

Title: Assessment of training needs of medical graduates in Clinical Breast Examination-
Cross-sectional study from India

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Abstract:

Introduction

The incidence of breast cancer has been growing steadily over the years in India. In order to be able to provide screening for breast cancer to women CBE needs to be explored as an option as quality mammography facilities are not available all over the country. Training needs of fresh medical graduates was assessed in CBE in order to find a way to address this issue.

Methods

This cross sectional study was conducted in the year 2014 among medical graduates in various hospitals of Delhi. Sample size of 400 was calculated and information regarding existing knowledge of CBE and training needs was assessed after collecting data by a semi-

structured questionnaire. Data was entered in Excel sheet and analysed using SPSS version 21 software package.

Results

Mean age of the participants was 23.8years. Out of a total of 410 participants 402(98%) mentioned that they knew how to perform a Clinical breast exam whereas 08(1.95%) said they did not know how to do it. Majority of 322 (80.1%) responded correctly that they would examine the lymph nodes in sitting position. Knowledge of group of lymph nodes to be examined was poor at 128(31.8%). Only 154(38.3%) knew about correct posture of doing palpation of the breasts. A low proportion, 84(20.9%) actually knew the correct perimeter of the breast. Out of 392 who stated they further wanted training main reasons cited were that as a part of general; practice this skill is required 248(61.7%),cancer is on the increase and hence one must learn CBE191(47.5%),half of the women are patients54(13.4%).301/392(74.9%) said they would like to teach the women about breast self-awareness while doing a CBE whereas 91/392(22.6%) were apprehensive that either the lady might not understand or they might not have enough time to explain the procedure to the lady who comes to them. On being enquired about how would they like to improve their CBE skill responses were by practicing on patients 214/392(54.6%), 174/392(44.4%) by practicing on models/mannequin and 98(25%) by seeing videos. There was no statistically significant difference between the knowledge of students from government college as compared to private colleges and also between females and males $p>0.05$.

Conclusion

There is a need to formulate a structured CBE training programme for medical graduates in India.

Key words

Clinical breast examination, training needs assessment, India, medical graduates

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Introduction:

It is well evident from the data available that the survival time of women with invasive breast cancer is more if the size of the breast tumour at the time of diagnosis is small. It has also been observed that there is an inverse relationship between Clinical Breast Examination (C.B.E.) and the size of tumour detected by it[1]. According to Fletcher et al, physician can detect lumps as small as 3mm by Clinical Breast Examination especially if physicians are trained on silicone breast models[2].Although variations and inconsistencies have been there in technique of CBE all over the world but if physicians are trained in a standardized technique of doing this exam patients could benefit especially in low resource countries where quality mammography services are not freely available for screening. There has been steady increase in breast cancer cases in India and the figure is likely to go up in future and also breast cancer affects the women earlier than it does women in the west so there is a need to look at a screening modality other than mammography which may not be as effective in the younger population. A simulation study of breast cancer in India estimated that the cost of one mammogram is 3.34 times higher than that of one CBE. Also Annual CBE achieves nearly same number of life-years saved as biennial mammography, at half the cost[3].There is a wide gap in demand for oncology services and supply in India. There is a shortage of specialists in the field of oncology as well as infrastructure for providing diagnosis s and treatment. In such a scenario, if all the physicians are trained in the skill of CBE, it may be used as a screening modality for the large population. A trial of CBE in Trivandrum has already shown down staging of the tumour in the group that was offered CBE[4].Also CBE presents the physician with an opportunity to make the women aware about their breasts. How well are we prepared to address this issue remains to be seen as Medical Council of India has non-specific guidelines for posting in oncology and majority of medical colleges have no mandatory oncology posting[5].Against this background, the present study was conducted to find out the training needs of the medical graduates with respect to Clinical Breast Examination.

Material and Methods: The present study was conducted in New Delhi, capital of India. Since there is paucity of literature on this topic in India the sample size was calculated with p to be 50% so as to get the maximum sample size. Allowable error was fixed at 5%.Calculated sample size was 400.Study subjects were fresh medical graduates who had completed one year of compulsory internship posting. Although Delhi has over 6 medical colleges there are large number of fresh graduates who come to Delhi every year to do junior residency in order

to widen their exposure to various fields. Data was collected from students who had reported for interviews for junior residency at various hospitals both teaching as well as non-teaching located in Delhi in the year 2014. Subjects both from within Delhi and other states were included for the purpose of this study. A self-administered questionnaire was prepared in English. Questionnaire was given to them to be filled after the interview was over as then subjects could be freely contacted. They were approached till the desired sample size was achieved. All those who had done a junior residency already for 6 months their Performance was not included in the data analysis in order to have a comparable baseline. Data was entered in Excel sheet. Analysis was done using SPSS licensed version 21.0. Simple and cross tables were made. Also appropriate tests of significance were applied. p value of <0.05 was taken to be significant.

Results: Out of a total of 410 participants 402(98%) mentioned that they knew how to perform a Clinical breast exam whereas 08(1.95%) said they did not know how to do it. Mean age of the participants was 23.8years. 278(67.8%) of the participants were females and 132(32.2%) were males. 147(35.8%) of them had graduated from Delhi and rest from other parts of the country. 271(66.1%) of the participants were from a government medical college and 129(31.5%) from private medical college. Most of the participants (389, 96.8%) were aware that a detailed history of existing breast problem should be taken before doing a clinical breast examination followed by 236(58.7%) who mentioned that history of breast cancer should be enquired. Least number of 7(1.7%) participants stated that history of mammography, ultrasound and FNAC should be asked(Table1).322(80.1%) correctly knew that lump nodes should be examined in sitting position.128(31.8%)correctly responded that axillary, supraclavicular as well as infraclavicular lymph nodes should be examined. Only 28(7%) of the participants correctly knew that the best posture for visual inspection of breasts would 'standing'. Only 165(45%) correctly responded to the question regarding posture of the patient while doing a visual inspection.154(38.3%) knew correct posture for doing palpation of the breast. Only 84(20.9%) knew the correct perimeter of breast for the purpose of examination.116(28.25%) of the participants correctly responded that pads of the middle three fingers should be used for a good CBE. Types of pressure to be applied to breast during a CBE was known to a dismal figure of 07(1.7%).Vertical pattern of palpation of the breast which covers the whole breast effectively was again know to very few participants(18,4.5%).Whether nipple should be examined while doing a CBE was correctly responded to by almost all 400(99.5%)Table2.Almost half(198,49.5%) of the participants correctly knew that CBE should be performed on a lady once a year after 40 years of age(Table 3). 87(21.6%) even stated that they had never done a clinical breast exam. Only 2(0.50%) had done more than 5 breast exams during graduation. 304(75.6%) did not know the amount of time required to be spent for CBE of an average breast.71 (17.7%) answered that 2 minutes were required to examine a breast whereas 27(6.7%) stated it to be 5 minutes. A large number of 390(97.0%) stated that they were not confident of doing a CBE and the main reason cited for that was not enough clinical exposure and practice. They have also expressed high level desire to get training in order to improve their CBE skill. Out of 392

who stated they further wanted training main reasons cited were that as a part of general; practice this skill is required 248(61.7%), cancer is on the increase and hence one must learn CBE 191(47.5%), half of the women are patients 54(13.4%) Figure 1.301/392(74.9%) said they would like to teach the women about breast self-awareness while doing a CBE whereas 91/392(22.6%) were apprehensive that either the lady might not understand or they might not have enough time to explain the procedure to the lady who comes to them. On being enquired about how would they like to improve their CBE skill responses were by practicing on patients 214/392(54.6%) 174/392(44.4%) , by practicing on models/mannequin and 98(25%) by seeing videos. There was no statistically significant difference between the knowledge of students from government college as compared to private colleges and also between females and males $p > 0.05$.

Discussion: In the present study, at the outset, 98% stated they knew how to perform a Clinical breast exam. **In another study done among interns in Ireland 61% said they had either observed or had theoretical knowledge about breast exam and only 39% had performed it. [6]**

In the present study only 12(3%) participants stated that CBE was required to be done for all women more than 40 years of age as a screening method. This shows that the participants are not yet sensitized enough towards the screening needs of women. Majority of 322 (80.1%) responded correctly that they would examine the lymph nodes in sitting position. Knowledge of group of lymph nodes to be examined was poor at 128(31.8%). 300(74.6%) correctly responded that the correct position to examine lymph nodes would be in sitting position. In a study by 27% of the first and second year postgraduates year students in surgery failed to perform axillary examination, 46% failed to perform supraclavicular region, and 36% failed to perform a visual inspection [7]. 41 (16.5%) knew of all the four positions of visual inspection of the breast. 148(36.8%) thought only inspection from front and sides was required. Only 154(38.3%) knew about correct posture of doing palpation of the breasts. A low proportion, 84(20.9%) actually knew the correct perimeter of the breast. Participants also did not have adequate knowledge about the part of the hand to be used for palpation as only 116(28.85%) responded that pads of middle three fingers should be used. Several articles either advise using flat of the fingers for palpation or do not indicate what part of the finger to use [8,9,10]. This may also be the contributing factors towards non standardization of CBE. 07(1.7%) correctly knew that three types of pressures should be applied at a spot to properly examine the breast. Circular pattern of examination of breast was mentioned by most

246(61.2%). According to Centre for Disease Control and the American Cancer Society best method of performing CBE is the vertical strip, three pressure method [11,12]. Vertical strip pattern which is said to cover maximum breast area was stated by only 18(4.5%).400(99.5%) knew that nipples were to be examined as a part of CBE but did not know that spontaneous discharge from breast is an important sign of breast cancer.87(21.6%) even stated that they had never done a clinical breast exam. Only 2(0.50%) had done more than 5 breast exams during graduation. According to study done in Kolkota53% of the respondents had seen less than 5 patients during their undergraduate days of cancer and about three quarter less than ten patients [13]. 304(75.6%) did not know the amount of time required to be spent for CBE of an average breast.71 (17.7%) answered that 2 minutes were required to examine a breast whereas 27(6.7%) stated it to be 5 minutes. According to largest increase in proportion of residents finding the breast masses occurred among those who took more than 150 seconds in which 90% of the residents found the mass[14].Calculation of time to be taken for CBE by vertical strip pattern time required to examine both the breasts of an average patient would range from 6 to 8 minutes [15].A large number of 390(97.0%) stated that they were not confident of doing a CBE and the main reason cited for that was not enough clinical exposure and practice. Same, lack of exposure during the undergraduate medical education has also been cited as the main reason for lack of knowledge about cancers but others also[5,16].Medical students perceptions of their own need for additional training and the small number of CBEs they have performed has also been studied by others[12,17,18]. Similarly physicians have also reported lack of confidence in their CBE skills ,392(97.5%) expressed the desire to get training in CBE whereas 10(2.5%) mentioned they did not require further training as they were likely to take up certain other speciality in future where this would not be required [19]. They have also expressed high level desire to get training in order to improve their CBE skill. Out of 392 who stated they further wanted training main reasons cited were that as a part of general; practice this skill is required 248(61.7%),cancer is on the increase and hence one must learn CBE191(47.5%),half of the women are patients54(13.4%).301/392(74.9%) said they would like to teach the women about breast self-awareness while doing a CBE whereas 91/392(22.6%) were apprehensive that either the lady might not understand or they might not have enough time to explain the procedure to the lady who comes to them. On being enquired about how would they like to improve their CBE skill responses were by practicing on patients 214/392(54.6%)174/392(44.4%) , by practicing on models/mannequin and 98(25%) by seeing videos. As per Gaffan's recent review of undergraduate medical education several methods are shown to be effective in teaching breast exam. These include silicone models for breast examination which increases the examiners sensitivity to the lumps, shadowing of a cancer patient by a medical student for a period of months, role pals where students deal with standardized patients. These responses were not mutually exclusive [20]. **In another study by Barret et al among third-year medical students (47 men and 49 women) at the University of Massachusetts Medical School the students with one extra training session with a standardized patient performed significantly better on the CBE[21]. Practice with immediate feedback is found to be more effective than lecture alone in teaching clinical breast examination by Pilgrim [22]. In another study conducted among students of medical college of Wisconsin although the students performed significantly better on the knowledge-based questions in their fourth year**

than they did in their first year, considerable room for improvement remained. The students reported learning the most from surgery rotations and more from standardized patients than from faculty. Also in their study women medical students performed significantly more clinical breast examinations than did men students. Most of the medical students reported needing additional training in clinical breast examination [23].

Conclusion: A structured training programme for imparting skill of CBE should be formulated for the medical graduates so that they can contribute towards breast cancer screening of the large number of needy women. Also it is important to directly measure their examination skills as perception of a student's regarding their skill may not actually correspond with the required level of performance.

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Figures

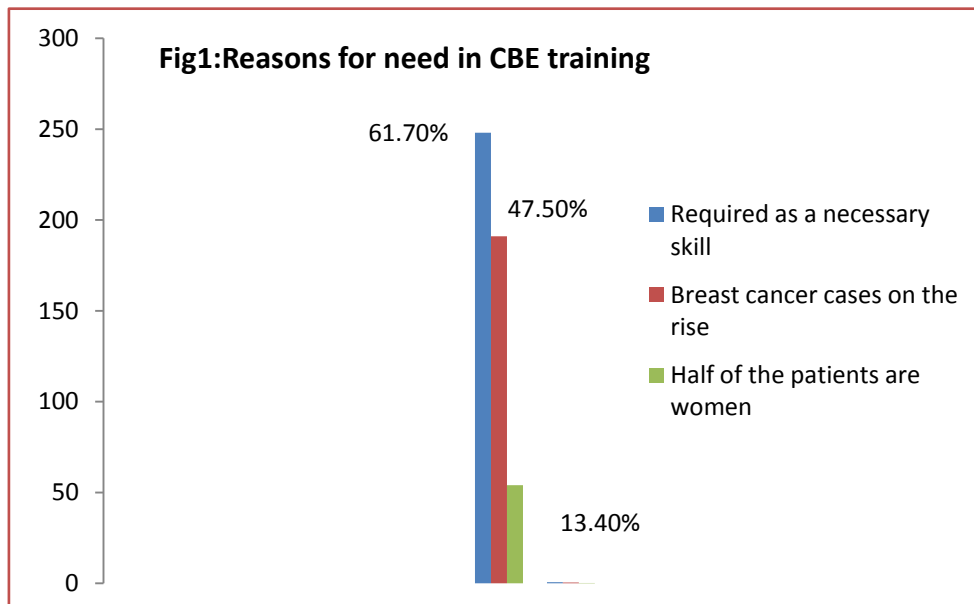


Table1: Distribution of the study participants according to relevant history to be taken by them before a Clinical Breast Exam* (N=402)	n	percentage
Breast problem in detail	389	96.8
Family history of breast cancer	236	58.7
Hormone replacement therapy	112	27.9
Any breast change noticed in the past	84	20.9
History of breast feeding	69	17.2
History of alcohol, smoking, exercise	24	06
History of breast surgery	12	03
Mammography/Ultrasound/FNAC	07	1.7

*Multiple responses

Table2:Distribution of study participants according to knowledge about Clinical Breast Exam(N=402)	number	percentage
Position in which lymph node should be examined		
Sitting	322	80.1
Lying down	03	0.7
Not sure	18	2.5
Group of lymph nodes to be examined		
Axillary	254	63.2
Supraclavicular	06	1.5
Infra clavicular	00	00
All of the above	128	31.8
Not sure	14	3.5
Posture of the patient for visual Inspection		
Sitting	300	74.6
Standing	28	07

Lying down	04	01
All of the above	54	13.4
Not sure	16	04
Position of the patient for visual inspection		
Front and side of both the breasts	148	36.8
Arms overhead	0	0
Arms on the waist applying pressure	68	16.9
Leaning forwards bending at the waist	0	0
All of the above	165	41
Not sure	21	5.2
Posture of the patient for doing palpation		
Lying down straight	178	44.3
Lying down with pillow under shoulder and arm extended at right angle	154	38.3
Sitting	70	17.4
Knowledge about breast perimeter to be examined		
Correct	84	20.9
Incorrect	146	36.3
Partly correct	154	38.3
Don't know	18	4.5
Knowledge about the part of the hand with which CBE should be done		
Flat portion of palm	118	29.35
Pads of middle three fingers	116	28.85
All fingers	43	10.7
Not sure	36	8.95
Types of pressures to be applied while doing palpation		
One	295	73.4
Two	53	13.2
Three	07	1.7
Not sure	47	11.7
Pattern of examination of breast		
Circular	246	61.2
Spoke	24	6
Vertical strip	18	4.5
Not sure	114	28.35
Nipple examination		
Yes	400	99.5
No	02	0.5

Table3:Distribution of study participants according to knowledge of frequency of screening by Clinical Breast Exam N=402	n	percentage
Once in a year after 40 years of age	198	49.25
Once in six months	107	26.6
Whenever a lady comes with breast problem	67	16.7
Did not know	30	7.46

