Original Research Article

Breast Cancer Risk and Screening practices among Health care workers in a tertiary care centre, Trivandrum, South India.

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Abstract

Background: Breast cancer is the leading cause of cancer death among women all over the world. Incidence rates are high in Kerala; southernmost state of India. Even though we have facilities for screening and proper treatment; large population, including health care workers, present with advanced disease."A-J(Augustine-Jose)model" is a mathematical tool developed similar to Gail Model in predicting women's lifetime risk for developing breast cancer.**Objectives:** To identify women at high risk for developing breast cancer using A-J model breast cancer risk assessment tool and to assess the knowledge regarding breast cancer and perceptions and practice of screening among health workers of a tertiary level Medical College, in South Kerala. **Methods:** A cross sectional study was conducted among 210 health care workers aged 30 years and above using a semi structured questionnaire. Data was collected from Doctors, Nurses and class IV workers. **Results:** There were 70 study participants in each group and the mean age was 38 years.Even though disparities in knowledge is observed as expected, screening practice was noticeably low among all groups.Risk factors for breast cancers were more among doctors than other health care workers. According to this tool 10% participants are at higher risk for developing breast cancer and 8% are at very high risk compared to the women in their respective age groups. Lack of time and laziness are the commonly reported reasons for the poor practice. **Conclusion:** This risk score would enhance screening practices and thus help in early detection of breast cancer and save theirlives.

Keywords: breast cancer, A-J model breast cancer risk assessment tool , health care workers, risk factors

Introduction

Breast cancer is the leading cause of cancer among women all over the world with an average annual incidence of 43.3 per 100000 women according to the world cancer report 2014(1).Breast Cancer (BC) rates (age standardised incidence) are increasing in India and it is found to be 25.8 per 100,000 females. The figures for kerala state of India is 30.5 in urban area and 19.8 in rural areas with Trivandrum having the highest Incidence rates. According to the study conducted at regional cancer center , Trivandrum BC accounts for 31% of all female cancers in Trivandrum and 35% patients are less than 50 years old. Crude Rate (CR) of breast cancer increased from 39 to 55.4 per lakh women in 2016. Age specific rates (ASR) increased from 35.2 to 43.4 CR will be 80 by 2019- 2020 in Trivandrum(2).

The role of reproductive factors in the etiology of breast cancer has been recognized for more than 100 years, beginning with the observation by Ramazzini of a high incidence of the disease in nuns. It is now well established that nulliparous women have approximately twice the risk of parous women. Women with early age at first childbirth are at lowest risk. The reduced risk associated with parity may be further enhanced if a woman decides to breastfeed. However, protection is likely dependent on longer periods of breastfeeding. Menstrual factors are also predictive of risk; early age at menarche and later age at natural menopause are associated with the highest risks,

presumably reflecting in part an influence of ovulatory activity(1). Menstrual and reproductive factors are major risk factors and can be used to estimate individual risks via the Gail Model Breast Cancer Risk Assessment Tool (http://www.cancer.gov/bcrisktool/) and other risk prediction models(3).

Many studies have examined the role of health workers such as doctors, nurses and staffs in promoting breast cancer screening. Even when female health workers are not directly involved in referring patients for breast cancer screening, they play an important role in creating an environment supportive of screening behaviors by offering positive role models. Studies from developed countries show that attitude and orientation of healthcare providers are important determinants of use of breast screening program(4). It has also been observed that for health workers to be effective as educators they must posses the appropriate knowledge, attitude and beliefs concerning the health behavior being promoted . Therefore there is a need for information and enlightenment, if patients are to present early in hospital. The practice of any of these screening methods is dependent on the awareness about breast cancer. If this knowledge is poor among those who should teach others, there will be difficulty promoting this life saving methods.

For early breast cancer detection, American Cancer Society recommends that women aged 40 years and older should have a mammogram every year. Regarding clinical breast examination (CBE), it recommends that women in their 20s and 30s should have CBE a as part of a periodic (regular) health examination by a health professional, preferably every 3 years. Starting at age 40, women should have a CBE by a health professional every year. In resource-poor settings, doing breast self-examination (BSE) monthly is an option for women in their 20s(5).

Only 9% women present with Stage I disease (RCC Trivandrum) of BC including the health care workers and the Screening Practice for BC is very low(2). Reluctance, laziness and lack of time among health care providers and Lack of awareness regarding the importance of screening at regular intervals are the most common barriers for screening practice. This study was designed to evaluate the risk among the health care workers and their knowledge, perception and practice of breast cancer screening among female health workers in a tertiary care center, Trivandrum, south India.

In this study - the risk score was calculated using "A-J (Augustine- Jose)Model" a Mathematical tool developed to calculate a woman's lifetime risk of developing breast cancer(6).It uses the following 7 parameters: 1. Current Age 2. Age at Menarche 3. Age at first live birth 4. Number of Live births 5. History of breast feeding, 6. Number of First degree relatives with breast cancer, and 7. Total number of previous breast biopsies. The "A-J (Augustine- Jose) model" calculates a Breast Cancer risk score that helps to determine the type and frequency of screening required. Higher scores indicate higher risk of developing breast cancer, and the need to undergo frequent screening for early detection. Low Scores do not guarantee absence of risk and routine screening is recommended. The tool is most accurate for women 30 years andabove.

Objectives of the present study were to study the usefulness of A-J model breast cancer risk assessment tool in identifying women at high risk for developing breast cancer and to motivate them for regular screening and to assess the knowledge regarding breast cancer, perceptions and practice of screening among health care workers of a tertiary care centre (Sree Gokulam Medical College and Research Foundation, Trivandrum, Kerala) in South India.

MATERIALS AND METHODS

Study type and setting: A Cross-sectional hospital based study was conducted at Sree Gokulam Medical College & Research Foundation, Venjaramoodu, Trivandrum, south India . Study population :By convenient sampling method 210 Female health care workers aged 30years and above including Doctors, Nurses and class IV workers are taken. Study was held for a period of 2 months, from December 2016 to January 2017 . Data Collection: The data were obtained through the face-to-face interview using a Semi Structured questionnaire to obtain the demographic and risk factors including, Age, Age at menarche ,marital status , No of live births, Age at first live birth, Total duration of breast feeding, Number of previous breast biopsies, Number of first degree relatives with breast cancer. Informed verbal consent was taken from each participant. Participants asked whether they did any type of screening practice ,if not ask about the barriers. A-J Model Breast Cancer Risk Assessment Tool (Snehita Calculator): A-J Model is a logistic regression model based on seven known risk factors of breast cancer (mentioned above) in predicting women's lifetime risk for developing breast cancer. This model is used to do breast cancer risk assessment in the calculator made by Snehita Women's health foundation. It helps to increase ones perception of their own risk which could be a motivation for screening. Data analysis: After collecting all Data, data entry was performed in Microsoft-Excel and analysis was done using IBM SPSS statistics for windows, version 20. Ethical considerations: Approval was taken from the institutional ethics committee of SGMC&RF, Trivandrum before conducting the study. Informed consent was obtained from the participants before interviewing them.

Results and Discussion :
Out of 210 female health care workers (age group>30 years),Doctors,Nurses and Class IV workers (number 70 each)are included in this study. Table:1 shows socio

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demographic characteristics of the study participants, religion ,marital status, financial background

Table 1: Known risk factors of breast cancer among respondents.

Known risk factors	Mean	Frequency(percentage)
1. Age (N=210)	38years	-
2. Age atmenarche(N=210)	13.38years	
3. Number of livebirths(N=210)		0 - 33(15.7%) 1 - 69(38.9%) 2 - 98(55.3%) 3 - 10(5.6%)
4. Age at 1st childbirth(N=177)	23.94years	0
5. Duration ofbreast feeding(N=177)	2.05years	-
6. Family history ofbreast cancer(N=210)	-	No history -186(88.6%) Positive family history-
7. History of previousbreast biopsy(N=210)		Yes- 4(1.96%),No-206(98.1%)

The distributions of the common risk factors of breast cancer are given in Table 1. The known risk factors of the breast cancers are(7)(8) . 1.Increasing Age 2. Early age at Menarche 3. Increasing age at first live birth 4. Number of Live births 5. History of breast feeding, 6. Number of First degree relatives with breast cancer,(9) and 7. Total number of previous breast biopsies (10).Marriage at an early age, early and multiple childbirths, and breastfeeding of all children for a long period of time is the norm in most Indian societies. However, the urban educated class is moving away from this trend, with late-age childbirth and little or no breastfeeding due to changing social values and the demands of jobs on working women. These changes may be partly responsible for the increasing trend of breast cancer incidence. In our study also shows the trend of increasing pattern of risk factors among doctors group with in the health care workers. Nulliparity and late age at first childbirth are consistently observed reproductive risk factors. A case control study in Mumbai indicated that compared to married women, single women had a 4–5-fold higher risk for developing breast cancer in the age group of 40– 54 and above (11). In another study, nulliparous women had a 2.2-fold higher risk than parous women(12).

According to AJ model 70% (n=147) of the health care workers had normal risk, 11.9% (n=25) had moderate risk and 10% (n=21) had high risk and 8% (n=17) had very high risk for breast cancer ; the Figure1 shows the risk score for breast cancer among each groups and it was obtained that doctors are at very high risk than nurses and class IV workers. Knowledge scores were calculated and grouped into poor, average and good. 61.4% (n=129) had poor knowledge score and 31.4% (n=66) had average knowledge and 7.1% (n=15) had good knowledge score about breast cancer and their risk factors.(figure2) The study conducted by paul Augustine etal "Usefulness of Gail Model Breast Cancer Risk Assessment Tool in Estimating the Risk for Development of Breast Cancer in Women of Kerala India" quoted that "Assessment of a
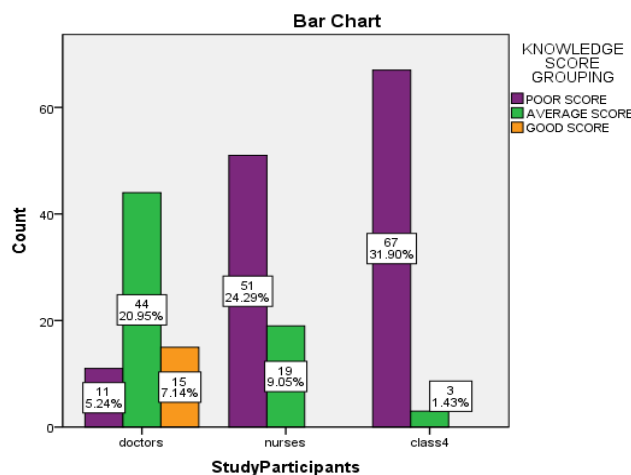
Fig1 Risk score calculated by A-J model calculator among health care workers
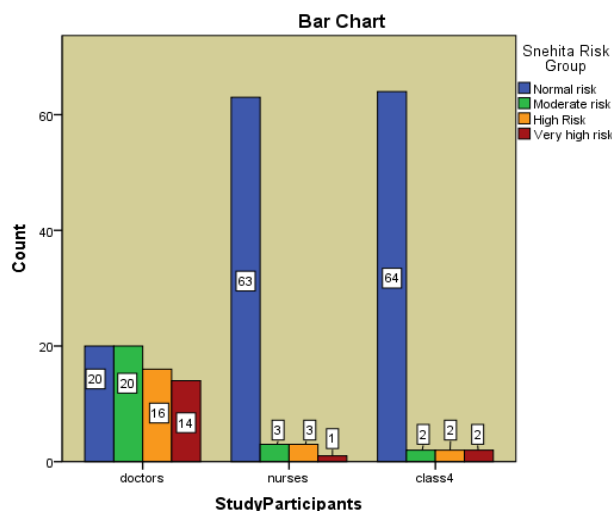
Chi square value-81.373 Pvalue-0.001

Score category	
Values	Risk score
<0.35	Normal risk
0.351-0.5	Moderaterisk
0.51-0.65	High risk
>0.65	Very high risk

**Fig2:Knowledge score among health care workers(N=210)**

P value-0.001 Chi-square value-107.516

woman's risk of breast cancer can be used for counseling and decision making about clinical management of risk. Physicians should give patients a clear and positive message regarding risk management and should emphasize that risk calculations are estimates only of the probability of having breast cancer, not the risk of dying of the disease". The Gail's Breast Cancer Risk Assessment Tool will estimate a woman's risk of developing invasive breast cancer during the next 5-year period and up to age 90 (lifetime risk) based on the woman's age and the risk factor information provided(3). So these type of risk assessment tools are helps in

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estimating the risk of breast cancers and it is a motivation for the women for doing regular screening practice.

Fig 3: Attitude score towards breast cancer screening
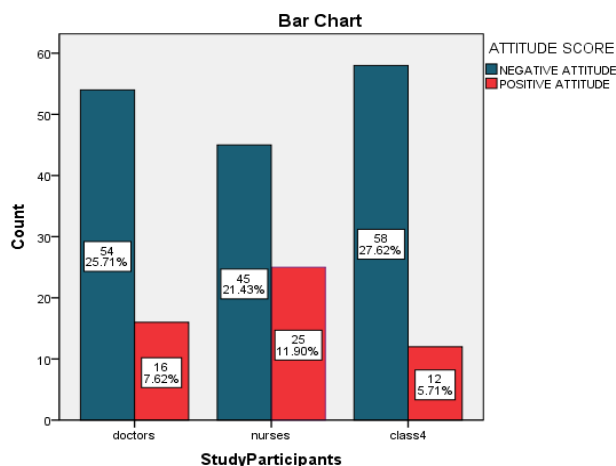
P value-0.035Chi-squarevalue-6.713

Table 2: Type of screening done by the health care workers

	Self breast examination	Clinical breast examination	Radiological examination
Doctors	44(57%)	9(12.9%)	6(8.6%)
Nurses	21(30%)	4(5.7%)	6(8.6%)
Class iv workers	5(7.1%)	4(5.7%)	2(2.9%)

Table 3: Barriers of breast cancer screening

Barriers for screening	Frequency(percentages)
Lackof time	23.3%(n=49)
Lazzyness	14.3%(n=30)
Relectant to examination	13.8%(n=29)
Due to lackof confidence	9%(n=19)
Financialreasons	6.9%(n=15)
Not having any growth or disease	6.2%(n=13)
Due to fear	5.7%(n=12)
Don't knowaboutscreening	1.4%(n=3)
Due to unavailibility of lady doctors	1%(n=2)

Table 4: Common barriers among health care workers

Health care workers	Most common Barriers of screening practice for BC
Doctors	Lazziness-28.6%(n=20)
	Lack of time-25.7%(n=18)
Nurses	Lack oftime-27.1%(n=19)
	Fear-11.4%(n=8)
classIVworkers	Reluctanttoexamination-20%(n=14)
	Financialreason-17.4%(n=12)

The doctors had a significantly higher knowledge score than the other categories of health care workers, ie out of the7%ofgoodknowledgescoreallareweredoctorsanditisstatisticallysignificant(Chisquarevalue-81.373 ,P value-0.000) figure 2 shows the knowledge score among health care workers. It is important to note that a few of the respondents 8(3.8%) believed that breast cancer cannot be cured even if the treatment is given. Even though the knowledge score is higher among doctors the attitude towards breast cancer and the screening practice was found to be almost same among the health care workers.

There have been many studies in India concerning clinical presentation of breast cancer among Indian women and late presentation has been observed in all the reports .This late presentation is directly related to the level of awareness about breast cancer, the risk factors and practice of the screening methods among Indian women. There has been reports about knowledge, attitude and practice of breast cancer screening methods among health and non-health workers in various parts of India. Studies in developed countries show that attitude and orientation of healthcare providers are important determinants of use of breast cancer screening programs [12,13] In order to function as effective promoter of breast cancer control through early detection, health workers must possess the relevant knowledge as well as appropriate attitude and belief concerning the disease and its early detection

Out of the 8 questions about attitude only 25% (n=53)had positive attitude towards breast cancer screening. The perceived risk of breast cancer among the participants majority of class IV workers 55/70 says that they never get breast cancer in their life lifetime period.Most of the nurses and doctors says that they have some chance of getting breast cancer. Figure 3 shows the attitude score among each participant groups.

Among the health care workers only 39.6% (n=79) had done screening for breast cancer and remaing 62.38%(n=131) had never done any type of screening for breast cancer in the past. Table 2 shows the frequency(percentage) of type of screening done among the health care workers.

Common barrrier among the health care workers for screening breast cancers which are noticed from this study are shown in the (tabel 3). Results (table 4)shows that the most common barrier of breast cancer screening was lazziness among doctors(28.6% ,n=20) , lack of time for nurses (25.7%,n=19) and among classIV workers was relutent to examination(20% n=14). These barriers can only removed by continues motivation and education for health care workers .

Health care providers are one should provide adequate information on Breast Cancer Screening Test(BCST) to general population . With more accurate, and complete information, women might be motivated to participate in BCST rather than just hoping that they would not have breast cancer because they do not have symptoms, had breastfed, or do not have a family history, etc so for that adequate knowledge must be there for health care workers and they should done the screening practice for their health and also for motivating others. **Conclusion**

Health care providers have good knowledge; equivocal attitude and poor screening practice with regards to breast cancer. So the study highlights the need for educational programs to create awareness regarding regular breast cancer screening. Most common Barriers found from the study was laziness and lack of time which can only be tackled with motivation. Risk assessment score shows doctors are at higher risk compare to class IV workers.

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This is an eye opener for them to enhance the screening practice and for life style modification.

Assessment of a woman's risk of breast cancer can be used for counseling and decision making about clinical management of risk.

References

1.   WHO | World Cancer Report 2014 [Internet]. [cited 2017 Apr 29]. Availablefrom: http://www.who.int/cancer/publications/WRC_2014/en/

2.   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 APJCP.2016;17(6):2895–9.

3.   Usefulness of Gail Model Breast Cancer Risk Assessment Tool in the Indian Context – A Case Control Study (PDF Download Available) [Internet]. [cited 2017 Mar 26].   Available   from: https://www.researchgate.net/publication/280943766_Usefulness_of_Gail_Model_Breast_Cancer_Risk_Assessment_Tool_in_the_Indian_Context_-_A_Case_Control_Study

4.   Akhigbe   AO,   Omuemu   VO. Knowledge, attitudes and practice of breast cancer screening amongfemale health workers in a Nigerian urban city. BMC Cancer.2009;9:203.

5.   How Is Breast Cancer Detected? | Breast Cancer Diagnosis [Internet]. [cited 2017 May   1].   Availablefrom: https://www.cancer.org/cancer/breast-cancer/screening-tests-and-early-detection.html

6.   Breast Cancer Risk – Snehita Women's Health Foundation [Internet]. [cited 2017 May 1]. Availablefrom: http://snehita.in/contact-us/

7.   Augustine P, Jose R, Peter A, Lal AA, Prabhakar J, Sreedharan J, et al. Risk Factors of Breast Cancerin Kerala, India - A Case Control Study. Acad Med J India. 2014 Feb25;2(1):7–13.

8.   Bhadoria AS, Kapil U, Sareen N, Singh P. Reproductive factors and breast cancer: A case-control studyin tertiary care hospital of North   India.   Indian   J   Cancer.   2013 Oct1;50(4):316.

9.   Pharoah PD, Day NE, Duffy S, Easton DF, Ponder BA. Family history and the risk of breast cancer:a systematic review and meta-analysis. Int J Cancer. 1997 May29;71(5):800–9.

10.   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   JCDR.2013 Sep;7(9):1913–6.

11.   Agarwal G, Ramakant P. Breast Cancer Care in India: The Current Scenario and the Challenges for the Future. Breast Care. 2008Mar;3(1):21–7.

12.   Rao DN, Ganesh B, Desai PB. Role of reproductive factors in breast cancer in a low-risk area: a case- control study. Br J Cancer. 1994Jul;70(1):129–32.

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