JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue
JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)
An International Scholarly Open Access, Peer-reviewed, Refereed Journal

A Survey to Assess the Level of Awareness About Breast Cancer and Breast Self-Examination (BSE) Among Women In 750 Bedded Hospital, UP

[1]Bhawna Solanki, [2]Himanshu Mishra, [3]Neelam Rao Bharti, [4]Aditya Negi, [5]Anshu Kumari,

[1]Assistant Professor , [2]Assistant Professor , [3]Assistant Professor, [4]Assistant Professor, [5]M.Sc. Medical Imaging Technology
[1235]Department of Radio-Diagnosis, [4]Department of Radiology
[1235]Santosh Medical College, Ghaziabad, Uttar Pradesh, India, [4]Quantum University, Roorkee

Abstract: In India, breast cancer is the leading cause of death for women. In India, many young women lack basic information about breast cancer screening, including risk factors, symptoms, and warning signs. In a 750-bed hospital in Uttar Pradesh, we looked into how well-informed women were about breast cancer and the use of breast self-examination (BSE) as a screening method. The study objective was to determine how well radiographers understood allergic responses in patients brought on by receiving injections of contrast media. It was intended as an observational and evaluation study based on a Google Forms questionnaire. The information was collected from 470 patients from the Radiology department and the female patients came in OPD, IPD, and Emergency in any department of Santosh Hospital. The survey consisted of 46 questions covering various parameters to evaluate the awareness levels of subjects about anaphylactic reactions, including how to recognize, avoid, and manage them during radiological treatments, etc. The poll also gathered demographic information, such as the participants; most significant level of education, and psychological factors like fear, awkwardness, and sociological factors such as shyness. The majority of participants were aware of breast cancer. However, understanding risk factors and symptoms/warning signs was often lacking. BSE-related knowledge was significantly lacking. This emphasizes the significance of raising awareness about BSE and breast cancer.
Keywords: Awareness, Breast Cancer, Breast Self-Examination (BSE), Assess, level

1. Introduction

Breast cancer is a global public health challenge, with increasing prevalence, particularly in developing countries like India. The awareness and understanding of breast cancer, its risk factors, and early detection methods remain low among women, contributing to delayed prognosis and increased mortality rates. This study aims to assess the awareness levels, knowledge of breast cancer, and the practice of breast self-examination (BSE) among women in Uttar Pradesh, India.[1]

1.1 Background of the Study

Breast cancer ranks as the second most common cancer among women in India, with high prevalence in cities like Kolkata, Delhi, and Mumbai.[2] The lack of awareness is attributed to various factors, including financial, infrastructural, socio-cultural, and educational constraints. This research focuses on understanding the factors influencing awareness levels among women in 750-bedded hospitals in Uttar Pradesh.[3]

1.2 Identification of Breast Cancer

Early identification of breast cancer is crucial for effective treatment and increased survival rates. Screening and diagnosis strategies, including Clinical Breast Examination (CBE), Breast Self-Examination (BSE), and Mammography, play pivotal roles.[4] However, limitations in infrastructure and awareness in developing countries hinder widespread implementation. The study highlights the importance of clinical downstaging and emphasizes the need for awareness programs to overcome sociocultural barriers.[5]

1.3 Awareness of BSE

While mammography and CBE are effective but limited by resources, BSE emerges as a cost-effective method for early breast cancer detection, especially in resource-restricted environments[6]. Despite conflicting opinions on its efficacy, the study stresses the importance of diligent and skillful BSE practice. Educational interventions are recommended to not only raise awareness but also provide the necessary skills for effective BSE.

1.4 Problem Statement

The study identifies limitations and hindrances in women's awareness of breast cancer and the practice of BSE, including socio-cultural beliefs, economic restrictions, hygiene conditions, and lack of infrastructure. Recognizing these challenges is essential to reduce fatality rates caused by breast cancer.

1.5 Scope of the Study

Focusing on 750-bed hospitals in Uttar Pradesh, the study aims to assess the awareness and knowledge levels among women regarding breast cancer and BSE. The findings will not only benefit medical professionals in adapting better approaches but also provide insights for policymakers to formulate effective measures for breast cancer prevention and treatment.

METHODOLOGY

SOURCE OF DATA

The Santosh Medical Collect was the site of the current investigation. A poll focused on hospitals was conducted between June 2022 and July 2023. The study enrolled 470 female subjects in total. Simple random sampling was used by medical professionals and qualified personnel to choose the participants.

METHODS OF COLLECTION OF DATA

The survey was put up by integrating many previously released materials. Four sections make up the questionnaire. For the benefit of the participants, the questionnaire was first written in English and then translated into Hindi. The questionnaire was validated by a group of experts, including oncologists, clinical chemists, social science graduates, university professors with relevant expertise, and healthcare professionals.

STUDY DESIGN

Hospital-based survey.

STUDY POPULATION

A Survey to Assess the level of Awareness about Breast Cancer and Breast Self- Examination (BSE) among women in 750 bedded hospitals, UP

SAMPLE SIZE

The sample size was determined using the Mohammad Nurul Amin et al. [56]. technique. Additional samples were taken beyond the anticipated sample size for proper analysis and maximum validity, accounting for acceptable error and non-response rates. Finally, 470 individuals in total were chosen for this study. The participants were chosen using the lottery method and simple random sampling. Then, a person was randomly chosen and given a special identifying number.

DATA COLLECTION PROCEDURE

The researcher assisted with data collecting. They had finished a one-month training program on risk assessment and breast cancer screening and training on the research questionnaire. They attended seminars on breast cancer awareness and perspectives held in India by several healthcare organizations. Four steps made up the data collection process. The first phase involved the participants completing a questionnaire about their anthropometric and socio-demographic characteristics. The
participants were given the questionnaire after we informed them of the study goals and that their privacy would be respected. There were trained volunteers and the researcher to answer any queries or dispel any doubts the participants may have had.
The questionnaires were filled out and then collected right away.

INCLUSION; EXCLUSION CRITERIA

The following criteria were required for inclusion: patients with breast cancer, age; 18 years, English or Hindi language proficiency, and willingness to participate in the study. The study did not include participants who did not meet the requirements
above.

DATA ANALYSIS

- Data was entered in an EXCEL sheet and analyzed using SPSS (Trial version) 24.0 software.
- Categorical data were summarized using percentages.

ETHICAL CONSIDERATION

The study was approved by the Institutional Ethics Committee for Human Subjects Research, SANTOSH MEDICAL COLLEGE & HOSPITAL

Data Collection Tool

The research tool is denoted as an instrument for collecting, measuring, and analyzing the data for the suggested research interest. The research tool is regularly used in social sciences, health sciences, and education to examine patients,
clients, and students. The suggested research is using a well-structured questionnaire as a tool. In this study, a cross-sectional study has been conducted to obtain information regarding the participants' awareness of breast cancer and breast self-examination. The other form of questionnaire commonly used in research is a semi-structured questionnaire. The semi-structured questionnaire studies an interview method that has a qualitative information collection technique in that the researcher ensures the informants about a predetermined series but open-ended questions. In the semi-structured questionnaire, the researcher added a level of control over the participants of the interview while comparing with closed-ended questionnaires.
There is no fixed response level for each question. The structured questionnaire research has been utilized in this study conducted in Santosh Hospital, Ghaziabad India which has 750 beds. The structured questionnaire has been surveyed from women visiting the

hospital. The survey was performed with the above-denoted people, to assess the level of awareness about breast cancer as well as BSE that will be helpful for further improvement in actions of breast cancer awareness, in case needed.

Sampling size and technique

Sampling size:

The responses have been taken from 470 individuals visiting the 750-bed hospital. The responses collected for the cross-sectional study are collected from different ranges of people at a specific point in time. Random sampling: It is also termed probability sampling which permits the randomization in the sample collection. In the case of random sampling, one should be mindful that trials need not represent the population entirety accurately. Thus, a variation can be observed which is denoted as a sampling error. Four methods of random sampling methods. They are namely, cluster sampling, stratified sampling, simple random sampling, and systematic sampling.

3.4 Data Analysis

The current study is to assess the level of awareness of breast cancer and BSE among women visiting the specified 750-bed hospital of UP. This study focuses on creating better awareness programs in case of necessity. As this study is only aimed at revealing awareness regarding breast cancer and BSE in UP, the study is unique and significant. This study has also revealed the effectiveness of current attempts to create breast cancer awareness. This study is performed with the way of framing close-ended questionnaires assessing the knowledge regarding breast cancer. A quantitative form of analysis is being used in this study. The quantitative analysis used convenience sampling. Since the study is based on the lack of awareness regarding breast cancer and BSE among women, the preference of participants is women. Thus, the close-ended questionnaire is framed. The data was gathered with questionnaires from various participants of a sample size of 470. The interview is performed and the principal data is collected from the respondents. The collected information will be analyzed using the SPSS software with analyzing technique and the outcomes are archived and revealed in the following chapters. Since the analysis deals with personal information, certain ethical considerations are followed while performing the research study. Thus, the study was conducted without any violation of the rules. Thus, this chapter concludes with the full research methodology used from data collection to analysis of the data.

IV. RESULTS AND DISCUSSION

Data Analysis and Interpretation.

The collected data were tabulated and statistically manipulated. Data was using the same questionnaire

RESULTS

Table .1.shows the age of the participants.

		Number of participants	Percent	Valid Percent	Cumulative Percent
	18-23 year (18-23वर्ष)	155	33.0	33.0	33.0
	24-29 year (24-29वर्ष)	98	20.9	20.9	53.9
	30-35 year(30-35वर्ष)	104	22.1	22.2	76.1
	more than 35 year (35सेअधिक)	112	23.8	23.9	100.0
	Total	469	99.8	100.0	
Missing	5	1	.2		
Total		470	100.0		

Table 1. Shows about the age of the participants. Out of 470 participants, 155 participants (33.0%) were of 18-23 years, 98 participants (20.9%) were of 24-29 years, 104 participants (22.1%) were of 30-35 years, 112 participants (23.8%) were of 35 years.

Table no.2**.**Shows how many participants smoke (**धूम्रपान**?)

		Number of participants	Percent	Valid Percent	Cumulative Percent
	No(निंीं)	431	91.7	91.7	91.7
	Yes(िंoाीं)	39	8.3	8.3	100.0
	Total	470	100.0	100.0	

Table no.**2**.Shows how many participants smoke (**धूम्रपान**?) Out of 470 participants, 431 participants (91.7%) say no, and 39 participants (8.3%) say yes.

Table no.3. Shows about the knowledge about breast cancer as it is most common among women worldwide. (**क्याआपजानिैं ंशकदुशनयामेंस्तनकैंसरबहुिआमै**)

		Number of participants	Percent	Valid Percent	Cumulative Percent
	No(निंीं)	101	21.5	21.5	21.5
	Yes(िंoाीं)	368	78.3	78.5	100.0
	Total	469	99.8	100.0	
Missing	3	1	.2		
Total		470	100.0		

Table no. 3. Shows the knowledge about breast cancer as it is most common among women worldwide. (**क्याआपजानििेिैंशकदुशनयामेंस्तनकैंसरबहुिआमिै**). Out of 470 participants, 101 participant (21.5%) say No, 368 participants (78.5%) say Yes.

Table no.4. Shows about at which age breast cancer risk is high. (**शकसउम्रमेंब्रेस्टकैंसरकाखिराज्यादािोिािै**)

		Number of participants	Percent	Valid Percent	Cumulative Percent
	20-30 year (20-30वर्ष)	110	23.4	23.4	23.4
	30-40 year (30-40वर्ष)	199	42.3	42.3	65.7
	more than 40 year (40सेअधिक)	161	34.3	34.3	100.0
	Total	470	100.0	100.0	

Table no.4. Shows about at which age breast cancer risk is high. (**शकसउम्रमेंब्रेस्टकैंसरकाखिराज्यादािोिािै**). Out of 470 participants, 110 participants (23.4%) are 20-30years, 199 participants (42.3) are 30-40years, and 161 participants (34.3%) are more than 40 years.

Table no.5. Shows about the knowledge of the participants regarding breast cancer leading to death**. (क्याआपकोलगिािैशकस्तनकैंसरसेमृत्युिोसकिीिै?)**

		Number of Participant	Percent	Valid Percent	Cumulative Percent
	No(□□□□□)	132	28.1	28.1	28.1
	Yes(□□□□)	337	71.7	71.9	100.0
	Total	469	99.8	100.0	
Missing	3	1	.2		
Total		470	100.0		

Table no.5. Shows the knowledge of the participants regarding breast cancer leading to death**. (क्याआपकोलगिािैशकस्तनकैंसरसेमृत्युिोसकिीिै?).** Out of 470 participants, 132 participant (28.1%) say No, and 337 participant and participants (71.7%) say yes.

Table no.6 shows if here is any treatment for breast cancer (**क्याब्रेस्टकैंसरकाकोईइलाजि**)

		Number of participants	Percent	Valid Percent	Cumulative Percent
	No(निीं)	123	26.2	26.2	26.2
	Yes(िंाी)	347	73.8	73.8	100.0
	Total	470	100.0	100.0	

Table no6. shows if there is any treatment for breast cancer (**क्याब्रेस्टकैंसरकाकोईइलाजि**). Out of 470 participants, 123 participants (26.2%) say No, 347 participants (73.8%) say yes.

Shows that if there is pain in the breast then, is that a sign of breast cancer: (**क्याआपजानिीि ंब्रेस्टमेंददब्रेस्टकैंसरकालक्षणि**)

		Number of participants	Percent	Valid Percent	Cumulative Percent
	No(निीं)	189	40.2	40.4	40.4
	Yes(िंाी)	279	59.4	59.6	100.0
	Total	468	99.6	100.0	
Missing	3	2	.4		
Total		470	100.0		

Table no.7. Shows that if there is pain in the breast then, is that the sign of breast cancer. (**क्याआपजानिीि ंब्रेस्टमेंददब्रेस्टकैंसरकालक्षणि**)Out of 470 participants, 189 participant (40.2%) say No, 279 participant (59.4%) say yes.

Shows about the change in skin color of breast is sign of breast cancer (**क्या आपजानिि ंब्रेस्टकीत्वचाकारंगबदलनाब्रेस्टकैंसरकासंके ि**)

		Number of Participant	Percent	Valid Percent	Cumulative Percent
	No(निीं)	174	37.0	37.2	37.2
	Yes(िंाी)	294	62.6	62.8	100.0
	Total	468	99.6	100.0	
Missing	3	2	.4		
Total		470	100.0		

Table no.8. Shows about the change in skin colour of breast is sign of breast cancer (**क्याआपजानिेिंैब्रेस्टकीत्वचाकारंगबदलनाब्रेस्टकैंसरकासंके ििंै**). Out of 470 participants, 174 participants (37%) say No, 294 participants (62.6%) say yes.

Table no.9. Shows that whether the change in the colour or shape of a women's nipple is the sign of breast cancer (**क्याआपजानिेिंैमशिलाओंकेशनप्पलकेरंगयाआकारमेंबदलावब्रेस्टकैंसरकासंके ििंै**)

		Number of participants	Percent	Valid Percent	Cumulative Percent
	No(निीिं)	222	47.2	47.2	47.2
	Yes(िािंं)	248	52.8	52.8	100.0
	Total	470	100.0	100.0	

Table no.9. Shows that whether the change in the colour or shape of a women's nipple is the sign of breast cancer **(क्याआपजानिेिंैमशिलाओंकेशनप्पलकेरंगयाआकारमेंबदलावब्रेस्टकैंसरकासंके ििंै).** Out of 470 participants, 222 participants (47.2%) say No, 248 participants (52.8) say yes.

Table no.10. Shows the knowledge of the participants regarding breast self-examination

(BSE) (**क्याआपब्रेस्टसेल्फएग्जाशमनेिन (बीएसई) केबारेमेंजानिीिंैं**)

		Number of participants	Percent	Valid Percent	Cumulative Percent
	No(निीिं)	289	61.5	61.8	61.8
	Yes(िािंं)	179	38.1	38.2	100.0
	Total	468	99.6	100.0	
Missing	3	2	.4		
Total		470	100.0		

Table no.10. Shows the knowledge of the participants regarding breast self-examination

(BSE) (**क्याआपब्रेस्टसेल्फएग्जाशमनेिन (बीएसई) केबारेमेंजानिीिंैं**).Out of 470 participants, 289 participants (61.5%) say No, 179 participants (38.1%) say yes .

Table no.11. Shows how often do participants think breast self-examination (BSE) should be performed(आपके**अनुसारशकिनीबारस्तनस्व-परीक्षण (बीएसई) शकयाजानाचाशिए**)

		Number of participant	Percent	Valid Percent	Cumulative Percent
Valid	Daily(दैधनक)	27	5.7	5.8	5.8
	Monthly(र्ि ीनेके)	217	46.2	46.3	52.0
	Weekly(साप्ताधिक)	77	16.4	16.4	68.4
	Yearly(वाधर्षक)	148	31.5	31.6	100.0
	Total	469	99.8	100.0	
Missing	5	1	.2		
Total		470	100.0		

Table no.11. Shows how often do participants think breast self-examination (BSE) should be performed (आपके**अनुसारशकिनीबारस्तनस्व-परीक्षण (बीएसई) शकयाजानाचाशिए**).Out Of 470 participants, 27 participants (5.7%) say daily, 217 participants (46.2%) say Monthly, 77 participants (16.4%) say Weekly, 148 participants (31.5%) say Yearly.

DISCUSSION

The current study was conducted within a 750-bed hospital setting in Uttar Pradesh (UP) and involved a total of 470 study participants. Its primary objective was to conduct a survey aimed at assessing the level of awareness regarding Breast Cancer and Breast Self-Examination (BSE) among women in these 750-bedded hospitals in UP. Recognizing that knowledge and awareness are pivotal factors in the early detection and effective treatment of breast cancer, the study sought to shed light on the knowledge levels and attitudes of healthcare professionals regarding breast cancer screening methods, as these factors can significantly influence the adoption of these methods by patients. The study's findings revealed significant associations between awareness and understanding of breast cancer and various demographic factors, including age, marital status, occupation, educational level, and family income. Notably, among participants aged 18-23 years, 33% exhibited a higher level of knowledge compared to those in the 24-29 age group, where only 20.9% possessed knowledge about breast cancer. The majority of participants, approximately 61.5%, were married, while 38.5% were unmarried. Furthermore, 53.4% of the participants held occupations other than medical, with only 13.8% being part of the medical staff. Educational backgrounds varied, with approximately 36.4% being undergraduates and a smaller percentage, 16.6%, having primary-level education [57]. Regarding the risk factors associated with breast cancer, the study identified smoking and drinking as the second and third most commonly endorsed risk factors. Notably, only 8.3% of participants reported a tendency to smoke, while the vast majority, 91.7%, did not smoke. Similarly, when it came to alcohol consumption, 96% of participants abstained from drinking alcohol, while only 4% reported alcohol consumption [58]. The overall main focus was to assess the knowledge of the participants in this study that they had heard about breast self-examination or not. In our study, the highest percentage of participants who had heard about breast self-examination was 90% of the total participation. However, relatively few 9.4% of participants did not know about breast self-examination. In our study, we also assessed the knowledge of the participants regarding breast cancer which is most common in women worldwide and the result was much more than the expectations as 78.5% of the participants were aware of breast cancer in women whereas 21.5% of the participants did not know about it. The family history of breast cancer is significantly correlated with higher awareness, its screening and prevention, rather than depending on the age when it can occur, in this study 42.3% of participants stated that approximately 30 -40 years age people have more chances and 23.4% participants stated that the people of 20 – 30 years of age group have less chances. It further stated that 23.2% of the participants had a family history of breast cancer. The knowledge of the participants was assessed on what they

think about breast cancer, does it lead to death? Although breast cancer is a worldwide disease then there is a treatment for it or not. The study revealed that 71.9% of participants think that breast cancer leads to death and 28.1% of participants say no it does not lead to death it was also revealed that 73.8% of participants feel that it is curable and the rest 26.2% participants say no it is not curable. This study also assessed the knowledge that early detection of blood cancer can lead to better treatment in which the study revealed that only 76.8% of participants say yes early detection helps in early treatment and the rest 23.2% say no it is not useful. This study was conducted to attain knowledge regarding the pain in breast cancer, is there any change in skin color and shape of the breast and armpit during the occurrence of breast cancer, formation of a lump in the breast, neck, and armpit is a sign of bc, or bloody discharge from the breast of a non –pregnant women, the participants had there different opinions on these various sign and symptoms of the breast cancer as majority of participants stated that these all are the sign and symptoms which show the occurrence of breast cancer in women. The study was also done regarding breast self-examination and how often it should be done in which 61.5 % had no knowledge regarding breast self-examination and 38.2 % of participants stated that they know about breast self-examination. The participants also stated their knowledge regarding how often bse is done in which 46.2% of participants stated it should be done monthly, and 5.7% of participants stated it should be done daily [59].

CONCLUSION

Most female respondents reported being generally uninformed, lacking awareness and understanding, and seeing hurdles related to breast cancer. Personal history, occupation, and marital status strongly correlated with breast cancer. The main perceived impediments were lack of information, fear, shyness, and an inadequate awareness program. Our findings imply that relevant, appropriate, and socially acceptable awareness programs will aid in enhancing knowledge and awareness of breast cancer among females and addressing barriers to that understanding. In conclusion, we discovered that women's knowledge of BSE and breast cancer varied despite most participants being aware of BSE. This indicates the necessity for quick actions to educate females about breast cancer and BSE. Comparing these studies to those done in other nations shows that there is probably a global need to increase female breast cancer awareness. Women should be encouraged to regularly use BSE to discover anomalies in their breasts, spot breast cancer early, and be made more aware of breast cancer. It may be crucial for females to receive the proper educational interventions, such as elective courses that cover vital areas of women's health. Offering free BSE training programs could also be a successful strategy for increasing awareness. Further research is now possible thanks to this study's fresh knowledge and insights about university students' knowledge of breast cancer and BSE. It is advised that future research in this field employ a probability sample technique to increase the study population's representativeness and the generalizability of the findings and provide more reliable results.

REFERENCES

1. Wikipedia contributors. Breast cancer [Internet]. Wikipedia, The Free Encyclopedia. 2023. Available from: https://en.wikipedia.org/w/index.php?title=Breast_cancer&oldid=1159768625.

2. Okobia, M. N., Bunker, C. H., Okonofua, F. E., & Osime, U. (2006). Knowledge, attitude and practice of Nigerian women towards breast cancer: A cross-sectional study. World Journal of Surgical Oncology, 4(1). https://doi.org/10.1186/1477-7819-4-11

3. Liu, L.-Y., Wang, F., Yu, L.-X., Ma, Z.-B., Zhang, Q., Gao, D.-Z., Li, Y.-Y., Li, L., Zhao, Z.-T., & Yu, Z.-G. (2014). Breast cancer awareness among women in Eastern China: a cross-sectional study. BMC Public Health, 14(1), 1004. https://doi.org/10.1186/1471-2458-14-1004

4. Hussain, I., Majeed, A., Masood, I., Ashraf, W., Imran, I., Saeed, H., Ur Rehman, A., Hashmi, F. K., Saleem, F., Akbar, M., Chaudhry, M. O., Ullah, J., & Rasool, M. F. (2022). A national survey to assess breast cancer awareness among the female university students of Pakistan. PloS One, 17(1), e0262030. https://doi.org/10.1371/journal.pone.0262030

5. Asiri, H., & Rashad, W. A. (2019). Prediction of The Awareness and Practice of Breast Self–Examination among Females Using Health Belief Model. A literature review. *IOSR Journal of Nursing and Health Science (IOSR-JNHS), 8*(1), 66-69.

6. Black, E., & Richmond, R. (2019). Improving early detection of breast cancer in sub-Saharan Africa: why mammography may not be the way forward. *Globalization and health, 15*, 1-11.

7. Das, A. M., Shrivastav, K. D., Taneja, N., Awasthi, A. A., Rashid, S., Gogia, A., & Janardhanan, R. (2022). Knowledge and awareness of breast cancer and breast self-examination among college-going female students in Delhi-NCR: a cross sectional study. *Health Education, 122*(6), 663-677.

8. Gupta, R., Gupta, S., Mehrotra, R., & Sodhani, P. (2020). Risk factors of breast cancer and breast self-examination in early detection: systematic review of awareness among Indian women in community and health care professionals. *Journal of public health, 42*(1), 118-131.

9. Heena, H., Durrani, S., Riaz, M., AlFayyad, I., Tabasim, R., Parvez, G., & Abu-Shaheen, A. (2019). Knowledge, attitudes, and practices related to breast cancer screening among female health care professionals: a cross sectional study. *BMC women's health, 19*, 1-11.

10. Johnson, O. E. (2019). Awareness and practice of breast self examination among women in different African countries: A 10-year review of literature. *Nigerian medical journal: journal of the Nigeria Medical Association, 60*(5), 219.

11. Abeje, S., et al. (2019). "Factors associated with breast cancer screening awareness and practices of women in Addis Ababa, Ethiopia." BMC women's health **19**(1): 1-8.

12. Abo Al-Shiekh, S. S., et al. (2021). "Breast cancer knowledge and practice of breast self-examination among female university students, Gaza." The Scientific World Journal **2021**.

13. Al-Naggar, R. A., et al. (2011). "Practice and barriers toward breast self-examination among young Malaysian women." Asian Pac J Cancer Prev **12**(5): 1173-1178.

14. Al-Naggar, R. A., et al. (2012). "Practice of breast self-examination among women in Malaysia." Asian Pacific Journal of Cancer Prevention **13**(8): 3829-3833.

15. Alomair, A. N., et al. (2020). "Knowledge, attitude, and practice of breast self-examination toward breast cancer among female students at King Saud University in Riyadh, Saudi Arabia." International Journal of Medicine in Developing Countries **4**(2): 429-434.

16. Alsolami, F. J., et al. (2019). "Determinants of breast cancer in Saudi women from Makkah region: a case-control study (breast cancer risk factors among Saudi women)." BMC public health **19**: 1-8.

17. Amin, B., et al. (2022). "To Assess the Knowledge of Breast Self Examination and Awareness about Breast Cancer among the Female Students of Baba Farid Institute of Technology, Dehradun." JMSCR **10**: 31-35.

18. Asmare, K., et al. (2022). "Knowledge, attitude, practice towards breast self-examination and associated factors among women in Gondar town, Northwest Ethiopia, 2021: a community-based study." BMC women's health **22**(1): 174.

19. Azlan, N. Z., et al. (2022). "Knowledge Level on Breast Cancer and Breast Self-Examination (BSE) Practice Among Female University Students." International journal of care scholars **5**(2): 46-57.

20. Baloushah, S., et al. (2020). "Practice and barriers toward breast self-examination among Palestinian women in Gaza City, Palestine." The Scientific World Journal **2020**.

21. BK, M. and H. P. Kaphle (2023). "Breast self-examination: Knowledge, practice and associated factors among 20 to 49 years aged women in Butwal sub-metropolitan, Rupandehi, Nepal." Plos one **18**(6): e0286676

22. Dadzi, R. and A. Adam (2019). "Assessment of knowledge and practice of breast self-examination among reproductive age women in Akatsi South district of Volta region of Ghana." Plos one **14**(12): e0226925.

23. Dagne, A. H., et al. (2019). "Assessment of breast self-examination practice and associated factors among female workers in Debre Tabor Town public health facilities, North West Ethiopia, 2018: Cross-sectional study." Plos one **14**(8): e0221356.

24. Delhi, P. (2020). "Cervical and Breast Cancer Cases in Women."

25. Ginsburg, O., et al. (2020). "Breast cancer early detection: A phased approach to implementation." Cancer **126**: 2379-2393.

26. Gupta, R., et al. (2020). "Risk factors of breast cancer and breast self-examination in early detection: systematic review of awareness among Indian women in community and health care professionals." Journal of public health **42**(1): 118-131.

27. Hanson, V. F., et al. (2019). "Practice and barriers of breast self-examination among women in a rural community in South Western, Nigeria." International Journal of Studies in Nursing **4**(3): 46.

28. Jeyakeerthi S, S. L. M., Niranjana D, Rajajeyakumar M, Janitha (2018). "Barriers to Perform Early Screening and Practice of Breast Self-Examination among High Risk Young Adults."

29. Juárez-García, D. M., et al. (2020). "Adaptation and validation of the health belief model scale for breast self-examination in Mexican women." Value in health regional issues **23**: 30-36.

30. Koc, G., et al. (2019). "Female university students' knowledge and practice of breast self-examination in Turkey." Nigerian journal of clinical practice **22**(3): 410-415.

31. Lawani-Luwaji, E., et al. (2023). "Awareness and Practice of Breast Self-Examination among Female Undergraduate Students."

32. Liebermann, E., et al. (2023). "Barriers to Diagnostic Follow-Up for Women With a Suspicious Clinical Breast Examination at the Primary Health Center in Uttar Pradesh State in India: A Qualitative Study." Cancer Epidemiology, Biomarkers & Prevention **32**(6_Supplement): 13-13

33. Maurya, A. P. and S. Brahmachari (2021). "Current status of breast cancer management in India." Indian Journal of Surgery **83**(Suppl 2): 316-321

34. Novelia, S., et al. (2021). "The Effect of breast self-examination (BSE) class on knowledge and practice of breast self-examination among adolescent girls."

35. Pariser, A., et al. (2022). "Barriers to access for cervical and breast cancer screenings among female latinx migrant farmworkers in the US: a scoping literature review." Journal of Primary Care & Community Health **13**: 21501319211073252.

36. Pathak, P., et al. (2022). "Impact of health education on knowledge and attitude of self-breast examination among female nursing students." Indian Journal of Community Health **34**(3): 348-351.

37. Paul, S., et al. (2015). "Epidemiological study on breast cancer associated risk factors and screening practices among women in the holy city of Varanasi, Uttar Pradesh, India." Asion Pac J Cancer Prev **16**(18): 8163-8171.

38. Prusty, R. K., et al. (2020). "Knowledge of symptoms and risk factors of breast cancer among women: a community based study in a low socio-economic area of Mumbai, India." BMC women's health **20**: 1-12.

39. Putri, D. M. A. (2021). "Association between Knowledge and Practice of Breast Self-examination (BSE) for Raising Awareness in Women about Breast Cancer: A Literature Review." KnE Life Sciences: 380–390-380–390.

40. Rahman, S. A., et al. (2019). "Awareness about breast cancer and breast self-examination among female students at the University of Sharjah: a cross-sectional study." Asian Pacific journal of cancer prevention: APJCP **20**(6): 1901.

41. Saeed, S., et al. (2021). "Fears and barriers: problems in breast cancer diagnosis and treatment in Pakistan." BMC women's health **21**(1): 1-10.

42. Singh, G. N., et al. (2019). "Understanding and practices of gynaecologists related to breast cancer screening, detection, treatment and common breast diseases: A study from India." World Journal of Surgery **43**: 183-191.

43. Taleghani, F., et al. (2019). "Barriers to breast self-examination among Iranian women." Iranian journal of nursing and midwifery research **24**(2): 108.

44. Wolde, M. T., et al. (2023). "Practice of breast self-examination and associated factors among female healthcare professionals working in selected hospitals in Kigali, Rwanda." medRxiv: 2023.2004. 2010.23288382.

45. Yambem, L. C. S. and H. Rahman (2019). "Knowledge, attitudes, and beliefs about breast cancer and barriers to breast self-examination among sikkimese women." Indian Journal of Medical and Paediatric Oncology **40**(02): 175-181.

46. (N.d.). Researchgate.net. Retrieved August 5, 2023, from https://www.researchgate.net/publication/33799080 Liu, L.-Y., Wang, F., Yu, L.-X., Ma, Z.-B., Zhang, Q., Gao, D.-Z., Li, Y.-Y., Li, L., Zhao, Z.-T., & Yu, Z.-G. (2014). Breast cancer awareness among women in Eastern China: a cross-sectional study. BMC Public Health, 14(1), 1004. https://doi.org/10.1186/1471-2458-14-100

47. Peltzer, K., & Pengpid, S. (2014). Awareness of breast cancer risk among female university students from 24 low, middle income and emerging economy countries. Asian Pacific Journal of Cancer Prevention: APJCP, 15(18), 7875–7878. https://doi.org/10.7314/apjcp.2014.15.18.787

48. Esmail Hassan, E., Seedhom, A. E., & Mahfouz, E. M. (2017). Awareness about breast cancer and its screening among rural Egyptian women, Minia district: A population-based study. Asian Pacific Journal of Cancer Prevention: APJCP, 18(6), 1623–1628. https://doi.org/10.22034/APJCP.2017.18.6.162

49. Noreen, M., Murad, S., Furqan, M., Sultan, A., & Bloodsworth, P. (2015). Knowledge and awareness about breast cancer and its early symptoms among medical and non-medical students of Southern Punjab, Pakistan. Asian Pacific Journal of Cancer Prevention: APJCP, 16(3), 979–984. https://doi.org/10.7314/apjcp.2015.16.3.979

50. Rahman, S. A., Al-Marzouki, A., Otim, M., Khalil Khayat, N. E. H., Yousuf, R., & Rahman, P. (2019). Awareness about breast cancer and breast self-examination among female students at the University of Sharjah: A cross-sectional study. Asian Pacific Journal of Cancer Prevention: APJCP, 20(6), 1901–1908. https://doi.org/10.31557/APJCP.2019.20.6.1901

51. Chattu, V. K., Kumary, S., & Bhagavathula, A. S. (2018). Community-based study on the knowledge, awareness, and practices of females towards breast cancer in Buraimi, Oman. South Asian Journal of Cancer, 7(4), 215–218. https://doi.org/10.4103/sajc.sajc_71_18

52. Heena, H., Durrani, S., Riaz, M., AlFayyad, I., Tabasim, R., Parvez, G., & Abu-Shaheen, A. (2019). Knowledge, attitudes, and practices related to breast cancer screening among female health care professionals: a cross sectional study. BMC Women's Health, 19(1), 122. https://doi.org/10.1186/s12905-019-0819-x

53. Pengpid, S., & Peltzer, K. (2014). Knowledge, attitude and practice of breast self-examination among female university students from 24 low, middle income and emerging economy countries. Asian Pacific Journal of Cancer Prevention: APJCP, 15(20), 8637–8640. https://doi.org/10.7314/apjcp.2014.15.20.8637

54. Wachira, J., Busakhala, A., Chite, F., Naanyu, V., Kisuya, J., Otieno, G., Keter, A., Mwangi, A., & Inui, T. (2017). Refining a questionnaire to assess breast cancer knowledge and barriers to screening in Kenya: Psychometric assessment of the BCAM. BMC Health Services Research, 17(1), 110. https://doi.org/10.1186/s12913-017-2058-x

55. Amin, M. N., Uddin, M. G., Uddin, M. N., Rahaman, M. Z., Siddiqui, S. A., Hossain, M. S., Islam, M. R., Hasan, M. N., & Uddin, S. M. N. (2020). A hospital based survey to evaluate knowledge, awareness and perceived barriers regarding breast cancer screening among females in Bangladesh. Heliyon, 6(4), e03753. https://doi.org/10.1016/j.heliyon.2020.e03753

56. Breast cancer awareness among women in Eastern China: a cross-sectional study | BMC Public Health | Full Text. (n.d.).

57. Awareness of Breast Cancer Risk among Female University Students from 24 Low, Middle Income and Emerging Economy Countries -Asian Pacific Journal of Cancer Prevention | Korea Science. (n.d.).

58. (N.d.). Researchgate.net. Retrieved August 5, 2023, from https://www.researchgate.net/publication/337990808