



Original Article

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Cross-Sectional study on knowledge about breast cancer and breast self examination among female undergraduate students in Telangana, India

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Abstract

Background: Breast Cancers are second most common cancers today. Regular breast self examination ¹ (BSE), clinical examination and mammography are the three most recommended screening tests. Unlike clinical examination which requires hospital visit and mammography which is reliant on technology and expensive; BSE is an easy, quick, no-cost, non-invasive, self carried-out procedure. **Aims & Objectives:** Study was done to determine the awareness levels about BSE and breast cancers among female students, and empowering them with correct knowledge about the same. **Study Design:** Questionnaire based, cross-sectional descriptive study. **Setting:** Bhaskar Medical College and General Hospital, Hyderabad, Telangana, India. **Materials & Methods:** A cross-sectional descriptive study, using a pre-tested and semi structured questionnaire was carried out over the period of 2 months. Study population comprised of 381 female students in the age group of 18-24 years. Data was analyzed using IBM SPSS statistics 2015. **Results:** The first sign of breast cancer being a lump or mass (86.9%), inheritance of abnormal genes (74.8%), rising age (73.5%), exposure to radiations/certain hormones (89.0%), late pregnancies (74.5%) as risk factors was found to be known to most. Only 50.9% recognized that BSE should be done at least once a month on a specific date and time. Around 44%, 36% and 56% didn't know that that BSE should be performed while standing, lying down and during baths. **Conclusions:** It was found that majority had adequate knowledge about various aspects of breast cancer. When it came to awareness about BSE, the knowledge about right technique, position and time were found to be scarce. Practice of BSE could be improved by properly educating young women and spreading awareness about its benefits.

Keywords: Breast cancers, Breast self-examination, Health Behavior, Self-Examination, Health Knowledge, Attitudes, Practice.

INTRODUCTION

Breast Cancers are the second most common cancers today. One of the main causes of mortality and morbidity among women ^[1], this is a public health problem in both developing and developed nations. It has been reported that 5-year survival rate of women with breast cancer was 56% for late detection but 85% for early detection ^[2].

Needless to say, early detection and timely interventions increase the survival rates of breast cancers. Regular breast self examination (BSE), clinical examination and mammography are the three most recommended screening tests ^[3]. Unlike clinical examination which requires the services of a specialist doctor and hospital visits, and mammography and scans which are reliant on technology and expensive; BSE is an easy, straightforward, trouble-free, non-invasive, non-hazardous, and self monitoring procedure which women can perform on themselves in utmost privacy.

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.

Hence, this study was planned to

i) find out knowledge of Breast cancers,

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¹ BSE = Breast Self Examination

- ii) assess the understanding of BSE,
- iii) create alertness about Breast cancers – risk factors, causes, signs & symptoms and preventive and control methods.
- iv) educate about proper technique of performing BSE

MATERIAL AND METHODS

Type of Study: Questionnaire based, observational, cross-sectional descriptive study. The questions have been based on ‘focused discussions’ with a group of undergraduate medical and non-medical students, few medical Interns, and some medical college faculty and hospital administrators. A written consent was obtained from each one of the respondents, assuring them of complete confidentiality and anonymity as regards the data provided by them.

Duration of Study: The study was conducted over a period of 2 months.

Study Population: It is comprised of female undergraduate students in the age group of 18-24 years, from various professional colleges in Telangana.

Sample Size And Inclusion / Exclusion Criteria: Four hundred and seven female undergraduate students volunteered to take part in the study. Only female students were included. Rest any female faculty, staff, employees and others were not included in the study. Out of 407, twenty six respondents were excluded finally as their questionnaires were either incomplete or not filled properly. Thus, the effective sample size was 381.

Ethical Approval and Consent: The study protocol and questionnaire were presented to the Institutional Ethics Committee (IEC) first and prior approval was obtained before embarking on the study. Consent forms were used to obtain written concurrence from those students volunteering to take part in the survey. That the individual particulars if any would be kept totally confidential was explained to the students beforehand. A formal permission was also sought from the higher authorities of various colleges wherever the study was conducted.

Data Collection and Analysis: Data was collected using a pre-tested, semi structured questionnaire; over a period of 2 months. After collecting the filled questionnaires, groups of female students were quickly counseled on the important facts about Breast cancers and the need for them to be aware about the same from a young age. They were informed on the correct procedure and encouraged to practice BSE. They were also motivated to spread awareness among women in their homes, neighborhood and acquaintances. The collected data was compiled, formatted, and analyzed using requisite statistical tests/software like Microsoft Excel and IBM SPSS statistics 2015.

RESULTS

Knowledge About Breast Cancer

The understanding regarding most of the important aspects like, the first sign of breast cancer being a lump or mass (86.9%); that cancerous lumps were painless and hard with uneven edges (78.0%); inheritance of abnormal genes (74.8%), rising age (73.5%), exposure to chemicals/radiations/X rays/certain hormones (89.0%), late pregnancies (74.5%) and drinking alcohol and smoking (71.9%) as risk factors was found to be very satisfactory. Awareness about Mammography, Ultrasound, CT² & MRI³ scans (84.3%) as screening and diagnostic methods for Breast cancers was also found to be quite high.

Again, most of the respondents in the study knew that skin irritation and dimpling were signs (59.1%), and that Indian women were at slightly lesser risk than their western counterparts (52.8%).

More than half of the students chose the right answer for all the questions except Question 17, the one on relationship of such cancers with age at menarche and menopause. That early menstruation and/or late menopause were risk factors was known to 47.0% of the sample. Table 1 represents this data.

Table 1: Knowledge about Breast cancer among participants in the study

Questions	Yes (%)	No (%)
1 Is the first sign of Breast cancer, a new lump or mass?	86.9	13.1
2 Can cancerous lumps be painless, hard with uneven edges?	78.0	22.0
3 Can cancerous lumps be painful, soft with smooth edges?	52.0	48.0
4 Can skin irritation & dimpling be a sign of Breast cancer?	59.1	40.9
5 Can nipple pain or inversion be a sign of Breast cancer?	69.0	31.0
6 Is a lump in the underarm areas, be a possibility of cancer?	63.3	36.7
7 Do such cancers have a link with inheritance of abnormal genes?	74.8	25.2
8 Do women with close relatives with Breast cancer have a higher risk?	65.4	34.6
9 Can Breast cancers happen without family history of such cancers?	67.5	32.5
10 Are Indian women at more risk than Western women?	47.2	52.8
11 Does the risk go up as one gets older?	73.5	26.5
12 If one has Breast cancer in one breast, can she have cancer in another part of the same breast or in the other breast?	59.3	40.7
13 Are exposures to chemicals /radiations/X ray/hormones (HRT), a risk for such cancers?	89.0	11.0
14 Does being overweight/obese increase your risk of Breast cancers?	58.5	41.5
15 Is late pregnancy (>30 years age) a higher risk?	74.5	25.5
16 Can Breastfeeding increase the risk of Breast cancers?	22.6	77.4
17 Is early menstruation and/or late menopause, a greater risk of having Breast cancers?	47.0	53.0
18 Do you think drinking alcohol & smoking increases the woman's risk?	71.9	28.1
19 Do you believe that exercising regularly increases the risk ?	13.9	86.1
20 Are you aware that Mammography, Ultrasound, CT & MRI scans can be used to screen and diagnose Breast cancers?	84.3	15.7
21 Do you know that BSE is also a method to diagnose breast cancer in very early stages?	67.7	32.3

On the whole, it can be concluded that knowledge levels about breast cancer was found to be above average for majority of the respondents included in the present research.

KNOWLEDGE ABOUT BSE

It was encouraging to find that maximum (87.9%) knew that BSE was a must for all women and that any breast lump detected by BSE should be brought to a doctor's attention. Majority (86.9%) felt, earlier the diagnosis of breast cancer by BSE, the more successful the treatment.

On the other hand, it was slightly disappointing to observe that only half of the 381 respondents (50.9%) –all doing higher education - recognized that BSE should be done at least once a month on a specific date and time. It was also found that only three-fifths of them (59.1%) thought that BSE should be performed by looking at breasts in front of the mirror, and the rest thought otherwise. Quite a few, didn't know that that BSE should be performed while standing (44.1%), lying down (36.2%) and during baths (56.7%). Table 2 summarizes this data.

² CT = Computerized Tomography

³ MRI = Magnetic Resonance Imaging

Table 2: Knowledge about BSE among the subjects

Questions	Yes (%)	No (%)
1 Is BSE recommended for all women including you?	87.9	12.1
2 Is BSE done at least once a month on a specific date and time?	50.9	49.1
3 Is BSE done by looking at your breasts, in front of the mirror to start w/o any garments on?	59.1	40.9
4 Do you have to keep your shoulders straight and hands on your hips?	60.6	39.4
5 Do you have to inspect breasts by raising your arms also, later?	70.3	29.7
6 Do you also have to feel your breasts lying down?	63.8	36.2
7 Is the right hand used to feel left breast & vice versa?	72.2	27.8
8 Should this be done in a circular motion, covering the whole breast?	73.2	26.8
9 Do you also have to feel the underarm areas?	67.5	32.5
10 Should it be done using only light pressure on the breasts?	69.6	30.4
11 Can the breasts be felt using firm and deep pressure too?	54.6	45.4
12 After lying position, are the breasts supposed to be felt in sitting/standing position again?	55.9	44.1
13 Does one have to look for changes in size and shape of the breasts?	84.0	16.0
14 Does one look for dimpling, puckering, bulging of the skin?	80.3	19.7
15 Does one have to be aware of any redness, soreness, rash, or unusual swelling of the breasts?	84.0	16.0
16 Does one have to look for change in position /inversion of nipple(s)?	77.2	22.8
17 Does one have to carefully note any abnormal discharge coming out of the nipple(s)? (watery, milky, or yellow fluid or blood)	78.5	21.5
18 Does one have to look for enlarged lymph nodes during BSE?	70.3	29.7
19 Does a slippery and wet skin during a bath, facilitate BSE?	43.3	56.7
20 If BSE detects a lump etc., should it be brought to a doctor's attention w/o any further delay?	87.9	12.1
21 Do you think that earlier the diagnosis of Breast cancers by BSE, the more successfully can they be treated?	86.9	13.1

Overall, it can be inferred that knowledge level about BSE was found to be lacking in few important aspects among many of the respondents. Knowledge about the right technique, position and time was observed to be low.

DISCUSSION

Knowledge About Breast Cancer

In this study, it was found that more than 85% believed that a new lump was the first sign of breast cancer. Maximum also felt that the lump could be painless and hard with uneven edges, and painful and soft with smooth edges. Skin irritation and dimpling were mentioned too as signs by most. Similarly, in a study by N Baridalye *et al*, breast lump, painless lump, pain in the breast, skin changes etc were mention as signs and symptoms [4].

It was also found that 74.8% and 65.4% of the respondents supported the fact that such cancers had a link with inheritance of abnormal gene and that women with close relatives with Breast cancer had a higher risk. Many thought that an increasing age (approx. 74%), exposures to chemicals /radiations/X rays/hormones (HRT)⁴ (89.0%), late pregnancy (74.5%) and not breastfeeding (77.4%) were risk factors for breast cancer. Other risk factors know were - being overweight (58.5%), not

exercising regularly (86.1%), drinking alcohol & smoking (71.9%) etc. Similar findings were found in a research paper by Kalandar Ameeret *et al* – a family history (96.8%), advance age (86.5%), radiation/hazardous chemical exposure (95.2%), HRT (83.3%), pregnancy after 30 years (82.5%), never Breastfeeding (80.9%), Sedentary lifestyle (55.5%), alcohol (67.4%), smoking (85.9%) etc - were the risk factors observed [5].

Early menstruation and/or late menopause were considered risk factors by almost half of the respondents in this study. Contrastingly, in a study done by Oluwatosin *et al* on rural women, only 39.0% considered these as risk factors [6]. It is considered a risk factor as the breast is exposed to hormonal changes for more number of cycles [7].

Again, maximum i.e. 84.3% were aware that mammography, ultrasound, and various scans can be used to screen and diagnose breast cancers, although in a study done by Alwan *et al*, only 46.3% of students were aware [8]. BSE as a method of early diagnosis of breast cancer was known to about 68% of respondents in this study, which is quite a low percentage when compared to a study conducted among female medical students in Haramaya University, where 93.6 % were aware [5].

The overall knowledge about breast cancer and various risk factors was found to be adequate in this study. Even in another study on medical students, the overall perception regarding various risk factors of breast cancer was found to be good [5]. Contrastingly in a study in Iran, the knowledge about breast cancer was found to be poor in majority of the subjects [8].

Knowledge About BSE

Around 9 out of 10 respondents recommended BSE for all women including themselves. In this study majority considered - doing BSE at least once a month on a specific date and time (approx. 51%), looking at breasts in front of the mirror (59.1%), inspecting breasts by raising arms (70.3%), feeling breast in lying position (63.8%), doing examination in circular motion covering the whole breast (73.2%), feeling the underarm area (67.5%) etc as various steps in the technique. Looking for changes in size and shape of the breasts (84.0%), looking for dimpling, puckering, bulging of the skin (80.3%), seeking any change in position /inversion of nipple (77.2%), looking for abnormal discharge from the nipple (78.5%) etc were the other steps known to the respondents. In a similar study done by Rosmawati *et al*, 69.2% felt that all women should do BSE, 95% believed that it should be done between days 7 until day 10 after menses. Various steps like performing in front of a mirror (47.5%), with hands raised up alternatively (80%), in supine position (44%), using vertical strips and circular technique (51.5%), by examining the armpit area for any lumps (74%) were identified as steps. Observing unusual changes in shape and size of breast (68.5%), looking for thickening of the skin (64%), observing for retraction of nipple (43.5%), pressing on the nipple to check for any unusual discharges (55%) etc were the other steps recognized [9].

Majority (87%) in the present assessment, rightly felt that earlier the diagnosis of breast cancer by BSE, the more successfully it could be treated. Whereas in a research done on female patients attending a rural health centre in Kanchipuram district, 65.2% felt that early detection increased the chance of survival [10].

Inferior knowledge levels were made out in the study done by Rosmawati *et al* as compared to the present study [9]. Knowledge about BSE was found to be low even in the study by AS Nithya *et al* [10]. Shalini *et al* found that, 72.5% of the respondents had average knowledge on BSE in pre test which improved to 85% post test [11]. Roy RilleraMarzo *et al*, studied the teachers' knowledge on BSE - all the respondents knowledge on BSE was found to be satisfactory except for the timing of exam in relation to menstruation and positions to perform BSE [12].

⁴ HRT = Hormone Replacement Therapy

LIMITATIONS

The study was done only over a period of 2 months and only among female undergraduate students in professional courses. Moreover, the age group was restricted to 18-24 years. It was heavily skewed towards those belonging to urban, educated and more or less well to do backgrounds. It was cross sectional one time survey with no means and time for follow up.

Hence, a certain amount of "recall or memory bias" as well as "selection bias" were there in the study.

Empowering the female college goers was done in a quick fashion using didactic methods like short lecture-demonstrations and use of power point slides in some colleges, and group discussions in small batches of 6-12 in others.

IMPLICATIONS

It was expected that this study would improve the knowledge and attitude towards BSE and in turn help improve the practice of the same. Being aware and empowered with knowledge, these students could assist in educating other women around them, thus helping those unaware. An overall increase in the knowledge, attitude and practice of BSE in the society, would eventually facilitate early detection of breast lumps/cancers and increase survival rates of those afflicted.

This study could act as a reference for relevant departments/authorities in planning some of the future awareness programs and seminars. It could prompt others to carry out more studies on the subject matter and other related areas.

CONCLUSION

To conclude, it was found in the current study that though majority of the respondents had adequate knowledge about various aspects of breast cancer, knowledge about important risk factors was low. When it came to awareness about BSE, the knowledge about right technique, position and time were found to be scarce.

Practice of BSE could be improved by properly educating young college students about the right technique, date and time of performing BSE. Spreading awareness about the benefits and misconceptions about BSE, would certainly aid more and more students to perform BSE regularly, thus helping largely in early diagnosis of Breast cancer. Lecture-demos, group discussions, panel discussions, seminars and small workshops could be organized on a regular basis, to facilitate the same. These young educated women empowered with the correct information can in turn go out into the society and spread further awareness about BSE and early Breast cancer detection

Further research regarding Breast cancer and BSE, its practice among women with family history of Breast cancer, its practice among breast cancer survivors, etc can be taken up in future.

Conflicts of Interest

Authors report no conflicts of interest.

Authors' Contribution

Conceptualization, Data Curation, Formal Analysis, Investigation, Methodology, Project Administration, Resources, Visualization, Writing – Original Draft Preparation: SBR. Supervision: JPA. Writing – Review & Editing: SBR & JPA.

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