ORIGINAL ARTICLE

Knowledge, Attitude and Practices Regarding Breast Self-Examination among Women Working in a Tertiary Care Hospital in India

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ABSTRACT

Breast cancer is the commonest malignancy among women globally. During 1990s in India from being fourth in the list of most common cancer to becoming the first with early detection being key to reducing mortality. Breast Self-Examination (BSE) is a simple, cost-effective method that helps in identifying changes in the breast at an early stage. Among healthcare workers, especially women, awareness and regular practice of BSE are crucial as they serve as both role models and educators. This cross-sectional, observational study was conducted in a tertiary care hospital in Nagpur, India, to assess knowledge, attitude, and practices of BSE among females in the hospital.. A total of 360 female healthcare workers (clinical, pre-clinical, paraclinical, and office staff) were selected for this study through convenience sampling technique. Data was collected through a structured questionnaire. A total of 360 women aged between 18 to 60 years participated in the study. Among them, 19.72% reported a family history of cancer, and 9.17% had a personal history. While 86.9% had heard about BSE, only 56.4% knew the correct timing, and 49.2% practiced it monthly. Despite a high level of self-reported awareness, only 37.2% of participants had received formal training from healthcare staff, and only 63 women stated that they would seek medical consultation upon detecting abnormalities. Although no formal statistical correlation analysis was conducted between knowledge, attitude, and practice, the observed patterns indicate a disconnect between awareness and its consistent application in health-seeking behavior. Despite high awareness and favorable attitudes, significant gaps exist in accurate knowledge, proper technique, and clinical response. Targeted educational interventions focusing on BSE training, early detection, and reducing psychological barriers are essential to improve breast cancer outcomes among healthcare workers.

Keywords: Breast self-examination, breast cancer, health education

INTRODUCTION

An increasing number of young women in India are being diagnosed with breast cancer, marking a worrying shift in disease patterns. Breast cancer has become the most commonly diagnosed cancer among Indian women, overtaking cervical cancer. The estimated incidence of the disease in India in 2016 was 1,18,000 cases (95% uncertainty interval: 1,07,000–1,30,000), with 98.1% of the incident cases occurring in females. The estimated prevalence during the same year was 5,26,000 cases (ranging from 4,74,000 to 5,74,000).[1,2] In 2020, more than two lakh women in India were estimated to have been diagnosed with breast cancer, and more than 76,000 deaths were reported as per the estimates.[3]

The five-year survival rate is promisingup to 85%when breast cancer is detected early. However, delayed detection drastically reduces survival to just 56%.[4] This underlines the critical importance of awareness and early detection methods such as Breast Self-Examination (BSE). Though BSE is a simple, cost-effective, and non-invasive tool, it remains underutilized or incorrectly practiced due to reasons like forgetfulness, lack of time, fear, anxiety, ignorance, and poor educational awareness.

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With breast cancer accounting for over 28% of all cancer cases in Indian women, and an annual economic burden of approximately USD 0.8 million[5], the disease has significant implications not only on individual lives but also on healthcare infrastructure and the economy.

Early detection plays a pivotal role in improving survival rates and reducing treatment costs and complications. BSE, when performed regularly and correctly, empowers women to detect unusual changes early, prompting timely medical consultation[6-8]. Promoting BSE, especially in low-resource settings, can significantly reduce mortality by enabling early intervention.

Understanding women's Knowledge, Attitudes, and Practices (KAP) regarding BSE and breast cancer is essential for developing effective awareness campaigns and interventions[9,10]. Assessing KAP within healthcare settings helps identify existing gaps in knowledge, misconceptions, and behavioral barriers. This insight is critical for designing educational programs that can increase acceptance, reinforce correct techniques, and ultimately improve screening rates.

METHODS

This cross-sectional, observational study was conducted in a tertiary care hospital in Nagpur, India.. Study population included all healthcare workers including office staff of the corresponding hospital. As per the study done by Pal et al.,[6] knowledge about breast cancer among women was 62.99%. With allowable error of 5%, the sample size was calculated with the help of open epi calculator which came out to be 359 and was rounded off to 360. Hence, our required sample size was 360. However, we adopted a convenience sampling technique.

Our inclusion criteria were all female healthcare workers including clinical, pre-clinical and para-clinical doctors, office staff, who consent to participate in study. Women who did not give informed consent to participate were excluded.

Data collection tool was case record form was in the form of google form as well as hard copy of the semi-structured questionnaire in English, which was also available in regional language. The questionnaire was pre-validated before presented to them. Knowledge level was assessed through direct questions, while attitude was assessed using a structured 5-point Likert scale, with statements designed to evaluate participants' beliefs, perceptions, and psychological responses to BSE. The options ranged from 'strongly disagree' (1) to 'strongly agree' (5). Responses indicating "Agree" or "Strongly Agree" were considered as reflecting a positive attitude, while the rest were considered neutral or negative, depending on the context of the statement.

Data entries were received from google forms directly in google sheet and a through hard copies filled via investigators. We periodically checked the data. Result was expressed in the form of frequency and percentage.

RESULTS

A total of 360 women were included in the study. The mean age of the participants was 32.7 years. The majority belonged to the 30–40 years age group (36.11%), followed by those aged <25 years (33.06%); 51–60 years age group was the least represented (13.89%). As the study was based in an instituition, we were unable to assess >60 years participants. With regard to cancer history, 19.72% of the participants reported a positive family history of cancer, while 9.17% had a personal history of the disease. Reproductive history showed that 30.83% had their first childbirth at or before the age of 25, while 44.72% gave birth after 25 years of age. A significant portion, 24.44%, had no children. Body composition analysis revealed that the majority (70.56%) identified themselves as medium fat, while 16.39% were lean and 13.06% were fat. Breastfeeding history indicated that 82.22% had breastfed, and 17.78% had not. Hormonal therapy was reported by 12.22% of women. Concerning menopausal status, 70% of the women had not yet reached menopause, while 30% were postmenopausal (Table 1). Regarding status of knowledge, a high percentage (86.9%) of participants heard about BSE, indicating good baseline awareness. Only 13.1% were unaware, showing the need for targeted awareness in this subgroup. The majority of women performed BSE monthly (49.2%) However, 32.5% did it weekly, and 9.4% annually, indicating a knowledge gap regarding the correct timing. Only 56.4% of women knew that BSE should ideally be done 7 days after menstruation, while 43.6% were either incorrect or unsure (timing mentioned as "anytime," "during," or "before" menstruation or didn't know). This highlights a significant area

for health education. 57.2%reported checking their breasts in the mirror, while 33.1% palpated in a circular motion. Only 7.8% examined the underarm, which is important, and 1.9% looked for nipple discharge. This shows that while awareness exists, comprehensive knowledge of correct technique is lacking. Identification of Warning Signs: The most commonly known sign was a lump (69.7%), followed by change in shape (15.6%), while signs likenipple inversion (2.8%), discharge (1.9%), and redness (2.2%) were less recognized. On overall knowledge score:55.6% believed they had good knowledge of BSE, while 35.0% had partial knowledge, and 8.6% said they had no knowledge. 0.8% didn't know anything (Table 2). The overall attitude of participants toward Breast Self-Examination (BSE) was found to be highly positive. A large majority agreed that BSE plays a critical role in the early detection of breast cancer. Among the most positively endorsed statements was the belief that healthcare providers should routinely educate women about BSE, reflecting a strong expectation and trust in the role of medical professionals in preventive health education. A considerable 311 of participants agreed that reminders or reinforcements would help them consistently perform BSE. Additionally, 298 of women believed that early detection of breast cancer could lead to complete remission, indicating faith in the efficacy of medical intervention when coupled with early action. Psychological and cultural barriers, although present, were minimal. Discomfort while performing BSE was reported by 41 participants (sum of "Agree"=15 and "Strongly Agree"=26). Similarly, 25 individuals (13 agreed, 12 strongly agreed) perceived BSE as shameful or associated with a loss of dignity. In response to the statement *"I would consult a trained medical professional if I found a lump,"* only 63 participants indicated agreement (combining "Agree"=44 and "Strongly Agree"=19), whereas 52 were neutral, and the remaining expressed varying degrees of disagreement. This indicates a significant gap in timelyhealth-seeking behavior despite awareness (Table 3). A significant majority of participants (83.3%) reported performing BSE, indicating a relatively high level of engagement in preventive self-care practices. However, only 37.2% had received training or instruction from healthcare providers. Family or partner encouragement played a critical role, with 67.8% of respondents

stating they were encouraged to perform BSE by close relations. Approximately 23.3% of participants reported identifying abnormalities during BSE, emphasizing the relevance and utility of the practice in early detection. Encouragingly, 83.1% of respondents indicated that they actively promote BSE among peers, reflecting a positive attitude and high potential for peer-driven awareness. When evaluating motivation, only 18.3% admitted to performing BSE only in the presence of pain or discomfort, whereas the remaining 81.7% did so regularly, suggesting a preventative rather than reactive health behavior. With regard to support needs, 30.6% expressed the need for professional guidance and 27.8% preferred structured workshops. Others requested support groups and alternative learning tools like apps or posters, indicating a multifaceted need for resource development. When asked about their first response after detecting an abnormality, the majority (63.6%) stated that they would consult a specialist, while 21.1% would search online. A small portion would discuss with others (8.3%) or ignore the finding altogether (6.9%) (Table 4).

Table 1. Distribution of participant based on sociodemographic characteristics (N=360)

Variables	Category	Frequency	Percentage
Age group (in years)	<25	119	33.06
	30–40	130	36.11
	41–50	61	16.94
	51–60	50	13.89
Cancer in Family History	Yes	71	19.72
	No	289	80.28
Personal History of Cancer	Yes	33	9.17
	No	327	90.83
Age at First Birth	≤25	111	30.83
	>25	161	44.72
	No children	88	24.44
Body Type	Fat	47	13.06
	Lean	59	16.39

Variables	Category	Frequency	Percentage
	Medium Fat	254	70.56
Breastfeeding	Yes	296	82.22
	No	64	17.78
Hormone Therapy	Yes	44	12.22
	No	316	87.78
Menopausal Status	Yes	108	30.00
	No	252	70.00

Table 2. Knowledge about breast self-examination among participants (N=360)

Variables		Frequency	Percentage
Heard about BSE	Yes	313	86.9
	No	47	13.1
Frequency of BSE	Daily	32	8.9
	Weekly	117	32.5
	Monthly	177	49.2
	Annually	34	9.4
BSE Timing - In relation to the menstrual cycle	Just before menstruation	29	8.1
	7 days after menstruation	203	56.4
	Any time during the month	58	16.1
	During menstruation	22	6.1
	Don't know	48	13.3
Steps of BSE	Looking for changes in the mirror	206	57.2
	Palpating breasts in a circular motion	119	33.1
	Checking for discharge from the nipple	7	1.9
	Examining underarms	28	7.8

Variables		Frequency	Percentage
Knowledge about BSE	Yes	200	55.6
	Maybe to some extent	126	35.0
	Don't know anything	3	0.8
	No	31	8.61
Abnormal signs during BSE	Lump	251	69.7
	Change in shape	56	15.6
	Skin puckering	28	7.8
	Nipple inversion	10	2.8
	Discharge	7	1.9
	Redness or rash on breast	8	2.2
Do you know how does a breast lump feel like ?	Yes	200	55.6
	No	31	8.6
	Maybe to some extent	126	35.0
	Don't know anything	3	0.8
Barriers to BSE	I do regular BSE	142	39.4
	Don't follow correct method	117	32.5
	Unsure when and how often to do BSE	37	10.3
	Don't know what changes to look for	13	3.6
	Not aware of BSE	48	13.3

Table 3: Distribution of attitude parameters toward BSE among participants (N=360)

Sl. No.	Attitude Statement	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
1	BSE is important for early detection of breast cancer	0	2	18	67	273
2	Healthcare providers should routinely educate about BSE	0	2	4	64	290
3	BSE makes me uncomfortable *(Negative)*	85	136	98	15	26

Sl. No.	Attitude Statement	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
4	Reminder or reinforcement would help me remember to perform BSE	2	11	36	122	189
5	I would consult a trained medical professional if I found a lump	155	92	50	34	29
6	Breast cancer can be completely cured if detected early	0	11	51	100	198
7	BSE is shameful or causes loss of dignity *(Negative)*	200	93	42	13	12

Table 4: Practice variables among participants (N=360)

Sl. No.	Practice Variables	Response Options	Frequency	Percentage
1	Have you ever been taught about BSE by health staff?	Yes	134	37.2
		No	226	62.8
2	Have your parents/ partner ever encouraged you to perform BSE?	Yes	244	67.8
		No	116	32.2
3	Do you examine your breasts (perform BSE)?	Yes	300	83.3
		No	60	16.7
4	Have you ever found any abnormality during BSE?	Yes	84	23.3
		No	276	76.7
5	Do you encourage others to perform BSE?	Yes	299	83.1
		No	61	16.9
6	What kind of support/resources do you need to perform BSE regu*larly? (Multiple* choice)	A. Training/ workshops	100	27.8
		B. Professional guidance	110	30.6
		C. Support groups	70	19.4
		D. Others (Apps, Posters, Role Models etc.)	80	22.2

Sl. No.	Practice Variables	Response Options	Frequency	Percentage
7	Do you perform BSE only when you feel pain/ discomfort?	Yes	66	18.3
		No	294	81.7
8	What would you do first if you found something abnormal during BSE?	Ignore	25	6.9
		Discuss with family/friends	30	8.3
		Search about it online	76	21.1
		Visit a gynecologist/ specialist	229	63.6

DISCUSSION

The present study was conducted to evaluate the knowledge, attitudes, and practices related to Breast Self-Examination (BSE) among female healthcare workers in a tertiary care hospital. The findings offer meaningful insights into breast health awareness and behavior within a population that plays a crucial role in patient education and preventive healthcare delivery[7-9].

Knowledge of BSE: The results reveal a high level of baseline awareness: 86.9% of participants had heard of BSE. However, this awareness did not uniformly translate into detailed knowledge. Although 49.2% correctly identified the recommended monthly frequency of BSE, 32.5% practiced it weekly, and 9.4% annually, reflecting inconsistencies in understanding the correct timing. Regarding the ideal time to perform BSE – 7 days after menstruation – only 56.4% responded correctly. Nearly 43.6% either selected incorrect timings or reported not knowing, highlighting a significant educational gap. The knowledge of steps involved in BSE was also inadequate: while 57.2% observed changes in the mirror, only 33.1% used circular palpation, and just 7.8% examined the underarms. Alarmingly, only 1.9% checked for nipple discharge, despite its clinical relevance. Furthermore, although 55.6% of participants believed they had good knowledge of BSE, this self-assessment likely overestimates actual competence. This gap between perceived and actual knowledge supports the need for objective assessments and hands-on training, a concern also echoed in previous studies.[10-12]

Attitudes towards BSE: The study revealed a highly positive attitude toward Breast Self-Examination

(BSE). A total of 273 out of 360 participants agreed that BSE is important for early detection of breast cancer, and 290 participants expressed that healthcare professionals should routinely educate women about it. This is encouraging and suggests a strong willingness among women to engage in preventive practices when provided with proper guidance and support from the medical community. However, emotional and cultural barriers were also noted. 41 participants reported discomfort while performing BSE, and 25 participants associated the practice with feelings of shame or a perceived loss of dignity. Although these figures are relatively low, they indicate the ongoing influence of societal taboos and internal psychological hesitations. These barriers highlight the need for sensitive, empowerment-based educational strategies to normalize BSE and reduce stigma.[13,14] A particularly concerning finding was that only 63 participants stated they would consult a trained medical professional upon discovering a breast lump. This points to a significant gap in health-seeking behavior despite adequate awareness. The reluctance to seek clinical help may stem from internalized stigma, fear, lack of confidence in healthcare systems, or limited access to approachable and supportive medical services.[13-17]

Practice of BSE: In contrast to the gaps in knowledge, the practice of BSE was relatively high, with 83.3% reporting that they perform BSE. However, only 37.2% had received formal training from healthcare staff, highlighting that many are practicing without proper instruction,. Social encouragement played a crucial role, with 67.8% reporting support from partners Notably, 23.3% had identified abnormalities during BSE, underscoring its potential for early detection when practiced correctly. Also, 83.1% of participants encouraged others to perform BSE, reflecting a strong peer-driven awareness culture among healthcare workers, as found in many other studies.[18-20]

Behavioral patterns were promising: 81.7% performed BSE regularly, and only 18.3% did so in response to pain or discomfort, indicating a preventive rather than reactive approach.When asked about their response upon detecting an abnormality, 63.6% said they would consult a specialist, which is encouraging. However, a non-negligible proportion would either search symptoms online (21.1%), discuss with peers

(8.3%), or even ignore the finding (6.9%), showing that professional intervention is not the default action for all.

Resource seeds and support: Participants expressed varied needs to improve BSE practice.[18] 30.6% requested professional guidance, 27.8% preferred training workshops, and others sought support groups (19.4%) or educational tools such as apps and posters (22.2%). This points toward a demand for multimodal educational strategies and flexible, accessible learning formats.[20,21]

Comparison with established guidelines: Our data clearly indicates partial compliance with international guidelines for BSE. Organizations like the World Health Organization (WHO) and the American Cancer Society emphasize monthly BSE, proper technique, and visual and manual inspection, particularly post-menstruation. Despite the high awareness, correct implementation remains suboptimal. These findings echo global studies which report that even among educated populations, technique and timing often deviate from recommended standards.[19,20] Compared to the national burden of over 118,000 new breast cancer cases annually, the high BSE awareness (86.9%) and practice (83.3%) in our cohort are encouraging. Yet, the fact that only 17.5% would seek medical attention upon finding a lump reflects a broader national challenge—early detection is hindered not just by lack of awareness, but also by hesitation in prompt health-seeking behavior.

Public health implications: This study highlights that awareness alone is insufficient for behavioral change. Targeted interventions— such as structured BSE training during hospital orientation, peer education programs, and digital awareness campaigns—could strengthen both individual and community-level outcomes[21]. Further, bridging the gap between awareness and clinical action (e.g., consulting a professional) is essential. Building trust in healthcare systems, increasing accessibility to gynecological services, and destigmatizing help-seeking behaviors are crucial components of comprehensive breast cancer control strategies.

Strengths and limitations: A notable strength of this study is the inclusion of a diverse group of healthcare workers, ranging from clinical and pre-clinical staff to office personnel. This enhances the generalizability of findings within the healthcare sector. However, reliance on self-reported data

introduces the possibility of recall and social desirability bias. Additionally, the cross-sectional design limits causal inference.

CONCLUSION

To conclude, this study highlights a relatively high level of BSE awareness and practice among healthcare workers. However, significant deficiencies in detailed knowledge, proper technique, and health-seeking behavior persist. Addressing these gaps through formal training, resource provision, and supportive policy measures is essential for improving breast cancer outcomes. As frontline agents of health education, empowering healthcare workers with accurate knowledge and skills has the potential to create a ripple effect of awareness and prevention throughout the broader community.

Conflict of Interest: Nothing to disclose.

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Authors' Contribution: Both authors were equally involved in conception and design, questionnaire formulation, data collection, compilation and analysis as well as manuscript writing editing and final submission.

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