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Original Research Article

A cross-sectional study to evaluate knowledge, attitude and practices of women regarding breast and cervical cancer in a rural area in Northern Maharashtra

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ABSTRACT

Background: Out of all the cancers prevalent in Indian women, breast and cervical cancer are the leading cause of death. Despite so many preventive strategies, there are still many women who suffer from breast and cervical cancer. The main reason for this is the lack of knowledge among women. Through this study we aim to assess the knowledge ,attitude and practices of women regarding breast, cervical cancer and about the misconceptions affecting the above three variables.

Methods: A cross-sectional study was conducted in a tertiary health care centre in Northern Maharashtra. The study included rural women above 30 years of age. This study was conducted using a self-administered questionnaire in vernacular language including 3 domains-knowledge, attitude, and practices with 10 questions each with 4-5 options each. The subjects were educated about the complete process and informed consent was taken .The responses were kept confidential and recorded in excel format.

Results: The participants showed poor knowledge , positive attitude and poor practices about breast and cervical cancer. Particularly, poor knowledge was observed about availability of vaccines for cervical cancer; poor practices were observed in usage of breast self-examination; mammography and Sono-mammography for breast cancer. For cervical cancer there was low prevalence of pap-smear and vaccination for human papillomavirus.

Conclusions: To improve knowledge, attitude and practices of women, measures like awareness camps, rural health camps and screening camps should be organized. Also, multipronged approach to make vaccination and screening tests more accessible and available at a cheaper cost should be adopted.

Key words: Knowledge, Attitude, Practices

INTRODUCTION

Women suffer from multiple health problems due to their lifestyle, work, and family commitments.[1] Among them cancer is one of the most dreaded and feared conditions.[2] Out of all the cancers prevalent in Indian women, breast and cervical cancer are the leading cause of death. According to WHO estimates, there were 2.3 million women diagnosed with breast cancer in 2022 and globally cervical cancer is the fourth most common cancer in women, with around 6,60, 000 new cases in 2022.[3,4] These statistics demonstrate an urgent need for cancer awareness. The best way to tackle it is prevention and early detection.[5] Though screening is a simple and cost-effective way for prevention, there are still many women who suffer from breast and cervical cancer. The main reason for this is the lack of knowledge among women.[6,7] Carelessness towards own health is also a huge roadblock in prevention of these

cancers.[8] Most of the women have some socio-demographic constraints which prevent them from acknowledging the symptoms and getting screened for cancer.[9] Indian women feel either they are completely immune to cancer or cancer is a "punishment for sins committed by them in their previous life".[10] Hesitancy and social stigmas also must be eliminated to make women acknowledge the changes in their body as possible symptoms for cancer rather than ignoring them.[9] This study will help motivate them to get screened for breast and cervical cancer in future. This study should provide insights in implementing various healthcare awareness programmes promoting breast and cervical cancer screening at a reasonable cost.

The primary objective of the study is to assess the knowledge, attitude, and practices of rural women towards breast and cervical cancer and identify the misconceptions of rural women towards cancer.

METHODS

A cross-sectional study (Systematic random sampling method set in the OPD and wards) at SMBT Hospital, Nashik.

Study Period: July 2024 to Dec 2024 .

Duration - 5 months.

Sample size estimation[11]

P=45% Q=55% e=8% Z=1.96 (p = 0.05) double tailed Formula -n=Z2PQ/e2, n=151.

Inclusion criteria (selection criteria)

All women above 30 years of age visiting SMBT hospital and consenting for inclusion in the study.

Exclusion criteria

Women living in urban area.

Study variables

Independent variables: age, marital status, level of education, occupation of women and husband, family income, breast, and cervical cancer history in family.

Dependent variables: knowledge, attitude, and practices of women.

Data collection procedure

The following procedure was followed: after ethical approval from ethics committee of SMBT IMS and RC recruitment was started. Subjects were educated about the complete process and informed consent was taken. A pre validated questionnaire was administered in patients own language (The questionnaire included 10 questions each for knowledge, attitude, and practices. Each question had 4-5 options).The subjects answers were noted on the pre-approved document and this data was later documented in excel sheet format for statistical calculations.

Statistical analysis

Frequency and percentage for every option of each question was calculated using Epi Info 7 software. The data was then recorded in Excel.

RESULTS

The 47.02% participants were from the age group of 30-40 years of age, 90.73% of them were married, 54.97% of them had completed education up to secondary level and 55.63% of them had a monthly family income ranging from 0-25000 rupees (Table 1).

The 35.76% correctly identified Ca breast as the commonest cancer in India. 63.58% identified breast lump as the commonest symptom. Sono mammography was identified as the leading screening method for breast cancer by 41.06 % of participants. However, only 15.89% of women chose breast self-examination as a possible screening method for breast cancer. Only 33.11% participants identified PAP smear, testing for HPV infections and colposcopy as screening methods (Table 2).

The 91.39% of the participants supported that regular screening can detect cancer in early stages. 82.12% wanted cancer screening to be included in their health checkup plans(Table 3).

The 8.61% of participants had undertaken some form of breast cancer screening and 6.62% had undergone cervical cancer screening (Table 4).

Table 1: Demographic details of participants.

Variables	Level	Frequency (%)
Age of participant	30-40	71 (47.02)
	40-50	57 (37.75)
	50-60	18 (11.92)
	60-70	5 (3.31)
Marital status of participant	Married	137 (90.73)
	Widow	12 (7.95)

Continued.

Variables	Level	Frequency (%)
	Unmarried	1 (0.66)
	Divorced	1 (0.66)
Level of education of participant	Secondary	83 (54.97)
	Higher Secondary	26 (17.22)
	Primary	14 (9.27)
	Illiterate	13 (8.61)
	Graduate	9 (5.96)
	Postgraduate	5 (3.31)
	Diploma	1 (0.66)
Occupation of participant	Farmer and farming related	48 (31.79)
	Homemaker	73 (48.34)
	Others	22 (14.57)
	Teacher and professionals	6 (3.97)
	Unemployed	2 (1.32)
Occupation of husband	Farmer and farming related	49 (32.45)
	Teacher and professionals	24 (15.89)
	Others	59 (39.07)
	Retired	5 (3.31)
	Unemployed	2 (1.32)
	Passed away	12 (7.95)
Monthly income of family	0-25000	84 (55.63)
	25000-50000	36 (23.84)
	50000-75000	18 (11.92)
	100000-200000	7 (4.64)
	200000-300000	4 (2.65)
	300000-400000	2 (1.32)
	Total	151 (100)
History of breast cancer or cervical cancer in family	Frequency	Percent
No	145	96.03%
Yes, breast cancer	4	2.65%
Yes, cervical cancer	2	1.32%
Total	151	100.00%

Table 2: Knowledge of participants.

	Questionnaire	N (%)					Total (%)
Q1	**The most common cancer found in women in India**	A) Ovarian N (%)	B) Endometrial N (%)	C) Cervical N (%)	D) Breast N (%)		Total N (%)
		14 (9.27)	49 (32.45)	34 (22.52)	54 (35.76)		151 (100)
Q2	**The risk factors for breast cancer**	A) Age N (%)	B) Obesity N (%)	C) Family history N (%)	D) Hormonal Therapy N (%)	E) All of the above N (%)	Total N (%)
		25 (16.56)	45 (29.8)	24 (15.89)	36 (23.84)	21 (13.90)	151 (100)
Q3	**The symptoms of breast cancer?**	A) Lump in breast N (%)	B) Discharge from nipple N (%)	C) Pain in breast N (%)	D) Changes in contour of breast N (%)	E) All N (%)	Total N (%)

Continued.

	Questionnaire	N (%)					Total (%)
		96 (63.58)	8 (5.30)	25 (16.56)	5 (3.31)	17 (11.26)	151 (100)
Q4	**Among the following what are the screening methods for breast cancer?**	A) Breast self-examination N (%)	B) Mammography N (%)	C)Sono mammography N (%)	D) All N (%)		Total N (%)
		24 (15.89)	20 (13.25)	62 (41.06)	45 (29.80)		151 (100)
Q5	**Which among the following are preventive measures for breast cancer?**	A) Healthy diet N (%)	B) Avoid alcohol N (%)	C) Breast feeding N (%)	D) Regular exercise N (%)	E) All of the Above	Total N (%)
		33 (21.85)	13 (8.61)	14 (9.27)	45 (29.80)	46 (30.46)	151 (100)
Q6	**Which among the following are risk factors for cervical cancer?**	A) Multiple sex partners N (%)	B) HPV infection N (%)	C) Diet N (%)	D) Smoking N (%)	E) Both 1 and 2 N (%)	Total N (%)
		42 (27.81)	18 (11.92)	18 (11.92)	28 (18.54)	45 (29.80)	151 (100)
Q7	**Which among the following are the symptoms of cervical cancer?**	A) Foul smelling discharge N (%)	B) Post coital bleeding N (%)	C) Painful intercourse N (%)	D) Irregular vaginal bleeding N (%)	E) All of the above N (%)	Total N (%)
		28 (18.54)	22 (14.57)	12 (7.95)	46 (30.46)	43 (28.48)	151 (100)
Q8	**Among the following what are the screening methods for cervical cancer?**	A) PAP smear N (%)	B) Testing for human papilloma virus infection N (%)	C) Colposcopy with acetic acid N (%)	D) All of the above N (%)		Total N (%)
		20 (13.25)	32 (21.19)	49 (32.45)	50 (33.11)		151 (100)
Q9	**Which among the following are preventive measures for cervical cancer?**	A) Maintain genital hygiene N (%)	B) Avoid unprotected intercourse with multiple sexual partners N (%)	C) Vaccination against human papilloma virus N (%)	D) All of the above N (%)		Total N (%)
		37 (24.5)	22 (14.57)	42 (27.81)	50 (33.11)		151 (100)
Q10	**Vaccine available for which cancer?**	A) Breast and Cervical Cancer N (%)	B) None N (%)	C) Breast cancer N (%)	D)Cervical cancer N (%)		Total N (%)
		32 (21.19)	76 (50.33)	14 (9.27)	29 (19.21)		151(100)

Table 3: Attitude of participants.

	Attitude	A) Strongly agree N (%)	B) Agree N (%)	C) Neither agree nor disagree N (%)	D) Disagree N (%)	E) Strongly disagree N (%)	Total N (%)
Q1	**Only elderly women are susceptible to cancer?**	17 (11.26)	16 (10.60)	5 (3.31)	55 (36.42)	58 (38.41)	151 (100)
Q2	**Is any cancer a preventable**	35 (23.18)	48 (31.79)	6 (3.97)	27 (17.88)	35 (23.18)	151 (100)

Continued.

	Attitude	A) Strongly agree N (%)	B) Agree N (%)	C) Neither agree nor disagree N (%)	D) Disagree N (%)	E) Strongly disagree N (%)	Total N (%)
	cause of cancer death in women?						
Q3	**Cancer patient needs additional support apart from treatment?**	80 (52.98)	64 (42.38)	2 (1.32)	2 (1.32)	3 (1.99)	151 (100)
Q4	**Cancer can spread by touching the patient?**	11 (7.28)	14 (9.27)	4 (2.65)	49 (32.45)	73 (48.34)	151 (100)
Q5	**Suffering from cancer is a result of the "sins committed by the women in her previous life"?**	10 (6.62)	11 (7.28)	4 (2.65)	43 (28.48)	83 (54.97)	151 (100)
Q6	**Cancer can be diagnosed in initial stages with regular screening?**	79 (52.32)	59 (39.07)	2 (1.320	3 (1.99)	8 (5.30)	151 (100)
Q7	**Do you feel that cancer screening should be included in your health checkup plan?**	78 (51.66)	46 (30.46)	2 (1.32)	13 (8.61)	12 (7.95)	151 (100)
Q8	**Women should get screened for breast and cervical cancer after the age of 30?**	85 (56.29)	47 (31.13)	3 (1.99)	11 (7.28)	5 (3.31)	151 (100)
Q9	**Will you accompany a cancer patient to the hospital for treatment**	A) Yes N (%)	B) No N (%)	C) Uncertain N (%)			
		128 (84.77)	17 (11.26)	6 (3.97)			151 (100)
Q10	**Will you get screened for breast and cervical cancer in the future?**	A) Yes N (%)	B) No N (%)	C) Uncertain N (%)			
		134 (88.74)	9 (5.96)	8 (5.30)			151 (100)

Table 4: Practices of participants.

	Practices	Yes N (%)	B) No N (%)	Total N (%)
Q1	**Have you ever got screened for breast cancer?**	13 (8.61)	138 (91.39)	151 (100)
Q2	**Have you ever performed a breast self-examination?**	88 (58.28)	63 (41.72)	151 (100)

Continued.

	Practices	Yes N (%)	B) No N (%)		Total N (%)
Q3	**Have you ever got a mammography done?**	10 (6.62)	141 (93.38)		151 (100)
Q4	**Have you ever got a Sono mammography done?**	9 (5.96)	142 (94.04)		151 (100)
Q5	**Have you ever got screened for cervical cancer?**	10 (6.62)	141 (93.38)		151 (100)
Q6	**Do you maintain adequate genital hygiene**	151 (100)	0 (0)		151 (100)
Q7	**Have you ever got a PAP smear done?**	10(6.62)	141 (93.38)		151 (100)
Q8	**Have you taken a vaccine for prevention of cervical cancer?**	0 (0)	151 (100)		151 (100)
Q9	**What message would you like to give to the community?**	A) To get regularly screened for breast and cervical cancer	B) To take vaccine for cervical cancer	C) All of the above	
		32 (21.19)	23 (15.23)	96 (63.58)	151 (100)
Q10	**Would you recommend other women to get screened for breast and cervical cancer?**	A) Yes	B) No	C) Uncertain	
		146 (96.69)	3 (1.99)	2 (1.32)	151 (100)

DISCUSSION

Total 151 women of 30 and above years of age participated in the study. Majority of participants were from the age group of 30-40 years of age (47.02%). Majority of them were married (90.73%). 54.97% of them had completed education up to secondary level that is up to 10th grade. 48.34% (73) of them were homemakers. Most common occupation found in their husband was occupations like plumber, drivers, construction workers etc.55.63% of them had a monthly family income ranging from 0-25000 rupees.

Knowledge of participants

In our study 54 participants (35.76%) correctly identified Ca Breast as the commonest cancer in India. Our study findings match to the study results of Ray et al in West Bengal regarding the prevalence of various cancers among women in India.[12] In our study women identified obesity as the most common risk factor. In contrast, to a study conducted in Mumbai by Prusty RK et al where the participants identified use of tobacco as a major risk factor for breast cancer (44.9%), identifying a major gap in knowledge.[13] The most common symptom identified was breast lump (96, 63.58%) followed by pain in breast (25, 6,56%). In another study conducted in Mumbai by Prusty RK et al, similar results of breast lump being identified as the most common symptom of breast cancer were observed.[13] It was observed that only 11.26% identified "All" as the symptoms of breast cancer in our study signifying a need to improve comprehensive knowledge of women regarding symptoms of breast cancer. In our study the participants identified Sono mammography as the leading screening method for breast cancer [62 (41.06%)] followed by all the above (breast self-examination, sono mammography and mammography as screening methods (45(29.08%). Only 15.89% of women chose breast self-examination as a possible screening method for breast cancer. In a study conducted in Delhi by Dahiya N et al, 48.6% women identified breast self-examination as a screening method.[14] This showed a greater dependence of women on Sono mammography and decreased dependence on home based self-assessments like breast self-examination.

The participants identified regular exercise, breast feeding, healthy diet, avoiding alcohol as preventive measures for breast cancer [46 (30.46%)]. It signified good knowledge about generalised preventive methods of breast cancer. At the same time specific preventive factors like breast feeding earned less response (9.27%). In a study conducted in Zimbabwe by Makurirofa L et al 60.9%participants considered regular exercise as a method of prevention.[10]

In case of cervical cancer, our study participants identified both multiple sexual partners and HPV infection (29.80 %) as risk factors. In a study conducted in Tripura by Banik S et al also, HPV infection was the most common risk factor identified.[15] Hence it was observed that the participants have very specific knowledge about the risk factors for cervical cancer. The most common symptom identified in our study was irregular vaginal bleeding (46,30.46%) whereas only 28.48% identified "all of them" as symptoms for cervical cancer. In a study in South India by Narayana G et al, 48.4%% identified vaginal bleeding between

periods as a symptom.[16] The participants identified PAP smear, testing for HPV infections and colposcopy as screening methods (50, 33.11%). At the other end, specific methods like PAP smear and HPV virus infection testing had only 13.25% and 21.19% responses respectively as screening methods. In a similar study in South India by Narayana G et al only 2% had heard about PAP smear whereas 52.1% identified visual inspection with acetic acid as a screening method.[16] Hence, it was observed that participants had fair knowledge about screening methods for cervical cancer. The participants also showed good knowledge about the preventive measures for cervical cancer as they chose all of the above (maintaining genital hygiene, avoiding multiple sexual partners and vaccination against HPV infection) as preventive measures. In another study in South India by Narayana G et al only avoiding multiple sexual partners was identified as a preventive measure (37.7%).[16] Our participants showed poor knowledge about availability of vaccine for prevention of cervical cancer [29(19.21%)]. Majority of participants were of the opinion that vaccines are available for prevention of breast cancer as well of the opinion that no vaccine is available for prevention of any cancer. In another study in Uttarakhand by Sundriyal et al only 6.5% of participants knew about availability of vaccine for prevention of cervical cancer.[17] Hence measures like educational camps should be organized to educate women about availability of vaccines for cervical cancer.

Attitude

Majority participants believed cancer can affect all age groups (74.83%), 21% participants believe that only elderly women are prone to get cancer. This signifies a positive attitude of women about cancer and also absence of any age bias in women towards cancer. In another study conducted in Zimbabwe Makurirofa L et al 44.9% women disagreed that cancer is a disease of elderly.[10] 54.97% agreed to the notion that cancer is a preventable cause of death. In another study in Southern India by Supriti Ghosh et al 47.9% rural women agreed to the fact that cancer is preventable.[18] This further amplifies the belief of women towards the preventable nature of cancer. 95.36% participants believed that there is requirement of additional support in the form of emotional, psychological and financial support among cancer patients. In a study conducted in Ethiopia by Negussie, F et al psychological support was highlighted as a need in cancer patients.[19] This signified a positive attitude of participants towards the needs and distress experienced by cancer patients. 80.79% believed that cancer cannot spread by touching in our study. This signifies that participants rejected the myths regarding cancer and had a more realistic outlook towards cancer. But still there is a minor section of study population who still believe that cancer can spread by touching. In another study conducted in Karnataka by Nyblade L et al the notion that cancer is contagious was highlighted by the study population.[9] 83.45% of participants rejected the superstition that cancer is a result of the “sins committed by women in their previous lives”. In a study conducted in Karnataka by Nyblade L et al this was the primary misconception highlighted.[9] In our study a more positive and realistic attitude towards cancer was demonstrated by the participants. Still around 13% of participants agree to the above notion. 91.39% of the participants supported that regular screening can detect cancer in early stages.

In another study conducted in Karnataka by A Srinath et al participants of all age groups agreed that screening can be beneficial in preventing and detecting cancer early.[20] Majority wanted cancer screening to be included in their health checkup plans (82.12%).17.88% participant was not very responsive towards the idea of including screening in their health check-up plan. In a similar study in Southern India by Supriti Ghosh et al 95% participants deemed cancer screening important and wanted cancer screening to be made available in rural health care centres.[18] It was observed that women agreed to the practice of getting screened regularly after the age of 30 (87.42%) but around 12% of participants either were unsure or disagreed to the idea of getting screened after the age of 30. In a study conducted by Khanna D et al in Uttar Pradesh in community health workers 74.4% women strongly agreed to the notion that women in age group 30-65 years should undergo regular screening.[7] 84.77% of women agreed to accompanying a cancer patient for treatment to the hospital, but around 11.26% disagreed to accompany a patient for treatment. This figure is less than 16.55% of people who agreed that cancer can spread by touching. Hence the superstition of people that cancer can spread by touching can be one of reasons which can be behind this response of women. Hence further probing should be done about the other reasons for women to deny accompanying a patient for treatment. They showed acceptance to getting screened in future for breast and cervical cancer (88.74%). In this study still 5.96% participant disagreed on getting screened in future.

In another study in Uttarakhand by Sundriyal et al 57.9% and 56% of women were enthusiastic towards getting screened for breast and cervical cancer in the future respectively.[17] Although a better response was observed in our study, measures for better screening rates should be implemented like educational camps, lectures and availability of screening tests at cheaper prices. To summarise, a positive attitude was noted among the participants towards cancer, but there is presence of misconceptions about cancer as well as reservations regarding future screening. Hence to improve the attitude and screening practices, minor misconceptions of women regarding cancer should be addressed. Measures like lectures, group discussion and awareness programmes should be undertaken to educate women about importance of regular screening in early detection of cancer.

Practices

In our study only 8.61%of participants had undertaken some form of breast cancer screening. In a national survey

conducted all over India by Subramaniam et al 0.9% of women had undergone breast cancer screening.[21] Only 58.28% of participants had performed breast self-examination. In study performed by Ray et al in West Bengal 12.7% of participants had performed breast self-examination.[12] Hence relatively better prevalence was noted in the current study. In the current study only 6.62% have undergone mammography and 5.96% have undergone sono-mammography.

In a study conducted in Odisha by Pradhan et al 25.23% of women had undergone a mammography.[22] Hence prevalence of hospital guided screening was less in the current population. Reason for such low screening rates should be known whether they are financial, psychological or lack of awareness. For cervical cancer only 6.62% had undergone cervical cancer screening. In a national survey by Subramaniam et al 1.9% women had undergone cervical cancer screening.[21] Hence measures to improve screening rates in future should be taken like educational programmes, lectures and availability of screening tests at a cheaper price. The 100% women affirmed to maintaining adequate genital hygiene.

Better hygienic practices were noted in our study, but women at regular intervals should be educated about the correct ways of maintaining genital hygiene to prevent wrong or misinterpreted hygienic practices. 6.62% had undergone PAP smear at least once. In study performed by Ray et al in West Bengal 5.3% of participants had undergone PAP smear.[12] Although better practices were noted in the current study still the prevalence of cervical cancer screening is very less. Hence measures to improve screening practices for cervical cancer screening should be instituted like rural health care camps. None of our participants had taken any vaccine for cervical cancer, signifying lack of knowledge, non-availability of vaccines and price constrains.

In the current study 63.58% of participants agreed to getting screened for breast and cervical cancer as well as taking vaccine for cervical cancer prevention in the future. Hence, it signifies better acceptability to screening practices for cervical and breast cancer as well as vaccine acceptability. In another study in Uttarakhand by Sundriyal et al 57.9% and 56% of women were enthusiastic towards getting screened for breast and cervical cancer respectively.[17] In our study 96.69% of participants wanted to recommend cancer screening to other women.

Limitations

This study was carried out in a hospital-based setting catering to a rural population. Hence the findings cannot be extrapolated to rural population all over the state or country. A population-based survey by approaching women living in different localities in a rural setting will be more accurate way of assessing the knowledge, attitude and practices of rural women towards cancer screening. Moreover, the sample size of 151 women needs to be increased and margin of error 8% needs to be decreased for a population based survey.

CONCLUSION

Through this study it was observed that the participants have fair knowledge, positive attitude and poor practices towards breast and cervical cancer. Also, it was observed that there is presence of misconceptions in a minor section of the society about cancer being contagious which prevents them from supporting a patient. To improve early detection, implementation of sustained education through community lectures, group discussions and awareness campaigns should be considered. Provision of accessible, affordable screening and vaccination through rural health camps and public–private partnerships; and promote breast self-examination and regular, age-appropriate screening should be considered. Further efforts should address misconceptions, explain the full range of symptoms and risk factors, and explore barriers to screening so that services can be tailored to women's needs. Inclusion of HPV vaccine for girls and women in universal immunisation programme should be highly recommended.

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