Original Article

Doctors Suggest Mandatory Screening Policy, Increase in IEC Programs can Control Rise in Breast Cancer

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Abstract

Background: A qualitative study was carried out among doctors in Karnataka to understand their perceptions about breast cancer, its rapid rise and control measures.

Methods: 67 doctors from allopathic as well as AYUSH fields answered a qualitative questionnaire related to screening policy in breast cancer, uptake, control measures, treatment costs and health insurance cover.

The questionnaires were sent as links to Google Forms. About 300 doctors were contacted but only about 67 doctors answered the questions. Answers were recorded from Google Forms into Excel sheets and subjected to statistical analysis by SPSS program.

Results: Among all the participating doctors, 66% of participants suggested making screening of breast cancer a mandatory procedure in the form of clinical breast exams (CBE), self-breast exams (SBE) and mammography.

Conclusion: Most doctors feel that screening policies could be made mandatory. They recommend breast cancer to be treated as a public health emergency.

Key words: Breast cancer; awareness; screening policy; IEC; NCD; stigma

Introduction

The Global Breast Cancer Initiative (GBCI) Implementation Framework Executive Summary released in 2023 observes that breast cancer (BC) is the most common cancer among women and the second most common cancer in 23 countries.[28, 29] Current studies estimate that by 2030 the worldwide number of new cases diagnosed will reach 2.7 million annually, while the number of deaths will reach 0.87 million. In 2020, India's cancer cases were estimated at 1.32 million[9] and were predicted to double by 2040.[25,26]

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There is no single national policy specifically focused only on breast cancer in India, it is covered under multiple national frameworks and guidelines. The National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) was launched in 2010 by the Ministry of Health and Family Welfare (MoHFW). It provides Breast cancer coverage by promoting early detection and screening of common cancers (breast, cervical, oral). Health and wellness centres under Ayushman Bharat are being used for community-level screening. ASHA workers and frontline health staff are trained to detect symptoms and refer women for further diagnosis.

ASHAs and ANMs are being trained for community-level detection of early signs of cancer, including clinical breast examination. Some states (e.g., Tamil Nadu, Kerala, Punjab, Kashmir) report better early detection rates due to effective implementation of screening protocols.[28] NPCDCS has helped integrate cancer prevention and early detection into primary healthcare, rather than leaving it to tertiary hospitals.[8] Operational Guidelines have been issued for Screening of Common Cancers (2016, updated versions later) the MoHFW under NPCDCS. Recommends clinical breast examination (CBE) for women aged 30 years and above, to be conducted every 5 years. Provides a step-by-step protocol for primary, secondary, and tertiary-level management of breast cancer cases.

The Indian government launched a National Cancer Screening Programme in November 2016.[3,7] It suggested that there will be mandatory screening for oral, throat, breast and cervical cancer in people over the age of 30 in 100 districts of India before the programme expands to other areas.

The National Health Policy (2017) emphasizes preventive healthcare and universal screening for major NCDs, including breast cancer and encourages integration of cancer services into primary health care systems. The Ayushman Bharat – Pradhan Mantri Jan Arogya Yojana (PM-JAY) provides financial protection for secondary and tertiary care, including treatment for breast cancer such as surgery, chemotherapy, and radiotherapy. Covers vulnerable populations through government-funded insurance. The National Cancer Registries were formed in 1960. 12 A study 19,20 about the National Cancer Grid formed in August 2012 to create uniform standards of care and treatment/ research in cancer has shown advantages of group negotiation in procuring pooled drugs easily. It is a network of over 300 cancer centres across India aiming to standardize cancer care, including breast cancer, across the country. It promotes evidence-based guidelines, training, and research collaborations.

Some states have launched their own cancer control programs, such as Tamil Nadu and Kerala offer mobile screening units for breast cancer. Delhi State Cancer Control Programas well as Maharashtra and Karnataka have implemented population-based screening programs with a focus on early detection.

There are very few studies on awareness of screening in Breast Cancer.We do not have national studies on the need for screening breast cancer in India or a study on all policies with special emphasis on screening.

As doctors play an important role in creating public awareness, a study was conducted in order to understand their perception towards screening and opinions on breast cancer with the help of questionnaires. Results would help in finding measures to prevent and decrease breast cancer cases.

Methods

Design:

The team consisted of only the first author. A qualitative study was designed with a questionnaire (QA) that gave us an insight into the minds of doctors regarding breast cancer 26. The questionnaire was developed based on existing literature and experts' opinions. A study[16,21]was used as a model to create question sets. A pilot study with ten participants was conducted in an online setting and relevance, validity, timing and types of questions were checked.

The doctors were from various institutions in Karnataka such as Ramaiah Hospital in Bangalore, Shimoga Institute of Medical Sciences, other government hospitals, some PHC clinics in Sagar District, and from private hospitals and practice.

Participants

About 200 physicians were contacted out of which 67 doctors answered the questions. The

inclusion criteria were that they were graduates or postgraduates in allopathic medicine or alternative medicine such as AYUSH streams. The participants were in the age group of 22 years to 61 years. Among the participants, 21% were graduates, while 78% were post graduates. 82% were employed while the rest were retired or self-employed. Among them 77 % had attended breast cancer awareness lectures or programs and read or worked with breast cancer. All the participants were trained physicians. There was only one breast cancer specialist in the sample as we wanted a standard model for comparison, too. The exclusion criteria was that they must be non – specialists because we were looking at a general opinion across all disciplines. As this was an exploratory study, a power analysis was not conducted.

Ethical guidelines of ICMR were followed throughout the study and Ethical Clearance cancer was obtained from the Institutional Ethical Committee of JAIN University (Re. No. JU-EC-/021/ HHS/PPG/PhD-JUL2023).

Data collection

A descriptive type of questionnaire was developed with the help of previous studies and colleagues involved in similar studies.

It had 15 open ended questions about an opinion on women's attitudes to screening in breast cancer, low uptake of screening, perceived causes, ideas on increasing screening uptake, awareness of the screening policy of 2016, reasons for rising numbers of cases and how they could be controlled. The doctors were asked about their awareness on breast cancer, screening, costs of screening and treatment, measures to increase screening uptake, identify causes of probable low uptake and suggest measures to decrease cases of breast cancer.

Background information was requested at the beginning of the questionnaire. The questions were tested on five doctors orally before it was shared with the participants. The results showed that the questionnaire was adequate.

Procedure

The participants were given the questionnaire as hard printed copies or on Google Forms sent on email/ WhatsApp messenger. The interviews were face to face or through emails. The recorded answers were saved as data and the answers were analysed.

Data analysis

The data from the interviews were subjected to qualitative content analysis. The transcripts were read and reread to make notes. The analysis began by highlighting meaningful phrases in the answers. Then in the second step, the meanings were condensed and labelled with codes. In the third step, codes were compared for similarities and differences in each answer.

In the fourth step, each code was developed as a category or group under which a certain similar sounding responses were grouped. Peer checking and disagreements were discussed. Each category was given a certain number and converted to data in excel sheets. Thus, doctors who responded in category 1 and 2 in a certain question were coded as 1 and 2. The data was analysed using SPSS software.

Results and Discussion

Low uptake of Screening Policy

There is an organised population-level national cancer screening program from 2016 for breast, cervix and oral cancers for women.[3]There are studies that say breast cancer is the topmost cancer in India and there is a low uptake of screening.[5, 22; 13, 17]Fear and stigma are an important component of the reluctance of women to get screened, say studies.[16]

Table 1: Doctors give reasons for low uptake of screening policy

Opinion of doctors	Percentage of doctors giving the reason
Ignorance about the program and lack of awareness	67
Women feel shy to go for screening	19
Not reaching the rural population	14
Fear and stigma of disease	11
Policy not advertised	8
Govt program not implemented effectively	8

Cont.....

Economic reasons among rural women if they miss day work, pay is cut	8
Lack of motivation unless symptoms appear	5
Less importance to early diagnoses and treatment	3
Covid havoc for two years	2
Low budget and lack of resources	2
Expensive tests	2
No idea	2
No time	2

Source: Data collected and analysed by researcher

The answers regarding our question on low uptake of screening indicate that doctors perceived a low uptake. **(Table1)**. A majority of respondents (67%) attributed this to limited awareness and personal barriers, such as embarrassment or reluctance related to physical breast examinations, the latter noted by 19% of participating physicians. In our study, some physicians (41%) felt that most women are aware of early-stage detection and increased survival rates associated with early detection.

Approximately 8% of the doctors suggested that the involvement of female healthcare personnel in both screening and patient communication could enhance participation rates. An additional 10% cited sociocultural barriers as contributing factors, while 2% specifically highlighted a lack of resources. Economic constraints were also noted, with 8% of physicians indicating that rural women, particularly those engaged in daily wage labour such as farm or agricultural work, may forego screening due to potential income loss. A further 2% reported time constraints as a significant deterrent.

Furthermore, 8% of the respondents felt that the national screening policy had not been effectively communicated to the target population. An equal proportion emphasised deficiencies in the dissemination of government screening initiatives, suggesting that community-based outreach, such as day camps, may be more effective in promoting awareness and participation.

Ways of increasing breast cancer screening among women

Studies suggest that targeted screening in India may be more cost effective as other screening methods may not be reliable in the Indian scenario.

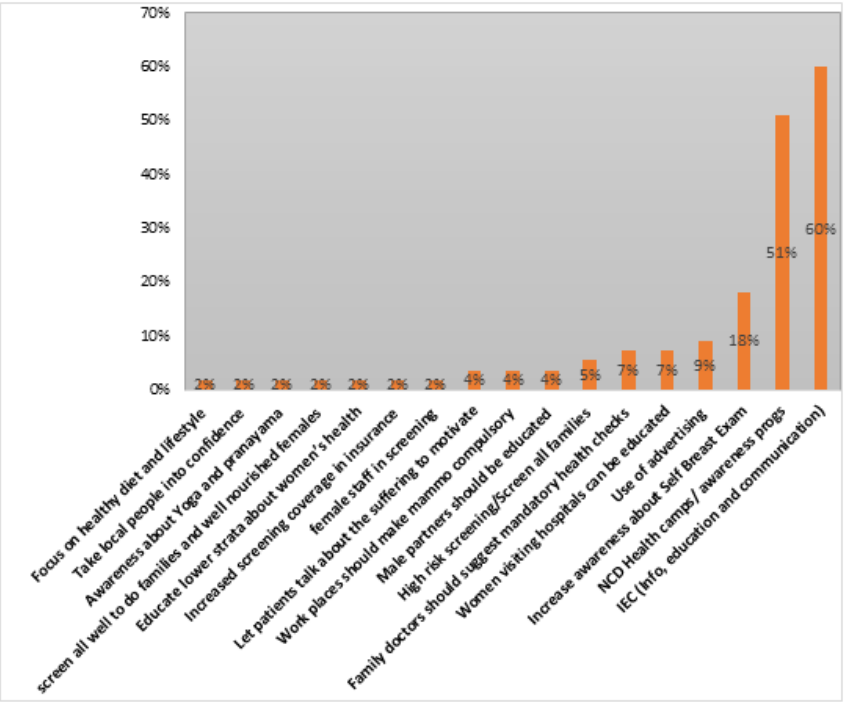

Figure 1: Doctors give their solutions to increase screening

Increasing participation of women in screening can be challenging as it involves various factors that are associated with the local scenario such as the socioeconomic status of women and cultural factors.[13] Similar studies in North India and America among doctors suggest that doctors feel that social barriers may be a hindrance to screening. [22; 23]

In response to our question that asked doctors to suggest solutions to increase screening, participating doctors suggested regular health checks and Non-Communicable Disease Camps for better surveillance of Breast cancer (**Figure 1**). About 60% suggest IEC (Information, education and communication) programs and mass education through presentations, newspapers, include celebrities to communicate social messages on screening, arrange talks, create awareness on social media, TV and online media.

Among the rest, 51% advocated for the implementation of Non-Communicable Disease (NCD) health camps at the primary healthcare level, coordinated by the government, as a strategy to enhance breast cancer screening uptake. Additionally, 18% recommended the promotion of Breast Self-Examination (BSE) practices, particularly among women affiliated with anganwadis, self-help groups, and among college-aged females.

A smaller proportion of respondents (7%) emphasized the importance of opportunistic health education, suggesting that every hospital visit should be utilized to educate women about breast cancer. Furthermore, 4% of the physicians proposed the inclusion of male partners in breast cancer awareness initiatives to foster supportive environments for screening and early detection. There were other less frequently cited recommendations that included mandating mammography in workplaces (4%), using patient testimonials to emotionally sensitize women to the impact of breast cancer (4%) etc.

Rise of breast cancer cases in urban areas

The pattern of thinking among the doctors in our study sample is based on the Indian population.

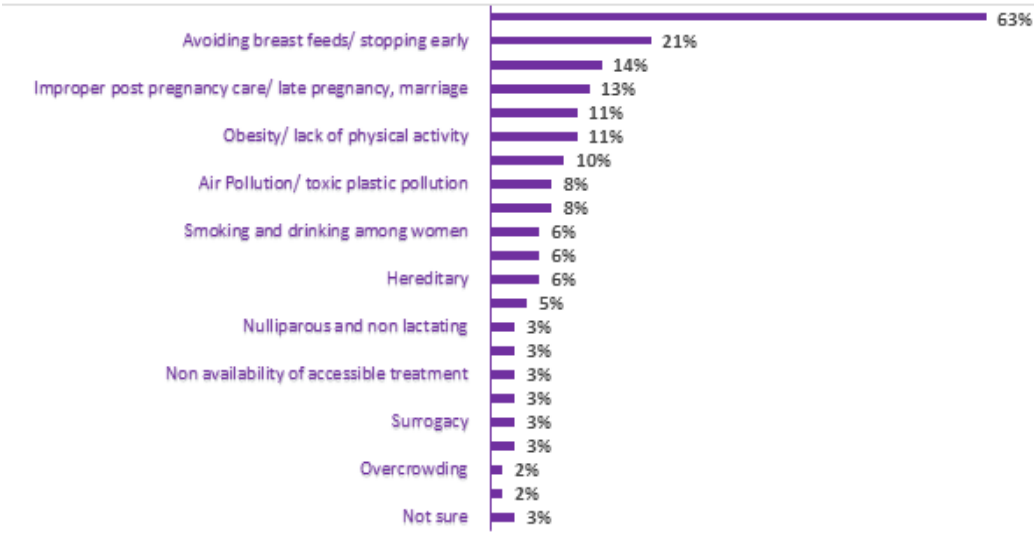

Figure 2: Cause of the rise in breast cancer cases as suggested by doctors

As seen in **Figure 2,** most doctors felt that the rise of breast cancer was mainly because of a sedentary lifestyle among women (63%) and stopping breast feeds early or avoiding breast feeding (21%).

They also thought that stress (14% of doctors), late pregnancy (13%) obesity (11% of doctors), Hormone Replacement Therapy, multivitamin supplements (10% of doctors), air pollution (8% of doctors) and cosmetics (8% of doctors) could also cause breast cancer. Some doctors (6%) suggested that smoking and drinking among women could cause breast cancer. Others felt that lack of awareness (6%) and heredity (6%) could cause the disease, while 5% felt that early menses in women or late menopause could be the reason.

A smaller fraction of physicians suggested nulliparous women/ non – lactation (3%), existing conditions such as Diabetes/blood pressure (3%), non-availability of treatment (3%), late detection of the disease (3%), surrogacy (3%) as well as lack of adequate sleep could be contributing to rise in breast cancer among women. Some felt that overcrowding (2%) or synthetic/ padded bras (2%) could also be the culprit.

The above findings are supported by earlier studies[1,4,5, 6,22, 14, 15, 17,18,24]

Reluctance among women to get screened for breast cancer

The Covid vaccination drive in India extended throughout the country and was one of the largest vaccination programs in the world in which three doses of the vaccine were given to the population.[27] Women from all sections of the society were not hesitant to get vaccinated against Covid. Our participating physicians were asked about most women who took the Covid Vaccine, would they as easily get screened for breast cancer?

Though most women got vaccinated against Covid, they may not agree to breast cancer screening so easily was an emerging consensus among the doctors (44%). They gave reasons to explain the reluctance among women to screen (**Figure 3).** They range from ignorance (45%); cultural taboos (17%); a gap between policy and its implementation (12%); stigma (12%) against the disease to lack of motivation (10%). Some participants (10%) have suggested that Covid vaccination involves a single prick of a needle whereas breast cancer screening is complicated and may not always involve female staff.

Other doctors (7%) felt that media has not highlighted the importance of screening, so most women do not find it necessary, another group (2%) felt that screening was pharma industry driven and not care based, some think (2%) that costs of screening could be a deterrent while others (7%) did not know. A fraction (5%) felt that there was no intervention at the grass root levels. The above findings suggest that doctors feel that screening is uncomfortable to most women.

Table 2: Reasons for reluctance to screen among women as suggested by doctors

Policy is Pharma driven not care based	2%
Cost	2%
No intervention at grassroots level	5%
Don't know	7%
Media does not highlight the need for screening	7%
BC screening is not a single prick but complicated	10%
Lack of motivation	10%
Stigma	12%
Gap between Govt. policy and its implementation	12%
Hesitancy/ shame/ cultural taboos	17%
Lack of awareness	45%

Doctors suggest mandatory screening will play an important role

Among all the participating doctors, 66% of participants suggested making screening of breast cancer a mandatory procedure in the form of clinical breast exams (CBE), self-breast exams (SBE) and mammography.

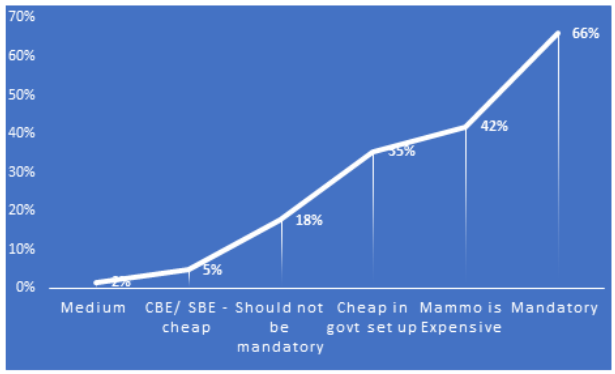

Figure 5: Doctors' suggest screening should be mandatory

Screening can be expensive in corporate hospitals but cheaper in government set ups, say 35% of the participating doctors. Early screening and detection can play an important role in bringing down cases of breast cancer, feel doctors (**Figure 5**).

Measures to bring down cases of breast cancer

As shown in **Table 2**, of the participating doctors, 48% cited awareness, screening (38%) and

early detection with management (28%) can combat breast cancer and control rise in cases. Some doctors (23%) feel that a better diet, lifestyle, limiting use of chemicals in cosmetics and being careful about Hormone Replacement Therapy can control rise in breast cancer cases while others (17%) feel Breast Self-Exam (BSE) and breast feeding children is an important preventive measure. Other doctors (8%) suggest that women can undergo a Clinical Breast Examination when they visit a hospital while a few (8%) suggest that preventive policy implementation by the government[8] is necessary, especially in rural areas - such as PHC buildings can display charts about Breast Cancer, experts could be available while NGOs can pitch in. More doctors (6%) suggest identifying risk factors and others (3%) suggest counselling as ways to prevent breast cancer and reducing stress (2%) through yoga and meditation. Government has a mechanism to track female children which can be extended suggested another 2% of doctors.

Genetic screening was advocated by only 2% of participants. A view that emerged was that costs of detection and treatment are cheaper in government set ups (**Table 2**).

BSE along with awareness of causes and work on the need for population based genetic testing[4, 10,11] will help in bringing down the cases of breast cancer, suggest studies. Some earlier studies reported the need for population testing.[11]

Polio was eradicated from India in 2014 and the Pulse Polio publicity campaign played a large role in sensitizing the public to vaccinate children against polio.[25] The wide vaccination drive against Covid in India launched by the Government of India achieved mass vaccination in a relatively short time.[2,27] The participants feel that Breast Cancer has developed into a public health situation such as Covid and demands the same urgent attention.

Conclusion

Most of the participating doctors feel that screening of breast cancer could be made mandatory along with better communication about screening policies through Non-Communicable Disease camps and the public could be informed by awareness campaigns through media, famous personalities, advertising etc. They feel clinical breast exams (CBE), self-breast exams (SBE) and mammography would help. Doctors acknowledge the rise in cases and the fact that they are not detected early because of a low uptake of screening while treatment is expensive in non-governmental setups and mortality is high. They also feel that there is a stigma associated with the disease and that women are hesitant about screening and screening policies have not been implemented well, leading to a lower awareness about screening. Not many studies have suggested mandatory screening to decrease breast cancer cases.

Table 3: Doctors suggest methods to bring down number of BC cases

Methods	Number of doctors (per cent)
Awareness	48
Screening	38
Early detection and management	28
Stress free, healthy diet as well as lifestyle/ Avoid chemicals/ careful about Hormone Replacement Therapy	23
Breast Self - Exam and breast feeding is important	17
There ought to be preventive policy implementation by the Government especially in rural areas/ Primary Health Centre buildings can display charts about BC/easily available experts/ NGOs can help	8
Every woman who attends hospital can undergo a Clinical Breast Exam	8
Identify risk factors	6
Counselling	3
Genetic screening	2
Govt has a mechanism to track female children, these can be extended	2
Reduce stress through yoga and meditation	2

Declaration of Interest Statement: None declared.

Limitations: Fig 2 also suggests bias/subjective beliefs in subjects. This could be a limitation of our study as studies on the effects of cosmetics, chemical effects, multivitamins on cancer are few.

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References

1. Antonova L, Aronson K, Mueller CR. Stress and breast cancer: from epidemiology to molecular biology. Breast Cancer Res. (2011);13(2):1–15. Available from: https://breast-cancer-research.biomedcentral.com/articles/10.1186/bcr2857
2. Bhattacharya P. Polio eradication calls for both shots and drops. SciDev.Net. (2020) Feb 28. Available from: https://www.scidev.net/global/polio- eradication-calls-for-both-shots-and-drops/
3. Bagcchi S. India launches plan for national cancer screening programme BMJ (2016); 355 :i5574 Available from:https://www.bmj.com/content/355/bmj.i5574
4. Gupta A, Shridhar K, Dhillon PK. A review of breast cancer awareness among women in India: Cancer literate or awareness deficit? Eur J Cancer. (2015);51(14):2058–66. Available from: https://www.ejcancer.com/article/S0959-8049(15)00665-6/fulltext
5. Jelly P, Choudhary S. Breastfeeding and breast cancer: A risk reduction strategy. Int J Med Paediatr Oncol. (2019);5(2):47–50. Available from: https://www.tandfonline.com/doi/full/10.1080/25785826.2019.1603631
6. Khokhar A. Breast cancer in India: where do we stand and where do we go? Asian Pac J Cancer Prev. (2012);13(10):4861–6. Available from: https://pubmed.ncbi.nlm.nih.gov/23244071/
7. Kulkarni, S. V., Mishra, G. A., & Dusane, R. R. (2019). Determinants of compliance to breast cancer screening and referral in low socio-economic regions of urban India. International Journal of Preventive Medicine, 10, 1–6. https://doi.org/10.4103/ijpvm.IJPVM_320_18
8. Lohiya, A., Daniel, R. A., Smith, R. D., Nagar, M., Shankar, A., & Lahariya, C. (2022). Cancer prevention and control in India can get a boost through primary health care-based approach: A review. Journal of Family Medicine and Primary Care, 11(8), 4286–4292. https://doi.org/10.4103/jfmpc.jfmpc_2378_21
9. Łukasiewicz S, Czeczelewski M, Forma A, Baj J, Sitarz R, Stanisławek A. Breast cancer—epidemiology, risk factors, classification, prognostic markers, and current treatment strategies—an updated review. Cancers (Basel). (2021);13(17):4287. Available from: https://www.ncbi.nlm.nih.gov/ pmc/ articles/ PMC8428369/
10. Madhukumar S, Thambiran UR, Basavaraju B, Bedadala MR. A study on awareness about breast carcinoma and practice of breast self-examination among basic sciences' college students, Bengaluru. J Family Med Prim Care. (2017);6(3):487–90. Available from: https://www.ncbi.nlm.nih.gov/pmc/ articles/ PMC5787941/
11. Manchanda R, Sideris M. Population-based genetic testing for cancer susceptibility genes: quo vadis?. BJOG. (2023);130(2):125–30. Available from: https://obgyn.onlinelibrary.wiley.com/ doi/ full/10.1111/1471-0528.17283
12. Mathur, P., et al. (2020). Cancer statistics, 2020: Report from National Cancer Registry Programme, India. JCO Global Oncology, 6, 1063–1075. https://doi.org/10.1200/JGO.20.00268
13. Mehrotra R, Yadav K. Breast cancer in India: Present scenario and the challenges ahead. World J Clin Oncol. (2022);13(3):209–15. Available from: https://www.wjgnet.com/ 2218-4333/full/v13/i3/209.htm
14. Morère JF, Viguier J, Brignoli-Guibaudet L, Lhomel C, Pivot X, Eisinger F. Awareness and misconceptions of breast cancer risk factors among laypersons and physicians. Curr Oncol Rep. (2018);20(1):6. Available from: https://link.springer.com/article/ 10.1007/ s11912-017-0647-9
15. Nair S, Nikam K. Unique Partnership to Roll Out Cancer Awareness and Screening Program for High-Risk Population in Maharashtra. JCO Glob Oncol. (2018);4(Suppl 2):e78–e80. Available from: https://ascopubs.org/doi/abs/ 10.1200/jgo.18.78600
16. Nyblade L, Stockton M, Travasso S, Krishnan S. A qualitative exploration of cervical and breast cancer stigma in Karnataka, India. BMC Womens Health. (2017);17(1):58. Available from: https://bmcwomenshealth.biomedcentral.com/articles/10.1186/s12905-017-0407-x

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(1):1–8. Available from: https://link.springer.com/article/ 10.1186/s12905-022-02147-5

18. Patel KK, Chakravarti P, Budukh A, Khanna D, Chaturvedi P, Pradhan S, et al. The fifth round of the National Family Health Survey of India 2019 to 2021 reported low screening uptake alarming to strengthen the implementation of early detection services of the cervix, breast and oral cancer. Int J Cancer. (2022);150(10):1734–6.Available from: https://pubmed.ncbi.nlm.nih.gov/35128640/

19. Pramesh, C. S., et al. (2014). The National Cancer Grid of India. Indian Journal of Medical and Paediatric Oncology, 35(3), 226–227. https://doi.org/10.4103/0971-5851.142040

20. Pramesh, C. S., Sengar, M., Patankar, S., Chinnaswamy, G., Gupta, S., Vijayakumar, M., Sood, S., Sathe, A. N., Radhakrishnan, V., Ganesan, P., Mallavarapu, K. M., &Badwe, R. A. (2023). A National Cancer Grid pooled procurement initiative, India. Bulletin of the World Health Organization, 101(9), 587–594. https://doi.org/10.2471/BLT.23.289714

21. Polishwala, S., Shagun, & Patankar, S. (2023). The Assessment and Comparison of the Knowledge of Breast Self-Examination and Breast Carcinoma Among Health Care Workers and the General Population in an Urban Setting. Cureus, 15(3), e36592. https://doi.org/10.7759/cureus.36592

22. Radhakrishnan A, Nowak M, Parker P, Pollack C. Physician breast cancer screening recommendations following guideline changes: results of a national survey. JAMA Intern Med. (2017);177(6):877–8. Available from: https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2617276

23. Ramakant P, Singh KR, Jaiswal S, Ranjan P, Rana C, Jain V. A survey on breast cancer awareness among medical, paramedical, and general population in North India using self-designed questionnaire: a prospective study. Indian J Surg Oncol. (2018);9(3):323–7. Available from: https://link.springer.com/article/ 10.1007/s13193-017-0703-9

24. Ramesh S, Kosalram K. The burden of non-communicable diseases: A scoping review focus on the context of India. J Educ Health Promot. (2023);12:41. Available from: https://jehp.net/article.asp?issn=2277-9531;year=2023;volume=12;issue=1;spage=41;epage=41;aulast=Ramesh

25. Smith RD, Mallath MK. History of the growing burden of cancer in India: from antiquity to the 21st century. J Glob Oncol. (2019);5:1–15. Available from: https://ascopubs.org/doi/full/10.1200/JGO.18.00277

26. Stewart BW, Wild CP, editors. World cancer report 2014. Lyon: International Agency for Research on Cancer; (2014). Available from: https://www.iarc.who.int/wp-content/uploads/2018/07/ wcr-2014-fulldocument-9789283204299.pdf

27. Vaghela G, Narain K, Isa MA, Kanisetti V, Ahmadi A, Lucero-Prisno DE 3rd. World's largest vaccination drive in India: Challenges and recommendations. Health Sci Rep. (2021);4(3):e307. Available from: https://www.ncbi.nlm.nih.gov/pmc/ articles/PMC8428369/

28. Wani AA. Cancer: Its symptoms, challenges and opportunities in research in India: A review. Saudi J Med Pharm Sci. (2023);9(1):1–5. Available from: https://www.saudijournals.com/ media/articles/SJMPS_91_1-5.pdf

29. World Health Organization. Global Breast Cancer Initiative Implementation Framework. Geneva: WHO; (2021). Available from: https://www.who.int/publications/ i/item/9789240064119.