

To Assess the Efficacy of the Planned Teaching on Breast Self-Examination among Women in the Reproductive Age Group in Rural Areas.

Savita Pohekar^{Ms*}, Seema Singh, Samruddhi Gujar, Mamta Kumare

Department of Medical-Surgical Nursing, Datta Meghe University of Medical Sciences (Deemed to be University), Smt. Radhikabai Meghe Memorial College of Nursing, Sawangi (Meghe), Wardha, 442001, Maharashtra state, India

***Corresponding Author:** Ms. Savita Pohekar

Phone No: 9420063658

Email: savitaak15@gmail.com

ABSTRACT

The leading cause of death in women in India is breast cancer. Many young women in India are poorly informed, including risk factors and warning signs and symptoms, on breast cancer screening. We examined the knowledge about breast cancer and breast self-examination as a screening tool for women of reproductive age. Hence the study is aimed to assess the effectiveness of planned teaching on breast self-examination among women in the reproductive age group. Quantitative approach with a pre-experimental pre-test, a post-test research design was used with 60 samples, which matched the inclusion criteria were selected by purposive sampling technique. A demographic variable was collected by using multiple-choice questionnaires and knowledge assessment by structured questionnaires. The results of the study are out of 60 samples, the mean pre-test awareness score was 10.72, and the mean post-test knowledge score was 19.55. There has been a statistically significant increase in the degree of information about breast self-examination within women of reproductive age. The paired 't' value is 18.74, ($p < 0.0001$) and ($P > 0.05$) which shows that no correlation was found between the post-test information score with demographic variables, such as age, religion, type of family, marital status, education and occupation. The present study reveals that women in the reproductive age group are not aware of breast cancer and breast self-examination. Through planned teaching, their understanding has been improved. It thus helps them recognise the nature of the disease, raise awareness of breast cancers to enhance early detection rates, and increase the likelihood of curative care.

Keywords: Effectiveness; Females of reproductive age; Scheduled education; Self-examination of the breast

INTRODUCTION:

Breast cancer is the most common in females and is a significant public health concern worldwide. ("WHO | Breast cancer," n.d.) Around 70% of women with breast cancer are over 50 years of age, and just 5% are under 40 years of age.,(Akram et al., 2017) Approximately 700,000 cases are reported worldwide annually, of which 57% are registered in developing countries. (Farmer et al., 2010) The overall incidence of breast cancer is on the increase, particularly in developing countries that previously had a low incidence of breast cancer, (Allemani et al., 2015),(bray, 2004). Omotara et al. also suggested an increase in the prevalence of breast cancer in the developing world in terms of increased life expectancy, rapid urbanisation and the acceptance of western lifestyles.(Omotara et al., 2012) According to a new study by the world health organisation, the most significant rise in the prevalence of cancer over the next 15 years will be in the middle east countries. Mortality rates for all types of cancer in the middle east are currently 70 per cent, compared to 4055 per cent in western countries. Besides, the number of new cases of cancer diagnosed each year is estimated to increase by 40 % by 2020. Prevalence of breast cancer and rising breast cancer mortality are critical health issues worldwide. A significant cause of increased mortality is lack of awareness, lack of early warning services, and diagnosis of late illness (bray, 2004)(Pinotti et al., 1993)

Many diagnoses of breast cancer are confirmed at an advanced stage in developed countries. The early diagnosis affects the patient success and increases satisfaction and survival of the individual. (Jahan et al., n.d.) Breast cancer is India's most prevalent disease. (Jahan et al., n.d.), For instance, in 2012, estimated breast cancer was diagnosed in India for about 145,000 new patients, killing nearly 70,000 people. ("Latest world cancer statistics – GLOBOCAN 2012: Estimated Cancer Incidence, Mortality and Prevalence Worldwide in 2012 – IARC," n.d.) Among Indian women diagnosed with breast cancer, the 5-year standardised survival of breast cancer in the West is 60 per cent. ("Lancet," n.d.)

Earlier cervical cancer was the commonest of Indian women's cancers; now, however, breast cancer has exceeded cervical cancer and is the leading cause of death from cancer. (Allemani et al., 2015)

In India, age-standardised breast cancer rates have risen between 15 and 29 per 100,000 in recent decades. They are currently the most estimated number of breast cancer deaths among urban women in the world. India is the world's largest estimated country.(Dsouza et al., 2013)

Breast cancer awareness is not well established in developed nations, and what is understood is far from encouraging. (Akhigbe, 2009) As relatively few women in these areas have sufficient knowledge of risk factors and preventive measures or early detection screening methods. (Okobia et al., 2006) The lack of awareness(Reisi, 2013),(Fouladi et al., 2013) and belief in the prevention of breast cancer(Boulos, 2014)(Ranasinghe et al., 2013)(Azage et al., 2013) among women is responsible for the negative understanding of early cancer detection and the efficacy of

screening tests(Rf and Rm, 2014)It is, therefore, vital to determine the level of understanding of risk factors in our communities. Thus it is crucial to assess the level of awareness and knowledge of the risk factors in our communities.

MATERIALS AND METHODS: The said study used a pre-experimental, post-test research design. The study was conducted from 3/1/16 to 19/1/16, and the setting was selected in rural areas of the Wardha district. After getting ethical permission (Ref. no.DMIMS (DU) /IEC/2015-16/1713). By using a purposive sampling technique, 60 women of the reproductive age group were selected based on the calculation.

$$n = Z\alpha/22 *p*(1-p)/d2$$

$$n=1.962x0.09x(1-0.09)/(0.07)2$$

$$=64.20$$

Where, n= sample size $Z\alpha$ is the level of significance at 5% i.e, 95 % confidence interval =1.96,p= prevalence=desired error of margine=5%

Standard normal variants, which is 1.96 at 5% type 1 error, SD=standard deviation of knowledge score, d=desired error of margin. P=prevalence p-values are considered significant below 5%; hence, 1.96 is used in the formula. Considering 95% confidence interval (CI) and 20% allowable error, the sample size was calculated to include 64 respondents. However, the researcher decided to include 60 females of reproductive age. The study participant in the study was informed and explained about the study's aim. The written, informed consent was duly signed by them individually. The inclusion criteria were: (i) Women of reproductive age who are willing to take part in the study, (ii) Females aged between 14 and 45 years (iii) Women of the reproductive age group who are available when collecting data. Those involved in a similar form of research were excluded. Demographic variables were collected in terms of age, ethnicity, type of family, marital status, employment and occupational status. A semi-structured interview questionnaire has 24 questions of multiple choices, and these have been classified in different areas, such as (i) significance and risk factors which cause breast cancer; (ii) meaning of breast self-examination and (iii) techniques of breast self-examination. The questionnaire has been prepared based on existing literature, discussed in previous sections. Each correct answer carries one mark and the total score is 24. Nine experts validated the prepared tool, six of them from the department of nursing, two from the department of oncology, and one from the department of anatomy and physiology. Pearson's correlation coefficient =0.93 elicited the reliability of the tools. Hence the tool was reliable. The interview process was structured to collect demographic information and Breast self-examination awareness, including the techniques. The pre-test on the knowledge regarding breast self-examination was conducted on the first day of the data collection. Every study participant was given the questionnaire; each takes about 30 minutes to fill in the structured questionnaire. Following the pre-test, intended lessons for the study

participant using PowerPoint presentation on the breast self-examination were performed for 45 minutes with appropriate audiovisual aids in a simple and clear understandable manner. They have been split into two categories. Thirty participants in each group. Post-test has been carried out on the 7th day with the same questionnaire; each study participant was asked individually based on the 24 questions for his / her answers. As collected, the answers were organised in tabular form to perform statistical analyses listed in the sections below.

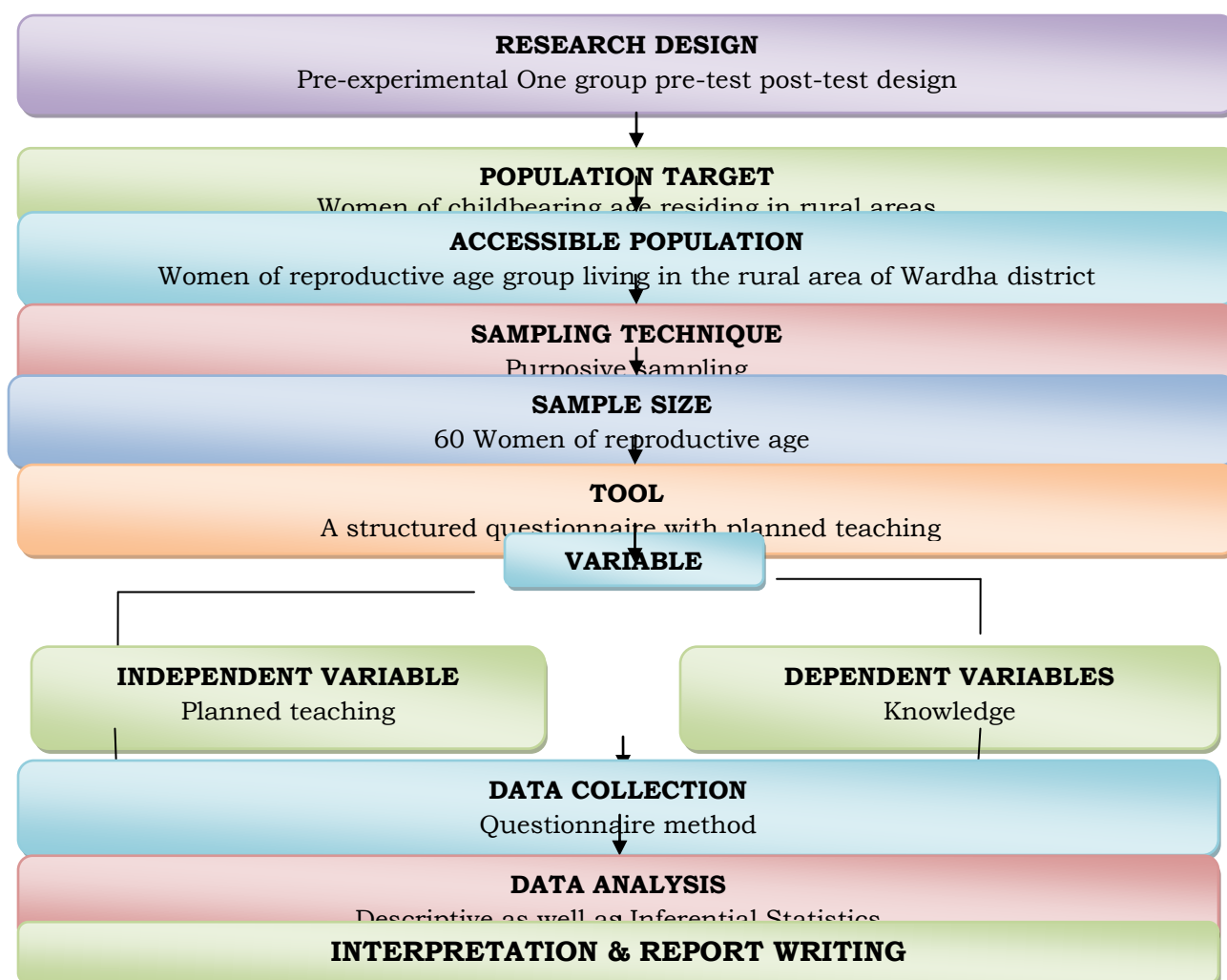


Figure 1: Schematic presentation of research designs used for the study

Figure1 gives a schematic overview of the research designs used in the study

Statistical analysis:

Employ descriptive statistics (mean per cent, standard deviation) and inferential statistics. The data collected has been encoded, tabulated, and analysed. A substantial difference between pre- and post-test readings was measured using t-test with demographic variables was done through one-way ANOVA testing and independent t-test testing.

Table 1: Distribution of the subject by demographic variable.

| Demographic Variables | No. of women of reproductive age group | Percentage (%) |
|----------------------------|--|----------------|
| Age(yrs.) | | |
| 14-21 yrs. | 19 | 31.67 |
| 22-29 yrs. | 12 | 20 |
| 30-37 yrs. | 14 | 23.33 |
| 38-45 yrs. | 15 | 25 |
| Religion | | |
| Hindu | 23 | 38.33 |
| Muslim | 01 | 1.66 |
| Buddhist | 35 | 58.33 |
| Other | 01 | 1.66 |
| Family Type | | |
| Nuclear | 18 | 30 |
| Joint | 42 | 70 |
| Marital Status | | |
| Married | 39 | 65 |
| Unmarried | 11 | 18.33 |
| Widow | 10 | 16.66 |
| Divorce | 00 | 00 |
| Educational Status | | |
| Primary | 19 | 31.66 |
| Secondary | 32 | 53.33 |
| Graduate | 04 | 6.66 |
| Post Graduate | 05 | 8.33 |
| Occupational Status | | |
| Housewife | 45 | 75 |
| Service | 11 | 18.33 |
| Farmer | 04 | 6.66 |
| Student | 00 | 00 |

Table1. Reveals that the majority of participants were 19 years of age (31.67%). Many of them were Buddhists (58.33). Many of them lived in a typical family, 65 % were married, most of them finished high school 53.3%, and 75 % were housewives.

Table No.2: Assessment of pre-test knowledge regarding the management of leukaemia.

n = 60

| Level of knowledge score | Score | Percentage | Pre Test |
|--------------------------|-------|------------|----------|
|--------------------------|-------|------------|----------|

| | range | score | Frequency | Percentage (%) |
|---------------|-------------|---------|-----------|----------------|
| Poor | 00-06 | 0-25% | 9 | 15 |
| Average | 07-12 | 26-50% | 37 | 61.66 |
| Good | 13-18 | 51-75% | 10 | 16.67 |
| Excellent | 19-24 | 76-100% | 04 | 6.67 |
| Minimum score | 02 | | | |
| Maximum score | 20 | | | |
| Mean score | 10.72± 3.82 | | | |
| Mean % | 44.66% | | | |

Table 2. reveals that 15 per cent had poor pre-test knowledge and 61.66 per cent had average knowledge, (16%) had good knowledge, and (6.67 per cent) had excellent knowledge. The minimum score was 02, and the highest score was 20, the mean score was 10.72±3.82 with an overall percentage score of 44.66 per cent.

Table 3. Assessment of post-test knowledge regarding breast self-examination.

n=60

| Level of knowledge score | Score range | Percentage score | Post Test | |
|--------------------------|-------------|------------------|-----------|----------------|
| | | | Frequency | Percentage (%) |
| Poor | 00-06 | 0-25% | 0 | 00 |
| Average | 07-12 | 26-50% | 0 | 00 |
| Good | 13-18 | 51-75% | 23 | 38.33 |
| Excellent | 19-24 | 76-100% | 37 | 61.67 |
| Minimum score | 15 | | | |
| Maximum score | 24 | | | |
| Mean score | 19.55± 2.33 | | | |
| Mean % | 81.45% | | | |

Table 3 reveals that the post-test score (38.33 %) had good knowledge (61.%) had outstanding knowledge. None of them had low awareness. The minimum score was 15; the highest score was 24.

Table 4: Significant difference between pre-and post-test awareness scores of women of reproductive age on breast self-examination.**n=60**

| Overall | Mean | SD | Mean Percentage | t-value | p-value |
|-----------|-------|--------|-----------------|---------|---------------------|
| Pre Test | 10.72 | ± 3.82 | 44.66 | 14.75 | 0.0001*HS p<0.05 |
| Post Test | 19.55 | ± 2.33 | 81.45 | | |

Table 4 Depicts the overall mean pre-test and post-test knowledge scores that show the post-test results the average knowledge score was higher 19.55 with SD of ± 2.33 when compared to the pre-test average awareness score value which was 10.72 with SD of ± 3.82 . It is therefore statistically interpreted that the proposed teaching of breast self-examination among women of childbearing age was beneficial. As a result, H1 is approved, and H0 is rejected in this study.

Table 5: Association of knowledge levels on breast self-examination about demographic variables n=60

| Demographic Variables | No. of women of reproductive age group | Mean post-test knowledge score | F-value | p-value |
|-----------------------|--|--------------------------------|---------|-------------------|
| Age (yrs) | | | | |
| 14-21 yrs | 19 | 19.29±2.07 | 0.32 | 0.80 NS,p>0.05 |
| 22-29 yrs | 12 | 19.50±2.71 | | |
| 30-37 yrs | 14 | 20.07±2.16 | | |
| 38-45 yrs | 15 | 19..47±2.61 | | |
| Religion | | | | |
| Hindu | 23 | 20.13±1.96 | 1.53 | 0.21 NS,p>0.05 |
| Muslim | 01 | 21.00±0 | | |
| Buddhist | 35 | 19.06±2.49 | | |
| Other | 01 | 22±0 | | |
| Type of family | | | | |
| Nuclear | 18 | 20.17±2.33 | 1.47 | 0.14 NS,p>0.05 |
| Joint | 42 | 19.29±2.30 | | |
| Marital Status | | | | |
| Married | 39 | 19.59±2.42 | 0.10 | 0.90 NS,p>0.05 |
| Unmarried | 11 | 19.27±2.53 | | |
| Widow | 10 | 19.70±1.88 | | |
| Divorce | 00 | 00 | | |
| Educational Status | | | | |
| Primary | 19 | 19.63±2.56 | 0.78 | 0.50 NS,p>0.05 |
| Secondary | 32 | 19.59±2.31 | | |

| | | | | |
|---------------------|----|------------|------|-------------------|
| Graduate | 04 | 20.50±1.91 | | |
| Post Graduate | 05 | 18.20±2.33 | | |
| Occupational Status | | | | |
| Housewife | 45 | 19.62±2.24 | 1.36 | 0.26 NS,p>0.05 |
| Service | 11 | 9.91±2.54 | | |
| Farmer | 04 | 17.75±2.50 | | |
| Student | 00 | 00 | | |

Table 5. Reveals that there was no substantial correlation ($P>0.05$) of awareness scores for each demographic element.

Discussion: Study has been carried to assess the effectiveness of planned breast self-examination teaching among women of childbearing age. This seeks to encourage awareness of breast self-examination among them. The mean post-test score 19.55($SD=\pm 2.33$) was higher than the mean pre-test score 10.72 ($SD\pm 3.82$) those scores show that the scheduled teaching was effective. The significant difference between the two tests was evaluated by using paired 't' test the degree of significance was set at the measured 't' value ($p<0.001$) Suggested that there was a significant variation in the awareness of breast self-examination among women of childbearing age.

Related research by (Syed Azizur Rahman et al.,) performed a cross-sectional analysis of breast cancer awareness and breast self-examination among female students at Sharjah University, and findings suggest that most participants were aware of breast cancer, but little knowledge of risk factors and warning signs/symptoms. This highlights the importance of growing awareness of breast cancer and BSE among young women in the UAE. (Syed Azizur Rahman et al. 2019.)

A cross-sectional research study was used by (Suleiman A. K) on understanding and perceptions among Jordanian female students regarding breast cancer and breast self-examination. The results concluded that the current status of Jordanian students with breast cancer awareness and the utilisation of BSE was inadequate. Females should be allowed to self-monitor for the identification of breast abnormalities. Effective educational interventions to allow women to commit to BSE daily are desperately needed. (Suleiman, 2014)

(Prashanth Hegde et al.) conducted a cross-sectional analysis of the understanding of the risk factor for breast cancer and the use of the screening method by women in the Northern Emirates. A multicenter study carried out in selected northern emirate (UAE). This research included a cross-section design involving women over the age of 19. The research was performed between 400 women in three hospitals in Ajman, Sharjah and Fujairah. For data collection, a pre-tested, content validated questionnaire was used. The results of the study findings show that although a

small number of people are still unaware of breast cancer, a significant percentage of those with expertise has yet to participate in education and preventive action.(Hegde et al., 2018)

Limitation: The findings are limited to female reproductive age only, and there was a limited sample size. They will all have the same degree of knowledge/exposure. Thus, the results of this study cannot reflect the viewpoint of the entire group. The findings, therefore, need to be viewed within the context of the limitation of this analysis. The authors are planning to extend the research in Wardha city (i.e. sample size and geographic areas) to provide results that could be used to inform educational initiatives and to strengthen practices and health policies in the region.

Conclusion:

The current study suggests that females of childbearing age have a lack of understanding of both the importance and technique of breast self-examination in the pre-test and that there is an increase in knowledge among women of reproductive age after receiving the anticipated teachings. Scheduled instruction is successful in creating perceptive breast self-examination. It helps them understand the risk factors, promotes awareness of breast cancer and breast self-examination, and takes effective action to recognise and prevent breast cancer among women in the Wardha district.

Funding support: None

Conflicts of interest: None

References:

1. Akram, M., Iqbal, M., Daniyal, M., & Khan, A. U. (2017). Awareness and current knowledge of breast cancer. *Biological research*, 50(1), 33.https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=Akram%2C+M.%2C+Iqbal%2C+M.%2C+Daniyal%2C+M.%2C+Khan%2C+A.U.%2C+2017.+Awareness+and+current+knowledge+of+breast+cancer.+Biol.+Res.+50.+https%3A%2F%2Fdoi.org%2F10.1186%2Fs40659-017-0140-9&btnG=#d=gs_cit&u=%2Fscholar%3Fq%3Dinfo%3AJu6IYCxDXPQJ%3Ascholar.google.com%2F%26output%3Dcite%26scirp%3D0%26hl%3Den
2. Allemani, C., Weir, H.K., Carreira, H., Harewood, R., Spika, D., Wang, X.-S., Bannon, F., Ahn, J.V., Johnson, C.J., Bonaventure, A., Marcos-Gragera, R., Stiller, C., Azevedo e Silva, G., Chen, W.-Q., Ogunbiyi, O.J., Rachet, B., Solberg, M.J., You, H., Matsuda, T., Bielska-Lasota, M., Storm, H., Tucker, T.C., Coleman, M.P., CONCORD Working Group, 2015. Global surveillance of cancer survival 1995-2009: analysis of individual data for 25,676,887 patients from 279 population-based registries in 67 countries

- (CONCORD-2). *Lancet Lond. Engl.* 385, 977–1010. [https://doi.org/10.1016/S0140-6736\(14\)62038-9](https://doi.org/10.1016/S0140-6736(14)62038-9)
3. Rahman, S. A., Al-Marzouki, A., Otim, M., Khayat, N. E. H. K., Yousef, R., & Rahman, P. (2019). Awareness about breast cancer and breast self-examination among female students at the University of Sharjah: a cross-sectional study. *Asian Pacific Journal of Cancer Prevention: APJCP*, 20(6), 1901-1908. <https://pubmed.ncbi.nlm.nih.gov/31244316/>
 4. Boulos, D. N., & Ghali, R. R. (2014). Awareness of breast cancer among female students at Ain Shams University, Egypt. *Global journal of health science*, 6(1), 154. https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=3.%09Awareness+of+brea st+cancer+among+female+students+at+Ain+Shams+University&btnG=#d=gs_cit&u=% 2Fscholar%3Fq%3Dinfo%3Azckxz8O7N-0J%3Ascholar.google.com%2F%26output%3Dcite%26scirp%3D0%26hl%3Den
 5. Azage, M., Abeje, G., & Mekonnen, A. (2013). Assessment of factors associated with breast self-examination among health extension workers in West Gojjam Zone, Northwest Ethiopia. *International journal of breast cancer*, 2013, 814395. https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=4.%09Azage%2C+M.%2 C+Abeje%2C+G.%2C+Mekonnen%2C+A.%2C+2013.+Assessment+of+Factors+Associ ated+with+Breast+Self- Examination+among+Health+Extension+Workers+in+West+Gojjam+Zone%2C+Northw est+Ethiopia.+Int+J+Breast+Cancer+2013%2C+814395.+https%3A%2F%2Fdoi.org%2F 10.1155%2F2013%2F814395&btnG=#d=gs_cit&u=%2Fscholar%3Fq%3Dinfo%3A2kU yGvsgra4J%3Ascholar.google.com%2F%26output%3Dcite%26scirp%3D0%26hl%3Den
 6. D'sSouza, N. D., Murthy, N. S., & Aras, R. Y. (2013). Projection of cancer incident cases for India-till 2026. *Asian Pac J Cancer Prev*, 14(7), 4379-86. https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=6.%09Dsouza%2C+N. D.R.%2C+Murthy%2C+N.S.%2C+Aras%2C+R.Y.%2C+2013.+Projection+of+Cancer+I ncident+Cases+for+India+- +Till+2026.+Asian+Pac.+J.+Cancer+Prev.+14%2C+4379%E2%80%934386.+https%3A %2F%2Fdoi.org%2F10.7314%2FAPJCP.2013.14.7.4379&btnG=#d=gs_cit&u=%2Fschol ar%3Fq%3Dinfo%3AEFmQuhH-t1kJ%3Ascholar.google.com%2F%26output%3Dcite%26scirp%3D0%26hl%3Den
 7. Farmer, P., Frenk, J., Knaul, F. M., Shulman, L. N., Alleyne, G., Armstrong, L., ... & Gospodarowicz, M. (2010). Expansion of cancer care and control in countries of low and middle income: a call to action. *The Lancet*, 376(9747), 1186-1193. https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=7.%09Farmer%2C+P.%2 C+Frenk%2C+J.%2C+Knaul%2C+F.M.%2C+Shulman%2C+L.N.%2C+Alleyne%2C+G .%2C+Armstrong%2C+L.%2C+Atun%2C+R.%2C+Blayney%2C+D.%2C+Chen%2C+L .%2C+Feachem%2C+R.%2C+Gospodarowicz%2C+M.%2C+Gralow%2C+J.%2C+Gupt a%2C+S.%2C+Langer%2C+A.%2C+Lob-

Levy%2C+J.%2C+Neal%2C+C.%2C+Mbewu%2C+A.%2C+Mired%2C+D.%2C+Piot%2C+P.%2C+Reddy%2C+K.S.%2C+Sachs%2C+J.D.%2C+Sarhan%2C+M.%2C+Seffri%2C+J.R.%2C+2010.+Expansion+of+cancer+care+and+control+in+countries+of+low+and+middle+income%3A+a+call+to+action.+The+Lancet+376%2C+1186%E2%80%9331193.+https%3A%2F%2Fdoi.org%2F10.1016%2FS0140-6736%2810%2961152-X&btnG=#d=gs_cit&u=%2Fscholar%3Fq%3Dinfo%3A0cRQ9rIUEmcJ%3Ascholar.google.com%2F%26output%3Dcite%26scirp%3D0%26hl%3Den

8. Fouladi, N., Pourfarzi, F., Mazaheri, E., Asl, H. A., Rezaie, M., Amani, F., &Nejad, M. R. (2013). Beliefs and behaviours of breast cancer screening in women referring to health care centres in northwest Iran, according to the champion health belief model scale. *Asian Pac J Cancer Prev*, 14(11), 6857-62. https://scholar.google.com/scholar?q=6.+Fouladi,+N.,+Pourfarzi,+F.,+Mazaheri,+E.,+Asl,+H.A.,+Rezaie,+M.,+Amani,+F.,+Nejad,+M.R.,+2013.+Beliefs+and+behaviors+of+breast+cancer+screening+in+women+referring+to+health+care+centers+in+northwest+Iran+according+to+the+champion+health+belief+model+sca&hl=en&as_sdt=0,5#d=gs_cit&u=%2Fscholar%3Fq%3Dinfo%3AnDgLSuxceRYJ%3Ascholar.google.com%2F%26output%3Dcite%26scirp%3D0%26hl%3Den
9. Hegde, P., Pande, J., Adly, H. H., Shetty, P., &Jayakumari, A. (2018). Breast Cancer Risk factor awareness and utilisation of screening program: A cross-sectional study among women in the Northern Emirates. *The Gulf journal of oncology*, 1(27), 24–30. https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=9.%09Hegde%2C+P.%2C+Pande%2C+J.%2C+Adly%2C+H.H.%2C+Shetty%2C+P.%2C+Jayakumari%2C+A.%2C+2018.+Breast+Cancer+Risk+factor+awareness+and+utilization+of+screening+program%3A+A+cross-sectional+study+among+women+in+the+Northern+Emirates.+Gulf+J.+Oncolog.+1%2C+24%E2%80%9330.&btnG=#d=gs_cit&u=%2Fscholar%3Fq%3Dinfo%3A9Pt6xtl9GAsJ%3Ascholar.google.com%2F%26output%3Dcite%26scirp%3D0%26hl%3Den
10. Jahan, S., Al-Saigul, A. M., &Abdelgadir, M. H. (2006). Knowledge, attitudes and practices of breast self-examination among women in Qassim region of Saudi Arabia. *Saudi Med J*, 27(11), 1737-1741. https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=9.%09Jahan%2C+S.%2C+Al-Saigul%2C+A.M.%2C+Abdelgadir%2C+M.H.%2C+n.d.+Knowledge%2C+attitudes+and+practices+of+breast+self+examination+among+women+in+Qassim+region+of+Saudi+Arabia+5.&btnG=#d=gs_cit&u=%2Fscholar%3Fq%3Dinfo%3AdclYU-XPOIJ%3Ascholar.google.com%2F%26output%3Dcite%26scirp%3D0%26hl%3Den
11. Akhigbe, A. O., &Omumu, V. O. (2009). Knowledge, attitudes and practice of breast cancer screening among female health workers in a Nigerian urban city. *BMC Cancer*, 9(1), 203. https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=10.%09Knowledge%2

- C+attitudes+and+practice+of+breast+cancer+screening+among+female+health+workers+in+a+Nigerian+urban+city+%7C+BMC+Cancer+%7C+Full+Text+%5BWWW+Document%5D%2C+n.d.+URL+https%3A%2F%2Fbmccancer.biomedcentral.com%2Farticle%2F10.1186%2F1471-2407-9-203%28accessed+7.31.20%29&btnG=#d=gs_cit&u=%2Fscholar%3Fq%3Dinfo%3AO0eFR_pDVW8J%3Ascholar.google.com%2F%26output%3Dcite%26scirp%3D0%26hl%3Den
12. Reisi, M., Javadzade, S. H., & Sharifirad, G. (2013). Knowledge, attitudes, and practice of breast self-examination among female health workers in Isfahan, Iran. *Journal of education and health promotion*, 2. https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=11.%09Knowledge%2C+attitudes%2C+and+practice+of+breast+self-examination+among+female+health+workers+in+Isfahan%2C+Iran+%5BWWW+Document%5D%2C+n.d.+URL+https%3A%2F%2Fwww.ncbi.nlm.nih.gov%2Fpmc%2Farticles%2FPMC3826030%2F+%28accessed+7.31.20%29.&btnG=#d=gs_cit&u=%2Fscholar%3Fq%3Dinfo%3AsfYmwIFB_3oJ%3Ascholar.google.com%2F%26output%3Dcite%26scirp%3D0%26hl%3Den
 13. "Our results illustrate that scaling up of ORS coverage has been insufficient and that new efforts to improve access are desperately needed." URL <https://www.thelancet.com/journals/langlo/home> (accessed 7.31.20).
 14. Latest world cancer statistics – GLOBOCAN 2012: Estimated Cancer Incidence, Mortality and Prevalence Worldwide in 2012 – IARC [WWW Document], n.d. URL <https://www.iarc.fr/news-events/latest-world-cancer-statistics-globocan-2012-estimated-cancer-incidence-mortality-and-prevalence-worldwide-in-2012/> (accessed 7.31.20).
 15. Okobia, M. N., Bunker, C. H., Okonofua, F. E., & Osime, U. (2006). Knowledge, attitude and practice of Nigerian women towards breast cancer: a cross-sectional study. *World journal of surgical oncology*, 4(1), 11. https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=14.%09Okobia%2C+M.N.%2C+Bunker%2C+C.H.%2C+Okonofua%2C+F.E.%2C+Osime%2C+U.%2C+2006.+Knowledge%2C+attitude+and+practice+of+Nigerian+women+towards+breast+cancer%3A+A+cross-sectional+study.+World+J+Surg+Oncol+4%2C+11.+https%3A%2F%2Fdoi.org%2F10.1186%2F1477-7819-4-11&btnG=#d=gs_cit&u=%2Fscholar%3Fq%3Dinfo%3AqRoEFETjkTAJ%3Ascholar.google.com%2F%26output%3Dcite%26scirp%3D0%26hl%3Den
 16. Omotara, B., Yahya, S., Amodu, M., & Bimba, J. (2012). Awareness, attitude and practice of rural women regarding breast cancer in Northeast Nigeria. *J Community Med Health Educ*, 2(5), 1-4. https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=15.%09Omotara%2C+B.%2C+Yahya%2C+S.%2C+Amodu%2C+M.%2C+Bimba%2C+J.%2C+2012.+Awarenes

- [s%2C+Attitude+and+Practice+of+Rural+Women+regarding+Breast+Cancer+in+Northeast+Nigeria.+Journal+of+Community+Medicine+%26+Health+Education+%2C+1%E2%80%93355.+https%3A%2F%2Fdoi.org%2F10.4172%2F2161-0711.1000148&btnG=#d=gs_cit&u=%2Fscholar%3Fq%3Dinfo%3AdKigZeYZA_8J%3Ascholar.google.com%2F%26output%3Dcite%26scirp%3D0%26hl%3Den](https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=17.%09Pinotti%2C+J.A.%2C+Barros%2C+A.C.%2C+Hegg%2C+R.%2C+Zeferino%2C+L.C.%2C+1993.+Breast+cancer+control+programme+in+developing+countries.+Eur.+J.+Gynaecol.+Oncol.+14%2C+355%E2%80%93362.&btnG=#d=gs_cit&u=%2Fscholar%3Fq%3Dinfo%3AdKigZeYZA_8J%3Ascholar.google.com%2F%26output%3Dcite%26scirp%3D0%26hl%3Den)
17. Pinotti, J. A., Barros, A. C., Hegg, R., & Zeferino, L. C. (1993). Breast cancer control programme in developing countries. *European journal of gynaecological oncology*, 14(5), 355-362.
https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=17.%09Pinotti%2C+J.A.%2C+Barros%2C+A.C.%2C+Hegg%2C+R.%2C+Zeferino%2C+L.C.%2C+1993.+Breast+cancer+control+programme+in+developing+countries.+Eur.+J.+Gynaecol.+Oncol.+14%2C+355%E2%80%93362.&btnG=#d=gs_cit&u=%2Fscholar%3Fq%3Dinfo%3AY2tit-kr4FEJ%3Ascholar.google.com%2F%26output%3Dcite%26scirp%3D0%26hl%3Den
 18. Ranasinghe, H. M., Ranasinghe, N., Rodrigo, C., Seneviratne, R. D. A., & Rajapakse, S. (2013). Awareness of breast cancer among adolescent girls in Colombo, Sri Lanka: a school-based study. *BMC Public Health*, 13(1), 1209.
https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=Awareness+of+breast+cancer+among+adolescent+girls+in+Colombo%2C+Sri+Lanka%3A+a+school+based+study&btnG=#d=gs_cit&u=%2Fscholar%3Fq%3Dinfo%3ANtG_4_w4zg4J%3Ascholar.google.com%2F%26output%3Dcite%26scirp%3D0%26hl%3Den
 19. Obeidat, R. F., & Lally, R. M. (2014). Health-related information exchange experiences of Jordanian women at breast cancer diagnosis. *Journal of Cancer Education*, 29(3), 548-554.
https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=19.%09Rf%2C+O.%2C+Rm%2C+L.%2C+2014.+Health-related+information+exchange+experiences+of+Jordanian+women+at+breast+cancer+diagnosis.+J+Cancer+Educ+29%2C+548%E2%80%93554.+https%3A%2F%2Fdoi.org%2F10.1007%2Fs13187-013-0574-x&btnG=#d=gs_cit&u=%2Fscholar%3Fq%3Dinfo%3ASxd3ItHrr6oJ%3Ascholar.google.com%2F%26output%3Dcite%26scirp%3D0%26hl%3Den
 20. Suleiman, A. K. (2014). Awareness and attitudes regarding breast cancer and breast self-examination among female Jordanian students. *Journal of basic and clinical pharmacy*, 5(3), 74.
https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=20.%09Suleiman%2C+A.K.%2C+2014.+Awareness+and+attitudes+regarding+breast+cancer+and+breast+self-examination+among+female+Jordanian+students.+J+Basic+Clin+Pharm+5+%283%29%3A+74%E2%80%9378.+Go+to+original+source...+Go+to+PubMed.&btnG=#d=gs_cit&u=%2Fscholar%3Fq%3Dinfo%3Au8AfHGFfGUgJ%3Ascholar.google.com%2F%26output%3Dcite%26scirp%3D0%26hl%3Den

21. https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=21.%09The+changing+global+patterns+of++female+breast+cancer+incidence+and+mortality&btnG=#d=gs_cit&u=%2Fscholar%3Fq%3Dinfo%3AnaOyvx89BHwJ%3Ascholar.google.com%2F%26output%3Dcite%26scirp%3D0%26hl%3Den
22. WHO | Breast cancer: prevention and control [WWW Document], n.d. .WHO. URL <http://www.who.int/cancer/detection/breastcancer/en/> (accessed 9.9.20).