Original Article

DOI: 10.7860/JCDR/2023/64274.18781

Breast Cancer Risk Stratification and Screening Practices of Women in South Kerala, India: A Cross-sectional Study

Community Section

SUSANNA JOHN[1], REGI JOSE[2], ANIL BINDU SUKUMARAN[3], MANJU LEELAVATHY[4], PV BENNY[5]

ABSTRACT

Introduction: The incidence of breast cancer is increasing in India, making it the most common cancer among women. Early detection of breast cancer is crucial for reducing morbidity, mortality, and improving the quality of life for patients. However, breast cancer mortality rates are higher in India compared to other parts of the world, possibly due to late-stage diagnosis. Regular screening is key to early detection, but population screening is not feasible in India due to limited resources. Therefore, high-risk screening is a more practical approach. Assessing individual risk using a breast cancer risk calculator can help identify asymptomatic women at high-risk and motivate them to undergo regular screening, leading to early detection.

Aim: To assess the risk of developing breast cancer among women in Kerala using a breast cancer risk calculator and to describe their screening practices.

Materials and Methods: A cross-sectional survey was conducted among 1861 women aged over 30 years in Thiruvananthapuram, Kerala, India. Personal details of the participants, major known risk factors of breast cancer, and information about breast cancer screening practices were collected using a questionnaire. Breast cancer risk stratification was performed using the Snehita breast cancer risk calculator.

Results: According to the breast cancer risk calculator, 12.74% of the women were classified as high-risk and 65.18% had a normal risk of developing breast cancer. Among the participants, 82.64% stated that they had never undergone any breast cancer screening procedures.

Conclusion: Despite Kerala being a state with high female literacy rate, the screening practices for breast cancer were found to be very low (17.36%). Additionally, 12.74% of the women were identified as being at high-risk of developing breast cancer. Breast cancer risk calculators can serve as a motivational tool to encourage women to undergo regular screening.

Keywords: Breast neoplasms, Early detection, India, Risk factors, Risk assessment tool

INTRODUCTION

Breast cancer has become the most common cancer among women worldwide. It affects over 1.5 million women annually around the globe and is the leading cause of cancer-related deaths among women. Although the incidence of breast cancer is higher among women in developed countries compared to women in developing regions, this trend is slowly changing. The increasing incidence of breast cancer in developing countries is attributed to factors such as increased life expectancy, urbanisation, and the adoption of western lifestyles [1,2].

According to GLOBOCAN 2020, there were 2.3 million new cases of breast cancer diagnosed globally [3]. Population-based cancer registries in India also show an upward trend in breast cancer incidence [4,5]. About 15% of all cancer deaths among women in India are due to breast cancer [6]. In Kerala, the incidence of breast cancer is increasing, and Thiruvananthapuram has emerged as the nation's breast cancer capital, with the highest crude incidence rate of 40 per 100,000 women, according to the estimation of the Population-Based Cancer Registry for Thiruvananthapuram at the Regional Cancer Centre [7]. Breast cancer accounts for 31% of all cancers among females in Thiruvananthapuram, and 35% of patients are under 50 years old [7]. Additionally, the major cause of higher breast cancer mortality rates is attributed to late-stage diagnosis [8].

This study included the major known risk factors of breast cancer from research literature, such as early menarche, nulliparity, late age at childbirth, shorter duration of lactation, late menopause, family history of breast or ovarian carcinoma, and any invasive procedures on the breast [9-12].

Breast cancer has become the most common cancer among women in Kerala, with increasing morbidity and mortality rates over the past two decades. Thiruvananthapuram, the capital city of Kerala, has the highest incidence rates. Early detection and proper treatment of breast cancer improve cure rates and survival rates. Identifying women at a higher risk of breast cancer and motivating them for screening can detect the disease at earlier stages and contribute to early treatment [13]. Studies in BRICS countries, which are in a transition stage, have shown that the early diagnosis approach is better in downstaging the tumour and improving survival at a fraction of the cost needed for population screening [13-15].

Knowledge regarding the prevalence of known risk factors and screening practices in a community helps in formulating strategies for interventions leading to early detection [16,17]. Currently, there is limited data regarding the prevalence of known risk factors for breast cancer among women, their breast cancer screening practices, and the high-risk population for this disease in Thiruvananthapuram, Kerala. The objectives of this study were to assess the risk of developing breast cancer among women in Kerala using a breast cancer risk calculator and to describe the prevalent breast cancer screening practices in the community.

MATERIALS AND METHODS

A descriptive cross-sectional survey was conducted among 1861 women in the Thiruvananthapuram district of Kerala. The data was collected between January 2017 and January 2018. Institutional Ethics Committee approval (SGMC-IEC No: 19/195/2016) was obtained before beginning the study.

All the female participants aged 30 years and above who gave informed consent were included in the study.

Sample size estimation: A pilot study was conducted among 100 women, from which the proportion of high-risk individuals was determined to be 18% (p).

Relative precision of 10% (d) and level of significance 5% (α) was taken. The sample size was estimated to be 1751 using the following formula. Eventually 1861 participants were included in the study.

$$\frac{(Z\alpha)^2\, pq}{d^2} = \frac{1.96^2 \times 18 \times (100-p)}{(10\%\ of\ p)^2} = 1751$$

Study Procedure

The study participants were selected from fifty-two community-based awareness sessions on breast cancer conducted in different parts of Thiruvananthapuram, covering all municipalities and gram panchayats (urban and rural areas). These sessions were organised by the Department of Community Medicine at Sree Gokulam Medical College, Venjaramoodu, Thiruvananthapuram, Kerala, India. Data was collected through face-to-face interviews using a questionnaire which consisted of three parts: I) Personal details; II) Parameters for the online calculator to compute a risk score using the Snehita breast cancer risk calculator; III) Breast cancer screening practices.

Risk assessment was performed using the Snehita breast cancer risk calculator [17,18], which is a freely available online tool. The following seven parameters were collected from the participants: 1) Age of the participant; 2) Age at menarche; 3) Age at first live birth; 4) Number of live births; 5) Duration of breastfeeding; 6) Number of previous breast biopsies, if any; and 7) Number of first-degree relatives with breast or ovarian cancer. These parameters were used to compute a risk score [Table/Fig-1], which helped in stratifying the participants into normal, moderate, and high-risk groups. Advice was then given to each group accordingly [18].

Risk score	Risk categories
Upto 0.5	Normal risk
> 0.5-0.65	Moderate risk
> 0.65	High-risk

[Table/Fig-1]: Breast cancer risk score according to risk calculator.

Data regarding prior breast cancer screening practices were also collected using a questionnaire [Annexure 1]. The content validity of the questionnaire was checked by experts in the field of Community Medicine, Biostatistics, and Oncology.

STATISTICAL ANALYSIS

Statistical analyses were performed using Statistical Package for Social Sciences (SPSS) version 20.0. Descriptive statistics, such as mean and Standard Deviation (SD), were used for continuous variables. Categorical data were presented as frequencies and percentages. The chi-square test was utilised to determine the association between categorical variables, and a p-value of less than 0.05 was considered statistically significant.

RESULTS

The mean age of the study participants was 47.18 years (SD 10.74). Among the 1861 study participants, 245 (13.16%) belonged to the upper socio-economic class, 985 (52.93%) belonged to the middle class, and 631 (33.91%) belonged to the lower class. Other major results are summarised in [Table/Fig-2].

Among the 1861 participants, 70 women (3.76%) were nulliparous. A total of 141 participants reported undergoing one of the invasive procedures such as Fine Needle Aspiration Cytology (FNAC), biopsy, lumpectomy, or mastectomy on their breast [Table/Fig-3].

Positive family history in first-degree relatives was found in 90 participants (4.84%). Among these 90 participants, only two women had more than one first-degree relative with a positive history of breast cancer. Only two participants reported a family history of ovarian carcinoma. No family history of male breast cancer was reported

Risk predictors	Results
1. Age of the participants	47.18 years (SD 10.74)
2. Age at menarche	13.64 years (SD 1.39)
3. Age at first live birth	23.87 years (SD 4.0)
4. Women who had given at least one live birth	1791 (96.24%)
5. Breast feeding duration	3.78 years (SD 2.27)
6. Previous breast biopsies	94 (5.05%)
7. First-degree relatives with breast or ovarian cancer	90 (4.84%)

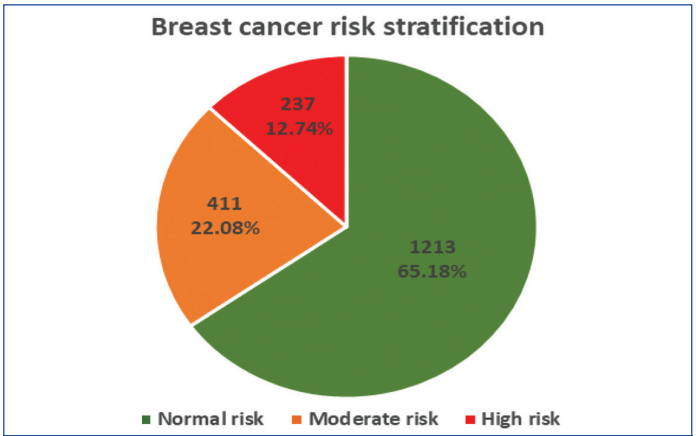
[Table/Fig-2]: Description of risk predictors of breast cancer.

[Table/Fig-2]. Among the 1861 participants, 731 had attained menopause, out of which 644 naturally attained menopause, and the remaining 87 had surgically attained menopause. The mean age at menopause among these 644 women who attained natural menopause was 47.24 years (SD 4.69).

Procedures	Frequency*
FNAC	47
Biopsy	94
Lumpectomy	24
Mastectomy	4

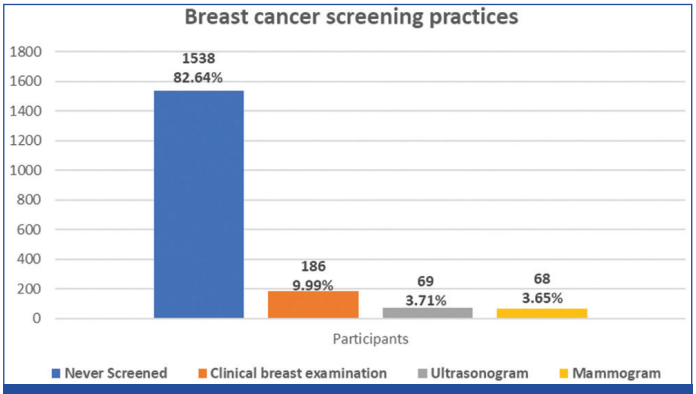
[Table/Fig-3]: Invasive procedures done on breast.
*Multiple responses

Breast cancer risk was assessed using the Snehita breast cancer risk calculator [18]. Among the study participants, 237 (12.74%) women were in the high-risk category. The risk stratification is presented below in [Table/Fig-4].



[Table/Fig-4]: Breast cancer risk stratification.

The study participants were asked about any breast cancer screening methods they had undergone in the past. It was found that 82.64% of women (1538/1861) had never undergone any breast cancer screening, while the remaining 17.36% (323/1861) had undergone atleast one method of breast cancer screening. [Table/Fig-5] shows the breast cancer screening practices among the study population.



[Table/Fig-5]: Breast cancer screening practices.

Among the total 237 high-risk individuals, 216 (91.14%) had never screened for breast cancer. The screening practices were significantly associated with the various breast cancer risk strata (p<0.0001) [Table/Fig-6].

		Breast cancer risk stratification			Total
		Normal risk	Moderate risk	High-risk	
Screening practices	Ever	253	49	21	323
	Screened	(20.9%)	(11.9%)	(8.9%)	(17.4%)
	Never	960	362	216	1538
	Screened	(79.1%)	(88.1%)	(91.1%)	(82.6%)
Total		1213	411	237	1861
		(100%)	(100%)	(100%)	(100%)

[Table/Fig-6]: Screening practices and risk category of developing breast cancer. Chi-square value 30.752, p-value <0.0001

DISCUSSION

Early detection remains the cornerstone of effective breast cancer management as it allows for timely intervention and improved treatment outcomes. To achieve this, there is a need to improve risk-based screening practices in our society [19]. According to the present study, only 17.4% of the participants had undergone any method of breast cancer screening. The breast cancer risk calculator provided the distribution of risk categories among the participants: 12.74% were identified as high-risk, 22.08% as moderate-risk, and 65.18% as normal-risk individuals.

According to NFHS-5 data, the status of breast cancer screening in India is alarmingly low [20]. In a study by Jones M et al., on cancer screening behaviours among women aged 30-65 years in Thiruvananthapuram, 14.2% of women reported undergoing prior cancer screening [16], which aligns with the results of the present study. This percentage underscores the need for enhanced efforts to promote breast cancer awareness and the importance of regular screening in India. These numbers fall short of the recommended screening rates in Western countries, highlighting potential gaps in breast health education and accessibility to screening facilities. To improve screening rates, it is imperative to implement targeted awareness campaigns, reduce barriers to accessing screening facilities, and educate both healthcare professionals and the public about the importance of early detection in breast cancer management. Socioeconomic factors [17], geographic location, and healthcare access play crucial roles in determining screening rates, emphasising the need for targeted interventions to reach underserved communities [21,22].

Breast cancer risk assessments can be done using online tools such as the Breast Cancer Risk Assessment Tool (BCRAT/Gail model) [23], BRCAPRO, Breast and Ovarian Analysis of Disease Incidence and Carrier Estimation Algorithm (BOADICEA) [24], or International Breast Cancer Intervention Studies (IBIS)/Tyrer-Cuzick Claus model [25]. These models utilise different predictors to stratify breast cancer risk. According to Paige JS et al., breast cancer risk estimates for individual women vary depending on the risk assessment model used [26]. The Snehita Breast Cancer Risk Calculator [18,27], based on the modified Gail score for the Indian population, provides recommendations for each risk category based on the risk score. Scott DM states in her article on breast cancer screening that a formal risk calculator is very useful for assessing a person's lifetime risk of developing breast cancer and determining eligibility for high-risk screening, contributing to early detection [28]. Studies in South India [27] and Western India [29] suggest that the Gail model is not an appropriate risk assessment tool for the Indian population, highlighting the need for a local tool [30].

Recent studies have emphasised the clinical significance of risk-based screening. High-risk individuals may benefit from more frequent and specialised screening modalities, such as Magnetic Resonance Imaging (MRI) and genetic counseling, which can improve early detection and risk management [31,32]. Conversely, normal-risk individuals can follow standard screening guidelines, reducing the potential harms associated with over-screening. This risk stratification offers a personalised approach to screening and prevention, ensuring effective allocation of resources. Breast cancer risk assessment models are continually evolving, incorporating additional risk factors such as genetics, family history, and lifestyle factors, which can enhance the accuracy of risk stratification [33,34]. Recent advances in genomics and artificial intelligence may hold promise in further improving the accuracy of risk prediction and personalising screening recommendations [35].

Limitation(s)

Since the study was conducted among the general population, there is a possibility of recall bias occurring in certain risk factors.

CONCLUSION(S)

In the present study, 12.74% (237) women were in the high-risk category, and 82.64% of women had never undergone any breast cancer screening. The screening practices significantly associate with the various breast cancer risk strata. This study highlights the importance of enhancing breast cancer screening participation and adopting risk-based stratification approaches. Given Kerala's high female literacy rate, there is a unique opportunity to address this issue by promoting community awareness regarding the benefits from early detection of breast cancer. The breast cancer risk calculator can serve as a vital motivational tool in this context, empowering women to understand their personalised risk categories and encouraging their participation in screening programs. This approach is especially significant in financially constrained healthcare systems as it allows for targeted resource allocation to those at higher risk, thus improving the burden and overall quality of care.

REFERENCES

[1] Newman LA. Breast cancer screening in low and middle-income countries. Best Pract Res Clin Obstet Gynaecol. 2022;83:15-23. https://doi.org/10.1016/j.bpobgyn.2022.03.018.

[2] Kashyap D, Pal D, Sharma R, Garg VK, Goel N, Koundal D, et al. Global increase in breast cancer incidence: Risk factors and preventive measures. Biomed Res Int. 2022;2022:9605439. https://doi.org/10.1155/2022/9605439.

[3] Sung H, Ferlay J, Siegel RL, Laversanne M, Soerjomataram I, Jemal A, et al. Global Cancer Statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA Cancer J Clin. 2021;71(3):209-49. https://doi.org/10.3322/caac.21660.

[4] Sathishkumar K, Chaturvedi M, Das P, Stephen S, Mathur P. Cancer incidence estimates for 2022 & projection for 2025: Result from National Cancer Registry Programme, India. Indian J Med Res. 2022;156(04-05):598-607. https://doi.org/10.4103/ijmr.ijmr_1821_22.

[5] Sathishkumar K, Vinodh N, Badwe RA, Deo SVS, Manoharan N, Malik R, et al. Trends in breast and cervical cancer in India under National Cancer Registry Programme: An age-period-cohort analysis. Cancer Epidemiol. 2021;74:101982. https://doi.org/10.1016/j.canep.2021.101982.

[6] Fact Sheets by Cancer n.d. http://globocan.iarc.fr/Pages/fact_sheets_cancer.aspx (accessed March 9, 2017).

[7] Mathew A, George PS, Arjunan A, Augustine P, Kalavathy M, Padmakumari G, et al. Temporal trends and future prediction of breast cancer incidence across age groups in Trivandrum, South India. Asian Pac J Cancer Prev. 2016;17(6):2895-99.

[8] Jose R, Subramanian S, Augustine P, Rengaswamy S, Nujum ZT, Gopal BK, et al. Design and process of implementation mobile application based modular training on early detection of cancers (M-OncoEd) for primary care physicians in India. Asian Pac J Cancer Prev. 2022;23(3):937-46. https://doi.org/10.31557/APJCP.2022.23.3.937.

[9] Nindrea RD, Aryandono T, Lazuardi L. Breast cancer risk from modifiable and non-modifiable risk factors among women in southeast Asia: A meta-analysis. Asian Pac J Cancer Prev. 2017;18(12):3201-06. https://doi.org/10.22034/APJCP.2017.18.12.3201.

[10] Sun YS, Zhao Z, Yang ZN, Xu F, Lu HJ, Zhu ZY, et al. Risk factors and preventions of breast cancer. Int J Biol Sci. 2017;13(11):1387-97. https://doi.org/10.7150/ijbs.21635.

[11] Augustine P, Jose R, Peter A, Lal AA, Prabhakar J, Sreedharan J, et al. Risk factors of breast cancer in Kerala, India- A case control study. Acad Med J India. 2014;2(1):07-13.

[12] Parameshwari P, Muthukumar K, Jennifer HG. A population based case control study on breast cancer and the associated risk factors in a rural setting in Kerala, southern India. J Clin Diagn Res. 2013;7(9):1913-16. https://doi.org/10.7860/JCDR/2013/5830.3356.

[13] Basu P, Zhang L, Hariprasad R, Carvalho AL, Barchuk A. A pragmatic approach to tackle the rising burden of breast cancer through prevention & early detection in countries "in transition." Indian J Med Res. 2020;152(4):343-55. https://doi.org/10.4103/ijmr.IJMR_1868_19.
[14] Jakovljevic MB, Milovanovic O. Growing burden of non-communicable diseases in the emerging health markets: The case of BRICS. Front Public Health. 2015;3:65. https://doi.org/10.3389/fpubh.2015.00065.
[15] Marten R, McIntyre D, Travassos C, Shishkin S, Longde W, Reddy S, et al. An assessment of progress towards universal health coverage in Brazil, Russia, India, China, and South Africa (BRICS). Lancet. 2014;384(9960):2164-71. https://doi.org/10.1016/S0140-6736(14)60075-1.
[16] Jones M, Subramanian S, Jose R. Cancer screening behaviors and preferences among women in southern India. J Cancer Policy. 2023;35:100401. https://doi.org/10.1016/j.jcpo.2023.100401.
[17] Patil P, Sarang B, Bhandarkar P, Ghoshal R, Roy N, Gadgil A. Does women's empowerment and their socioeconomic condition affect the uptake of breast cancer screening? Findings from NFHS-5, India. BMC Womens Health. 2023;23:7. https://doi.org/10.1186/s12905-022-02147-5.
[18] Snehita Breast Cancer Risk Calculator n.d. https://snehita.in/risk (accessed March 11, 2023).
[19] Breast Cancer Early Detection and Diagnosis | How to detect breast cancer n.d. https://www.cancer.org/cancer/types/breast-cancer/screening-tests-and-early-detection.html (accessed September 14, 2023).
[20] Gopika MG, Prabhu PR, Thulaseedharan JV. Status of cancer screening in India: An alarm signal from the National Family Health Survey (NFHS-5). J Family Med Prim Care. 2022;11(11):7303-07.https://doi.org/10.4103/jfmpc.jfmpc_1140_22.
[21] Coughlin SS. Epidemiology of breast cancer in women. Adv Exp Med Biol. 2019;1152:09-29. https://doi.org/10.1007/978-3-030-20301-6_2.
[22] Chaturvedi M, Vaitheeswaran K, Satishkumar K, Das P, Stephen S, Nandakumar A. Time trends in breast cancer among Indian women population: An analysis of population based cancer registry data. Indian J Surg Oncol. 2015;6(4):427-34. https://doi.org/10.1007/s13193-015-0467-z.
[23] Gail MH, Brinton LA, Byar DP, Corle DK, Green SB, Schairer C, et al. Projecting individualized probabilities of developing breast cancer for white females who are being examined annually. J Natl Cancer Inst. 1989;81(24):1879-86. https://doi.org/10.1093/jnci/81.24.1879.
[24] Antoniou AC, Pharoah PPD, Smith P, Easton DF. The BOADICEA model of genetic susceptibility to breast and ovarian cancer. Br J Cancer. 2004;91(8):1580-90. https://doi.org/10.1038/sj.bjc.6602175.
[25] Tyrer J, Duffy SW, Cuzick J. A breast cancer prediction model incorporating familial and personal risk factors. Stat Med. 2004;23(7):1111-30. https://doi.org/10.1002/sim.1668.
[26] Paige JS, Lee CI, Wang PC, Hsu W, Brentnall AR, Hoyt AC, et al. Variability among breast cancer risk classification models when applied at the level of the individual woman. J Gen Intern Med. 2023;38(11):2584-92. https://doi.org/10.1007/s11606-023-08043-4.
[27] Augustine P, Jose R, Amrtithlal A, Nujum ZT, Peter A, Haran JC. Usefulness of gail model breast cancer risk assessment tool in the Indian context-a case control study. Academic Medical Journal of India. 2015;3(4):117-22.
[28] Scott DM. Breast cancer screening: An overview of risk-specific screening and risk assessment. Clin Obstet Gynecol. 2022;65(3):482-93. https://doi.org/10.1097/GRF.0000000000000720.
[29] Kumar N, Singh V, Mehta G. Assessment of common risk factors and validation of the Gail model for breast cancer: A hospital-based study from Western India. Tzu Chi Med J. 2020;32(4):362-66. https://doi.org/10.4103/tcmj.tcmj_171_19.
[30] Rockhill B, Spiegelman D, Byrne C, Hunter DJ, Colditz GA. Validation of the Gail et al. model of breast cancer risk prediction and implications for chemoprevention. J Natl Cancer Inst. 2001;93(5):358-66. https://doi.org/10.1093/jnci/93.5.358.
[31] Gradishar WJ, Moran MS, Abraham J, Aft R, Agnese D, Allison KH, et al. NCCN Guidelines® Insights: Breast Cancer, Version 4. 2021. J Natl Compr Canc Netw. 2021;19(5):484-93. https://doi.org/10.6004/jnccn.2021.0023.
[32] Nelson HD, Pappas M, Cantor A, Haney E, Holmes R. Risk assessment, genetic counseling, and genetic testing for brca-related cancer in women: Updated evidence report and systematic review for the US preventive services task force. JAMA. 322(7):666-85. https://doi.org/10.1001/jama.2019.8430.
[33] Zheng W, Wen W, Gao YT, Shyr Y, Zheng Y, Long J, et al. Genetic and clinical predictors for breast cancer risk assessment and stratification among Chinese women. J Natl Cancer Inst. 2010;102(13):972-81. https://doi.org/10.1093/jnci/djq170.
[34] Mavaddat N, Michailidou K, Dennis J, Lush M, Fachal L, Lee A, et al. Polygenic risk scores for prediction of breast cancer and breast cancer subtypes. Am J Hum Genet. 2019;104(1):21-34. https://doi.org/10.1016/j.ajhg.2018.11.002.
[35] Yala A, Lehman C, Schuster T, Portnoi T, Barzilay R. A deep learning mammography-based model for improved breast cancer risk prediction. Radiology. 2019;292:60-66. https://doi.org/10.1148/radiol.2019182716.

PARTICULARS OF CONTRIBUTORS:
1. Associate Professor, Department of Community Medicine, Sree Gokulam Medical College and Research Foundation, Thiruvananthapuram, Kerala, India.
2. Professor, Department of Community Medicine, Sree Gokulam Medical College and Research Foundation, Thiruvananthapuram, Kerala, India.
3. Professor, Department of Community Medicine, Sree Gokulam Medical College and Research Foundation, Thiruvananthapuram, Kerala, India.
4. Associate Professor, Department of Community Medicine, Sree Gokulam Medical College and Research Foundation, Thiruvananthapuram, Kerala, India.
5. Professor and Head, Department of Community Medicine, Sree Gokulam Medical College and Research Foundation, Thiruvananthapuram, Kerala, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Susanna John,
Associate Professor, Department of Community Medicine, Sree Gokulam Medical College and Research Foundation, Venjaramoodu,
Thiruvananthapuram-695607 Kerala, India.
E-mail: suston14@gmail.com

PLAGIARISM CHECKING METHODS: [Jain H et al.]
- Plagiarism X-checker: Apr 08, 2023
- Manual Googling: Aug 16, 2023
- iThenticate Software: Sep 21, 2023 (16%)

ETYMOLOGY: Author Origin

EMENDATIONS: 8

AUTHOR DECLARATION:
- Financial or Other Competing Interests: None
- Was Ethics Committee Approval obtained for this study? Yes
- Was informed consent obtained from the subjects involved in the study? Yes
- For any images presented appropriate consent has been obtained from the subjects. NA

Date of Submission: **Apr 06, 2023**
Date of Peer Review: **Jul 18, 2023**
Date of Acceptance: **Sep 28, 2023**
Date of Publishing: **Dec 01, 2023**

[ANNEXURE 1]

Breast Cancer Risk Stratification and Screening Practices of Women in South Kerala

Date

Awareness session number

Location

I. Personal details

- Name
- Gender
- Address
- Phone number
- Socio economic class: Upper class/Middle class/Lower class

II. Parameters for breast cancer risk calculator

1. Present age
2. Age at menarche
3. Age at first live birth: ….. years/Nullipara
4. Number of live births
5. Total Breast feeding duration (in years)
6. Number of first-degree relatives with breast or ovarian cancer
7. Number of previous breast biopsies if any?

Risk score …..

III. Prior screening practices and other details

8. If Yes to 7, what all invasive procedures were done on breast Biopsy/Lumpectomy/FNAC/Mastectomy (Tick all applicable)
9. Age at menopause: ….. years/Not attained
10. If menopause attained, natural or surgical?
11. Have you ever undergone any breast cancer screening procedure? (Tick all applicable)
    i. Clinical breast examination
    ii. Ultrasonogram
    iii. Mammogram
    iv Never screened