

## ORIGINAL RESEARCH

### **Breast self- examination (BSE) awareness and attitude among female medical students-a cross sectional study**

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#### **ABSTRACT**

**Background: Context:** Almost 50% of breast cancer cases and 58% of deaths occur in less developed countries. Early detection plays a pivotal role in the treatment of breast cancer. Better knowledge and attitude of healthcare professionals influences the uptake of screening methods for breast cancer in the community. **Aims:** -1.To estimate the knowledge, attitude, and practices of BSE in female medical students, 2. To identify the areas of gap in knowledge and attitude of BSE between students who perform and do not perform BSE. **Settings and Design:** This is a descriptive cross-sectional study conducted among Undergraduate female medical students.

**Methods and Material:** The data was collected by self-administered closed ended questionnaire through Google forms. **Statistical analysis used:** Statistical analysis was performed using SPSS software 21 version.

**Results:** A total of 263 students participated in the study. 79.7% (208) of them had heard about BSE. Analysis of practice aspect of data revealed that only 28.4% (74) performed BSE sometime or the other. Those who had more negative attitude never performed BSE.

**Conclusions:** Current study showed lack of knowledge, attitude and practice of BSE among health professionals. Health professionals who don't have strong attitude and habit of practicing BSE will not be serious in percolating BSE in general population. Therefore, there is strong need of intervention in health professionals in improving their knowledge and attitude regarding BSE and making BSE a universal practice among health professionals.

**Keywords:** Attitude, Breast self-examination, knowledge, Undergraduate female medical students.

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#### **INTRODUCTION**

Breast cancer is a global health problem of both developing and developed countries.<sup>[1]</sup> This the most common malignancy in women and comprises 18% of all female cancers. One million new cases worldwide are detected every year and accounts for the most common cause of cancer death in women.<sup>[2]</sup> The incidence of breast cancer varies between countries; the highest rates occur in the United States and Canada and the lowest rate is found in Asia.<sup>[3]</sup> Although breast cancer is thought to be a disease of the developed world, almost 50% of breast cancer cases and 58% of deaths occur in less developed countries.<sup>[4]</sup> One major factor responsible for overwhelmingly scary mortality rate in breast cancer is late presentation.<sup>[5]</sup> Early detection plays a pivotal role in the treatment of breast cancer. The

5-year survival rate has reached approximately 85% with early detection, whereas later detection has decreased the survival rate to 56%.<sup>[6]</sup> Breast cancer is made distinct from other types of cancers by the fact that it occurs in a noticeable organ and can be detected and treated at an early stage.<sup>[7]</sup> Most of the breast tumors diagnosed in an early stage have been self-discovered.<sup>[7]</sup> In India, the incidence of breast cancer has surpassed cervical cancer and is currently the leading cause of cancer related deaths, although cervical cancer still remains most common in rural India.<sup>[8]</sup> Although age adjusted incidence rate of breast cancer is lower (25.8 per 100 000) than United Kingdom (95 per 100 000), the mortality rate is at par (12.7 vs 17.1 per 100 000) with United Kingdom.<sup>[9]</sup> Current studies have shown a significant increase in the incidence and cancer-associated morbidity and mortality in the Indian subcontinent.<sup>[10,11]</sup> The survey carried out by Indian Council of Medical Research (ICMR) in the metropolitan cities during 1982 to 2005 has shown that incidence of breast cancer has almost doubled.<sup>[11]</sup> Indian women having breast cancer are found a decade younger in comparison to western women suggesting that breast cancer occurs at a younger premenopausal age in India.<sup>[12]</sup> Most patients in our country present when the disease has already advanced and has a poor prognosis. A common reason for late presentation of patients is lack of awareness of breast cancer and poor attitude towards breast self-examination (BSE).<sup>[5]</sup> Initially, breast cancer does not produce symptoms. However, as the tumor enlarges, symptoms manifest in the form of painless lump in the breast, lump under the armpit, breast tenderness, swelling or thickness of skin over the breast, and spontaneous discharge of the nipple (particularly if bloody, erosion, or inversion in the nipple).<sup>[13]</sup> Recommended precautionary techniques to reduce breast cancer morbidity and mortality include breast self-examination (BSE), clinical breast examination (CBE), and mammography.<sup>[14]</sup> However, the latter two require a visit to the doctor and use of specialized equipment. BSE is an easy, quick, convenient, private, cost free, and safe practice that requires no paraphernalia. Women who perform BSE are familiarized with appearance and feel of their breasts, this helps them detect any changes at the earliest and seek medical help. Hence, women have to be breast aware from a young age to detect any changes and present to the hospital at the earliest. Though it is a basic and self-carried out procedure yet understanding and practice of BSE remains woefully low.<sup>[15]</sup> Better knowledge and attitude of healthcare professionals influences the uptake of screening methods for breast cancer in the community. The purpose of this study was to assess the awareness of breast cancer among undergraduate medical students in a tertiary healthcare institution.

## **MATERIALS & METHODS**

### **Study Design:**

An observational cross sectional descriptive study was done to analyze the knowledge, attitude, and practice about BSE among female undergraduate students.

**Study period:** Study was carried out for three months from November 2021 to January 2022.

### **Study Setting:**

The study was carried out in the female undergraduate students of Kurnool Medical College, Kurnool; a teaching hospital in Andhra Pradesh. Study Population: All Female students in first, second, third, fourth year of MBBS were invited to participate in the study so that total number of participants were found to be 378 students. All participants were informed that their participation in the study is voluntary and were assured of confidentiality of responses.

**Inclusion criteria:**

All female undergraduate medical students who were willing to participate in the study were included in the study.

**Exclusion criteria:**

Female undergraduate medical students who were not willing to participate in the study were excluded.

**Sample size:** Two hundred and sixty three female undergraduate medical students volunteered to take part in the study.

**Tools of Data Collection:**

Data were collected using a self-administered pretested close ended questionnaire. It was circulated to them as Google form .No name was attached to the questionnaire. Filling up of the form was taken as consent for participation in the study.

The questionnaire consisted of five sections namely; Socio-demographic characteristics; family history of breast cancer, section to assess knowledge about BSE (K1-8), another section that addresses attitude of participants towards BSE which were in the form of statements (beliefs) (A1-9) and a section that assesses BSE practice(P1-10).

**Study questionnaire scoring:**

**Knowledge score:**A total of 8 questions assessed knowledge on BSE. Categorical responses (Yes/No) were applied for the knowledge items. Scoring method was used as one mark for correct answer, and zero for incorrect answers. Regarding appropriate posture to perform BSE the score given 2, 1, 0 .No negative scoring was used to penalize wrong answers. Hence, a knowledge score of maximum 9 points was designed. The score was then converted to percentages and classified as Acceptable level of knowledge  $\geq 75\%$  ( Score 7-9) out of the maximum. Moderate (50 %-< 75%, Score5, 6), Poor level of knowledge <50% (<5 score) out of the maximum.

**Attitude score:**

For attitude items, 5 Likerts' scale (strongly agree/ agree/neutral/not agree/strongly not agree) was used. For a positive attitude item, scores of four, three, two, one and zero for “strongly agree”, “agree”, “neutral”, “disagree” and “strongly disagree”, respectively. This scoring was reversed for the negative attitude item. Higher scores were given to positive attitude towards BSE. Thus for the nine attitude statements, the total score ranging from 0 to 36 and was divided into 3 categories as follows: Negative attitude (<50%; 0 to 18 points), neutral attitude (50 %-< 75%; 18 to 26 points) and positive attitude ( $\geq 75\%$ ; 27 to 36 points).

**Practice score:**

A series of eleven practice questions, 1 point was awarded for good practice, 0 for the poor practice. One question had options 5 Likerts' scale was used. Scores of four, three, two, one and zero for “strongly agree”, “agree”, “neutral”, “disagree” and “strongly disagree”, respectively. Preference of breast examination question given as 2, 1, 0 score. Maximum score was 16. The score was then converted to percentages and classified as appropriate  $\geq 75\%$  ( Score 12-16) out of the maximum. Moderate (50 %-< 75%, Score 8-12), Inappropriate practice (<50%; <8 score) out of the maximum.

**Statistical analysis:**

Data was entered in Microsoft office excel version 2016 and Data analysis was performed on IBM-Statistical Package for the Social Sciences (SPSS) version 21. The following statistical

analysis was done; descriptive statistics including mean and SD which was used to describe numerical data while percent used for categorical data. Chi-Square Test & Fissure Exact Test (FET) was used for testing relation between categorical variable. P-value <0.05 was considered as statistically significant.

### Ethical Issues:

Ethical clearance was obtained from Institutional Ethical committee (IEC) of Kurnool Medical College before starting the study proper. During the study, the purpose of the study was explained to all female undergraduate students and informed consent was taken from the study participants.

### RESULTS

The Google form questionnaire was circulated among a total of 403 students out of which 263 filled it out. The response rate is calculated to be 64.8%.The two incompletely filled forms were excluded from the analysis.

Out of the 261 subjects, 63.6% (166) were in the age group between 17-20 years and 36.4% (95) were in the age group between 21-24 years. Mean age of the participants was 19.98 years  $\pm$  SD 1.446.Majority of the participants 46.4% (121) were in the first year of their undergraduate medical education, 16.1% (42) in second year, 18% (47) in third year, and 19.5% (51) in the fourth year. Only 15 (5.8%) participants had positive family history of breast cancer and 239 (91.5%) did not have any such history. Very few participants, 7 (2.7%) were unaware of presence or absence of history of breast cancer in the family members.

Knowledge of the participants with regards to breast self- examination (BSE) was assessed as represented in Table.1.79.7% (208) of them had heard about BSE whereas 20.3% (53) had never heard about the same. But only 55.2% (144) were aware of the right age to start performing BSE and only 45.2% (118) were aware of monthly frequency of BSE. Even less number 23% (60) were aware of correct timing of performance of BSE in relation to menstrual cycle. But 93.5% (244) agreed that BSE helps in early detection of breast cancer.

**Table 1: Knowledge regarding breast self-examination (BSE)**

SNO	Knowledge	Response	Number	Percentage
1	Ever heard about BSE	Yes	208	79.7%
		No	53	20.3%
2	The correct age to initiate BSE	>19 yrs	144	55.2%
		<19yrs	33	12.6%
		Don't know	84	32.2%
	The correct age to initiate BSE	Correct	144	55.2%
		Incorrect	117	44.8%
3	Frequency of BSE	Monthly	118	45.2%
		Don't know	86	32.9%
		Weekly	33	12.6%
		Yearly	19	7.3%
4	Appropriate time to perform BSE	A week after menstruation	60	23.0%
		A week Before menstruation	34	13.0%
		Don't know	167	64.0%
5	Appropriate posture to perform BSE	All above	150	57.5%
		One correct	106	40.6%
		Don't know	5	1.9%
6	Correct method of BSE	Correct	172	65.9%
		Incorrect	89	34.1%
7	Do you think BSE can help in early detection of breast cancer	Yes	244	93.5%
		No	17	6.5%

8	Signs of breast cancer	<b>Correct</b>	230	88.1%
		Incorrect	31	11.9%

When attitude towards BSE was compared between two groups, that is those who performed BSE and those who never performed BSE, the results are as depicted in [Table.2].

**Table 2: Comparison of attitude towards BSE between the subjects who performed and those who never performed BSE**

Attitude towards BSE	Performed BSE (74)	Not Performed (187)	Total (261)	P-value
<b>Doing BSE is embarrassing to me</b>				
Strongly Disagree	29	54	83	
Disagree	33	77	110	FE: 6.51
Neutral	10	51	61	P: 0.07
Agree	2	5	7	
Strongly Agree	0	0	0	
<b>Performing BSE makes me feel unpleasant</b>				
Strongly Disagree	25	36	61	
Disagree	36	80	116	
Neutral	10	61	71	FE: 13.23
Agree	3	9	12	P:0.00
Strongly Agree	0	1	1	
<b>BSE is a waste of time</b>				
Strongly Disagree	43	94	137	
Disagree	29	79	108	FE: 4.65
Neutral	1	13	14	P:0.17
Agree	1	1	2	
Strongly Agree	0	0	0	
<b>If there is a lump, I prefer to consult a doctor</b>				
Strongly Disagree	0	0	0	
Disagree	0	2	2	FE: 4.55
Neutral	1	10	11	P:0.19
Agree	35	102	137	
Strongly Agree	38	73	111	
<b>All women should do BSE</b>				
Strongly Disagree	3	0	3	
Disagree	0	0	0	
Neutral	1	20	21	FE: 15.46
Agree	31	93	124	P: 0.00
Strongly Agree	39	74	113	
<b>I rarely care about my breasts</b>				
Strongly Disagree	16	16	32	
Disagree	36	55	91	FE: 23.91
Neutral	9	60	69	P:0.00
Agree	11	48	59	
Strongly Agree	2	8	10	
<b>I am not afraid of breast cancer</b>				

Strongly Disagree	25	52	77	FE: 1.53
Disagree	25	64	89	P:0.83
Neutral	16	45	61	
Agree	7	24	31	
Strongly Agree	1	2	3	
<b>I avoid BSE because I worry having breast cancer</b>				
Strongly Disagree	27	51	78	
Disagree	37	83	120	FE: 8.56
Neutral	7	44	51	P:0.058
Agree	3	6	9	
Strongly Agree	0	3	3	
<b>I am interested in doing BSE</b>				
Strongly Disagree	2	3	5	
Disagree	0	11	11	FE: 11.58
Neutral	20	77	97	P:0.01
Agree	44	81	125	
Strongly Agree	8	15	23	

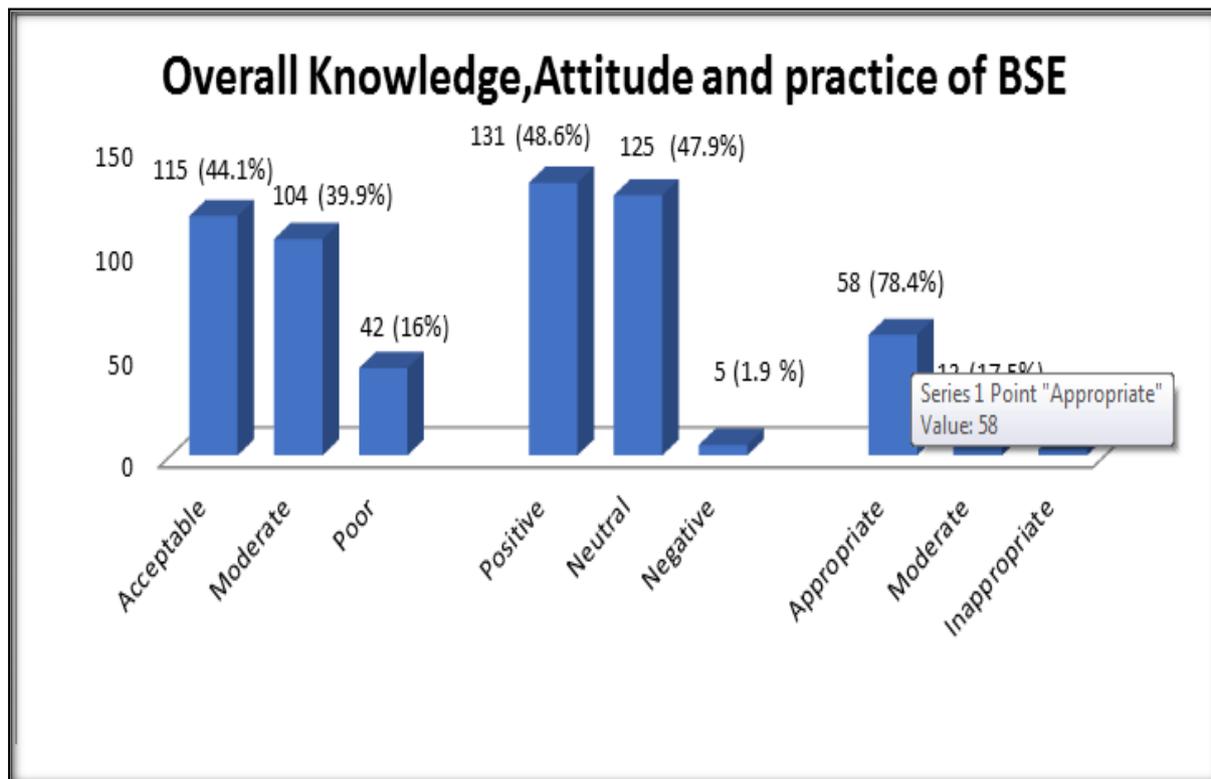
Significant difference in attitude was observed between the two groups in few aspects. Those who never performed BSE felt that it makes them feel embarrassed and unpleasant. Those who performed felt that it is important that all women should do BSE and they were interested in practice of BSE. It is obvious that those who had more negative attitude never performed BSE. But there was no significant difference in the number of participants who responded positively that they would consult a doctor upon identifying a lump on BSE. (P: 0.19; FE: 4.55). Analysis of practice aspect of data revealed that only 28.4% (74) performed BSE sometime or the other as shown in Table 3. Only 60.8% (45) of the subjects palpated axilla also during BSE. Given a choice, 76.2% (199) preferred BSE over clinical breast examination by a doctor. Upon identification of lump during BSE, 199 (76.2%) preferred to consult a doctor. 37.9% (99) students answered that they would frequently refer to internet or magazines or newspaper for information regarding BSE. Only 52.9% (138) showed interest in discussing about BSE with a friend.

**Table 3: Practice of breast self-examination (n=74)**

	<b>Practice of BSE</b>	<b>Number</b>	<b>Percentage</b>
1	I undress until waist when doing BSE (n=74)		
	Yes	59	79.7%
	No	15	20.3%
2	I do BSE while lying down (n=74)		
	Yes	25	33.8%
	No	49	66.2%
3	I use fingers to examine any lumps/thickening of the skin (n=74)		
	Yes	65	87.8%
	No	9	12.2%
4	I press on the nipple to check for any unusual discharge		
	Yes	58	78.4%
	No	16	21.6%

5	I examine axilla as well for any lump		
	Strongly Agree	45	60.8%
	Agree	13	17.6%
	Neutral	15	20.2%
	Disagree	1	1.4%
	Strongly disagree	0	

Scoring was given to assess the knowledge, attitude and practice aspects of BSE as shown in Figure 1. Mean attitude score was highest followed by practice score and knowledge score..



**Fig 1: Level of knowledge, Attitude, Self-reported preventive behavior BSE**

## DISCUSSION

There were 261 female undergraduate medical students in the age group between 17 to 24 years. Mean age of the participant's was 19.98 years  $\pm$  SD 1.446. 79.7% (208) of them had heard about BSE. Rafia et al in their study among female medical students found that 75.6% are aware of BSE.<sup>[16]</sup> A Karachi based study by Ayesha Ahmed et al observed that 74% of the students had heard of BSE.<sup>[17]</sup> Doshi et al conducted study among dental students of Hyderabad and concluded that 72% had heard of BSE.<sup>[18]</sup> This is less compared to the observation of Dalal M who conducted similar study in female medical faculty in Saudi Arabia.<sup>[19]</sup> Their study subjects were in the age group of 17-24 years with a mean age of 19.9  $\pm$  1.5 years. 89.2% of them knew monthly BSE. Sukhila B Reddy, in her study among female medical students found that 67.7% had heard of BSE which is less than our observation.<sup>[15]</sup> Kawalkar AN conducted study among female interns, postgraduate students, female faculty and nursing staff of a teaching medical college and tertiary care hospital of central India and found that 93.75% had heard of BSE.<sup>[20]</sup> In a study conducted at Puducherry, India by Sujindra et al, 89.2% of nursing students had heard of BSE.<sup>[21]</sup> On the contrary, Buea observed that only 9.6% are aware of BSE.<sup>[22]</sup> Only 55.2% (144) of our

subjects were aware of the correct age of initiation of BSE. This is more than the observation of Ayesha Ahmed (44%).<sup>[17]</sup> Only 23% (60) of our subjects were aware of correct timing of BSE as compared to the observation of Ayesha Ahmed(33.7%), Jyoti Parle(32.2%) and Dalal M (46.8%).<sup>[17,23,19]</sup> Sukhila Reddy observed that more number (50.9%) are aware of specific timing of BSE.<sup>[15]</sup> Al Junaibi et al and Habib et al reported that more number were aware of correct timing, 72.6% and 65.9% respectively.<sup>[24,25]</sup> Rosmawati et al also reported higher percentage of awareness of correct timing of BSE(95%).<sup>[26]</sup> Only 45.2% (118) of our study subjects were aware of monthly frequency of BSE which is similar to the observation of Rafia(45%).<sup>[16]</sup> This is less compared to the observation of Dalal M (89.2) and Junaibai et al (72.6%).<sup>[19,24]</sup> Upon assessment of our subjects regarding knowledge regarding posture of BSE, 57.5% (150) had full knowledge and 40.6% (106) had partial knowledge. Rafia et al reported in their study that, though 61.4% knew how to perform BSE, only 38.6% knew all positions.<sup>[16]</sup> Knowledge regarding symptoms and signs of breast cancer was assessed. 230 (88.1%) subjects were aware of all symptoms and signs of breast cancer. But only 29% of subjects in the study done by Dalal M knew inverted nipple as a warning sign.<sup>[19]</sup> More number of our subjects (93.5%) agreed that BSE helps in early detection of breast cancer, supporting the observation of Kawalkaret al, Sujindra and Agboola also observed that more number of subjects felt that it is necessary to do BSE, that is 93.3% and 91% respectively.<sup>[20,21,27]</sup> Rosmawati et al reported that 62.2% of subjects felt that all women should perform BSE as compared to 93.6% of subjects in a study done in Haramaya university.<sup>[28]</sup> Ayesha Ahmed reported that 74% of the subjects were aware of the fact that regular BSE helps in early diagnosis of BSE, which is more compared to the study conducted in Nigeria(52.3%).<sup>[29]</sup> Positive attitude score was found in 50.19% of our subjects which is less compared to the observation of Ayesha Ahmed (87.2%) and Dalal M(67%).<sup>[17,19]</sup> In a study by Rafia, 97.14% of respondents believed that BSE is important technique and they also would like to recommend others to perform BSE, which shows the very good attitude of respondents.<sup>[16]</sup> Jyothi also reported excellent attitude score in 94.2% among physiotherapy students.<sup>[23]</sup> Only 28.4% (74) of our subjects performed BSE which is similar to the observation of Kawalkaret al (24%).<sup>[20]</sup> This is very less compared to the observations of 80.2%, 87.5% and 91.4% in studies performed among nurses and female medical students.<sup>[30,21,27]</sup> Rafia reported that only 15.71% subjects performed monthly BSE on par with the results of many other studies world-wide.<sup>[16,19,31,32]</sup> This is less than that reported in different studies conducted at Delhi (49%), Nigeria (34.9%) and Ghana(64%).<sup>19,30,31</sup> Rafia.<sup>[33,34,35]</sup> Junaibi et al also observed that more number of subjects (72.6%) performed monthly BSE.<sup>[24]</sup> Though appropriate practice score was observed in 78.4% (58) of subjects who practiced BSE, acceptable knowledge score was observed in 44.06% of the total study population. Most common reason for not performing BSE was poor attitude and inadequate knowledge regarding the same among those who did not practice. The practice of BSE is low and varies in different countries. Several reasons like lack of time, lack of self-confidence in their ability to perform the technique correctly, fear of possible discovery of a lump, and embarrassment associated with manipulation of the breast have been cited as reasons for not practicing BSE.<sup>[36,37]</sup> Sujindra, Jyoti, Dalal M also reported that 63.3%, 27.6% and 20.8% of their subjects did not know the proper method of BSE.<sup>[21,23,19]</sup> Similar studies among nursing students and female medical students revealed inadequate knowledge(66% and 22.6%) as the cause for not practicing BSE.<sup>[27,30]</sup> A study done by Kawalkar et al among female interns and faculty observed that more number of subjects (86.36%) practically felt that they know how to perform BSE.<sup>[20]</sup> 4.81% (9) of our subjects who did not perform BSE reported that fear of diagnosing breast cancer as the reason. Studies conducted by Kawalkar and Ayed observed this as the reason for not performing BSE in 17.5% and 20.5% subjects respectively.<sup>[20,38]</sup> Given a choice, 76.2% of our subjects preferred BSE compared to 64.8% of subjects as

observed by Ayesha Ahmed.<sup>[17]</sup> Contrasting results were seen in a study conducted in Iran which showed that almost all of the women (96.7%) preferred to have a female doctor do their breast examination.<sup>[39]</sup>

## CONCLUSION

As breast self-examination has been identified as the only feasible and reasonable approach in early detection of breast cancer in mass level, especially in developing nations one should expect huge responsibility from health professionals to percolate knowledge, develop attitude and increase practices of BSE in general population through numerous opportunities. Current study showed lack of knowledge, attitude and practice of BSE among health professionals. It is obvious that health professionals who don't have strong attitude and habit of practicing BSE will not be serious in percolating BSE in general population. Therefore, there is strong need of intervention in health professionals in making them highly aware of BSE, to improve knowledge and making BSE a universal practice among health professionals first, so that they understand, practice and transfer the importance of practicing BSE to general population using all opportunities they get. Mass media like internet and television can be very crucial medium to reach health professionals for improving knowledge, attitude and practice of BSE in them.

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