

Knowledge, Attitude and Practices on Breast and Cervical Cancer Screening Methods Among Female Employees at the Gujarat Cancer and Research Institute, Ahmedabad: Analytical Research: Cross-Sectional Study

 Nishu DHINGRA^a,  Pariseema DAVE^a,  Bijal PATEL^a

^aDepartment of Gynecologic Oncology, Gujarat Cancer and Research Institute, Gujarat, India

ABSTRACT Objective: Cervical cancer and breast cancer are the leading causes of global cancer incidence in 2020. Despite being largely preventable, the burden of breast and cervical cancer is rising. Early detection reduces morbidity and mortality significantly, thus the role of screening is vital. **Material and Methods:** A cross-sectional study was conducted to know the knowledge, attitude and practices regarding breast and cervical cancer screening methods among female employees at our institute. **Results:** A total of 174 female employees participated in the study. 65.51% of the participants were more educated and 34.49% were less educated. 91.2% of more educated participants and 50% of less educated participants had knowledge about Pap smear. 64.6% had never had a Pap smear and only half of those who did undergo Pap testing had got it done within the preceding 5 years. 82.14% showed a positive attitude towards accepting a Pap smear. 92.9% had heard about breast cancer screening methods, 70.17% knew about the self-breast examination (SBE) and 50.87% knew about the clinical breast examination (CBE). Out of the participants who knew about SBE, 50% performed it and out of whom only 22.44% practiced it on a monthly basis. Similarly, 31.03% of total participants had ever got done CBE out of which only 22.22% used to do it on a yearly basis. Mammography was known by 72.6% of the participants who were above 40 years of age but only 28.89% had ever undergone it. **Conclusion:** The survey shows that there is a gap between knowledge, attitude, and practice.

Keywords: Cervical cancers; breast cancer; screening; Pap smear

According to Globocan 2020, it has been estimated by the International Agency for Research on Cancer that globally, 1 in 5 people develop cancer during their lifetime and 1 in 8 men and 1 in 11 women die from their disease.¹

CERVICAL CANCER INCIDENCE AND MORTALITY¹

Cervical cancer is the fourth most frequently diagnosed cancer and the fourth leading cause of cancer death in women worldwide with an estimated number of new cases in 2020 being 6,04,127, and the number of deaths being 3,41,831. The estimated number of new cases and deaths in India in 2020 is 1,23,907 and 77,348 respectively.

BREAST CANCER INCIDENCE AND MORTALITY¹

Female breast cancer for the first time has surpassed lung cancer as the leading cause of global cancer incidence in 2020. It is estimated that 1 in 4 cancers diagnosed among women globally is breast cancer. Breast cancer contributed to a 24.5% incidence of all cancer sites globally. 6,84,996 women expired due to breast cancer worldwide making it the fifth leading cause of cancer mortality while India accounted for 26.3% of all cancer cases with 90,408 deaths in 2020.

Despite being largely preventable, the global burden of breast and cervical cancer is rising. Breast cancer is no longer a disease of the developed world

Correspondence: Pariseema DAVE

Department of Gynecologic Oncology, Gujarat Cancer and Research Institute, Gujarat, India

E-mail: pariseema.dave@geriindia.org

Peer review under responsibility of Journal of Clinical Obstetrics & Gynecology.

Received: 22 Mar 2023 **Accepted:** 20 Jun 2023 **Available online:** 05 Jul 2023

2619-9467 / Copyright © 2023 by Türkiye Klinikleri. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).



as the incidence is also rising in developing countries. If breast cancer is detected at an early stage, it has been associated with a good prognosis and reduced mortality.² Cervical cancer has a long premalignant phase which provides a large timeframe for it to be detected at an early stage through screening programs. Early detection also reduces the cost involved in the treatment which is much higher when the cancer is detected at an advanced stage.³ The major concern in a country like India is the lack of awareness and under exploitation of screening strategies. Healthcare professionals become the first point of contact for patients as well as their relatives and friends who visit hospitals. If they are well-informed and educated, they can spread information and remove barriers in conducting various screening tests.⁴ Since awareness among healthcare people is essential to create a positive attitude towards screening programs, their knowledge and attitude towards undertaking screening tests for the prevention of cervical and breast cancer need to be checked. There have been a quite number of studies conducted in other developing countries to learn about the knowledge and awareness of cervical cancer.⁵ A survey was also conducted in our regional cancer center in 2018 which intended to know the knowledge attitude and practices regarding cervical cancer screening methods among women visiting our institute.⁶ This study aimed to assess knowledge attitudes and practices on breast and cervical cancer screening methods among female employees at our institute believing that if they themselves follow the recommendations, they can guide others.

MATERIAL AND METHODS

According to Population Based Cancer Registry 2020, breast cancer is the most common cancer in women in Ahmedabad and accounted for 31.2% of all cancer cases in women. This means every third cancer detected in women in Ahmedabad will be breast cancer. The second most common cancer was cancer of the cervix, which was 9.3% of all cancers in women.⁷ The numbers quoted in the registry might not be a true representative of the actual incidence, because some cancer patients managed outside may not be reported at all. The high magnitude of the problem led us to conduct this survey.

This study was a cross-sectional study conducted from September 2021 to December 2021 after taking approval from the institutional ethics committee (date: March 16, 2023, no: IRC/2023/P-34). The study was carried out in accordance with the Helsinki Declaration principles. The employees who agreed to participate were given a consent form along with a predesigned, self-administered multiple responses questionnaire which contained information about their demographics, knowledge of breast cancer and cervical cancer screening methods, risk factors, and attitudes toward practice of these methods amongst themselves. The questions were framed as well as adopted from review articles and reviewed thoroughly by the authors. The questionnaires were framed in both English and Gujarati and were given according to the preference of the participant. Participants were refrained from writing their identities and thus confidentiality was ensured. The data collected were screened and entered into MS-excel (Microsoft, Redmond, WA, USA) sheets for analysis. Descriptive statistics were described using descriptive statistics including percentages, frequencies, mean, and median. Chi-square test was used for the comparative analysis with p-value of <0.05 being significant.

RESULTS

A total of 174 female employees participated in the study. To prevent biases in terms of knowledge, female employees belonging to nursing, pharmaceutical, paramedical, and servants were included in the study and doctors were excluded. The mean age of the participants was 38.05 years with the majority of them belonging to the 31-40 years of age group (48.8%). Two-thirds of the participants were married. Only 8.04% (14/174) had a family history of breast or cervical cancer. To assign the education status between less educated or more educated, division was done on the basis of having a qualification of less than or more than a diploma. 65.51% (114/174) of the participants were more educated (\geq diploma) and the rest 34.49% (60/174) were less educated ($<$ diploma). The socio-demographic characteristics of all 174 participants have been listed in [Table 1](#). A significant difference was found among participants regarding knowledge of Pap smear participants, 91.2% (104/114) of more

TABLE 1: Socio-demographic characteristics of participants.

Socio-demographic characteristics	Number (percentage)
Age (in years)	
<20	0
20-30	27 (15.51%)
31-40	85 (48.85%)
41-50	34 (19.54%)
>50	28 (16.09%)
Total	174 (100%)
Marital status	
Never married	44 (25.28%)
Married	130 (74.71%)
Education status	
Illiterate	34 (19.54%)
Primary	26 (14.94%)
Diploma	55 (31.60%)
>Diploma	59 (33.90%)
Less educated (<diploma)	60 (34.49%)
More educated (>=diploma)	114 (65.51%)
No. of children	
No	21 (16.15%)
>=1	109 (83.84%)
Family history of cancer	
Yes	14 (8.04%)
No	160 (91.96%)

educated participants and 50% (30/60) of less educated participants had knowledge about Pap smear (p value<0.001). Out of 75% (130/174) of the married population with age above 30 years, 64.6% (84/130) had never had a Pap smear and only half of those (24/46) who did undergo Pap testing, had got it done within the preceding 5 years. Among the reasons for not doing a Pap smear, 13.09% (11/84) believed it was not necessary, 20.23% (17/84) avoided it due to fear/dislike, 40.47% (34/84) did not do it due to not having symptoms of cervical cancer, 23.80% (20/84) had not known about it and 2.3% (2/84) did not know about the availability of services. Only 60.91% (106/174) knew that a Pap smear can detect cervical cancer in the precancerous stage or before the symptoms appear. When asked whether they would like to take the Pap test having learned that it is simple, painless, and good for early detection of cervical cancer, 82.14% (69/84) showed a positive attitude towards accepting it. 54.38% (62/114) and 15% (9/60) respec-

tively of the more educated versus less educated class knew about human papillomavirus (HPV) vaccination (p value-0.028). Table 2 and Table 3 represent knowledge, attitude, and practices on cervical cancer screening methods.

Of the participants, 92.9% (106/114) had heard about breast cancer screening methods, 70.17% (80/114) knew about the self-breast examination (SBE), and 50.87% (58/114) knew about the clinical breast examination (CBE). Amongst those who were less educated, 63.3% (38/60) knew about breast cancer screening methods and 30% (18/60) had heard about SBE, and only 20% (12/60) knew about CBE. Out of the participants who knew about SBE, 50% (49/98) performed it and out of that only 22.44% (22/98) practiced it on a monthly basis. Similarly, 31.03% (54/174) of total participants had ever got done CBE out of which only 22.22% (12/54) used to do it on yearly basis. Mammography was known by 72.6% (45/62) of the participants who are above 40 years of age but only 28.89% (13/45) had ever undergone it. 38% of the total knew that breastfeeding was protective against breast cancer, and 62% knew

TABLE 2: Detailed knowledge about cervical cancer screening methods.

Question	Number (percentage)	p value
Ever heard of Pap smear		
Less educated	30 (50%)	<0.001
More educated	104 (91.2%)	
From where you have heard about Pap smear		
Relative/friends	41 (30.59%)	
Gynecologist/family physician	72 (53.73%)	
Mass media/newspaper/internet/TV	21 (15.67%)	
A Pap smear can detect cancerous/precancerous lesions of the cervix before even symptoms appear		
Yes	106 (60.91%)	
No	68 (39.09%)	
Risk factors of cervical cancer		
Sexually transmitted disease	96 (55.17%)	
Smoking	100 (57.47%)	
Multiple partners	132 (75.86%)	
Early age of marriage	87 (50%)	
Diet	75 (43.10%)	
Know about human papillomavirus vaccination?		
Less educated	9 (15%)	0.0283
More educated	62 (54.38%)	

TABLE 3: Attitude and practice on cervical cancer screening methods.

Question	Number (percentage)
If you were told that a Pap smear is simple, painless, and good for early detection of cervical cancer, would like to have one?	
Yes	69/84 (82.14%)
No	15/84 (17.86%)
Do you encourage your friend, daughter, or mother to get screened?	
Yes	91/134 (67.91%)
No	43/134 (32.09%)
Ever had a Pap smear	
Yes	46/130 (35.38%)
No	84/130 (64.62%)
Frequency of Pap testing	
<5 years	24/46 (52.17%)
>=5 years	22/46 (47.83%)
Reasons for avoiding pap	
Not known	20/84 (23.80%)
Unaware of Pap smear services	2/84 (2.3%)
Pap smear not necessary	11/84 (13.09%)
Dislike/fear on Pap smear	17/84 (20.23%)
No symptoms of cervical cancer	34/84 (40.47%)

that family history can contribute to breast cancer. 28% associated it with oral contraceptive pills usage and 56% linked it with diet. Knowledge and practice on breast cancer screening methods have been depicted in Table 4 and Table 5.

DISCUSSION

According to a recent review of various cross-sectional surveys conducted in various parts of India regarding knowledge, attitudes, and practices on cervical cancer and screening among women, it has been concluded that Indian women lack in appropriate knowledge and attitude towards cervical cancer and screening techniques due to low literacy rates.⁸ The literacy rate reported varied from 5% to 66% which is similar to our study showing 65.6% of participants having a more educated status. The review showed that overall knowledge of cervical cancer was 40.22% whereas, in our survey, 77% of the participants had heard of Pap smear as a cervical cancer screening method out of which the majority were contained in the more educated group. The reason behind reporting a higher knowledge is due to the participants' working in a cancer center itself. Healthcare workers are expected to have a good practice and a receptive attitude toward various screening methods. But, 64.6% had never had a Pap smear and only half of those who did undergo Pap testing had it done within the preceding 5 years. Heena et al. in a survey done among health care professionals reported a low rate (26.2%) of undergoing Pap smear.⁹ Similarly, a low rate (35%) of undergoing cervical cancer screening has been reported in a study done on nursing staff in rural

TABLE 4: Knowledge about breast cancer screening methods.

Are you aware of the methods being used for screening of breast cancer?	Yes		No		p value
	Percentage	(number)	Percentage	(number)	
Education					
<Diploma	63.3%	(38/60)	36.67%	(22/60)	<0.0001
>Diploma	92.9%	(106/114)	7.1%	(8/114)	
Total	82.75	(144/174)	17.25	(30/174)	
Self-breast examination					
<Diploma	30%	(18/60)	70%	(42/60)	<0.0001
>Diploma	70.17%	(80/114)	29.83%	(34/114)	
Total	56.32%	(98/174)	43.67%	(76/174)	
Clinical breast examination					
<Diploma	20%	(12/60)	80%	(48/60)	0.000153
>Diploma	50.87%	(58/114)	49.13%	(56/114)	
Total	40.22%	(70/174)	59.77%	(104/174)	
Mammography	72.6%	(45/62)	27.4%	(17/62)	0.0013

TABLE 5: Practice about breast cancer screening methods.

	Percentage (number)
Do you perform self-breast examination?	
Yes	50% (49/98)
No	50% (49/98)
How frequently do you perform self breast examination?	
Monthly	22.44% (22/98)
Do you undergo clinical breast examination?	
Yes	31.03% (54/174)
No	68.97% (120/174)
How frequently do you undertake clinical breast examination?	
<1 year	22.22% (12/54)
Have you ever undergone mammography in your life time?	
Yes	28.9% (13/45)
No	71.1% (32/45)

India.¹⁰ Among the reasons for not doing a Pap smear, 13.09% believed it was not necessary, 20.23% avoided due to fear/dislike, 40.47% did not do it due to not having symptoms of cervical cancer, 23.80% had not known about it, and 2.3% did not know about the availability of services alike Singh et al. where participants sought to circumvent Pap smear due to no knowledge/no symptoms/no time/embarrassment/not advised in 18%/44%/21%/15%/23% of respondents respectively.¹¹

The present study showed that 75% of respondents attributed multiparity as a risk factor of cervical cancer which is far beyond the 25% reported by a study done in Ethiopia and 36% as reported by Singh et al. Of our respondents 60.9% knew that testing with a Pap smear can detect precancerous or cancerous lesions of the cervix before even symptoms appear which is in contrast to known by 32% of participants in another study.¹¹ 82% of our participants responded “yes” to undertake Pap smear if told that it is painless, unlike 56% by Singh et al. and 45% in a study done in Ethiopia.^{11,12} With the advent of various screening programs and HPV vaccination, cervical cancer has been shown to be largely preventable but only 54.38% and 15%, respectively of more educated versus less educated class knew about HPV vaccination which is as low as 20.14% in a review of studies done in various parts of India.⁸

Similar findings were also observed with breast cancer screening. Overall 56.3% of our participants were aware of SBE which is lower than 93.7% reported by Heena et al. among healthcare professionals in Saudi Arabia.¹³ The practice of SBE by half of our participants whereas 74.7% have been reported to have been practicing it by Heena et al. In a study by Kavitha et al. on female healthcare workers, despite all of their participants knowing about SBE, only 22.8% of them were performing BSE regularly.¹⁴

CBE was practiced by only 31.03% of the total participants. A prospective, cluster randomized controlled trial in Mumbai highlighted the importance of effective screening of breast cancer screening in India. It showed that CBE can downstage breast cancer at diagnosis and lead to a significant reduction in mortality due to breast cancer in women ≥ 50 years by 30% thus recommending that CBE should be considered for breast cancer screening in low and middle-income countries.¹⁵ Mammography though freely available at our center, only 28.89% had ever undergone it. Similarly, a low rate of 7% of undertaking mammography has been reported among nurses at Shimla.¹⁶

The above findings show that there is a gap between knowledge, attitude, and practice in our study. There are a few limitations in our study. The questionnaire used in our study was based on recall and recognition. Both these have limitations. Recognition refers to our ability to “recognize” an event or information as being familiar, while “recall” designates the retrieval of related details from memory. Both can affect awareness assessment. Also, the method used for estimating the practice of Pap smears was self-reported history, which may not give the actual picture due to inaccurate recall or desirability bias.

CONCLUSION

Early detection of breast and cervical cancer through the wide adoption of screening strategies can significantly reduce morbidity and mortality associated with these cancers in women. This survey underlines the urgent need for activities to spread awareness through some orientation courses among female employees which can enhance the uptake of services

available. Among all malignant tumors, cervical cancer is the one that can be most effectively controlled by organized screening programs. The major problem is low participation in the screening program. The hospital staff is responsible for providing information about cancer and their screening methods and removing barriers to comprehension of the facilities available. It is only with prudent healthcare workers having a bright outlook towards various screening programs available which can make screening programs successful. If they themselves have a positive attitude, they can certainly influence society in a positive way.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct con-

nection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: Nishu Dhingra; **Design:** Pariseema Dave; **Control/Supervision:** Pariseema Dave; **Data Collection and/or Processing:** Nishu Dhingra; **Analysis and/or Interpretation:** Bijal Patel; **Literature Review:** Nishu Dhingra; **Writing the Article:** Bijal Patel; **Critical Review:** Pariseema Dave; **References and Fundings:** Pariseema Dave; **Materials:** Nishu Dhingra.

REFERENCES

1. Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Pi-eros, et al. Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer 2020. Accessed 12 Mar 2022. Available from: [\[Link\]](#)
2. World Health Organization [Internet]. © 2023 WHO. Preventing cancer. Accessed 12 Mar. 2022. Available from: [\[Link\]](#)
3. Jassim G, Obeid A, Al Nasheet HA. Knowledge, attitudes, and practices regarding cervical cancer and screening among women visiting primary health care Centres in Bahrain. BMC Public Health. 2018;18(1):128. [\[Crossref\]](#) [\[PubMed\]](#) [\[PMC\]](#)
4. Coleman EA, Lord J, Heard J, Coon S, Cantrell M, Mohrmann C, et al. The Delta project: increasing breast cancer screening among rural minority and older women by targeting rural healthcare providers. Oncol Nurs Forum. 2003;30(4):669-77. [\[Crossref\]](#) [\[PubMed\]](#)
5. Subramanian S, Trogon J, Ekwueme DU, Gardner JG, Whitmire JT, Rao C. Cost of cervical cancer treatment: implications for providing coverage to low-income women under the Medicaid expansion for cancer care. Womens Health Issues. 2010;20(6):400-5. [\[Crossref\]](#) [\[PubMed\]](#)
6. Kadam Priyanka R, Dave Pariseema S. Knowledge, attitude and practice about cervical cancer screening amongst women attendants of cancer patients visiting regional cancer centre. Int J of Applied Research. 2018;8(5):28-30. [\[Link\]](#)
7. ICMR- National Centre for Disease Informatics and Research. 2012-2016. Accessed 12 Mar. 2022. Available from: [\[Link\]](#)
8. Taneja N, Chawla B, Awasthi AA, Shrivastav KD, Jaggi VK, Janardhanan R. Knowledge, attitude, and practice on cervical cancer and screening among women in India: A review. Cancer Control. 2021;28:10732748211010799. [\[Crossref\]](#) [\[PubMed\]](#) [\[PMC\]](#)
9. Heena H, Durrani S, Alfayyad I, Riaz M, Tabasim R, Parvez G, et al. Knowledge, attitudes, and practices towards cervical cancer and screening amongst female healthcare professionals: a cross-sectional study. J Oncol. 2019;2019:5423130. [\[Crossref\]](#) [\[PubMed\]](#) [\[PMC\]](#)
10. Rahman H, Kar S. Knowledge, attitudes and practice toward cervical cancer screening among Sikkimese nursing staff in India. Indian J Med Paediatr Oncol. 2015;36(2):105-10. [\[Crossref\]](#) [\[PubMed\]](#) [\[PMC\]](#)
11. Singh E, Seth S, Rani V, Srivastava DK. Awareness of cervical cancer screening among nursing staff in a tertiary institution of rural India. J Gynecol Oncol. 2012;23(3):141-6. [\[Crossref\]](#) [\[PubMed\]](#) [\[PMC\]](#)
12. Getaneh A, Tegene B, Belachew T. Knowledge, attitude and practices on cervical cancer screening among undergraduate female students in University of Gondar, Northwest Ethiopia: an institution based cross sectional study. BMC Public Health. 2021;21(1):775. [\[Crossref\]](#) [\[PubMed\]](#) [\[PMC\]](#)
13. Heena H, Durrani S, Riaz M, Alfayyad I, Tabasim R, Parvez G, et al. Knowledge, attitudes, and practices related to breast cancer screening among female health care professionals: a cross sectional study. BMC Womens Health. 2019;19(1):122. [\[Crossref\]](#) [\[PubMed\]](#) [\[PMC\]](#)
14. Kavitha M, Jadhav J, Vishwanatha, Ranganath TS. Assessment of knowledge, attitude and practice towards breast self examination among female healthcare workers in Nelamangala Taluk. RGUHS National Journal of Public Health. 2016;4(1):148-52. [\[Link\]](#)
15. Mitra I, Mishra GA, Dikshit RP, Gupta S, Kulkarni VY, Shaikh HKA, et al. Effect of screening by clinical breast examination on breast cancer incidence and mortality after 20 years: prospective, cluster randomised controlled trial in Mumbai. BMJ. 2021;372:n256. Erratum in: BMJ. 2021;372:n738. [\[Crossref\]](#) [\[PubMed\]](#) [\[PMC\]](#)
16. Fotedar V, Seam RK, Gupta MK, Gupta M, Vats S, Verma S. Knowledge of risk factors and early detection methods and practices towards breast cancer among nurses in Indira Gandhi Medical College, Shimla, Himachal Pradesh, India. Asian Pac J Cancer Prev. 2013;14(1):117-20. [\[Crossref\]](#) [\[PubMed\]](#)