Appendix B: Cover Page

A STUDY ON BREAST CANCER AWARENESS AMONG WOMEN IN INDIA

Dissertation Submitted to

The IIHMR University, Jaipur

for the partial fulfillment for the award of the degree of

Master of Business Administration (MBA)

In

Hospital and Health Management

by

Krishna Pranav Gandhi

Under the Supervision and Guidance of

Alok Kumar Mathur

2023

Appendix C: Title Page

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Appendix D: Declaration by Student

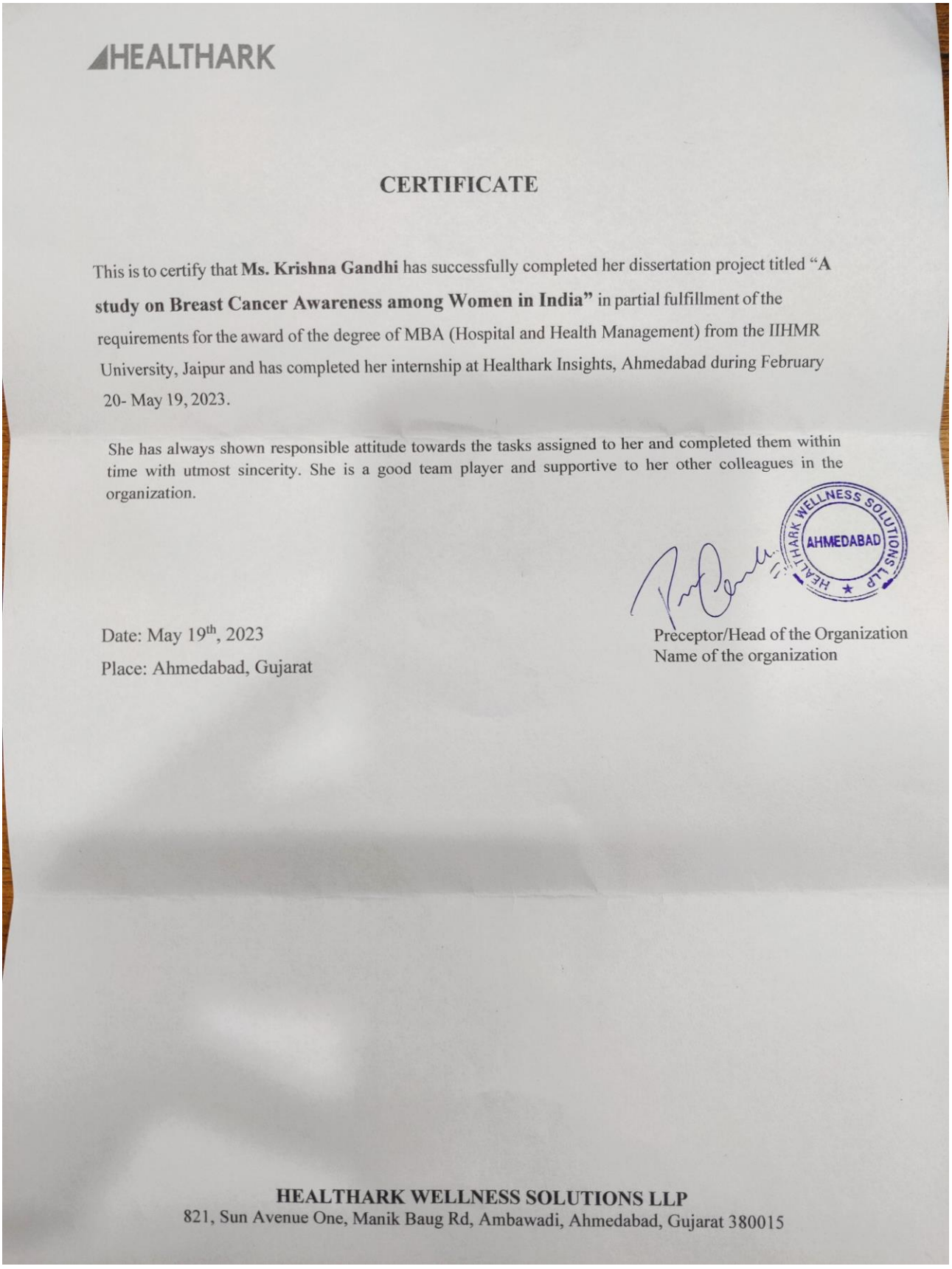
DECLARATION BY STUDENT

I hereby declare that this dissertation titled **A study on Breast Cancer Awareness among women in India** is the bonafide record of my original research work. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.
(Signature) :

Name of Student : Krishna Pranav Gandhi

Date : 14/05/2023

Appendix E: Completion Certification



HEALTHARK

CERTIFICATE

This is to certify that **Ms. Krishna Gandhi** has successfully completed her dissertation project titled "**A study on Breast Cancer Awareness among Women in India"** in partial fulfillment of the requirements for the award of the degree of MBA (Hospital and Health Management) from the IIHMR University, Jaipur and has completed her internship at Healthark Insights, Ahmedabad during February 20- May 19, 2023.

She has always shown responsible attitude towards the tasks assigned to her and completed them within time with utmost sincerity. She is a good team player and supportive to her other colleagues in the organization.

HEALTHARK WELLNESS SOLUTIONS LLP AHMEDABAD

Date: May 19th, 2023

Place: Ahmedabad, Gujarat

Preceptor/Head of the Organization
Name of the organization

HEALTHARK WELLNESS SOLUTIONS LLP
821, Sun Avenue One, Manik Baug Rd, Ambawadi, Ahmedabad, Gujarat 380015

Appendix F: Certificate from Faculty Guide and School Dean

CERTIFICATE

This is to certify that dissertation titled.....is a record of the research work undertaken by (Name of Student) in partial fulfillment of the requirements for the award of the degree of MBA (Hospital and Health Management)/MBA (Pharmaceutical Management)/MBA (Development Management) from the IIHMR University, Jaipur under my guidance and supervision and his/her approach to the research study has been sincere, scientific, and analytical.

Faculty Guide, IIHMR University, Jaipur:

Date:

School Dean, IIHMR University, Jaipur:

Date:

ABSTRACT

This study asses the awareness level of women for Breast cancer through various aspects – Risk Factors, Symptoms and Early detection methods for disease prevention. Study also aims to identify what difference can be associated to women with socio-economic and education difference among rural/urban practises and other co-relation between different assessment criteria taken for this study. Study also found that participants were more aware about traditional symptom, risk factors and early detection methods but less knowledge in accordance to digital space for breast cancer early prevention and awareness was noted.

Material & Method: A cross-sectional Descriptive study with 111 women aged 20-75 as sample size was taken into account considering Urban and Rural population. Simple Random Sampling technique is used for this study. Over the course of three months, data was gathered using a standardised questionnaire.

Results: Most of the women population surveyed were knowing about Breast Cancer disease. It showed positive consideration of awareness level among women especially pertaining to young and middle-age with Self-breast examination & Mammography as highest rated early detection technique for breast cancer awareness. Physically active women following healthy lifestyle has strong link of early prevention of breast cancer. Among all the risk factors known to study population with respect to breast cancer, (a) Family History of Breast Cancer, (b) Hormone and Reproductive Factors & (c) Gender were the top 3 factors highlighted for awareness regarding the disease.

Conclusion: Survey showed women having a moderate to high level of understanding regarding Breast Cancer Awareness. The study encourages campaigning and a more extensive intervention to raise awareness of Breast Cancer among women, with a focus on those who have less education. Through education and information campaigns (EIC), efforts should be made to raise public knowledge about breast cancer. There is a need to put in place comprehensive strategies for early identification and prevention of breast cancer by Indian government along with Public-Private Partnership encouraging free “early breast cancer screening” initiatives.

Keywords:

Breast Cancer, Awareness, Risk Factors, Education, Women,

ACKNOWLEDGEMENT

First of all, I want to express my gratitude to my All-Powerful God for providing me with the opportunity, knowledge, strength, and capacity to conduct this research.

This study and the research that supported it would not have been feasible without Dr. Alok Kumar Mathur, my faculty mentor, and his exceptional help. His enthusiasm, knowledge, and meticulousness have motivated me and kept my work on track from the outset. I want to thank him from the bottom of my heart for his unfailing help and patience. Thank you for being the tremendous mentor throughout.

I would also like to extend my sincere gratitude to my Organization Mentors, Dr. Purav Gandhi and Mr. Sachin Baghadiya for their constant support and guidance during 3 months of Dissertation journey. From Day 1, they were the constant source of inspiration and moral support right from helping in deciding about the topic to assisting through several feedbacks.

I ought to express my gratitude to my family, particularly my parents and grandparents for their confidence in me which has sustained my enthusiasm and upbeat attitude throughout this process.

I would also like to thanks all of the study respondents who has participated in the research and made a valuable insight for me to create such a great research paper.

And lastly, I would like to thanks my colleagues for their feedback and support throughout the journey.

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Abbreviation:

BC- Breast Cancer

CAM – Complementary & Alternative Medication

PHC – Primary Health Centre

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CHAPTER 1: INTRODUCTION

Cancer is defined as an uncontrolled division of aberrant cells, according to Cancer Research UK. More than 200 different cancers exist. 18.1 million cancer cases were reported worldwide in 2020. According to data from the World Cancer Research Fund International, there were slightly more incidences of cancer in males (9.3 million cases) than in women (8.8 million cases).

Breast cancer, lung cancer, and colorectal cancer were the top 3 cancer types in both sexes, accounting for 12.5%, 12.2 %, and 10.7% of cases, respectively. Lung cancer was the primary cause of 15.4% of the 9.3 million cancer cases in men. Breast cancer was the leading contributor, accounting for 25.8% of the 8.8 million cancer cases in women. The national average for cancer diagnoses in 2022 is 100.4 per 100,000, with breast cancer affecting many more women (105.4 per 100,000) than males.
Projection for BC Burden in India:
The All-India Institute of Medical Sciences in Patna's Department of Radiation Oncology stated, "According to modelling data, the forecast is that breast cancer cases would reach 250,000 by 2030. Approximately 182,000 new instances of breast cancer are reported each year in India.

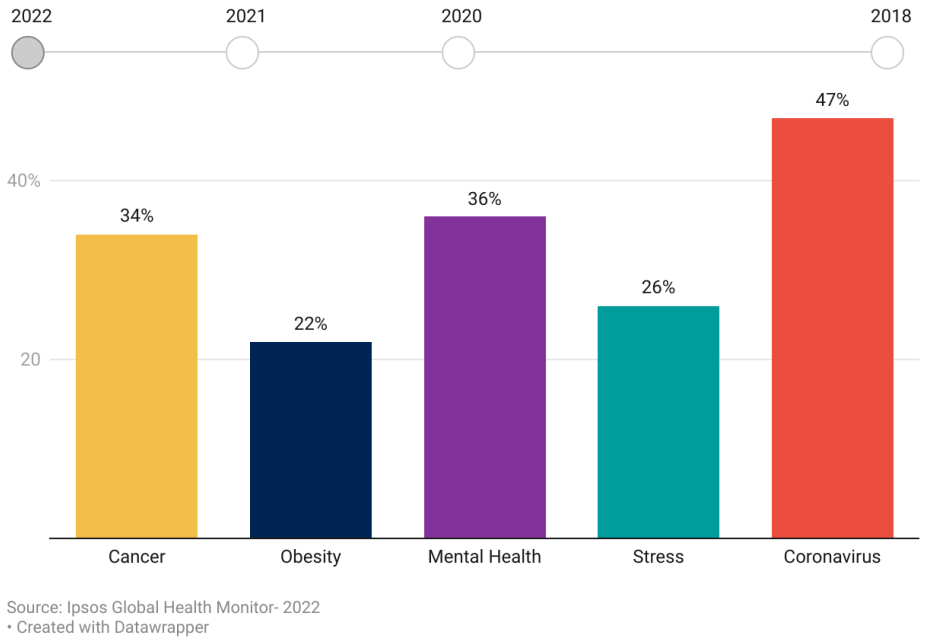

Figure 1.1: Top Healthcare Concerns in 2022 Source: (Secondary Data[16])

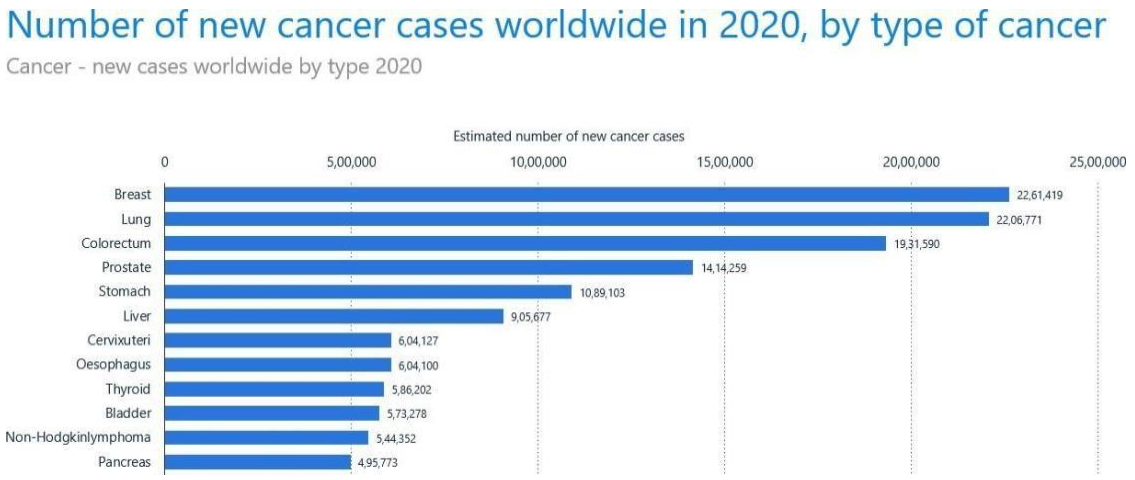

Figure 1.2: Global new cancer cases by type of cancer, 2020 (Source: Secondary Data[26])

India Statistics says, 14.6 L individuals are anticipated to be afflicted by cancer in 2022. The most common malignancies in both men and women were lung and breast cancer, respectively

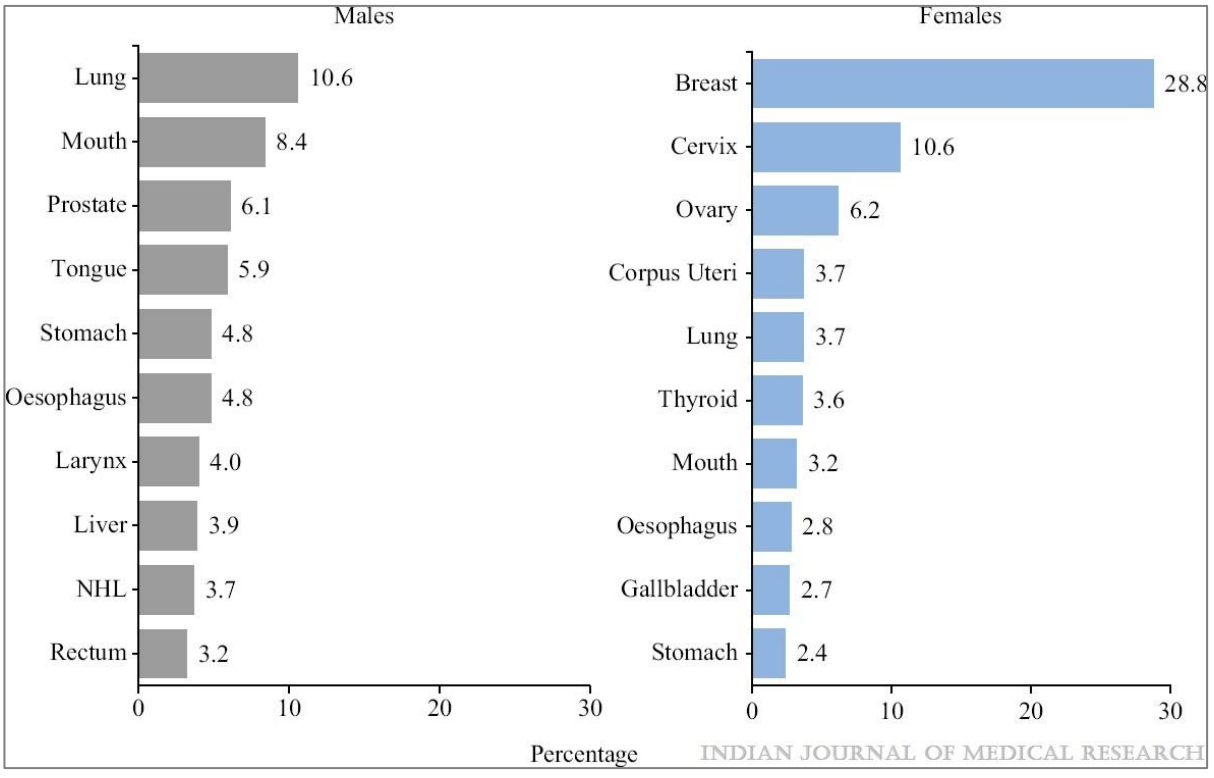

Figure 1.3: Expected percentage of India's top 10 cancer locations by sex in 2022 (Source: Secondary Data[26])

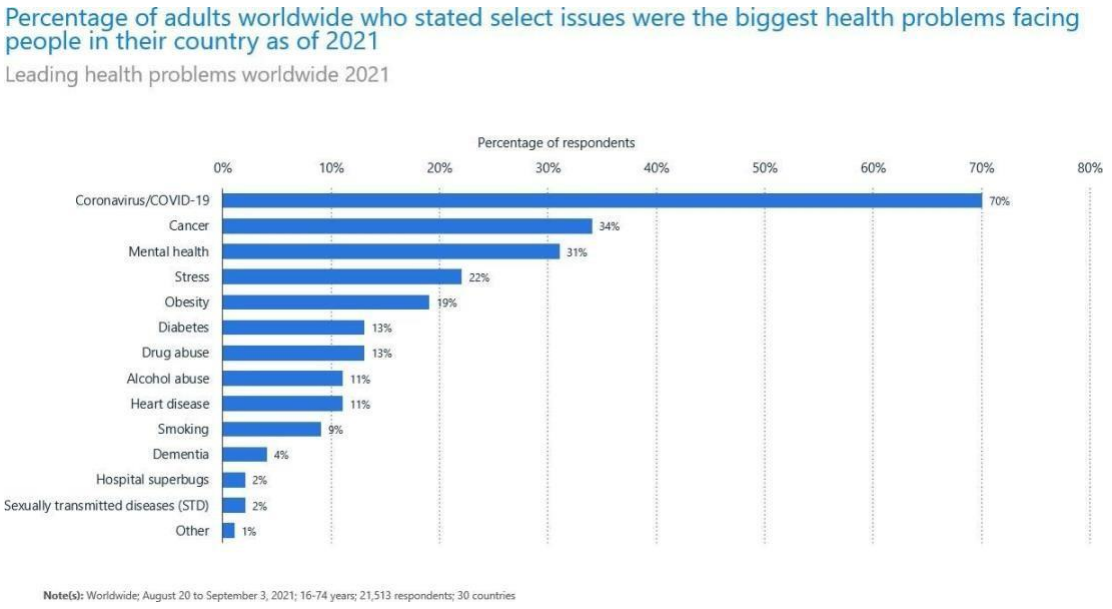

Figure 1.4: Biggest health concerns in country reported by adults, 2021 (Source: Secondary Data[18])

"Breast cancer" has surpassed "cervical cancer" in India as the most common cancer and the reason for cancer-related deaths. People are more prone to breast cancer in the modern world due to UV exposure, alcohol use, and tobacco use. Breast cancer causes the cells to proliferate out of control. The area of the breast where the disease first appears determines the kind of breast cancer. It might be a phyllodes tumour, lobular cancer, ductal carcinoma, Paget disease, angiosarcoma, etc. There are more than 2.3 million cases of breast cancer occurring every year. Breast cancer accounts for 14% of cancer in Indian women. Breast cancer in India contributes to 25%-32% of the overall female cancer cases with regions of Delhi, Mumbai, Bengaluru, Kolkata, Bhopal, Chennai, and Ahmedabad facing the most cases. In India currently, one in six rural women and 22 urban women are at risk of acquiring breast cancer. Incidence rate of breast cancer in India accounts for 13.5%. The annual growth in cancer patients is accompanied by a progressive shift in the age range of new patients, from 55 to under 40 years. Compared to wealthy nations like the USA or the UK, India has a very poor rate of BC patient survival, with post-cancer survival among Indian patients currently standing at 60%. More than 50% of Indian women have breast cancer that is in stages 3 or 4. Because of large population and low level of breast cancer awareness, India has a low survival rate. According to recent studies, this condition is becoming more prevalent in younger Indian women within the age range of 25-50, accounting for nearly 50% of cases. According to age groups, incidence is as follows:

- 20 to 30 years of the population: 4%

- 30 to 40 years of the population: 16%
- 40 to 50 years of the population: 28%

Epidemiological data show that more than 25 out of every 100,000 women will acquire breast cancer. Additionally, poor survival and high mortality were present in more than 70% of the cases that were in the advanced stage. Approximately 13 out of every 10,000 women died from breast cancer. According to an Indian study of rural women with breast cancer, the five-year survival rate is only 9% when the disease is discovered at stage IV, but it rises to 78% if discovered earlier. Unfortunately, in India, the majority of patients still visit the doctor late in the course of their illness. Despite improvements in breast cancer screening methods, few women are aware of the disease and receive a diagnosis before it has spread.

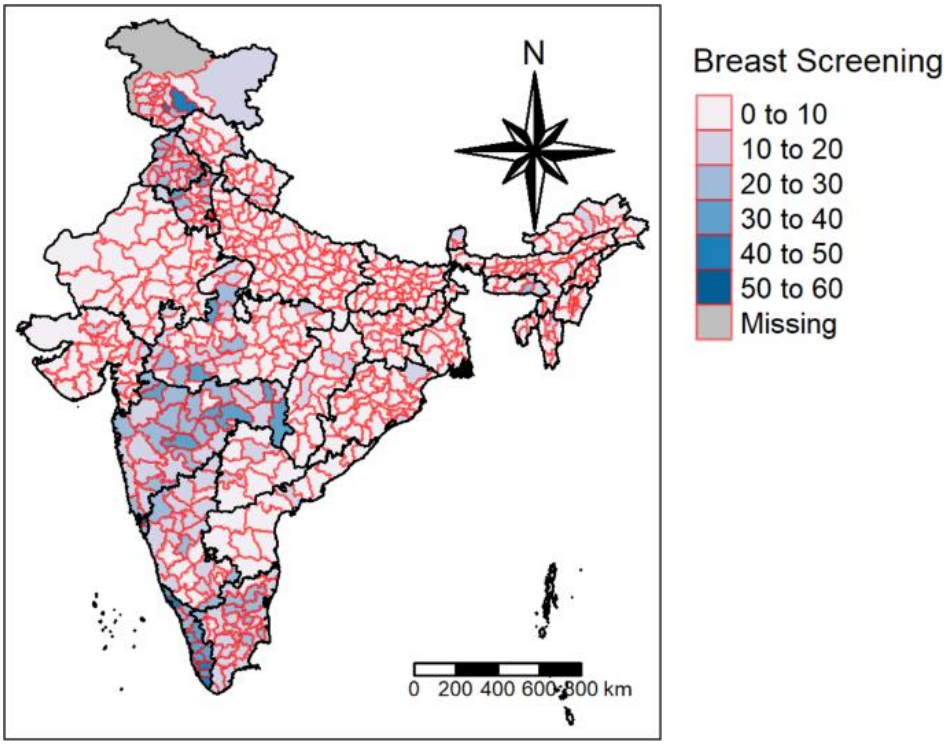

Figure 1.5: BC Screening across various districts in India (Source: Secondary Data[24])

According to Study by NHFS, only 10% of women was screened, A greater part of the regions in Kerala have a high take-up of BC screening, though North Goa has the most share. The dispersion bend displays that the majority of the areas fall in the scope of 0 to 10%.

Some Important Statistics regarding BC:

- The 43–46 age range is the one with the highest risk.
- Only 7-10% of breast cancers are inherited; the remainder can be avoided by changing one's lifestyle.

- Most breast cancer patients do not have symptoms in the early stages of the disease.
- Early detection and effective treatment are made possible by regular preventative health examinations.

Many Indian start-ups are currently concentrating on developing applications using AI and machine learning to facilitate breast cancer screening and raise awareness of the disease in rural, semi-urban, and urban areas of India. Although ladies are presently in places of liability and bringing in cash for their families, India is as yet a man centric culture, and men are as yet the principal suppliers of pay. Even well-educated, successful women avoid discussing their bodies in private with their partners, fathers, or brothers.

The purpose of the study is to determine how much of India's female population is aware about breast cancer. The study will give an overview of the conventional treatments used to manage breast cancer and offer suggestions for educating women about ways to lower their chance of developing breast cancer in the future.

CHAPTER 2: REVIEW OF LITERATURE

S.no	Title	Authors	Year of Publication	Sample Size	Findings
1	Study of breat canser awareness among women in India: Cancer literate or awareness deficit	Gupta,K. Shridhar, P.K Dhilon	July 2015	7066 women	This study discovered that Indian women, regardless of their socioeconomic and educational levels, lack appropriate cancer awareness on breast cancer risk factors. In order to enhance cancer literacy in India, this article suggested national and regional awareness initiatives that include a wide range of social stakeholders and the health system.
2	Awareness and Current knowledge of Breast Cancer	Muhammad Daniyal Muhammad Akram, Asmat Ullah Khan , Mehwish Iqbal, ,	October 2017		Breast cancer, which can be lethal to female patients, is the most prevalent cause of mortality for women, according to the research. The review showed how greater public awareness, breast cancer awareness, and improvements in breast imaging had improved breast cancer identification and screening. The anatomy of the brest, risk factors,

					epidem, pathophysiology, phases, diagnostic techniques, and treatment for breast cancer were all covered in this study.
3	Brest Cancer Awareness at the Community Level among Women in Delhi, India	Arti Mishra , Subhojit Dey1, , Jyotsna Govil, Preet K Dhillon	2015	2017 women	The research assesses Delhin women's awareness of several aspects of brest cancer from a variety of socioeconomic groupings. Among the women in the survey, 84.5% were aware that BC frequently presents as a lump, yet 73.9% believed incorrectly that discomfort was BC's initial symptom. Women in Delhi are less aware about BC in relation to their socioeconomic position. Moving on to the first stage, the most important sources for increasing awareness are television and the media.
4	Increasing brest cancer awareness and brest examination practices among women for health education and capacity building of primary healthcare	Anushree Patil , Ranjan Kumar Prusty, Shahina Begum, Gauravi Mishra , D D Naik1, Sharmila Pimple,	2021	410 women	The study's goal was to advance (BC) knowledge and practises by using information, education, and communication (IEC) modules and health

	providers: A Pre-post intervention study in low socioeconomic area of Mumbai, India				education workshops for women and primary healthcare providers in Mumbai's low-socioeconomic population. When asked how they first learnt about BC, the majority of the sample's female participants stated they did so through the media (53%) and doctors (25%), compared to the majority of those who said they did so through awareness campaigns following the intervention. Findings imply that strengthening healthcare staff' ability is necessary to boost BC knowledge.
5	Brest Cancer Awareness among Women in Urban Setup in Western India	Parashar Rai , Ranvijay Singh, Nishitha Shetty, Mukti Gandhi , Ghanshyam Yadav, , Maryam Naveed, Ashwini M. Ronghe	June 2021	500 women	According to this study, the majority of women are aware that brest lumps are a common sign of brest canser (90.47%), however knowledge of other symptoms is lacking. Compared to stay-at-home moms, women who were educated or employed had higher levels of

					awareness. To guarantee better results, it is important to design efficient health education programmes that enlighten women about breast cancer, disseminate accurate information through the media, and encourage early identification.
6	Brest Cancer Awareness in India	Prasad S and Pandey U	Dec 2019		According to the data, breast cancer death rates are disproportionately higher in India due to brest cancer being diagnosed at an advanced stage due to a lack of knowledge and quick diagnosis and treatment. Brest cancer prevalence is also increasing in India, and this is causing an increase in fatality rates. At the federal, state, and neighbourhood levels, there is an urgent need for more effective cancer literacy campaigns, as well as for cooperation with the healthcare system.

7	Brest Cancer Survivorship among Indian Women: An Overview	Anil Kumar , Sunita Srivastava1,	July-Sept 2022	Nearly 500	This review article made a modest attempt to look into the already available published literature on brest cancer survival health concerns from an Indian perspective. It also aims to make a distinction between the survival requirements of Indian women in urban and rural areas. There is not much literature on brest cancer survivorship and related issues. The majority of the troubles were brought on by health problems that emerged during cancer treatment.
8	Level of Awareness & Practices of Women Regarding Brest Cancer in Chhattisgarh, India: An Instituton-Based Survey	Sunita Singh, Niraj Kumar Srivastava, Anjali Pal, Pushpawati thakur	2018	500	The study found that women had a significant lack of knowledge on the signs, risks, and screening procedures associated with BC. Lack of knowledge on the symptoms, dangers, and screening measures for the illness is to blame for the delay in bc diagnosis. Clinical breast examinations should be done on women over the age of 35 by

					medical professionals such as physicians, nurses, and multifunctional health workers. Women visiting outpatient clinics may also be required to complete training in brest selfexamination.
9	Survey on Brest Cancer Awareness Among Medical, Paramedical, & General Population in North India Using Self-Designed Questionnaire: a Prospective Study	Sudhir Singh, Pooja Ramakant, Kul Ranjan Singh, Priya Ranjan, Sapna Jaiswal	2017	220 women	According to the survey, there are three main ways to increase BC awareness: more television and social media advertisements, roadside campaigns, group discussions, and debates in colleges, as well as grassroots efforts involving Anganwadi workers and nurses to raise awareness in villages. Compared to those in the medical and paramedical fields, non-medical women had less knowledge and awareness ofbrest cance.
10	Knowledge, practice & attitude towards breast cancer and its screening among	Taneja, Neha Pal, Akanksha;, Malhotra, Neha; Shankar, Aanchal Anant Rajashree; Chawla, Bhavika; Awasthi, Janardhanan, Rajiv	2021	7545 women	Despite the fact that this systematic review discovered that more than half of the sample population had sufficient

	women in India				information and a good attitude towards brest cancer and its early detection and screening techniques, a plan on BC education is still required. Women from all demographic groups need to be motivated to make positive changes about breast cancer screening, early detection, and treatment.
11	Can urban Accredited Social Health Activists - **ASHA** be change agent for brest cancer awareness in urban area: Experience from Ahmedabad, India	Saxena,Tapasvi Farjana Memon,Deepak Puwar,and Shyamsundar Raithatha	Dec 2019	104 ASHA	The research revealed that the intervention group's awareness of breast cancer and breast self-examination considerably enhanced between the pre- and post-test. Following the intervention, the study group shown a 33% overall gain in breast cancer awareness, a 54% method improvement, and a 42% practise improvement. The knowledge had undergone observable changes. However, behaviour modification requires reinforcement training at regular interval.

Table 2.1: Literature Review Study

Research questions

What is the awareness level about breast cancer among young and middle-aged women population of India?

Objective of Study

To understand awareness among Indian women on breast cancer for young and middle-aged women between 20-75 years of Indian Population using convenience sampling technique. The age group selected defines specific set of knowledge and understanding regarding awareness purposes as the ripe age beginning the wider maturity & post-matured age for women till 75 is an ideal case for considering the study.

CHAPTER 3: METHODOLOGY

Research Question:

What is the awareness level about breast cancer among young and middle-aged women population of India?

Research Design

Cross-sectional Descriptive study

Study Setting

Population-based survey of Women in India

Study Population

Women-aged 20-75 years of Indian Population

Criteria for Inclusion

All women > 20 years of age till 75 years of age

Criteria for Exclusion

All women < 20 years and above 75 years. Males are excluded from study population.

Sampling Technique

Convenience Sampling Method

Study Duration

March 6 – May 16, 2023

Sample size

111 Women were considered for the study

Data Collection Procedure

Primary Research – Data collected from Online questionnaire using google form.

Secondary Data – Collected from database and research articles such as PubMed, Cancer Registries, Cancer Journal, NCBI, Globocan, Research Gate. The keywords used Breast Cancer Awareness, Risk for breast cancer, women awareness about breast cancer and others.

Study Tool

Questionnaire is prepared for the study on women awareness about breast cancer.

List of Variables

Dependent Variables

- Awareness about different factors of risk of BC
- Awareness about early detection methods of BC
- Knowledge about symptoms and treatment of BC
- Breast self-examination practise
- Family history of BC
- Personal habits impacting BC

Independent Variables

Economic & Socio-demographic factors:

- Age
- Marital Status
- Education level
- Residence type
- Monthly Household income

Operational Definition

"Breast cancer is caused by the development of malignant cells in the breast which originate in the lining of the milk glands or ducts of the breast (ductal epithelium), defining this malignancy as a cancer"

Data Analysis

Microsoft Excel will be used to enter the primary data on women's awareness of breast cancer. When necessary, descriptive statistics would be considered.

Ethical Consideration

It is inevitable that duty, right, and ethical issues will arise in the fight against breast cancer. This study takes into account moral concerns like the participants and their families' informed permission. When discussing about awareness, its diagnoses and treatment options, participants comfort level is also taken into account

CHAPTER 4: RESULTS & FINDINGS

A sample of 111 individuals were considered for this study. In this study, a total of 26 questions were asked to respondents regarding different aspects of BC Screening, method, treatment and factors out of which respondents were able to answer basic demographic question, risk factor, symptoms and other respondent related very easily whereas early detection method, self-examination, treatment and CAM questions were found to be difficult for them.

Socio-Demographic Characteristics

Sr. No.	Characteristics	Category	Frequency	Percentage
1.	**Age**	20-25	37	33.3%
		26-35	12	10.8%
		36-45	15	13.5%
		46-55	36	32.4%
		56-65	7	6.3%
		66-75	4	3.6%
2	**Marital Status**	Married	63	56.8%
		Unmarried	48	43.2%
3	**Level of Education**	10^{th}	4	3.6%
		12^{th}	13	11.7%
		Graduation	45	40.5%
		Post-Graduation	41	36.9%
		PhD	2	1.8%
		Diploma	6	5.4%
4	**Residence Type**	Urban	85	76.6%
		Rural	26	23.4%
5	**Socio Economic Status**	Low	6	5.4%
		Median (Middle)	90	81.1%
		High	15	13.5%

Table 4.1: Socio Demographic Characteristics (Source: Primary Data)

Residence Type criteria selected:

- Urban residence included the respondents from metropolitan cities like Surat, Ahmedabad, Baroda, Mumbai, Delhi & others.
- Rural residence included respondents from PHC and nearby villages of India.

Socio-economic status criteria selected:

- Low status included respondents from poor financial, educational, health & social resources with annual income upto 6L
- Median status included respondents from working class & upper class with annual income upto 15L.
- High status included respondents from high financial, educational, health & social resources and adequate living condition with luxurious income

Study on Breast Cancer Risk for Respondents

Question	Response	Frequency	% of Total
Any family history for Breast Cancer?	Yes	20	18%
	No	91	82%
Any near about family member having breast cancer?	Yes	25	22.5%
	No	86	77.5%
Are you physically active?	Yes	96	86.5%
	No	15	13.5%
Do you Follow Healthy Lifestyle?	Yes	92	82.9%
	No	19	17.1%
Do you have Benign Breast Condition?	Yes	38	34.2%
	No	73	65.8%
Do you know about recent start-ups working for breast cancer cause?	Yes	29	26.1%
	No	82	73.9%

Table 4.2: Breast Cancer risk for Respondents (Source: Primary Data)

Breast Cancer Awareness Rate

	Rate	Frequency	% of total
Breast Cancer Awareness Rate	1	8	7.2%
	2	11	9.9%
	3	43	38.7%
	4	29	26.1%
	5	20	18%

Table 4.3: Breast Cancer awareness rate (Source: Primary Data)

➢ General Breast Cancer Question

❖ Have you heard about Breast Cancer?

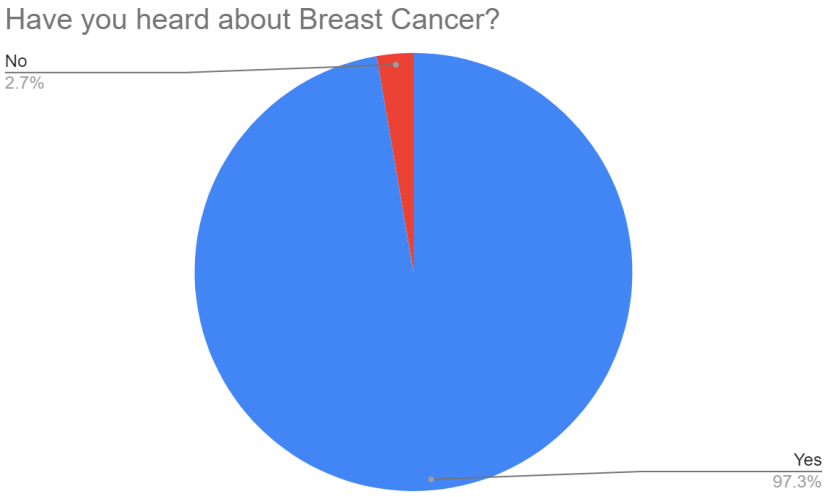

Figure 4.1: % of Breast Cancer disease heard by respondents (Source: Primary Data)

- Out of the total sample, 87.4% were knowing about breast cancer risk factors whereas 12.6% were not aware of the disease or risk factors associated it.

- Figure 4.1 shows that 97.3% women were knowing or had heard about Breast cancer in past or in today's note which states that the word "Breast Cancer" is not a jargon for present-day society whereas only 2% women were unaware about the same.

➢ Study on Awareness about Breast Cancer

❖ Do you know about Risk factors for BC

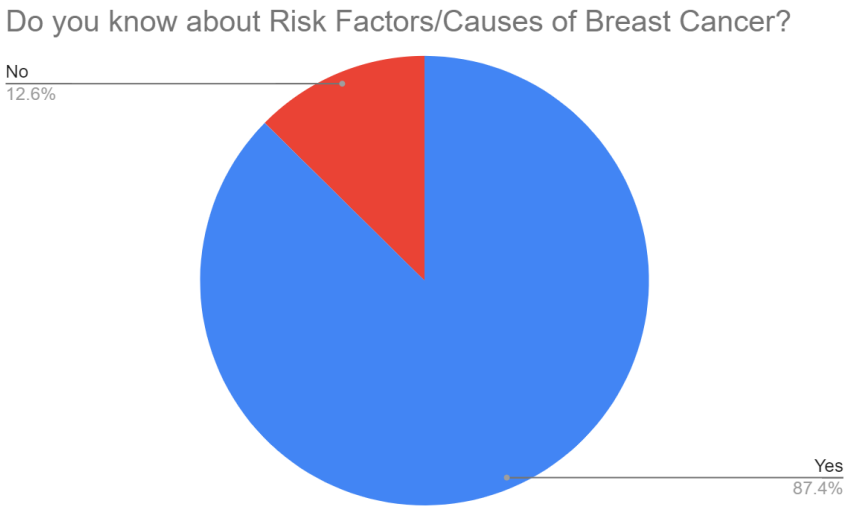

Figure 4.2: % Awareness about Risk Factors (Source: Primary Data)

- Figure 4.2 shows the percentage of women knowing about Risk factors which states that 87.4% of women were knowing about risk factors whereas 12.6% women were not aware which can be spread by community-level understanding.

❖ Different Risk Factors

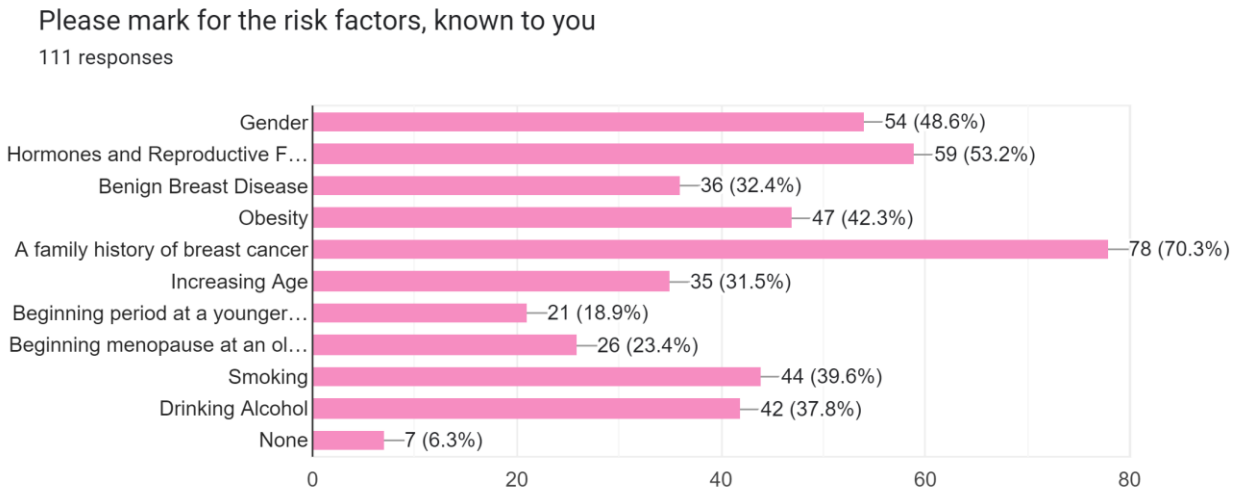

Figure 4.3: Awareness about Risk Factors known (Source: Primary Data)

- Figure 4.3 shows about individual awareness to risk factors which can be found out from study that major risk factors like Family History of Breast Cancer(70.3%), Hormone and Reproductive Factors(53.2%), Gender(48.6%) etc were known the most which explains women now-a-days are aware about breast cancer risk factors

❖ **<u>Do you know symptoms of BC</u>**

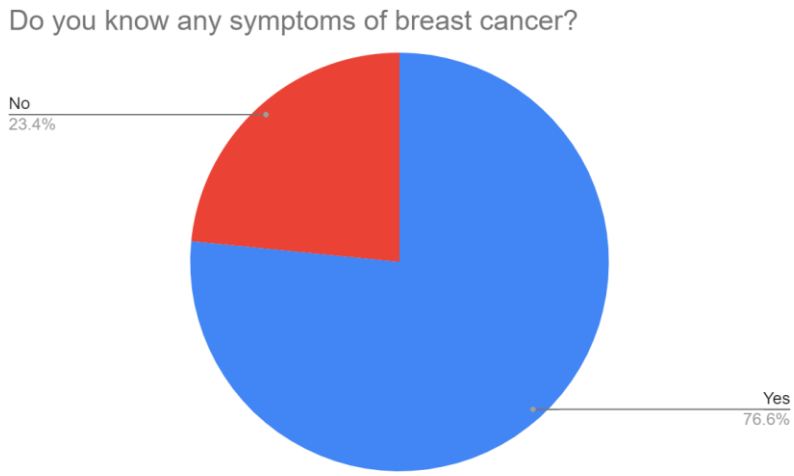

Figure 4.4: % Awareness about Symptoms (Source: Primary Data)

- Figure 4.4 shows the percentage of women knowing about symptoms of Breast cancer which was found out to be 78.6% interpreting on a positive side for awareness, while the rest (23.4%) who were unaware needs to be build up through understanding & trainings.

❖ **Different Symptoms**

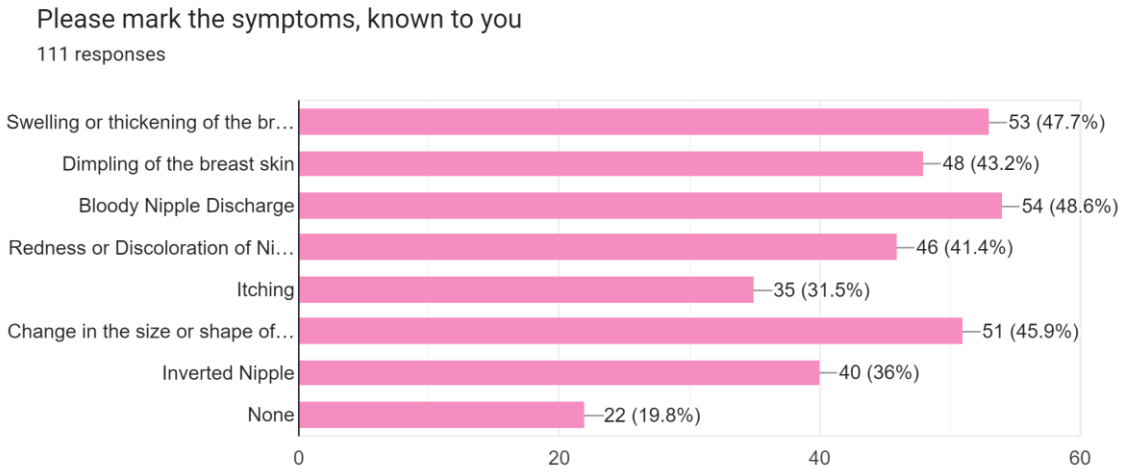

Figure 4.5: Breast Cancer Symptoms known (Source: Primary Data)

- Figure 4.5 shows the percentage for different symptoms women were knowing about or not and was found out that 40-50% of individual symptoms knowledge was pertaining to women.

❖ **Do you know Self-detection methods for BC**

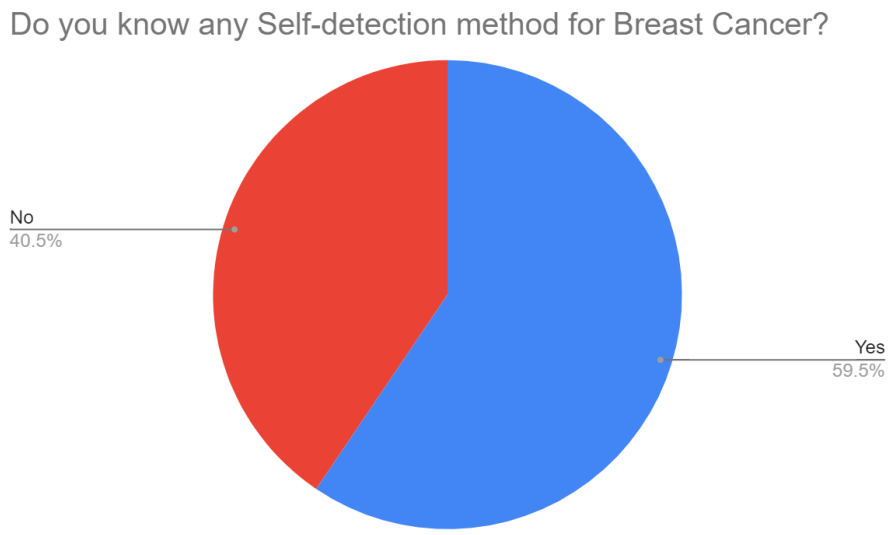

Figure 4.6: % Awareness about Self-detection method (Source: Primary Data)

- Figure 4.6 shows the percentage for awareness of Self-detection methods known to respondents which turns out be be 60% thus Self-detection methods needs a special attention for women from different initiatives.

❖ **<u>Different Self -detection methods</u>**

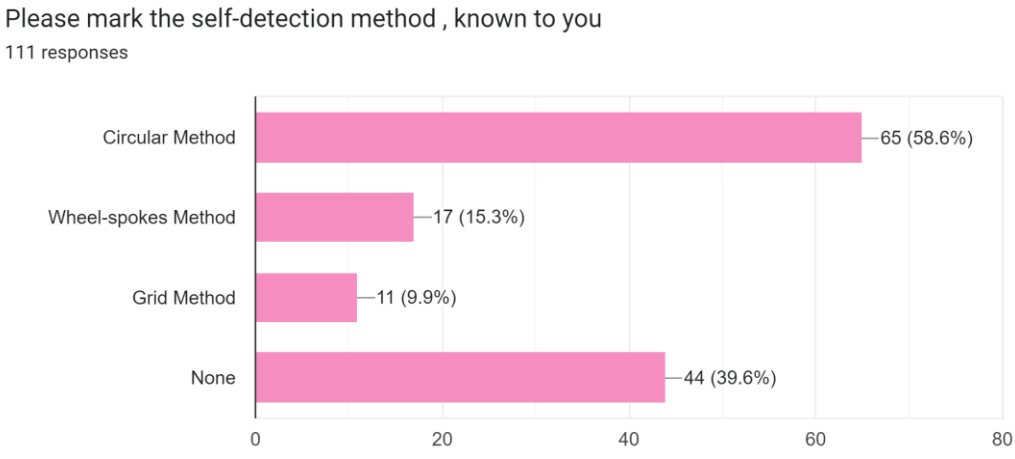

Figure 4.7: Self-detection method known (Source: Primary Data)

- Figure 4.7 shows the which technique did women known the most for Self-detection and was found to be Circular method (58.6%) rest to increase awareness regarding Wheel-spokes method & Grid method, Women must be encouraged to check their own breasts and spot any changes very away.

❖ **Do you know about Early Detection methods of BC**

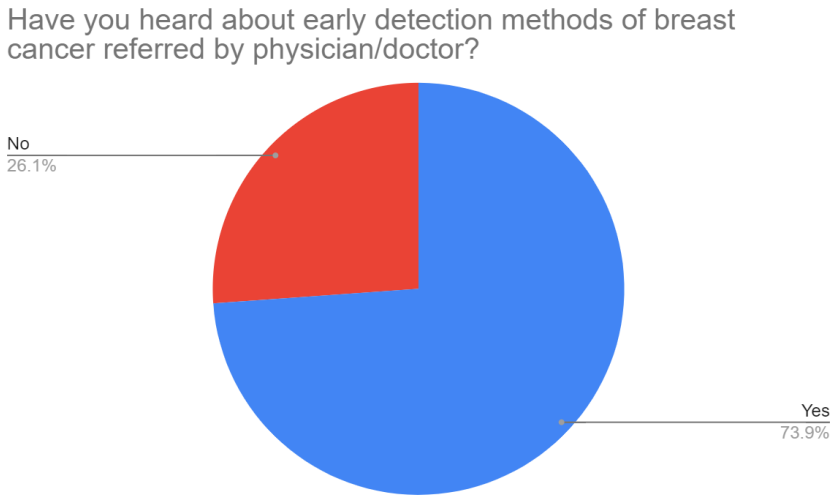

Figure 4.8: % Awareness about Procedural Method (Source: Primary Data)

- Figure 4.8 shows the percentage for awareness regarding Procedural method referred by physician which came out to be (73.9%) which was overall a good response from people. Respondents stated that early knowledge regarding the same can help in fighting disease from early stage.

❖ **Different Early Detection Methods**

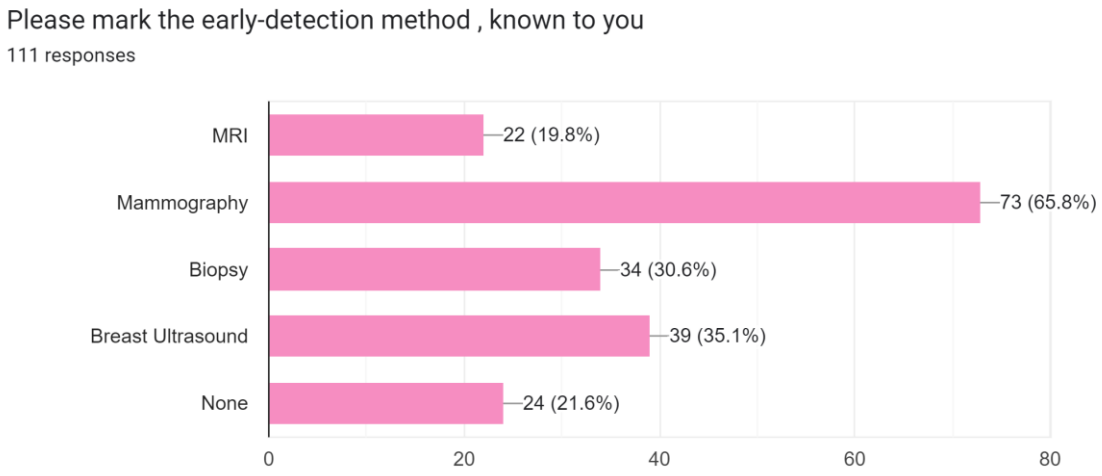

Figure 4.9: Procedural Method known (Source: Primary Data)

- Figure 4.9 shows the percentage, procedural method was rated by women where Mammography technique (65.8%) holds the highest place which states that this was one of the preferred methods for women, followed by Breast USG(35%), Biopsy(30%) & MRI(19%).

❖ **<u>Do you know treatment for BC</u>**

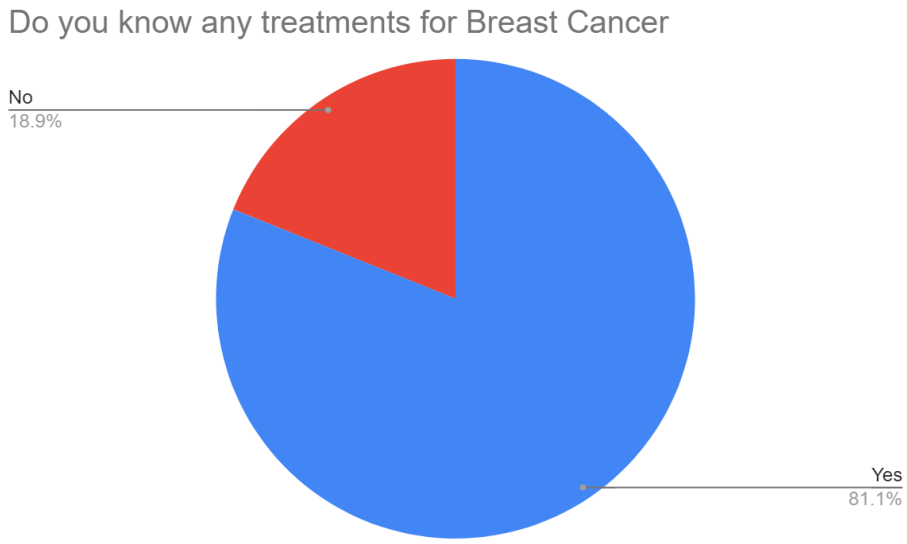

Figure 4.10: % Awareness about treatments (Source: Primary Data)

- Figure 4.10 shows the treatment percentage covered for breast cancer by women. about (81.1%) women were about the treatments and this shows a positive environment for women to burst social stigma and myths pertaining to treatment.

❖ **Different Treatments**

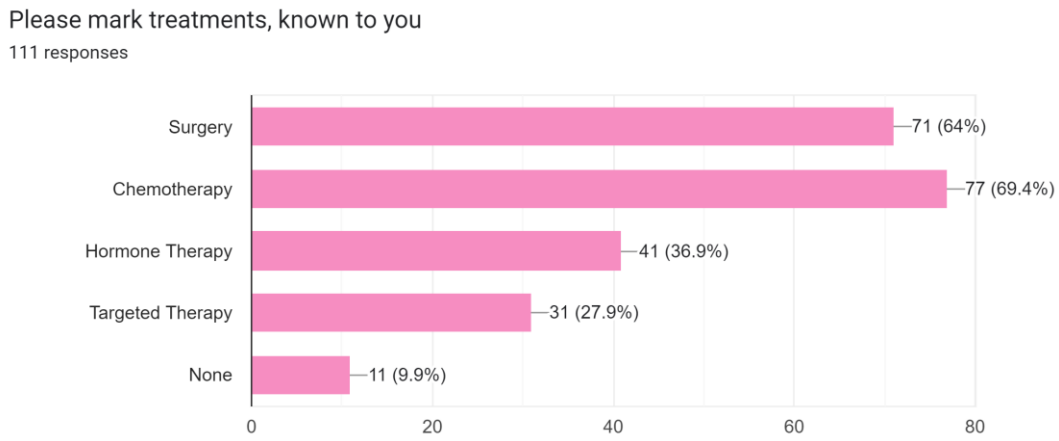

Figure 4.11: Treatment known (Source: Primary Data)

- Figure 4.11 shows the preferred treatment by women for BC and it was Chemotherapy (70%) followed by Surgery (64%). About 10% of women were not aware regarding any of the treatment which calls for public level trainings and initiatives within time-frame to be arranged so that women get empowered with the knowledge.

❖ **Do you know side-effects for Treatment of BC**

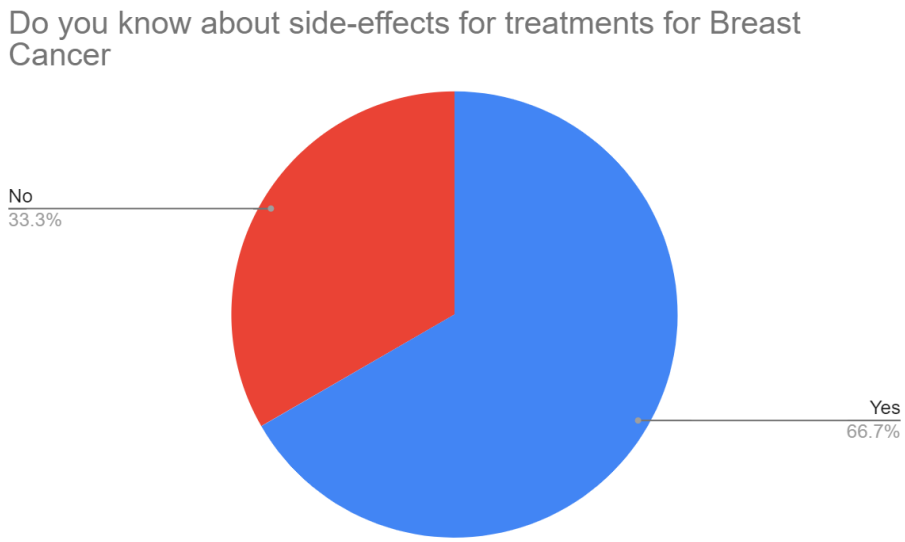

Figure 4.12: % Awareness about side-effects of treatments (Source: Primary Data)

- Figure 4.12 shows the percentage for side-effects of treatment known to respondents which stated 70% were aware about the same whereas rest 30% were not acquainted with the side effects and which seems out very similar in our Society where people don't know about the side-effects for the treatment they pursue, thus awareness regarding the same should be thorough to everyone.

❖ **Different Side-effects**

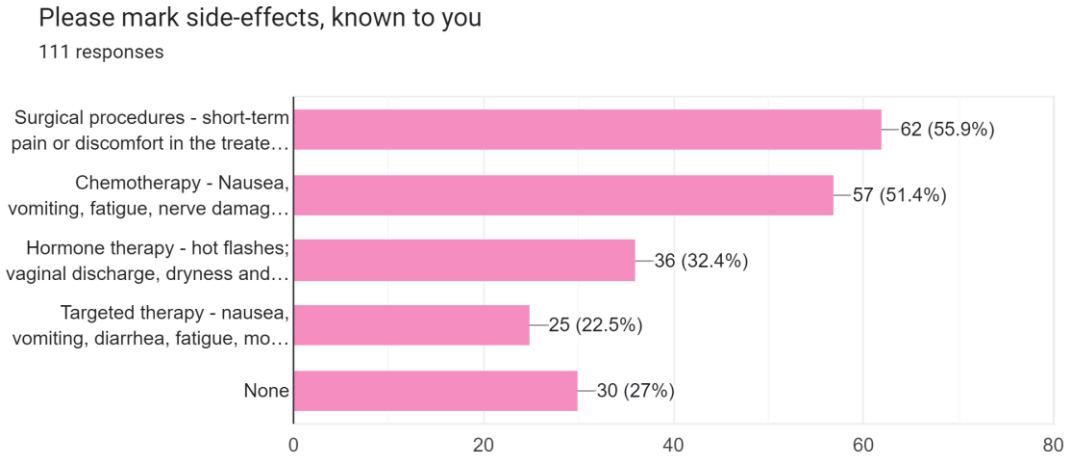

Figure 4.13: Side effects known (Source: Primary Data)

- Figure 4.13 shows that around 56% individual were known to side-effects of surgery followed by Chemotherapy (51%). This was a mixed of reaction known to women respondents in survey as many women got confused by surgery and chemotherapy side-effects.

❖ Complementary & Alternative Medication Treatment Options

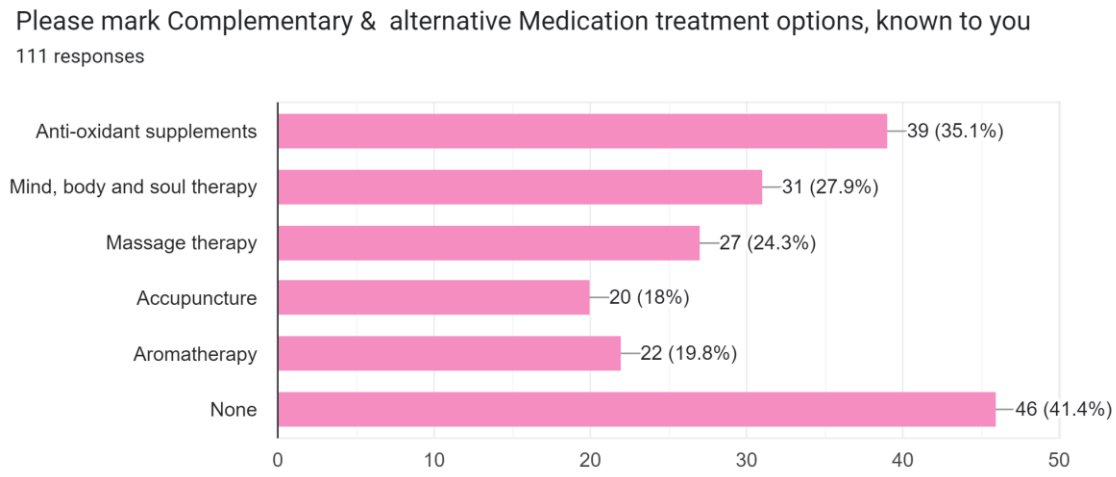

Figure 4.14: CAM Treatment known (Source: Primary Data)

- Figure 4.14 shows the bar chart percentage for CAM known to respondents or not as in fighting with breast cancer supplementary support is required. It was founded from the study that around 40% women were unaware regarding the same which can make a negative consequence to individual or society. Anti-oxidants supplement was rated highest (35%) followed by therapies and acupuncture. This shows there should a capacity-based training for women and early intervention regarding the same can be initiative otherwise condition can become more alarming.

❖ **Family History of Breast Cancer**

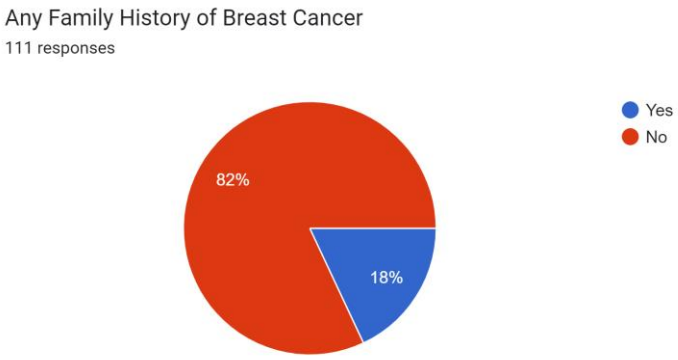

Figure 4.15: Graph showing Family History for Breast Cancer among respondents (Source: Primary Data)

- Figure 4.15 shows percentage pie chart for respondents knowing about any family history of breast cancer and it showed about 18% of women were having family history for the disease. This shows that few respondents were knowing regarding family history of their lineage, also it is not confirmed that rest 82% respondents were not sure that their family had disease history or not.

❖ **Near about family member having history of BC**

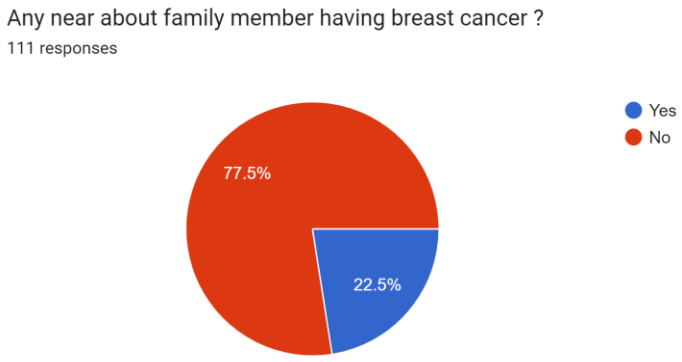

Figure 4.16: Graph showing 1st Line, 2nd Line History of Family Breast Cancer among respondents (Source: Primary Data)

- Figure 4.16 shows representation for near about family members like 1st cousin, 2nd line of family member having history for breast cancer and result came out to be 22.5% people who said yes for the same which requires family level interventions for awareness and understanding about knowledge of disease.

❖ **Are you physically active**

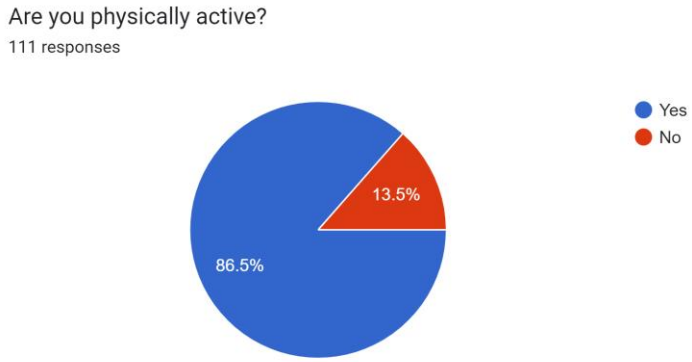

Figure 4.17: % of graph showing Physical activeness among respondents surveyed (Source: Primary Data)

- Figure 4.17 shows percentage about physical activeness among women respondents, stating 86.5% activeness among respondents inferring a positive linkage with overall functionality & breast cancer awareness

❖ **Do you follow Healthy Lifestyle**

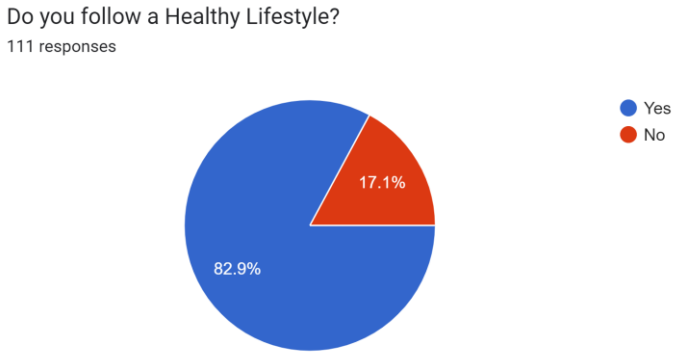

Figure 4.18: % of graph showing about respondents following a Healthy Lifestyle or not (Source: Primary Data)

- Figure 4.18 shows percentage about healthy lifestyle followed by women or not which came out to be 82.9% stating that healthy lifestyle and healthy habits are crucial for breast cancer prevention. About 17% women lack to follow a healthy lifestyle which can be alarming as age increase for women along with hormonal changes.

❖ **Benign Breast Condition**

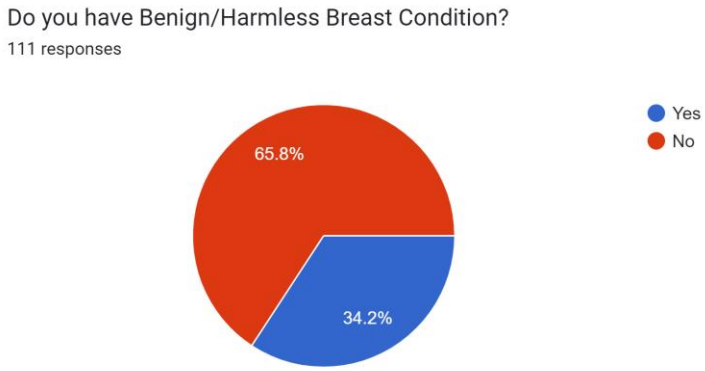

Figure 4.19: % of graph showing Benign Breast Cancer condition among women (Source: Primary Data)

- Figure 4.19 shows percentage about women respondents having any harmless or benign condition for breast disease turning out to be NO from 66% of respondents which can be inferred that awareness level for the same is high in such individuals and community level training and awareness can give a boost to their knowledge for prevention.

❖ **Recent Start-ups working in this space**

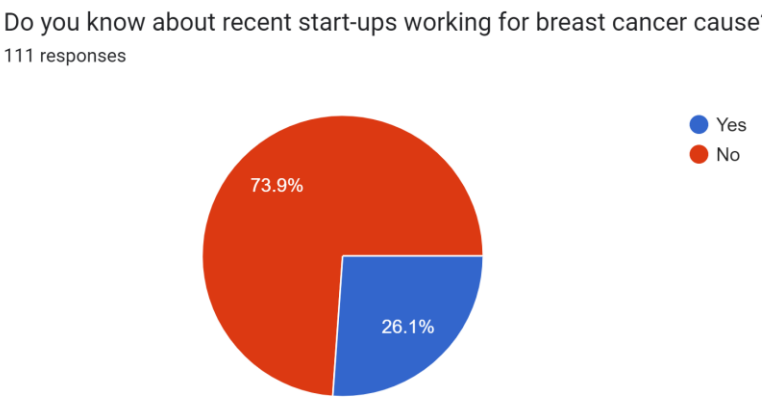

Figure 4.20: % of graph showing Awareness for Recent start-ups working in this space

(Source: Primary Data)

- Figure 4.20 shows start-up awareness for breast cancer cause surveyed among women. About 26% respondents were knowing about different type of start-ups working digitally while rest 74% were not knowing regarding start-up which shows that more improvements towards start-ups should be implemented so that women can be aware about digital space working in this area and people get them tested or get pre-requisite knowledge about initial steps which can be taken digitally for breast cancer check-up and awareness

➢ Breast Cancer Awareness Rate

❖ **Rating for BC Awareness**

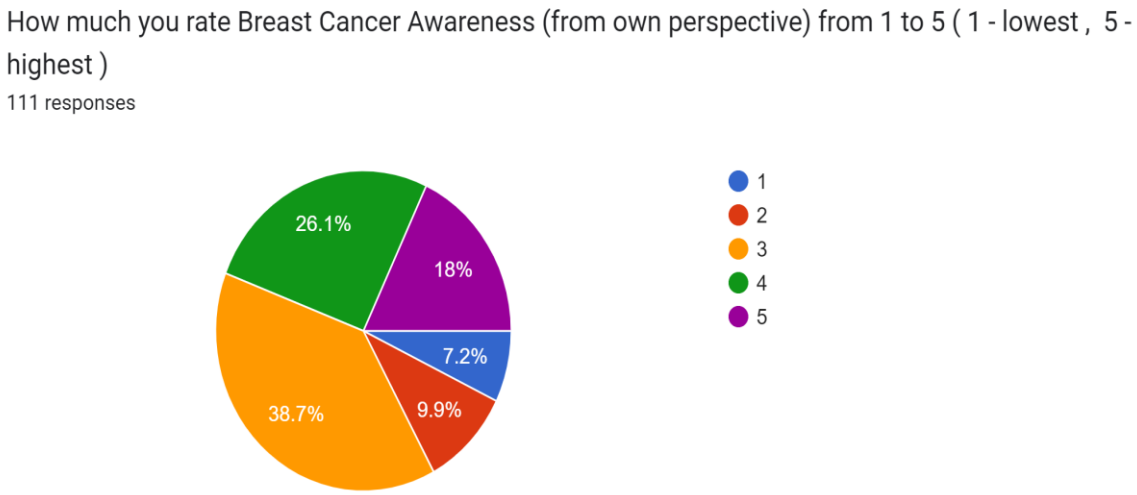

Figure 4.21: Breast Cancer Awareness Rate (Source: Primary Data)

Figure 4.21 shows awareness rate from 1-5 on which women were assessed. It was a basic rating scale which was On a scale of 1-5, women responded 3 turning out t be 39% as the highest known followed by rating 4 (26.1%) for awareness regarding the disease prevention, symptoms, treatment & other methods. This was a measure of respondent's self-check for Breast cancer understanding and what all measures need to be taken from their knowledge.

❖ **Graph depicting relation between Residence and Age Group**

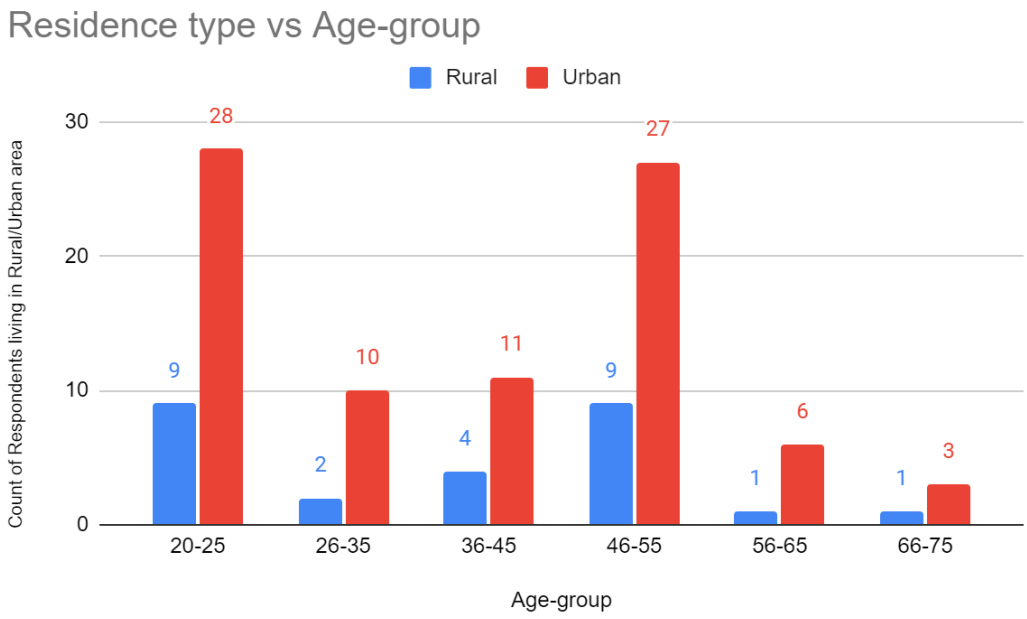

Figure 4.22: Typical bar graph showing relation between Respondents surveyed in their living place with respective age-group (Source: Primary Data)

- Figure 4.22 shows typical bar graph depicting relation between Respondents surveyed in their living place with respective age-group, representing highest awareness level related to age group 20-25 and 46-55 in both Urban and Rural counterparts.
- 46-55 years individuals are more aware possibly due to post-menopausal period where they undergo routine breast check-ups and mammograms screening which can make an effective contribution for decreasing chance of Breast cancer risk
- Urban residence included the respondents from metropolitan cities like Surat, Ahmedabad, Baroda, Mumbai, Delhi & others.
- Rural residence included respondents from PHC and nearby villages of India.

❖ **Graph depicting relation between Education and Age Group**

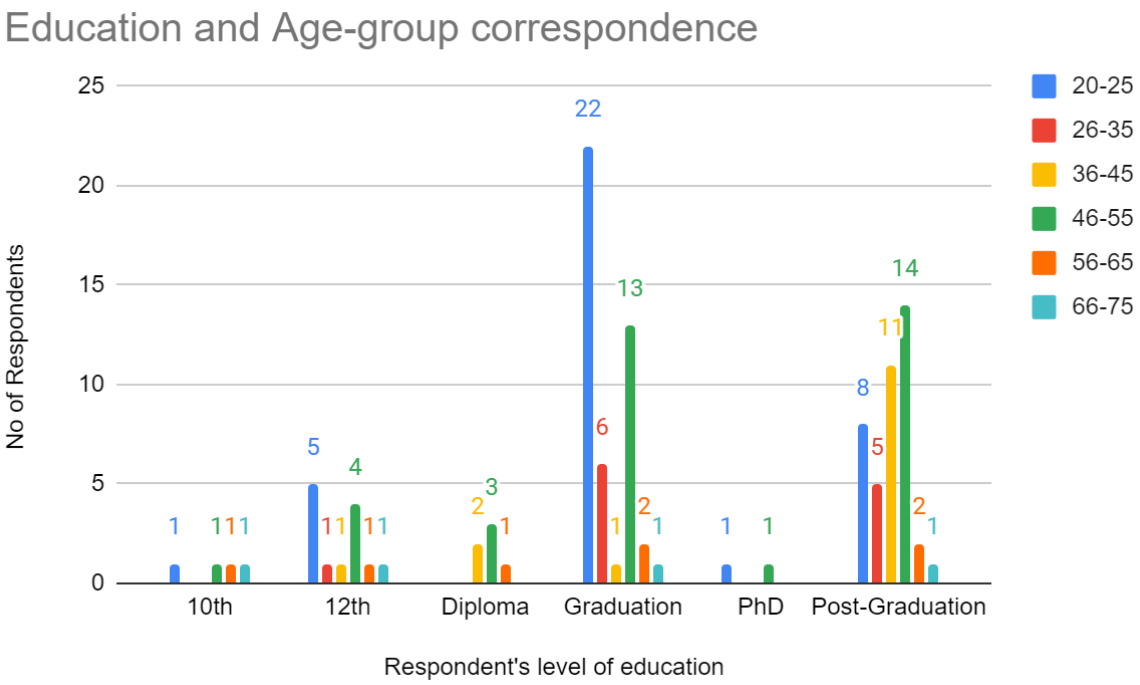

Figure 4.23: Respondent's Awareness according to Education level linked to their age group (Source: Primary Data)

- Figure 4.23 shows respondent's awareness according to Education level linked to their age group stating that 20-25 years with graduating degree having certain level of education which directly links with their awareness about BC knowledge, treatment, symptoms and side-effects, moderate level of awareness with post-graduating level of education among respondents between 46-55 years
- When surveyed it was found that there existed a clear line of demarcation between respondents who had certain level of education and how much knowledge they do had about BC.
- Various levels of education may lead to various levels of knowledge about breast cancer, which may have an impact on the patient's treatment, symptoms and risk factors course of opinion. The findings demonstrated that residence, age and education remained dependent determinants for breast cancer awareness.

❖ **Graph depicting relation between Education and Age Group**

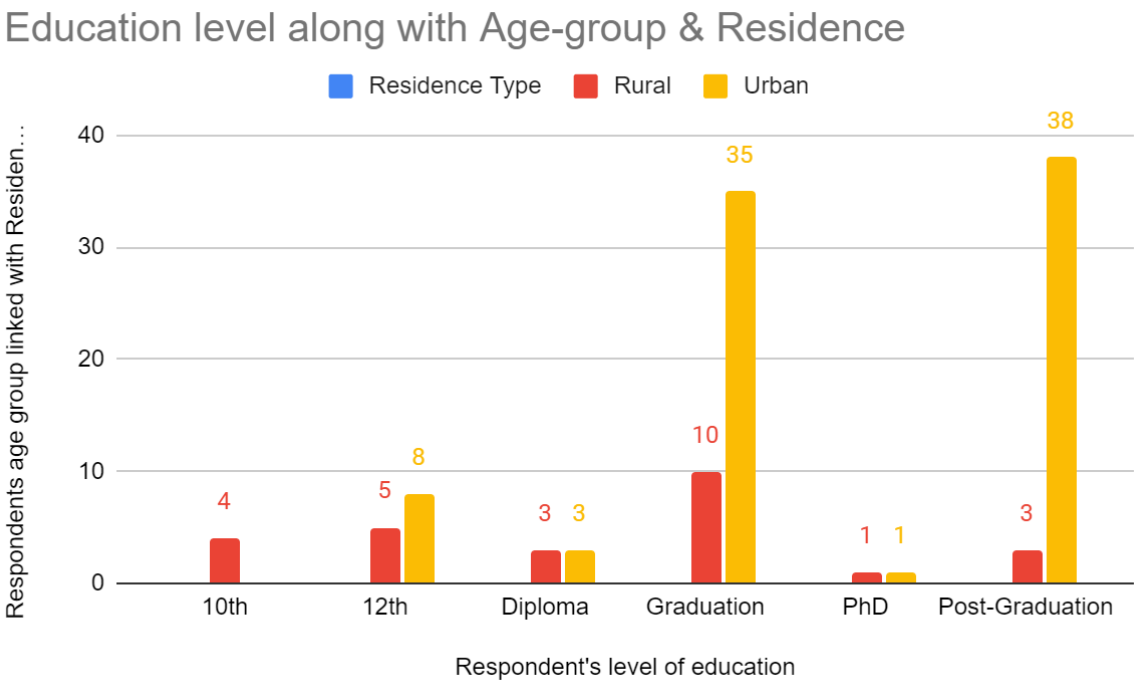

Figure 4.24: Respondent's Awareness according to Education level linked to their age group & Residence (Source: Primary Data)

- Figure 4.24 shows there is positive relationship between education and awareness for Breast Cancer; as education levels increased, so does the awareness, with graduate and postgraduate respondents along with their place of living describing the highest awareness levels.
- It can be inferred from the finding that higher education can contribute directly for Breast cancer awareness pertaining to specific age groups as younger generation will be more conscious about their health and will take proactive steps for managing disease, similarly middle to older age group people can be significant for regular mammograms and maintaining open communication with healthcare providers to address any concerns related to breast health

CHAPTER 5: DISCUSSION

Breast cancer is due to the development of malignant cells in the breast which originate in lining of the milk glands or ducts of the breast (ductal epithelium), Maintaining a good balance between healthy Lifestyle and current signs and symptoms for breast cancer is important. A total of 111 Indian Women between the age group of 20-75 were included in the study with a simple random sampling technique. Knowledge was assessed regarding BC and compared with literature review studied.

According to the general wellbeing perspective, it is important to know the effect of BC locally, as BC is one of the most widely recognized sicknesses both around the world and in India. The current study discovered that mindfulness/awareness regarding BC was moderately good as seen from most of the papers that awareness to women regarding this issue is increasing day-by-day. The overall review regarding techniques, symptoms, treatments, side-effects and risk factors for breast cancer was a fair enough consideration regarding respondent's women knowing about breast cancer and study can interpret that, if women are given more awareness measure about breast cancer, the survival ratio and initial awareness can be increased along with dampening social taboos and stigma related to disease.

Wide variety in familiarity with risk factors, symptoms, treatment for malignant growth among ladies in India was seen which was also found out having similar result from one of the literature studies analyzed. (*Source: Gupta, A., Shridhar, K., & Dhillon, P. K. (2015). A review of breast cancer awareness among women in India: Cancer literate or awareness deficit? European Journal of Cancer, 51(14), 2058–2066.* *https://doi.org/10.1016/j.ejca.2015.07.008*)

Extensive Literature Review was studied for finding reasons of Low awareness for Early detection and Self-examination methods among women having number of reasons which was summed up as followed:

Many women said, they were too busy to go for a annual or quarter check-up to doctors. Most of them were afraid of screening & feel that screening can lead to detection of BC stage. Some of the women feels that they are physically fit and active and does not require screening. Some heard negative reviews for screening and found Mammography as extremely painful. Some women also talked about financial barriers they have for early screening from their family.

Lack of Health Insurance among low socio-economic condition of women was also a major contributor of women not attending screenings.

When analysed the socioeconomic characteristics of Respondent women from above table (4.1), it was found that some socio-economic category of women doesn't feel to visit doctor when they found lumps in breast, dreaded by fear of family and society, literature review analysed for community - based study in a low socio-economic area of Mumbai, India showed such inference which was in similar lines with study done. Married Women showed a positive level of awareness and understanding about BC in their middle-ages which can contribute to early detection of BC and their management. (*Source: Prusty, R. K., Begum, S., Patil, A., Naik, D. D., Pimple, S., & Mishra, G. A. (2020). Knowledge of symptoms and risk factors of breast cancer among women: a community based study in a low socio-economic area of Mumbai, India. BMC Women's Health, 20(1).* [*https://doi.org/10.1186/s12905-020-00967-x*](https://doi.org/10.1186/s12905-020-00967-x))

One of the literature study was analyzed for Low awareness regarding important risk factors like Increasing Age, beginning periods at early age or menarche following the late ages and neglecting benign breast condition which was also observed from this study results and showed a significant proportion of similarity. *(Source: Gupta, A., Shridhar, K., & Dhillon, P. K. (2015). A review of breast cancer awareness among women in India: Cancer literate or awareness deficit? European Journal of Cancer, 51(14), 2058–2066.* [*https://doi.org/10.1016/j.ejca.2015.07.008*](https://doi.org/10.1016/j.ejca.2015.07.008)*)*

Survey revealed that 70-80% of the ladies had some awareness of early identification and screening strategies or had found out about it. A review directed among provincial ladies by Veena et al.[29] uncovered that just 5% of the ladies knew about mammography and 80% had caught wind of Self-examination method which is in opposition to this study's outcomes wherein 59.5% and 65.8% of the ladies knew about Self-examination method and mammography, separately. (*Source: Pal, A., Taneja, N., Malhotra, N. R., Shankar, R., Chawla, B., Awasthi, A. A., & Janardhanan, R. (2021). Knowledge, attitude, and practice towards breast cancer and its screening among women in India: A systematic review. Journal of Cancer Research and Therapeutics.* [*https://doi.org/10.4103/jcrt.jcrt_922_20*](https://doi.org/10.4103/jcrt.jcrt_922_20)*)*

The majority of women (97.3% who were surveyed through Questionnaire-based tool) were aware that BC is curable if found early and properly treated. Although the majority of women also assumed that surgery or operation for BC meant the removal of the entire breast, when they looked into particular areas of therapy (Figure 4.11). Additionally, according to 60% of women, alternative medical practises also may be able to treat BC. Additionally, when asked what they would do if they discovered a lump, the majority of women (70%) would go to an allopathic doctor. *(Source: Dey, S., Mishra, A., Govil, J., & Dhillon, P. K. (2015). Breast Cancer Awareness at the Community Level among Women in Delhi, India. Asian Pacific Journal of Cancer Prevention, 16(13), 5243–5251. https://doi.org/10.7314/apjcp.2015.16.13.5243)*

Thus, on the basis of Women respondents surveyed through Questionnaire and Juxtaposing the results with different studies using Literature review; on the whole, it can be interpreted that community level awareness regarding traditional symptom, risk factors, treatment, symptoms and early detection methods are known to more than half of the women, but on the contrary, digital space coming up for breast cancer early prevention and awareness are still lacking in our community which can be fasten up through joint efforts of government, start-ups investors and health care providers. The shift to unhealthy dietary practises, physically inactivity and sedentary lifestyle, predisposes a significant proportion of adults, particularly women to more risk for Breast Cancer.

Increasing the use of early detection/screening techniques like Breast Self-examination (BSE), Clinical Breast Exam (CBE), and mammography will help in the early identification of BC and, as a result, can aid in appropriate and prompt treatment. Also, through education and information campaigns (EIC), efforts can be made to raise public knowledge about breast cancer. Considering that a critical extent of the country's populace lives in provincial India, the burden of BC and its related dangers could become overpowering in a matter of seconds. In this manner, a single strategy may not be powerful given the socio-economic variety of the country.

CHAPTER 6: CONCLUSION

❖ 6.1 SUGGESTIONS

Some of the suggestions which can be drawn from this study are discussed as follows.

- Breast cancer prevention starts with healthy habits and lifestyle changes, a strong will to prevent cancer in oneself, and behavioural change – these are essential elements in cancer prevention[25] as backed by one of the literature.
- Increase community awareness of preventing diseases, risk factors that can be avoided, the advantages of early detection, and the availability of screening facilities through educational efforts.
- Through education and information campaigns (EIC), efforts should be made to raise public knowledge about breast cancer, which was reviewed in one of the literature review[1] By emphasising how to lessen exposure to risk factors that improve the probability of creating bosom disease, side effects, and indications of Breast cancer malignant growth, as well as the meaning of routine self-assessment and physical examinations by nurses and doctors for early detection that significantly improves breast cancer cure rates, these initiatives aim to raise awareness of breast cancer.
- To ensure that no one suffers from substandard causes, the "**infrastructure for the seven pillars of cancer care**—prevention, surgery, chemotherapy, radiotherapy, imaging, laboratory diagnostics, and palliation"—should be made adequate.
- Integration of District Cancer Control operations with NRHM can be the most economical method of cancer prevention in rural areas.
- One of the Initiative from GOA, India where government launched free breast cancer screening for 1L women. Initiatives likes this can be adopted at State, Regional and even local level to promote early breast cancer awareness for women with free treatment and training.
- Swachh Bharat Abhiyan and JahaSochWahaSochalay, two recent government efforts, are exceptional delineations of social promoting efforts that are effective. For disease mindfulness, comparative foundational drives with compelling showcasing efforts ought to be completed, with an emphasis on boundless way of life change.
- 'One Nation One Health Card' programme, can be incorporated for free breast cancer screening to women as feature for digital health card.

- Promotion of breast cancer preventive and awareness programmes for Indian women through the use of mobile health applications.
- Encourage Start-ups focusing on screening which can be utilized on a broader scale for generating awareness in rural and semi-urban regions of India along with targeting urban people of country.
- Such Startups are listed here:
- **NIRAMAI** – Start-up based in Banagalore which uses Artificial Intelligence for detecting "breast cancer" in early stages, by using painless, radiaiotn-free & non-invasive, methods.
- **UE LifeScience** – Start-up based in Mumbai, introduces "iBreastExam" - a painless, portable, non-invasive, & radiaton-free device in different parts in India for screening
- **OncoStem** - Early detection is the strategy being used by Bangalore-based "breast cancer screening firm" to lower mortality rates. The firm is customising cancer treatment based on the patient's unique needs and the type of tumour

Concluding, Breast cancer early prevention and understanding always begins from home, society and community. This study found that females who took part in the survey were having a moderate to high level of understanding regarding Breast Cancer Awareness. This may or may not be a cause for community-based breast cancer awareness lack. The study encourages campaigning to raise awareness of Breast Cancer among women and a more extensive intervention, with a focus on those who have less education for the same. Everyone should make joint efforts to spread awareness regarding BC so that women can get early access to disease if caught and get their treatment done right before the fatality. Healthy Lifestyle along with proper guidance and knowledge for disease through Government, Public & Family will help fighting the dreaded disease.

"All we need is awareness of breast cancer to save lives before cancer gets a hold over the body…"

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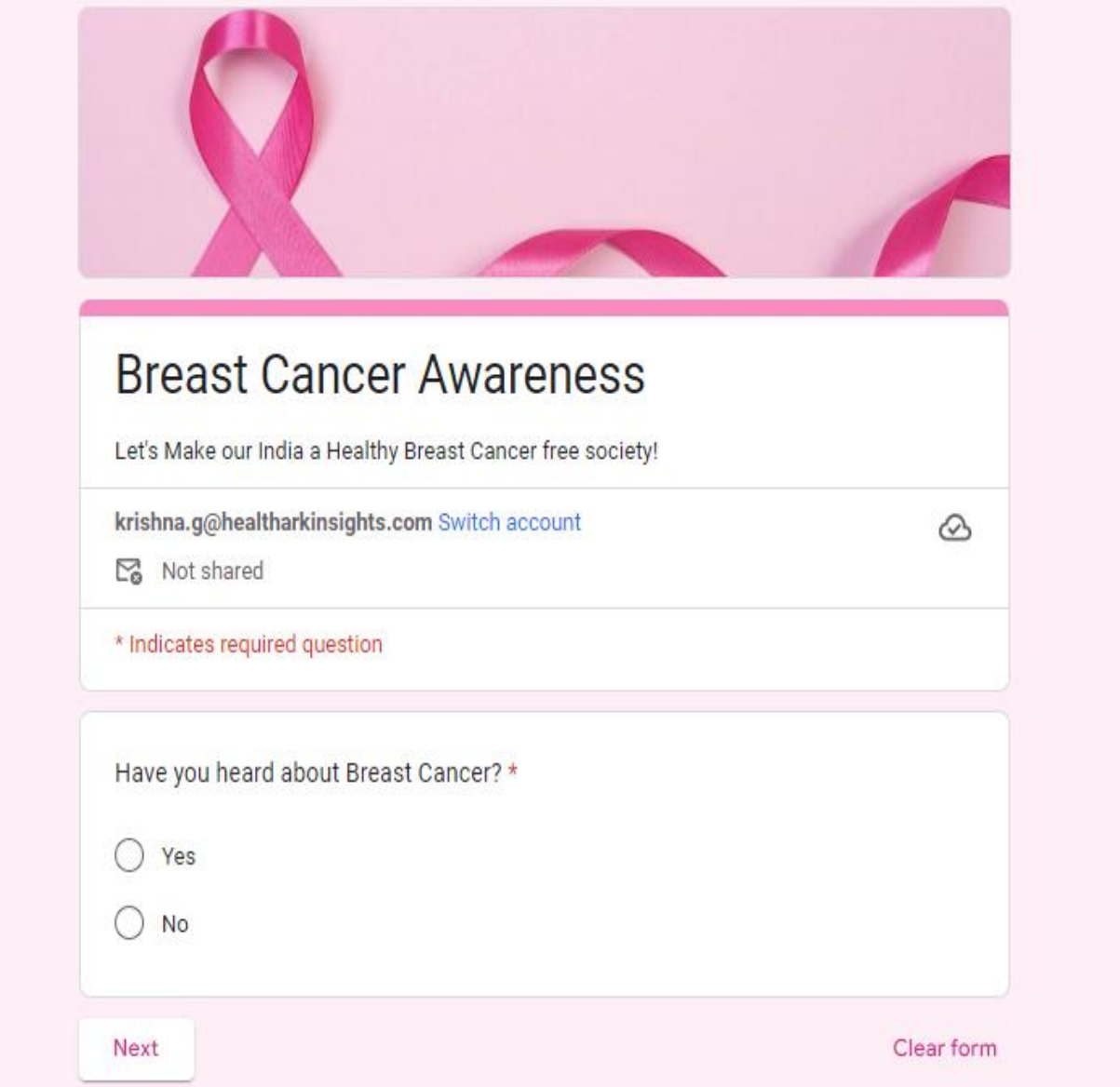
ANNEXURE



Breast Cancer Awareness

Let's Make our India a Healthy Breast Cancer free society!

krishna.g@healtharkinsights.com Switch account

Not shared

* Indicates required question

Have you heard about Breast Cancer? *

Yes

No

Next

Clear form

Demographic Details

Age *

- 20-25
- 26-35
- 36-45
- 46-55
- 56-65
- 66-75

Marital Status *

- Unmarried
- Married

Level of Education *

- 10th
- 12th
- Graduation
- Post-Graduation
- PhD
- Diploma

Residence Type *

- Rural
- Urban

Socio-economic Status *

- ◯ Low
- ◯ Median (Middle)
- ◯ High

Back Next Clear form

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How well are you aware about Breast Cancer!

Do you know about Risk Factors/Causes of Breast Cancer? *

- ◯ Yes
- ◯ No

Please mark for the risk factors, known to you *

- ☐ Gender
- ☐ Hormones and Reproductive Factors
- ☐ Benign Breast Disease
- ☐ Obesity
- ☐ A family history of breast cancer
- ☐ Increasing Age
- ☐ Beginning period at a younger age
- ☐ Beginning menopause at an older age
- ☐ Smoking
- ☐ Drinking Alcohol
- ☐ None

Do you know any symptoms of breast cancer? *

- ◯ Yes
- ◯ No

Please mark the symptoms, known to you *

- ☐ Swelling or thickening of the breast
- ☐ Dimpling of the breast skin
- ☐ Bloody Nipple Discharge
- ☐ Redness or Discoloration of Nipple skin
- ☐ Itching
- ☐ Change in the size or shape of the breast
- ☐ Inverted Nipple
- ☐ None

Do you know any Self-detection method for Breast Cancer? *

- ◯ Yes
- ◯ No

Please mark the self-detection method , known to you *

- [ ] Circular Method
- [ ] Wheel-spokes Method
- [ ] Grid Method
- [ ] None

Have you heard about early detection methods of breast cancer referred by physician/doctor? *

- ( ) Yes
- ( ) No

Please mark the early-detection method , known to you *

- [ ] MRI
- [ ] Mammography
- [ ] Biopsy
- [ ] Breast Ultrasound
- [ ] None

Do you know any treatments for Breast Cancer *

- ◯ Yes
- ◯ No

Please mark treatments, known to you *

- ☐ Surgery
- ☐ Chemotherapy
- ☐ Hormone Therapy
- ☐ Targeted Therapy
- ☐ None

Do you know about side-effects for treatments for Breast Cancer *

- ◯ Yes
- ◯ No

Please mark side-effects, known to you *

- [ ] Surgical procedures - short-term pain or discomfort in the treated area.
- [ ] Chemotherapy - Nausea, vomiting, fatigue, nerve damage, sore mouth, diarrhea, constipation and decreased blood counts
- [ ] Hormone therapy - hot flashes; vaginal discharge, dryness and irritation; irregular periods; decreased sex drive; and mood changes
- [ ] Targeted therapy - nausea, vomiting, diarrhea, fatigue, mouth sores and rashes.
- [ ] None

Please mark Complementary & alternative Medication treatment options, known to you *

- [ ] Anti-oxidant supplements
- [ ] Mind, body and soul therapy
- [ ] Massage therapy
- [ ] Accupuncture
- [ ] Aromatherapy
- [ ] None

Back Next Clear form

Breast Cancer Considerations from Respondents

Any Family History of Breast Cancer *

- ◯ Yes
- ◯ No

Any near about family member having breast cancer ? *

- ◯ Yes
- ◯ No

Are you physically active? *

- ◯ Yes
- ◯ No

Do you follow a Healthy Lifestyle? *

- ◯ Yes
- ◯ No

Do you have Benign/Harmless Breast Condition? *

- ◯ Yes
- ◯ No

Do you know about recent start-ups working for breast cancer cause? *

- ◯ Yes
- ◯ No

How much you rate Breast Cancer Awareness (from own perspective) from 1 to 5 *
(1 - lowest , 5 - highest)

- ◯ 1
- ◯ 2
- ◯ 3
- ◯ 4
- ◯ 5

Back Submit Clear form

Link for the Questionnaire form - https://forms.gle/y2oQimnFhYqrntxk8