

ORIGINAL RESEARCH ARTICLE

Knowledge on Risk Factors and Early Detection Methods of Breast Cancer among Rural Women of Chittoor District, Andhra Pradesh, India

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ABSTRACT:

Background: Breast cancer is the most common malignancy in women and is often associated with high levels of morbidity and mortality due to its late onset in developing countries. Survival rate among women diagnosed with breast cancer was very poor because most of them sought treatment in late stage of the disease. Lack of awareness about the disease and poor facilities of screening programme may be the reason in delay for treatment. Objectives of the study were to assess the breast cancer knowledge and screening practices among women in a rural area of Tirupati and to determine the association between socio demographic characteristics and knowledge on breast cancer among women in rural area of Tirupati. **Material and methods:** A community based cross sectional study was carried out in a rural area of Tirupati. Systematic random sampling method was used to select the study subjects. A pretested, semi structured questionnaire was used to collect the data. Necessary statistical tests like chi-square tests were applied for data analysis. **Results:** A total of 210 females in the age group 20 to 60 years were included in the study. Mean age of the study group was 41.88 ± 12.66 years. Majority of study participants belongs to 50 to 60 years age group (30%). Mean age at the time of marriage was 19.78 ± 2.91 years. About 48.6% of

study participants have heard about breast cancer. About 13.3% were heard about self breast examination, 9% were heard about clinical breast examination and 16.7% were heard about mammography. The knowledge of breast cancer and the knowledge of screening methods were significantly associated with women who had family history of breast cancer, family history of other cancers and educational status (p value < 0.05). **Conclusions:** The awareness about breast cancer and screening methods was low amongst women in this community. There is a need for awareness generation programs to educate women about breast cancer, propagation of correct messages and promote early detection.

Keywords: knowledge, self breast examination, rural, women, breast cancer

INTRODUCTION:

Cancer is the leading cause of death worldwide, killing nearly 10 million people in 2020, or nearly 1 in 6. In 2020 the most common cancer types were breast, lung, colon and rectum and prostate cancers. Globally, 2.3 million women diagnosed with breast cancer and 6,85,000 died from the disease. The most common cancer in the globe at the end of 2020 was breast cancer, which had been diagnosed in 7.8 million women in the previous five years. Globally, women lose more disability-adjusted life years (DALYs) to breast cancer than to any other cancer. Breast cancer occurs in women of all ages after puberty in all countries of the world, but incidence increases in later life.⁽¹⁾ According to GLOBACON 2020, breast cancer is the fifth leading cause of cancer mortality worldwide, with 6,85,000 deaths. Among women, breast cancer accounts for 1 in 4 cancer cases and for 1 in 6 cancer deaths, ranking first for incidence in the vast majority of countries (159 of 185 countries) and for mortality in 110 countries⁽²⁾

The rapid rise in number of breast cancer cases has been associated with growing urbanisation and rapid lifestyle changes. High number of patients with breast cancers presenting in locally advanced or metastasis due to lack of awareness or proper structured screening methodology. Breast Self Examination (BSE) is easy, cost effective and proven way for early detection.⁽³⁻⁶⁾ A potentially useful approach to combat disease and reduce mortality is early detection of breast cancer through population-based screening programs.⁽⁷⁾ Periodical mammograms, Clinical Breast Examination (CBE) and monthly BSE are crucial to detect breast cancer at an early stage.^(8,9) WHO Global Breast Cancer Initiative (GBCI) aims to reduce global breast cancer mortality by 2.5% annually and avoid 2.5 million

breast cancer deaths among women under 70 worldwide between 2020 and 2040. The three pillars for achieving these goals were health promotion for early detection; timely diagnosis; and comprehensive breast cancer management.⁽¹⁾

More women would seek medical attention when breast cancer was first suspected and before any existing cancer had progressed if public health education was made available to increase awareness among women of the signs and symptoms of breast cancer and help them, along with their families, understand the importance of early detection and treatment. To ensure that women are directed to diagnostic services when necessary, public education about the signs and symptoms of early breast cancer must be supplemented with training for health professionals. It is important to assess the existing knowledge and practices related to breast cancer and its screening in the general population in order to design and initiate effective health promotion strategies for protecting and reducing mortality against breast cancer. Hence, this study was planned in rural area of Tirupati, Andhra Pradesh with objectives to assess the knowledge about breast cancer and breast screening practices among women and to determine the association between socio-demographic characteristics and knowledge on breast cancer among women in rural field practice area of SVIMS-Sri Padmavathi Medical College for Women, Tirupati.

MATERIAL AND METHODS

Study setting: This study was conducted in a rural field practice area of SVIMS-Sri Padmavathi Medical College for Women, Tirupati. The field practice area includes rural field practice area which comes under Rural Health Training Centre, Mangalam, Tirupati, Chittoor District, Andhra Pradesh. Mangalam comprises of approximately 29,953 adult population which consists of 15,576 females in 13,162 households. It covers 5 sub-centres i.e Mangalam-1, Mangalam-2, Settipalli, BTR colony and TUDA quarters.

Study subjects: Women in the age group 20 to 60 years

Study period: 3 months from June 2022 to August 2022

Study design: Community based cross sectional study

Sample size: Considering 57.9% subjects were aware of at least one screening method for breast cancer, in a study conducted by Saha S et al. (2021) in Vellore⁽¹⁰⁾, by using formula

$N = Z^2pq/L^2$ with acceptable error 7% at 95% confidence interval, sample size in the present study was calculated.

The estimated sample size was 191. Taking non response as 10%, sample size was found to be 210 for this study.

Sampling strategy: Systematic random sampling method was used to select the study subjects. Three sub-centres in rural area were selected randomly using random number table method. Households in each selected village were selected by systematic random sampling method. All the women aged 20 to 60 years in the selected households were included in the study.

Ethical clearance: Before starting the study, ethical clearance was obtained from Institutional Ethics committee (IEC), Sri Venkateswara Institute of Medical Sciences (SVIMS), Tirupati.

Inclusion criteria: Women aged 20 to 60 years and who had given consent were included in the study.

Exclusion criteria: Women diagnosed with breast cancer and who did not consented to participate in the study were excluded.

Data collection: A pretested, semi structured questionnaire was used to collect the data. A pilot study was conducted using study questionnaire and tested for appropriateness and the actual study was started after making necessary corrections and advises in it. Informed written consent was taken from the study subjects after explaining the purpose and objectives of the study in their own language and confidentiality was assured. Questionnaire was divided into two sections i) socio-demographic characteristics of the participants ii) knowledge about breast cancer with questions related to awareness and screening methods.

Statistical analysis: Collected data was entered in Microsoft Office Excel Worksheet and analysed by using IBM SPSS software 26.0 Version. Categorical data was represented in the form of percentages and proportions. Continuous variables were represented in the form of mean and standard deviation. Chi-square test was applied to test the difference in awareness levels by Socio-demographic characteristics. P value less than 0.05 was considered as statistically significant.

RESULTS:

The present study was conducted in the field practice area of Rural Health Training Centre (RHTC) of the Department of Community Medicine, SVIMS-Sri Padmavathi Medical College for Women, Tirupati, Chittoor district, Andhra Pradesh. A total of 210 females were included in the study. Mean age of the study participants was 41.88 ± 12.66 years. Majority of study participants belongs to 50 to 60 years age group (30%) and were Hindu (92.4%) by religion. Mean age at the time of marriage is 19.78 ± 2.91 years. About 96.7% of the study participants were married. Majority of the study participants were having school level education (32.4%); followed by illiterates (26.7%). Majority of study participants belongs to nuclear family (83.3%) and Upper Middle Class (40.0 %). (Table1)

Table 1: Socio-demographic characteristics of the study population

Characteristic	Category	Number (n)	Percentage (%)
Age group (in years)	20 -30	45	21.4
	31- 40	59	28.1
	41- 50	43	20.5
	51-60	63	30.0
Religion	Hindu	194	92.4
	Christian	9	4.3
	Muslim	7	3.3
Marital status	Married	203	96.7
	Unmarried	3	1.42
	Widowed	4	1.90
Education	Illiterate	56	26.7
	Primary	35	16.7
	Secondary	68	32.4
	Intermediate	26	12.4
	Degree	25	11.9
Type of family	Nuclear	175	83.3
	Joint	31	14.8
	Three generation	4	1.9
Socioeconomic status	Upper class	14	6.7
	Upper Middle Class	84	40.0
	Middle Class	79	37.6
	Lower Middle Class	23	11.0
	Lower class	10	4.8

Women who were having family history of breast cancer and family history of other cancers were 3.3% and 6% respectively (Table 2)

Table 2: Distribution of study participants according to family history of cancer (N =210)

Family history of cancer	Category	Number (n)	Percentage (%)
Family history of breast cancer	Yes	7	3.3
	No	203	96.7
Family history of other cancers	Yes	6	2.9
	No	204	97.1

Knowledge about breast cancer: About 48.6% of study participants have heard about breast cancer. Knowledge regarding risk factors showed that 14.8% knew increasing age and high-fat diet; 16.2% knew no breast feeding; 15.2% knew smoking and alcohol consumption as risk factors of breast cancer. The responses of breast cancer signs and symptoms were reported as lump in the breast (22.4%), pain or soreness in the breast (17.6%) and change in the size of the breast (14.8%). (Table 3)

Table 3: Distribution of study participants according to Knowledge of breast cancer (N =210)

Knowledge	Category	Number (n)	Percentage (%)
Heard of breast cancer	Yes	102	48.6
	No	108	51.4
Risk factors of breast cancer	Increasing age	31	14.8
	High-fat diet	31	14.8
	Smoking	32	15.2
	Race/ethnicity	15	7.1
	Alcohol consumption	32	15.2
	First child at late age	19	9.0
	Early onset of menarche	19	9.0
	Late menopause	14	6.7
	Nulliparous	24	11.5
	Obesity	23	11.0
	No breast feeding	34	16.2
Signs and symptoms of breast cancer	Lump in the breast	47	22.4
	Pain or soreness in the breast	37	17.6
	Change in the size of the breast	31	14.8
	Discoloration /dimpling of the breast	23	11

Signs and symptoms of breast cancer	Changes in the shape of the breast	26	12.4
	Inversion/pulling in of nipple	26	12.6
	Swelling or enlargement of the breast	35	16.7
	Scaling/dry skin in nipple region	23	11
	Lump under armpit	27	12.9
	Weight loss	25	11.9

Knowledge about screening methods: Concerning the participants awareness on screening methods 13.3% heard about self breast examination, 9% of the women heard about clinical breast examination and 16.7% heard about mammography (Table 4). The knowledge of breast cancer was significantly associated with literacy status ($p=0.01$). The knowledge of breast cancer was not associated with age, marital status, religion, socio-economic status and type of family (Table 5). The knowledge of breast cancer was significantly associated with women who had family history of breast cancer ($p=0.04$) and family history of other cancers ($p=0.001$). (Table 6)

Table 4: Distribution of study participants according to Knowledge about screening methods (N =210)

Knowledge about screening methods	Category	Number (n)	Percentage (%)
Heard of BSE	Yes	28	13.3
	No	182	86.7
Heard of CBE	Yes	19	9
	No	191	91
Heard of mammography	Yes	35	16.7
	No	175	83.3

Table 5: Association between socio demographic characteristics and knowledge of breast cancer among women

Variable	Category	Knowledge		χ^2	p-value
		Yes (%)	No (%)		
Age group	20 -30	23 (51.1)	22 (48.9)	6.999	0.72
	31- 40	33 (55.9)	26 (44.1)		
	41- 50	24 (55.8)	19 (44.2)		
	51-60	22(34.9)	41(65.1)		
Religion	Hindus	92 (47.4)	102 (52.6)	1.48	0.475
	Christians	6 (66.7)	3 (33.3)		
	Muslims	4 (57.1)	3 (42.9)		
Marital status	Married	98 (48.3)	105 (51.7)	0.40	0.81
	Unmarried	2 (66.7)	1 (33.3)		
	Widowed	2 (50%)	2 (50%)		

Education	Illiterate	23 (41.1)	33 (58.9)	13.32	0.01*
	Primary	13 (37.1)	22 (62.9)		
	Secondary	32 (47.1)	36 (52.9)		
	Intermediate	14 (53.8)	12 (46.2)		
	Degree	20 (80.0)	5 (20.0)		
Type of family	Nuclear	86 (49.1)	89 (50.9)	0.913	0.633
	Joint	15 (48.4)	16 (51.6)		
	Three generation	1 (25.0)	3 (75.0)		
Socioeconomic status	Upper class	6 (4.9)	8 (57.1)	3.14	0.534
	Upper Middle Class	46 (54.8)	38 (45.2)		
	Middle Class	36 (45.6)	43 (54.4)		
	Lower Middle Class	11 (47.8)	12 (52.2)		
	Lower class	3 (30.0)	7 (70.0)		

(*p-value < 0.05, Significant)

Table 6: Association between family history of cancer and knowledge of breast cancer among women

Variable	Knowledge		χ^2	p-value
	Yes (%)	No (%)		
Family history of breast cancer	6 (85.7)	1 (14.3)	3.99	0.04*
	96 (47.3)	107 (52.7)		
Family history of other cancers	5 (71.4)	2 (28.6)	21.15	0.001*
	23 (11.3)	180 (88.7)		

(*p-value < 0.05, Significant)

DISCUSSION:

This study assessed the knowledge and screening practices of breast cancer among 210 women in rural area of Tirupati. About 48.6% have heard about breast cancer, 13.3% were heard about self breast examination, 9% were heard about clinical breast examination 16.7% were heard about mammography. Prusty RK et al.¹¹ reported 49% of the women were aware of breast cancer which was similar to the present study. In a study conducted by Kumarasamy H et al.¹² which showed 89% of the women were aware of breast cancer which was higher than the present study the difference may be due to high literacy rate. In an intervention study conducted by Prusty RK et al.¹³ reported 51% of the women had ever heard of breast cancer during the baseline survey which was similar to the present study. In a study by Dahiya N et al.¹⁴ reported knowledge on risk factors of breast cancer as smoking, 57.7%; old age, 56.3%; lack of breastfeeding, 48.2%; late menopause, 37.4%; and early menarche, 34.7%; which were higher than the present study and the difference may be due to half of the study

participants are students and having high literacy rate. Paul S et al.¹⁵ reported awareness about risk factors of breast cancer were alcohol (64.6%), smoking (64%) and early menarche (17.2%) higher than this study may be due to different geographical distribution and sample size.

Dahiya N et al.¹⁴ in their study reported Knowledge on signs and symptoms of breast cancer as lump in the breast (75%), change in the shape and size of breast (57%), lump under armpit (56%), pain in one breast (56%) which were higher than the present study and the difference may be due half of the study participants are students and high literacy rate. In a study conducted by Prusty RK et al.¹³ reported that about 6.1% of women knew about BSE, 44% of the women knew about CBE and only 0.2% knew about mammography. In a study conducted by Kumarasamy H et al.¹² reported 26% of the women were aware of BSE and 12.5% of the women were aware of mammography. In a study conducted by Paul S et al.¹⁵ reported knowledge about BSE was 16% higher than this study may be due to different geographical distribution and sample size. Ishaque S et al.¹⁶ reported 62.6% have heard about BSE higher than the present study the difference may be due to high literacy of the study participants. Educational status was found to be significantly associated with knowledge and awareness of breast cancer in this study ($p < 0.05$) which was similar in the studies conducted by Prusty RK et al.¹¹, Ishaque S et al.¹⁶, Jothula KY et al.¹⁷ and Dey S et al.¹⁸. Like many other Indian studies, this study found the knowledge of risk factors among women was very low¹⁸⁻²².

CONCLUSIONS:

This study aimed to assess breast cancer awareness and knowledge of danger signs, symptoms, risk factors and concluded that knowledge of danger signs and risk factors of breast cancer among women in the community was low. Considering the fact that breast cancer has grown as an epidemic in the country, lower knowledge of symptoms and signs may lead to delay in treatment seeking among the women. This study calls for an intervention to enhance and improve knowledge of breast cancer among women. Effective media platform like television can be used to promote breast cancer awareness and breast self-examination practices. Advocacy and health education related to breast cancer awareness and screening methods and their accessibility needs to be strengthened by the government. Appropriate and specific content for health education with an emphasis on preventable risk factors and

lifestyle modification will enhance the awareness level and strengthen practices for prevention and early detection breast cancer.

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