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Assessment of knowledge, attitude and practices towards preventive aspects of breast cancer in females in Kanpur

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Abstract
Objective: The aim of this study was to assess knowledge regarding risk factors, signs, symptoms of breast cancer and awareness and practices towards screening of breast cancer such as Self Breast Examination, Clinical Breast Examination and mammography.
Methods: A prospective study was carried out through preformed questionnaire circulated among females at Kanpur. The questionnaire was formed in simple English language with options like yes or no or multiple choices were given to assess their knowledge, attitude and practice towards breast cancer. A total of 741 subjects participated and answered the questions through google form.
Results: Out of 741 subjects majority i,e 496 (66.9%) had moderate knowledge.20.6% had poor knowledge while only 12.4% participants had good knowledge. There was significant relationship between respondents knowledge and educational status (p value <0.001). There was significant difference between residential area and knowledge of subjects those belonging to urban area had good and moderate knowledge as compared to those belonging to rural area (p value <0.01). There was significant difference (p value <0.001) between practice done by professionals and housewife. Majority (39.3%) of the patients who practice good were professionals. (p value <0.001)
Conclusion: Although educated people had an acceptable level of knowledge of breast cancer, the screening rates for Self Breast Examination, Mammography were low. These findings suggest that there is a need to provide extra awareness programs for all women to improve screening of breast cancer.

Keywords: Breast cancer awareness, self-breast examination, preventive aspects

Introduction
Breast cancer is the most common malignancy among females with an estimated 2.3 million new cases, representing 11.7% of all cancer cases worldwide [1]. Various Epidemiological studies have shown that the global burden of breast cancer is expected to surpass almost 2 million by the year 2030 [1]. As per the Globocan data 2020, in India, incidence of breast cancer is 13.5% (178361) of all cancer cases representing 10.6% (90408) of all cancer related deaths [1]. The objective of the WHO Global Breast Cancer Initiative (GBCI) [2] is to reduce worldwide breast cancer mortality by 2.5% per year, thereby reducing 2.5 million breast cancer deaths between 2020 and 2040 [2]. This target could only be achieved by promotion of breast cancer awareness for its signs and symptoms, risk factors various screening modalities (Self Breast Examinatiom, Clinical Breast Examination, mammography) and highlighting the importance of early and adequate treatment which would result in almost complete cure.
It has been seen that survival from disease is poor in Indian subcontinent mainly due to delay in seeking treatment as the patients are unaware of signs and symptoms of early breast cancer therefore it is of utmost importance that beside increasing the awareness, centralized services for screening and early diagnosis should be established in a cancer facility hospital.

Material and Methods
A prospective study was carried out through preformed questionnaire which was circulated in mixed population among females at Kanpur over a duration of 3 months.

The questionnaire included the socio demographic characteristics of the participants along with the questions pertaining to knowledge, attitude, and practices, regarding the risk factors associated with breast cancer and various screening modalities. The questions were formatted in simple English language with options like yes or no or multiple choices to assess their knowledge, attitude towards breast cancer and practice in screening. A total of 741 subjects participated who answered the questions through google form

The collected data were transformed into variables, coded and entered in Microsoft Excel. Data were analyzed and statistically evaluated using SPSS-PC-25 version. Normal distribution of different parameters were tested by the Shapiro-Wilk normality test. Quantitative data were expressed in mean ± standard deviation or median with interquartile range while Qualitative data were expressed in frequency and percentage and statistical differences between the proportions were tested by chi square test or Fisher's exact test. P value less than 0.05 was considered statistically significant

Results
In our study, total 741 respondents filled our questionnaire through google form and mainly comprised of age group 18-25 (39.9%) years and the other group age (>25 years) comprised of 53.7% participants. 51.7% participants were single and majority were Hindus (90.6%) and had higher degree of qualification (82.3%). Only 6.6% respondents were housewives while the remaining were employed or were students.

Knowledge of study subjects * (Table 1, 2)
Out of 741 respondents, 91.1% had heard of breast cancer mostly through the newspaper and the magazines followed by social media. Only 10.7% of the respondents had history of breast cancer in the family.

76% respondents knew about Self Breast Examination and main source of information were medical related journals and magazines (35.9%) since majority of respondents were professionals and graduates.82.5% respondents knew that Self Breast examination was a useful tool for early detection of breast cancer.59.2% study subjects were taught about Self Breast Examination through various camps, and videos. Majority (27.4%) of them were taught Self Breast Examination by doctors followed by nursing teachers (25.3%)

Majority (60.5%) of them knew that it was not done by inspection alone and 89.1% knew that it includes palpation of breast only and 65.3% respondents knew that palpation also included armpit. 27.1% had no idea when to start and 24.2% responded incorrectly that it had to be started from puberty, and only 25.6% answered correctly.

Majority (43.6%) have responded correctly that Self Breast Examination has to be performed monthly however (39.3%) of study subjects have no idea at what time of menstrual cycle breast examination has to performed, only 28.1% knew that it has to be started a week after periods are over.

Respondents' knowledge about risk factors and symptoms is shown in (Table 3,4). More than 50% respondents answered correctly that early menarche (50.6%), late menopause (56.5%) and bearing first child at the age of more than 30 years (57.2%) increase the risk of breast cancer. Majority of respondents (>70%) also knew about the fact that smoking

could be linked to development of breast cancer. Knowledge with respect to signs and symptoms was generally good (>70.0%), including painless breast lump and any discharge from the nipple. More than 50% respondents answered it correctly that swelling and redness of breast (65.3%) and pain that persists and not related to menstrual cycle (56.1%) are warning signs of breast cancer.

Practices among the respondents *(Table 3)
65.5% study subjects practiced Self Breast Examination and 27.9% perform it monthly and only 3.9% study subjects perform it rarely. The main reason for not performing Self Breast Examination was it leads to anxiety as answered by 18.1% subject sand in 3% of them it was religiously and cultural forbidden. According to 7.6% subjects, it leads to unnecessary lab tests and scan thus was not performed by individuals. 88.4% of study subjects thought it to be a good practice however, 61.7% respondents have recommended Self Breast Examination to others. Of those who were performing Self Breast Examination 43.6% knew that palpation has to be done with palm and 41% performed it in front of mirror. Only 17.1% of study subjects got their mammography done.

Awareness regarding screening modalities among respondents* (Table 4)
73.1% of respondents were aware of mammography, out of which 19.8% considered mammography to be the only source of screening and 57.8% were aware of breast cancer screening practices.15.8% considered Self Breast Examination to be the only source of screening for Carcinoma Breast. 15.4% responded Clinical Breast Examination as a screening procedure for carcinoma breast detection, however only 0.8% considered all of these to be the screening modalities.

Respondents were assessed on knowledge of breast cancer regarding risk factors, screening modalities and symptoms and signs. By computing different variables to determine score, series of questions were provided through google form with different choices and number of correct answers or scores provided by subjects showed their knowledge. Those who answered less than 50% questions correctly were said to have poor knowledge. Those who answered between 51%-75% correctly had moderate knowledge while who answered >76% correct had good knowledge. Out of 741 subjects majority i,e 496 (66.9%) had moderate knowledge. 20.6% had poor knowledge while only 12.4% participants had good knowledge.

Association of sociodemographic factors with knowledge in study subjects *(Table 5)
Age, religion, educational status, area of residence, occupation were cross tabulated against knowledge to determine their statistical significance Majority (16.2%) of the subjects who had good knowledge belong to age group 35-45 years. Majority (30.5%) of the respondents who had. poor knowledge had studied upto12th standard while majority of the respondents who had good knowledge were professional. There was significant relationship between respondents" knowledge and educational status (p value<0.001.) There was significant difference between residential area and knowledge of subjects, those belonging to urban areas had good and moderate knowledge as compared to those belonging to rural areas (p value <0.01)

Majority (32.7%) of patients who had poor knowledge were housewives, there was no significant difference in knowledge of working females as compared to housewives. (p value 0.06.)

Association of sociodemographic profile with practice in study subjects. *(Table 6)
There was significant difference (p value 0.03) (<0.05) between good practice for Self Breast Examination and age group of individuals. Majority (35.5%) of the patients who had good practice, belonged to age group 18-25 years of age. There was no significant difference between good practice and religion of participants. Majority of patients who had good practice were Hindus (33.7%), (p value 0.08.) Majority (39.3%) of the patients who had good practice were professionals as compared to students which was statistically significant difference (p value <0.001). There was no significant difference between practice done by those belonging to rural or urban areas (p value 0.11). Significant difference was observed between practice conducted by housewives and working women, good practice was done by mainly working women or students which was statistically significant (p value 0.001.)

Discussion
The present study was conducted in mixed population in Kanpur and adjacent areas to assess their knowledge regarding signs, symptoms and risk factors of breast cancer and their awareness for various screening modalities existing for breast cancer. In our study, the majority of respondents (>50%) had answered correctly about risk factors of breast cancer as well as signs and symptoms, however only 30.1% respondents knew that ulceration could be a sign of breast cancer. Our results were consistent with the study conducted among nursing students in Palestine [3].
Out of 741 subjects majority i,e 496 (66.9%) had moderate knowledge. 20.6% had poor knowledge while only 12.4% participants had good knowledge for risk factors, signs, symptoms of breast cancer. These results were consistent with study conducted in Jordan [4] however other studies conducted in India found knowledge to be very low [5-7]. This might be attributable to low literacy level in suburban areas and less awareness of breast cancer, as majority of Indian studies were conducted at community level. However, in our majority of population was graduates and professionals. In another study conducted in the United States-Mexico borderland [8] participants were reported to have a higher level of knowledge about breast cancer (86%) This difference can be related to the education and insurance status and more awareness regarding breast cancer among Mexican women.
Majority of respondents (82.5%) knew about Self breast examination in our study this was consistent with similar study conducted in Gaza [3]. In our study 65.5% study subjects practiced it however only 27.9% perform it monthly. These results were similar to other studies showing that regular breast examination was performed by less number of women despite of being aware of Self Breast

Examination [3, 9, 10]. The main reason was found to be that it increased anxiety as answered by 18.1% respondents and leads to unnecessary lab tests and evaluation. Moreover it may be due to busy lifestyle, lack of privacy and lack of knowledge of correct technique of Self Breast Examination. Although majority of the respondents knew mammography as screening technique of breast cancer but only 17.1% of study subjects have ever undergone mammography. Similar low rates of mammography practice were found in Iran [11], Jordan [3], Qatar [12] this could be due to its high cost and many of them didn't knew when mammography could be done and some of them were hesitant to visit to the hospital when they were asymptomatic. There was strikingly significant difference between residential area and knowledge of subjects, those belonging to urban areas had good and moderate knowledge as compared to those belonging to rural areas (p value <0.01). These results were similar to study conducted in Iran [3], Qatar [12], Kuwait [13], Nepal [14]. This could be due to access to different mass media, accessibility to different hospitals and awareness through different camps which are organized more frequently in urban areas as compared to rural areas.
In our study majority (30.5%) of the respondents who had poor knowledge had studied up to 12th standard while majority of the respondents who had good knowledge were professionals there was significant relationship between respondents knowledge and educational status (p value <0.001), Similarly most studies showed a significant association between the knowledge of breast cancer and the education level of study participants [10-12], Moreover, significant association (p value 0.001) was found between employment status and practice those who were employed had good practice as compared to housewives,
There was significant difference (p value 0.03) between good practice and age group of individuals. Majority (35.5%) of the patients who practiced good Self Breast Examination belong to age group 18-25 years of age. This could be due to majority of them were college going population who had increased awareness due to conduct of various programme in colleges and spread of awareness through social media moreover in our study majority of respondents were students and professionals. Majority (39.3%) of the patients who practice good were professionals; there was significant difference (p value <0.001) among those who were employed practice good as compared to housewives (p value 0.001) this could be explained due to more interaction with knowledgeable people, increased access to mass media, internet and due to high literacy level. There was no significant difference between practice done by those belonging to rural or urban area (p value 0.11) which can be due to busy life style, lack of privacy, lack of knowledge of correct technique.
Though the knowledge among the participants was high but the practice is not good therefore need of the hour is to have more of the campaigns to spread more knowledge and awareness and to teach Self Breast Examination technique at each and every level.

Table 1: Knowledge of study subjects

	No.	%
Have you heard of breast cancer	660	91.1
Source of information		
All of the above	8	

books/ newspaper	289	39.0
Hospital	118	15.9
media (TV/ radio/internet)	164	22.1
Medical education	14	1.9
In family	12	
Any history of breast cancer in the family	79	10.7
Do you know what is Self-breast examination	563	76.0
Source of information		
All of the above	14	1.9
books and magazines	266	35.9
Friends	16	2.2
Hospital	134	18.1
Medical education	20	2.6
Mother	24	3.2
My husband is doc	1	.1
social media	82	11.1
Teacher	6	.8
Has anyone taught you to do Self breast examination	439	59.2
Who taught you Self Breast Examination		
Books	4	.5
By reading book	1	.1
Doctor	203	27.4
Friends	19	2.6
Internet	1	.1
Media	1	.1
Nurse	15	2.0
Online	1	.1
Parents	16	
Social media	4	.5
Teacher	171	23.1
Videos	1	.1
Youtuber	2	.3
At what age should Self breast examination be started		
after childbirth, whatever age	31	4.2
from 20 years	190	25.6
from 30 years	108	14.6
from puberty	179	24.2
Menopause	13	1.8
no idea	201	27.1
Perimenopause	19	2.6

Table 2: Knowledge about risk factors and signs and symptoms of breast cancer

Risk factors and symptoms	Response		
	Yes %	No %	Don't know %
Obesity increases the risk of developing breast cancer.	47.9	20.2	31.9
Bearing the first child at the age >30 years increases the risk of breast cancer	57.2	15.1	27.7
Lack of exercise increases the risk of developing breast cancer	48.2	24.7	27.1
Null parity increases the risk of breast cancer.	50.1	15.4	34.5
Early menarche at the age of <12 years increases the risk of breast cancer	50.6	20.3	29.1
Late menopause at age>55 years increases the risk of breast cancer	56.5	15.9	27.6
Smoking increases the risk of developing breast cancer	70.7	11.3	19
Pain that is severe or persists and is not related to menstrual cycle is a warning sign	56.1	11.2	32.7
Redness or swelling of breast	65.3	6.4	28.3
Any discharge from nipple	71.8	9.1	19.1
Any lump in breast is warning sign	72.2	8.8	19.1
Ulceration of breast	30.1	42.1	27.8

Table 3: Practice of Self breast examination

	No.	%
Do you practice Self breast examination	485	65.5
If yes. how often do you perform Self breast examination		
Daily	33	4.5
Monthly	207	27.9
Occasionally	123	16.6
Rarely	29	3.9
Weekly	78	10.5
Yearly	15	2.0

If you don't practice Self breast examination, reason		
increases anxiety	134	18.1
leads to unnecessary lab tests and scans	56	7.6
not useful	44	5.9
religious and cultural forbidden	22	3.0
If you have been practicing Self breast examination, have you ever discovered any abnormality		
No	429	
Yes	56	
Do you think it is a good practice		
No	86	11.6
Yes	655	88.4
Have you ever recommended anybody about Self breast examination		
No	284	38.3
Yes	457	61.7
How is Self-breast examination done		
I don't know	190	25.7
palpate with 1 finger and thumb	163	22.0
palpate with one finger	65	8.8
palpate with palm	323	43.6
Where do you perform Self breast examination		
Don't perform	100	13.5
any where	63	8.5
In bathroom	215	29.0
in front of mirror	304	41.0
lying on bed	59	8.0
Have you ever got your mammography done		
No	614	82.9
Yes	127	17.1

Table 4: awareness of screening modalities

	No.	%
Are you aware of mammography		
No	199	26.9
Yes	542	73.1
Are you aware of breast screening practice		
No	313	42.2
Yes	428	57.8
If Yes give name		
All	6	0.8
Self-Breast Examination	117	15.7
CBE (Clinical Breast Examination)	114	15.3
FNAC	20	26.9
Mammography	147	19.8

Table 5: Association of sociodemographic factors with knowledge of breast cancer

	Poor	Moderate	Good	Chi square value	P value
Age group					
<18 years	28 (59.6%)	19 (40.4%)	0	57.46	
18-25 years	61 (20.6%)	197 (66.6%)	48 (12.8%)		
25-35 years	31 (21.5%)	94 (65.3%)	19 (13.2%)		<0.001
35-45 years	18 (16.2%)	75 (67.6%)	18 (16.2%)		
>45 years	15 (10.5%)	111 (77.6%)	17 (11.9%)		
Religion					
Hindu	138 (20.6%)	449 (66.9%)	84 (12.5%)	0.08	0.95
Others	15 (21.4%)	47 (67.1%)	8 (11.4%)		
Educational status					
Upto 12th pass	40 (30.5%)	76 (58%)	15 (11.5%)	25.39	
Graduate	67 (24.5%)	184 (67.2%)	23 (8.4%)		<0.001
Professional	46 (13.7%)	236 (70.2%)	54 (16.1%)		
Area of residence					
Rural	38 (33.3%)	66 (57.9%)	10 (8.8%)	16.90	
semi urban	21 (25.9%)	51 (63%)	9 (11.1%)		<0.01
Urban	94 (17.2%)	379 (69.4%)	73 (13.4%)		
Occupation					
Housewife	16 (32.7%)	30 (61.2%)	9 (6.1%)	5.59	0.06
Others	137 (19.8%)	466 (67.3%)	89 (12.9%)		

Table 6: Association of sociodemographic factors with practice

	Bad	Good	Chi square value	P value
Age group				
<18 years	41 (87.2%)	6 (12.8%)	10.17	
18-25 years	191 (64.5%)	105 (35.5%)		
25-35 years	100 (69.4%)	44 (30.6%)		0.03
35-45 years	72 (64.9%)	39 (35.1%)		
>45 years	95 (66.4%)	48 (33.6%)		
Religion				
Hindu	445 (66.3%)	226 (33.7%)	3.37	
Others	54 (77.1%)	16 (22.9%)		0.08
Educational status				
Upto 12th pass	103 (78.6%)	28 (21.4%)	15.22	
Graduate	192 (70.1%)	82 (29.9%)		<0.001
Professional	204 (60.7%)	132 (39.3%)		
Area of residence				
Rural	84 (73.7%)	30 (26.3%)	4.33	
semi urban	59 (72.8%)	22 (27.2%)		0.11
Urban	356 (65.2%)	190 (34.8%)		
Occupation				
Housewife	43 (87.8%)	6 (12.2%)	9.94	
Others	456 (65.9%)	236 (34.1%)		0.001

Conclusion

Although breast cancer is most common cancer in women globally as well as in India, lack of awareness and comprehensive knowledge regarding the risk factors, symptomatology and screening methods possess a great hinderance to the currently existing gaps for prevention. Low self-risk perception with decreased utilization of cancer detection services and limited infrastructure at Primary health care center as well as at community health center, need urgent attention therefore scaling up to disseminate the information and to utilize cancer screening practice should be utilized to decrease the morbidity and mortality of patients.

Conflicts of interests
None

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