between 40% and 60% to have good knowledge, between 60% and 80% very good knowledge, and more than 80% to have excellent knowledge. In the third part, questions were asked on the methods of early breast detection such as breast self-examination (BSE), clinical breast examination (CBE), and mammography.

The data were analyzed using SPSS software version 16 (SPSS Inc., Chicago, IL). The statistical tests used were *t*-test, ANOVA, and Fisher's exact test. *P* = 0.05 was considered statistically significant.

## Results

Out of a total of 120 individuals, there were 46 males (38.3%) and 74 females (61.7%). The mean age of the population was  $48.5 \pm 5.3$  years, with a range of 25 and 57 years. Most of them (78.3%) were in the age group of 45–54 years followed by 12.5% in 35–44 years. Half of the population (66 [55%]) had a qualification of matriculation followed by 12<sup>th</sup> pass (28 [23.3%]). Fifty-nine (49.2%) participants had 21–30 years of service [Table 1].

The mean knowledge score percent of the present population was  $71.04 \pm 18.3$ . The mean knowledge score was higher among males ( $73.9 \pm 19.8$ ) as compared to females ( $69.2 \pm 17.2$ ), but the difference was not statistically significant (*P* = 0.416). The mean knowledge score was highest for those who were postgraduates in qualification ( $80.0 \pm 14.2$ ). The mean knowledge was highest in the age group of 55–64 years ( $79.6 \pm 16.2$ ).

The mean knowledge was highest for those who had 11–20 years of service ( $73.97 \pm 15.6$ ) [Table 2].

Approximately 43.3% of the participants had very good knowledge about risk factors followed by 31.7% as having excellent knowledge, 20% as good knowledge, and 5% as poor knowledge [Table 3].

Table 4 summarizes the knowledge about early symptoms and methods for early detection of breast cancers.

**Table 1: Demographic profile of the participants**

Variable	n (%)
Gender	
Male	46 (38.3)
Female	74 (61.7)
Marital status	
Married	116 (96.7)
Unmarried	4 (3.3)
Age groups	
25-34	3 (2.5)
35-44	15 (12.5)
45-54	94 (78.3)
55-64	8 (6.7)
Level of education	
10 <sup>th</sup> pass	66 (55.5)
12 <sup>th</sup> pass	28 (23.3)
Graduation	21 (17.5)
Postgraduation	5 (4.2)
Years in job	
1-10	3 (2.5)
11-20	49 (40.8)
21-30	59 (49.2)
31-40	9 (7.5)

**Table 2: Mean knowledge according to gender, age, and level of education**

Variable	n	Mean knowledge percentage	P
Gender			
Male	46	73.9±19.86	0.416
Female	74	69.2±17.21	
Age groups (years)			
25-34	3	62.5±12.50	0.479
35-44	15	70.0±13.19	
45-54	94	70.74±19.27	
55-64	8	79.6±16.28	
Level of education			
10 <sup>th</sup> pass	66	71.2±19.73	0.463
12 <sup>th</sup> pass	28	67.41±17.12	
Graduation	21	73.21±15.95	
Postgraduation	5	80.00±14.25	
Years in job			
1-10	3	62.5±12.5	0.438
11-20	49	73.9±15.6	
21-30	59	69.7±18.8	
31-40	9	66.6±27.9	

When answering about BSE, 95% of population were aware that it can be performed to detect lumps in the breast, 88.3% were right that it should be performed once a month, and 69.2% were correct that it should be performed few days after menstruation.

## Discussion

The knowledge and attitude of health professionals are important factors in the control of breast cancer. It is obvious that health will improve in a society in which primary health-care workers are aware of the risk factors for breast cancer, in order to guide the patients for the necessary screenings.<sup>[16-18]</sup>

The present study has shown that the mean knowledge percent of the population about risk factors of breast cancer was  $71.04 \pm 18.3$ , which can be interpreted as very good knowledge. The mean knowledge was higher among males but not statistically significant. The mean knowledge was highest in those who were qualified with postgraduation. This may be because they have a higher level of understanding, greater independence, and more specialized knowledge.

In this study, 43.3% of the population had very good knowledge about risk factors and 31.7% had excellent knowledge, thus making a total of 75.0% as acceptable knowledge. This is <87% as reported by Diarra *et al.*,<sup>[19]</sup> but much higher than 43% as reported by Ghanem *et al.*<sup>[20]</sup>

Among the risk factors, family history as a risk factor was reported by 60%, lack of exercise by 73.3%, overweight by 62%, increase in age by 60%, benign breast disease by 75%, and hormonal and reproductive factors by 82%. These results are at par with Chong *et al.*<sup>[13]</sup> and much higher than those reported by Yousuf *et al.*<sup>[21]</sup> Though the knowledge about the risk factors is acceptable in majority of population, to make the knowledge universal, continuing education on risk factors should be arranged for them.

**Table 3: Knowledge levels of the population**

Level of knowledge	Gender (%)		Total (%)	P
	Male	Female		
Poor	1 (2.2)	5 (6.8)	6 (5)	0.165
Good	8 (17.4)	16 (21.6)	24 (20)	
Very good	17 (37.0)	35 (47.3)	52 (43.3)	
Excellent	20 (43.5)	18 (47.4)	38 (31.7)	

**Table 4: Knowledge about early symptoms of breast cancer**

Early symptoms	Correct answer (%)
Breast lump	116 (96.7)
Axillary mass	112 (93.3)
Deformation of breast shape	108 (90.0)
Bloody nipple discharge or erythema	90 (75.0)

Knowledge on breast cancer symptoms was very high in the present population. Breast lump was reported by 96.7%, axillary node by 93.3%, deformation of breast shape by 90%, and bloody nipple discharge by 75%, which was higher than the findings of Soyer *et al.*<sup>[22]</sup> (breast lump by 62.7%, axillary mass by 60.1%, deformation of skin by 43.7%, and bloody nipple discharge 61.4%).

In the present study, 80% of the population was aware of BSE. 95% correctly reported it for the detection of lumps, 88.3% correctly reported that it should be done monthly, 69.2% reported that it should be done 10 days after menstruation, and 85% reported that they perform it once a month [Table 5], and these findings are at par with the findings of Sreedharan *et al.*<sup>[23]</sup> It is ideal that women should know how their breasts normally look and feel. Performing regular BSE is the best way to know this. BSE also helps one to notice changes that may occur in the breast. A change from the normal look and feel can be a sign of diseases related to breast. Haagensen<sup>[24]</sup> reported that before the use of mammography, 65% of breast cancer cases identified as a breast mass were detected by BSE or CBE.

Majority of the population was aware of mammography as a screening method, 94.2% reported that it should be done once a year, 91% believed that it will reduce mortality due to breast cancer, 82% reported it can detect cancer with or without palpable mass, and 35% reported it as a painful procedure.

The strength of the present study is that it is the first study to our knowledge to assess knowledge about breast cancer among primary health-care workers who are the first source of contact from health care services to the general population, especially rural areas. On the other hand, the study has a limitation, that the data were collected with self-administered questionnaires, so over or underreporting may be possible. Hence, the results of our study should be interpreted with caution.

### Conclusion

The overall mean knowledge percent about breast cancers among primary health-care workers in this study was very good, slightly higher among males and

**Table 5: Knowledge about breast self examination**

Statements on BSE	Correct answer (%)
Have you heard of BSE?	96 (80)
It is necessary for detecting breast lumps (true/false)	114 (95)
It should be done monthly (true/false)	106 (83.3)
It should be done 10 days after menstruation (true/false)	83 (69.2)

BSE=Breast self examination

postgraduates. The knowledge about symptoms and early detection of breast cancer was also very good in majority of population, but to make it universal, training programs especially on BSE practice and sharing of information on BSE may be arranged, as these primary health-care workers have the responsibility to educate and teach about BSE.

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### Conflicts of interest

There are no conflicts of interest.

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