

Article

Enhancing Breast Cancer Awareness and Knowledge: A Cross-Sectional Study of the General Public in District Shimla, Himachal Pradesh

Dr Shubham Singla[1] & Dr Praveen Shandil[2*]

[1]M.O specialist at AIMSS Chamiana, Distt Shimla, Himachal Pradesh, India
Email ID: singla.shubham1995@yahoo.in
[2]M.O specialist at CHC Syri, Distt Solan, Himachal Pradesh, India
Email id : Praveenshandil2011@gmail.com

Corresponding Author: Dr Praveen Shandil

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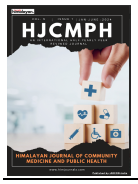
Abstract: **Background:** Breast cancer remains one of the most prevalent and life-threatening forms of cancer affecting women globally. Awareness and knowledge about breast cancer are essential in empowering individuals to engage in proactive health behaviors, such as regular self-examinations and participation in screening programs. This study aims to assess the awareness and knowledge of breast cancer among adults in District Shimla, Himachal Pradesh, to inform localized health education interventions. **Materials & Methods:** A descriptive research approach was employed using a cross-sectional survey design. The study was conducted in District Shimla, Himachal Pradesh, from January 2024 to May 2024. The target population included adults aged 18 and above who had been residents of District Shimla for at least 12 months. A sample size of 400 adults was determined using a 95% confidence level, an estimated knowledge level of 50%, a 5% absolute error margin, and a 5% non-response rate. Data were collected using a Google Form questionnaire covering socio-demographic details and knowledge about breast cancer. Data were analyzed using Epi Info V7 Software for frequencies and percentages. **Results:** The socio-demographic profile revealed that the majority of participants were young adults (29.5% aged 18-30) with a slightly higher female participation (55.25%). Most participants were Hindu (74.5%) and employed (50.25%) with varying education levels. Knowledge assessment showed high awareness of early detection (79.75%) and regular check-ups (77.75%), but lower awareness of survival rates (45.25%) and genetic predisposition (49.5%). Overall, 29.75% of participants had very good knowledge, 37% had good knowledge, 23% had fair knowledge, and 10.25% had poor knowledge. **Conclusion:** This study highlights the varying levels of breast cancer awareness among different socio-demographic groups in District Shimla. The findings underscore the need for targeted educational interventions to bridge knowledge gaps and enhance overall awareness. By addressing these gaps, public health initiatives can be more effective in reducing the incidence and improving the early detection of breast cancer in the region.

Keywords: Breast cancer, awareness, knowledge, Shimla, early detection, public health education, socio-demographic factors.

Introduction

Breast cancer remains one of the most prevalent and life-threatening forms of cancer affecting women globally. Despite significant advancements in medical technology and treatment options, early detection remains a cornerstone in reducing morbidity and mortality associated with the disease. Awareness and knowledge about breast cancer are critical components in empowering individuals to engage in proactive health behaviors, such as regular self-examinations and participation in screening programs.[1-6]

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The district of Shimla in Himachal Pradesh, known for its unique demographic and cultural characteristics, presents distinct public health challenges and opportunities. While various national and regional initiatives have been launched to combat breast cancer, there is limited data on the specific levels of awareness and knowledge within this population. Understanding these levels is crucial for designing effective, localized health education interventions.

This study aims to fill this knowledge gap by assessing the awareness and knowledge of breast cancer among adults in District Shimla. By employing a descriptive research approach and a cross-sectional survey design, this study seeks to provide a detailed snapshot of the current state of public knowledge on breast cancer. The findings will inform public health strategies and educational campaigns tailored to the unique needs of the Shimla district's residents.

Through this research, we aim to identify areas where knowledge is lacking and to understand the demographic factors that influence awareness levels. The ultimate goal is to contribute to the reduction of breast cancer incidence and improve early detection rates through targeted educational efforts, thus enhancing the overall health outcomes for the population of Shimla.

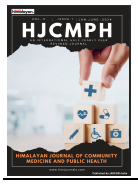
Objectives of the Study:
The primary objective is to gauge awareness and knowledge about Breast cancer among general public of District Shimla, Himachal Pradesh.

Research Methodology

- Research Approach -Descriptive
- Research Design- Cross-sectional survey design
- Study area: District Shimla , Himachal Pradesh
- Study duration- between January 2024 to May 2024
- Study population: The study's target population encompassed all adults aged 18 and above who had been residents of District Shimla Himachal Pradesh for a minimum of 12 months
- Sample size- A robust sample size of 400 adults was determined using a 95% confidence level, an estimated knowledge level of 50% regarding Hypertension, a precise 5% absolute error margin, and a conservative 5% non-response rate.
- Study tool: A google form questionnaire consisting of questions regarding socio-demography and knowledge regarding Hypertension was created. The questionnaire was initially pre-tested on a small number of participants to identify any difficulty in understanding by the respondents.
- Description of Tool-
  a) Demographic data survey instrument: The demographic form elicited information on participants' background: age, marital status, religion, employment, education and many more.
  b) Questionnaire: The questionnaire contains 20 structured knowledge related questions regarding Hypertension. One mark was given for each correct answer and zero for incorrect answer. The maximum score was 20 and minimum score was zero. Scoring was done on the basis of marks as >80%(16-20)=very good,60-79%(12-15) =Good,41-59% (8-11)=Fair,<40% (< 8)=poor
- Validity of tool - by the experts in this field
- Data collection- Data was collected under the guidance of supervisors. The google form questionnaire was circulated among the residents of District Shimla Himachal Pradesh for responses using online modes like e-mail and social media platforms like Whatsapp groups, Facebook, Instagram and Linkedin till the 400 responses were collected.
- Data analysis- Data was collected and entered in Microsoft excel spread sheet, cleaned for errors and analyzed with Epi Info V7 Software with appropriate statistical test in terms of frequencies and percentage.
- Ethical Considerations- Participants confidentiality and anonymity was maintained.

RESULTS

The study's socio-demographic variables provide a comprehensive overview of the diverse participant pool from District Shimla, Himachal Pradesh. The age distribution reveals that the majority of participants were young adults, with 29.5% falling in the 18-30 age group, followed by 25.75% in the 31-40 age bracket. Middle-aged participants (41-50) comprised 20.5%, while older adults (>50) made up 24.25%. Gender distribution was slightly skewed, with females representing 55.25% of the sample compared to 44.75% males. In terms of marital status, 54.0% of participants were married, 40.5%



were single, and a small fraction (5.5%) identified with other marital statuses. The predominant religion was Hinduism, accounting for 74.5% of participants, with Muslims and Sikhs each representing approximately 10%, and 4.75% belonging to other religions. Employment status varied, with half of the participants being employed (50.25%), 25.75% unemployed, and 24.0% students. Educational attainment ranged widely; 34.25% had completed high school, 30.5% were graduates, 20.0% had postgraduate or higher qualifications, and 15.25% had education below high school level.

Table 1: Socio-Demographic Variables of the Study Population (N=400)

Variable	Categories	Frequency (n)	Percentage (%)
Age	18-30	118	29.5%
	31-40	103	25.75%
	41-50	82	20.5%
	>50	97	24.25%
Gender	Male	179	44.75%
	Female	221	55.25%
Marital Status	Single	162	40.5%
	Married	216	54.0%
	Others	22	5.5%
Religion	Hindu	298	74.5%
	Muslim	41	10.25%
	Sikh	42	10.5%
	Others	19	4.75%
Employment	Employed	201	50.25%
	Unemployed	103	25.75%
	Student	96	24.0%
Education	Below High School	61	15.25%
	High School	137	34.25%
	Graduate	122	30.5%
	Postgraduate and above	80	20.0%

The knowledge assessment regarding breast cancer, reflected in Table 2, showed varied levels of awareness among participants. A high awareness of the importance of early detection was noted, with 79.75% correctly identifying its significance. Knowledge about breast cancer symptoms was also substantial, with 69.5% correct responses. Breast self-examination practices were well understood by 74.75% of participants. Awareness of risk factors was moderate at 59.75%, while knowledge about screening methods was identified by 55.25%. Treatment options were correctly known by 64.75% of participants, but only 45.25% were aware of survival rates. Genetic predisposition was understood by 49.5%, and 57.25% recognized the impact of lifestyle on breast cancer risk. The role of diet and exercise was correctly identified by 67.75%, and 53.0% were aware of age as a risk factor. The importance of regular check-ups was well known (77.75%), while fewer participants were aware of the effects of alcohol consumption (47.75%) and the link between smoking and cancer (62.75%). Family history as a risk factor was correctly understood by 65.25%, and the impact of hormone replacement therapy was known by 49.75%. Benefits of breastfeeding were identified by 70.5%, and the importance of mammograms was recognized by 75.25%. Awareness of government health programs was relatively low at 37.75%, and knowledge about support groups and resources was 42.75%.

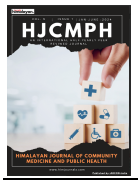


Table 2: Knowledge Regarding Breast Cancer (N=400)

Question No.	Awareness Question	Correct Answer Frequency (n)	Correct Answer Percentage (%)
1	Importance of early detection	319	79.75%
2	Symptoms of breast cancer	278	69.5%
3	Breast self-examination	299	74.75%
4	Risk factors	239	59.75%
5	Screening methods	221	55.25%
6	Treatment options	259	64.75%
7	Survival rates	181	45.25%
8	Genetic predisposition	198	49.5%
9	Lifestyle impact	229	57.25%
10	Role of diet and exercise	271	67.75%
11	Age as a risk factor	212	53.0%
12	Importance of regular check-ups	311	77.75%
13	Effect of alcohol consumption	191	47.75%
14	Link between smoking and cancer	251	62.75%
15	Role of family history	261	65.25%
16	Impact of hormone replacement	199	49.75%
17	Breastfeeding benefits	282	70.5%
18	Importance of mammograms	301	75.25%
19	Government health programs	151	37.75%
20	Support groups and resources	171	42.75%

The overall knowledge scores, as detailed in Table 3, categorized participants into four distinct groups. Approximately 29.75% of participants fell into the "Very Good" category, scoring between 16-20, indicating a high level of knowledge about breast cancer. The largest proportion of participants, 37.0%, had "Good" knowledge with scores ranging from 12-15. Those with "Fair" knowledge, scoring between 8-11, comprised 23.0% of the sample. Finally, 10.25% of participants scored below 8, categorized as having "Poor" knowledge, highlighting a significant gap in awareness that needs addressing through targeted educational interventions.

Table 3: Overall Knowledge Score Categories

Score Category	Score Range	Frequency (n)	Percentage (%)
Very Good	16-20	119	29.75%
Good	12-15	148	37.0%
Fair	8-11	92	23.0%
Poor	<8	41	10.25%

DISCUSSION

The results of this study provide a comprehensive overview of the current state of awareness and knowledge about breast cancer among adults in District Shimla, Himachal Pradesh. The socio-demographic profile of the participants highlights a diverse population with varied backgrounds, which is crucial for understanding the differential levels of awareness and tailoring public health interventions accordingly.

The age distribution indicates that young adults (18-30 years) constitute the largest segment of the study population, followed closely by those in the 31-40 age bracket. This is significant as younger populations are often more receptive to educational interventions, particularly those delivered via digital platforms. The gender distribution reveals a higher participation rate among females, which is pertinent given that breast cancer predominantly affects women, making their awareness levels particularly critical.

Marital status and religious affiliation also play a role in shaping health behaviors and access to information. The

predominance of Hindu participants, with smaller proportions of Muslims, Sikhs, and others, suggests that culturally tailored educational programs might be more effective. Employment and education levels further contextualize the data, with a substantial number of participants being employed and having at least a high school education. This indicates a potentially higher baseline level of health literacy, which can be leveraged in awareness campaigns.

The knowledge assessment regarding breast cancer reveals mixed levels of awareness among participants. High awareness of the importance of early detection (79.75%) and regular check-ups (77.75%) is encouraging, as these are critical components of effective breast cancer management. However, there are notable gaps in knowledge regarding survival rates (45.25%), genetic predisposition (49.5%), and the impact of hormone replacement therapy (49.75%). These areas require targeted educational efforts to ensure comprehensive understanding.

The awareness of symptoms, breast self-examination practices, and screening methods is relatively high, with correct responses ranging from 55.25% to 74.75%. This suggests that general knowledge about breast cancer is fairly widespread, but there is still room for improvement, particularly in understanding specific risk factors and advanced treatment options. The lower awareness of government health programs (37.75%) and support groups (42.75%) indicates a need for better dissemination of information about available resources and support networks.

The overall knowledge score categories provide a clear picture of the population's understanding of breast cancer. While nearly 30% of participants fall into the "Very Good" category, a significant portion (37%) have "Good" knowledge, and 23% have "Fair" knowledge. The 10.25% of participants in the "Poor" knowledge category highlight a critical area for intervention. These findings underscore the necessity for targeted educational initiatives to bridge the knowledge gap and enhance overall awareness.

The implications of this study are far-reaching. By identifying specific areas where knowledge is lacking, public health officials and educators can design more effective and targeted interventions. For example, campaigns that focus on the importance of understanding genetic predisposition and the impact of lifestyle choices could significantly improve overall awareness and preventive behaviors.[7-12]

Moreover, the relatively low awareness of government health programs and support groups suggests that these resources are underutilized. Increasing visibility and accessibility of these programs could provide much-needed support to individuals affected by breast cancer and their families.

CONCLUSION

In conclusion, this study highlights the importance of localized health education interventions that consider the unique demographic and cultural characteristics of the population. By addressing the identified gaps in knowledge and leveraging existing awareness, public health initiatives can be more effective in reducing the incidence and improving the early detection of breast cancer in District Shimla. The findings serve as a crucial foundation for developing comprehensive strategies aimed at enhancing breast cancer awareness and ultimately improving health outcomes in the region.

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