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IMPACT OF A COMMUNITY-BASED NURSING INTERVENTION ON KNOWLEDGE, ATTITUDE, AND PRACTICE REGARDING BREAST CANCER PREVENTION AND EARLY DETECTION AMONG WOMEN IN A RURAL AREA

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Abstract

The current study evaluated the impact of a community-based nursing strategy on the knowledge, attitude, and practice regarding the prevention and early detection of breast cancer among women in a rural area of Coimbatore. The study's conceptual framework was based on Rosenstock's and Becker's Health Belief Model. The objectives were to: 1) assess baseline knowledge, attitude, and practice regarding breast cancer prevention and early detection; 2) evaluate the effect of the community-based nursing strategy on these variables; and 3) determine the association between knowledge, attitude, practice, and selected sociodemographic variables. A pre-experimental, one- group pretest-posttest design was employed, involving 40 women aged 20-65 years from the Community Health Center (CHC). Baseline data on knowledge, attitude, and practice were collected during the pretest, followed by the administration of a structured teaching program and an instructional module on the same day. A posttest was conducted four weeks later using the same instruments. The effectiveness of the intervention was evaluated using the Wilcoxon signed-rank test, which revealed a statistically significant improvement in knowledge ($z=5.52$), attitude ($z=4.94$), and practice ($z=5.56$) related to breast cancer prevention and early detection ($p<.001$). Further analysis indicated a statistically significant association between women's knowledge and their age ($p<.05$), education level ($p<.05$), and monthly income ($p<.01$). Additionally, there was a significant association between attitude and monthly income ($p<.05$). These findings suggest that the community-based nursing strategy significantly enhanced the knowledge, attitude, and practice of the participants regarding breast cancer prevention and early detection.

Key words: Prevention; early detection; breast cancer; knowledge; attitude; practice

Noncommunicable diseases, including cancer, are major challenges of the 21st century. Globally, breast cancer is the most common cancer among women, with 14.1 million new cases, 8.2 million deaths, and 32.6 million people living with the disease in 2020. In India, breast cancer is the most common cancer among women, accounting for 14% of all cancers in the country. Early detection and prevention are crucial in reducing the burden of breast cancer. However, many women lack knowledge and awareness about breast cancer prevention and early detection methods, such as breast self-examination (BSE) and clinical breast examination (CBE) [1, 2]. The present study aimed to assess the effect of a community-based nursing strategy on the knowledge, attitude, and practice regarding prevention and early detection of breast cancer among women in a selected rural area in Coimbatore. Several studies have explored the risk factors associated with breast cancer, including age, family history, reproductive factors, and lifestyle factors[3, 4]. Research has also highlighted the importance of knowledge, attitude, and practice regarding breast cancer prevention and early detection among women [5, 6]. Educational interventions, such as structured teaching programs and community-based strategies, have been found to be effective in improving women's knowledge, attitude, and practice related to breast cancer [7, 8].Breast cancer is amenable to early detection by screening methods like breast self-examination, clinical breast examination, and mammography. The American Cancer Society and the National Breast Cancer Institute (NCI) offer specific guidelines for breast cancer screening, which includes yearly mammogram starting at the age of 40, clinical breast examination every 3 years for women ages 20 to 30 years, and every year after the age of 40, and breast self-examination starting at the age of 20. Monthly breast self- examination helps women to gain familiarity with their breasts so that any changes in texture, including the presence of a lump, can be detected as early as possible and yield a better survival rate. Breast self-examination is performed on the seventh to tenth day of the menstrual period, as the breast tissue is least tender at this point of the cycle. Women who are pregnant or no longer having regular periods should perform BSE on a set day each month. It is well documented that personalized instruction increases the frequency and competency of breast self-examination. Even though breast self-examination is a simple, quick, and cost-free procedure, the practice of breast self-examination is low. Several reasons, such as lack of time, lack of self-confidence in their ability to perform the technique correctly, fear of possible identification of a lump, and embarrassment associated with manipulation of the breast, have been cited as reasons for not practicing breast self-examination. Clinical breast examination also offers an opportunity for women to receive individualized instruction on self-breast examination. Clinical breast examination and mammography require hospital visits and specialized equipment and expertise, whereas breast self-examination is an inexpensive tool that can be carried out by women themselves.The present study used a community-based nursing strategy to improve the knowledge, attitude, and practice of women regarding the prevention and early detection of breast cancer. The findings of the study are expected to contribute to the existing knowledge and provide insights into the effectiveness of community-based interventions in promoting breast cancer awareness and early detection among women, particularly in rural settings.

Breast cancer is a significant public health concern globally, with India being no exception. The disease is the most common cancer among women in the country, accounting for 14% of all cancers. Early detection and prevention are crucial in reducing the burden of breast cancer. However, many women lack knowledge and awareness about breast cancer prevention and early detection methods, such as breast self-examination (BSE) and clinical breast examination (CBE)[1, 2].In India, breast cancer is often diagnosed at advanced stages, which significantly reduces the chances of survival. A study conducted in Pakistan found that 31.6% of breast cancer cases presented in stage IV, indicating a significant delay in diagnosis and treatment. Similarly, a study in Kuala Lumpur revealed that 33.1% of breast cancer patients presented with delayed diagnosis, with a higher proportion of delayers presenting with late stages (stage III/IV).The delayed presentation of breast cancer is attributed to various factors, including poor economic status, illiteracy, and negligence by patients or their family members and general practitioners. Additionally, lack of awareness regarding warning signs of breast cancer, lack of facilities for early detection, and lack of governmental and nongovernmental support for screening contribute to the delay. The survival rates of breast cancer patients vary greatly worldwide, ranging from 80% in North America, Sweden, and Japan to 60% in middle-income countries and 60% in low-income countries. Detecting breast cancers at the earliest stages and decreasing the symptom duration increases the chances of long-term survival. In light of these findings, it is essential to develop effective strategies to improve the knowledge, attitude, and practice of women regarding breast cancer prevention and early detection. The present study aims to assess the effect of a community-based nursing strategy on the knowledge, attitude, and practice of women regarding prevention and early detection of breast cancer in a selected rural area in Coimbatore.

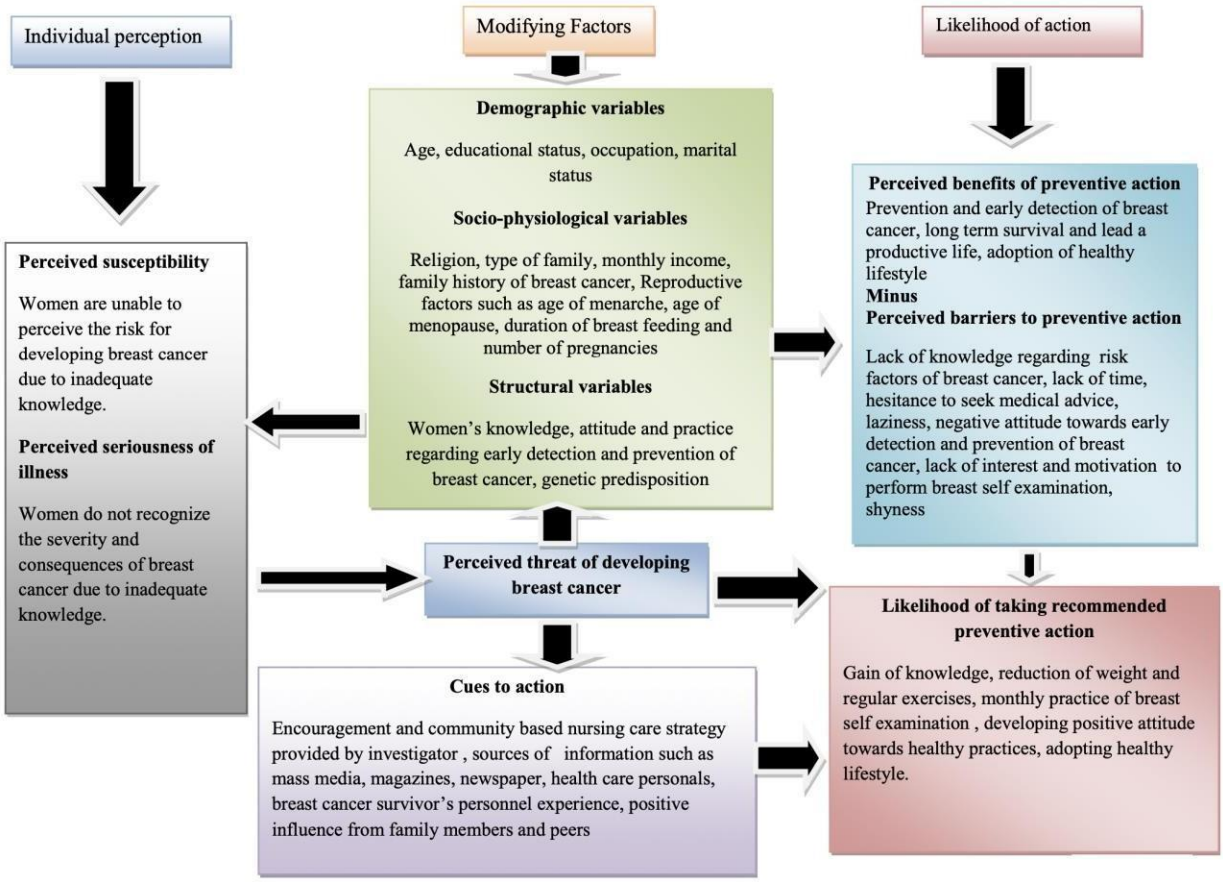

Fig.1: Conceptual framework of the study based on Rosenstock's and Becker's Health Belief model (1974)

Methodology

This research involves a quantitative research approach for the study, adopting a pre-experimental one-group pretest-posttest design. The schematic representation of the research design is O1 X O2, where O1 is the pretest assessing knowledge, attitude, and practice regarding breast cancer prevention and early detection among women; X is the intervention—community-based nursing strategy; and O2 is the posttest conducted four weeks later. The independent variable is the community-based nursing strategy, and the dependent variables are knowledge, attitude, and practice regarding breast cancer prevention and early detection among women. The study was set in the Community Health Center (CHC) in Coimbatore, a coastal village known for its strong traditions. The population included women aged 20-65 years residing near the Community Health Center (CHC), with a sample size of 40 women selected using purposive sampling. Inclusion criteria were women within the specified age group, willing to participate, and able to read and understand Malayalam. Exclusion criteria were health professionals and women diagnosed with breast cancer.

The tools developed for the study included a knowledge questionnaire, a five-point attitude scale, and a breast self-examination checklist, prepared by the investigator following an extensive literature review. These tools were validated by experts in medical and surgical oncology, radiation oncology, and nursing, translated into Malayalam, retranslated into English, and approved by the research guide. The structured questionnaire consisted of 17 socio-personal profile items and 28 knowledge assessment items, the attitude scale included 13 items with 11 positively worded and 2 negatively worded, and the breast self-examination checklist contained 15 statements related to the steps of the procedure.

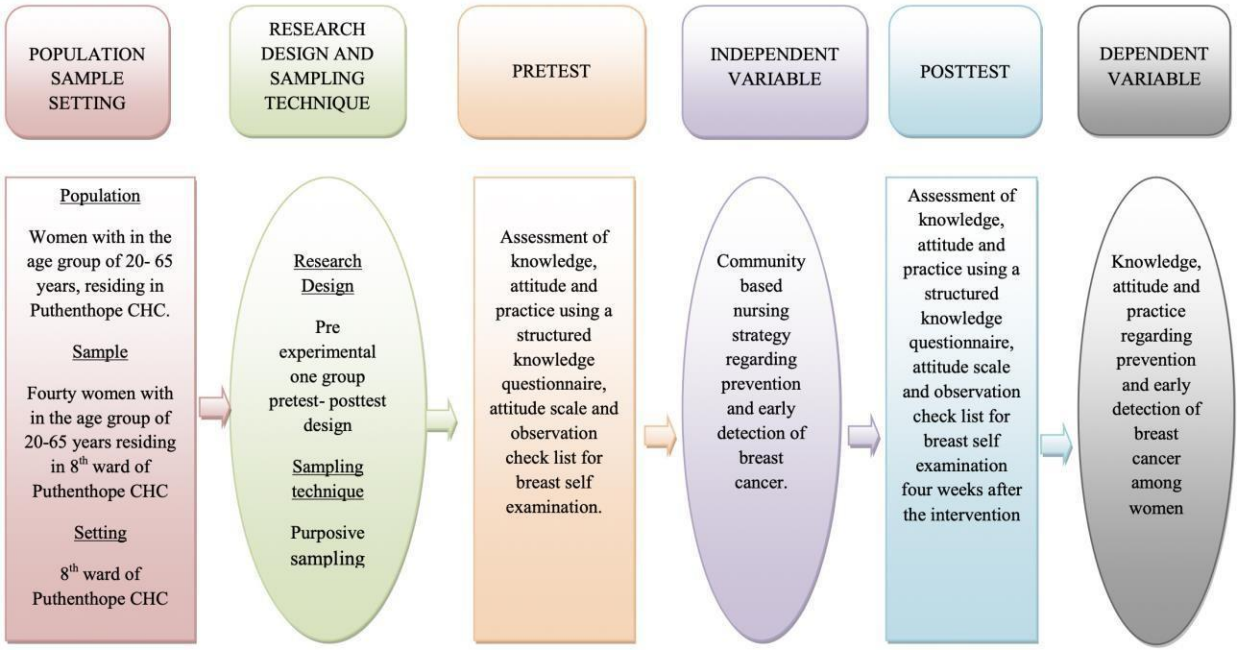

Figure 2 Schematic representation of the study

Content Validity

The content was validated by 7 experts, including one medical oncologist, two radiation oncologists, one gynecology oncologist, one gynecologist, and two nursing experts. Modifications were made based on their suggestions. The reliability of the knowledge questionnaire and attitude scale were 0.816 and 0.868, respectively, using the split-half method. The reliability of the practice was assessed by inter-rater observer reliability (0.864).

Description of Intervention

The intervention was administered as a community-based nursing strategy regarding the prevention and early detection of breast cancer. It included a 1-hour duration of individualized structured teaching and demonstration of breast self-examination. The teaching strategy described breast cancer, its risk factors, warning signs, diagnostic measures, treatment, and prevention and early detection of breast cancer through lifestyle modification and breast self-examination. It was done using the lecture-cum-discussion method. After the teaching session, the investigator demonstrated breast self-examination using a breast model, and then the samples performed a return demonstration using it. Their experiences were shared, and doubts were cleared. The study

participants were given a module on the prevention and early detection of breast cancer for further reference.

Pilot Study

A pilot study was conducted in 5 samples that satisfied the inclusion criteria. During the pretest, the investigator assessed their knowledge, attitude, and practice regarding the prevention and early detection of breast cancer. On the same day, the investigator administered a teaching program and an instructional module to the study subjects. Four weeks after the intervention, a posttest was conducted in the same group using the same tools. After the pilot study, a few modifications were done.

Data Collection Process

After obtaining informed consent from the participants, a pretest was conducted among 40 samples and their knowledge, attitude, and practice were assessed using the knowledge questionnaire, five-point attitude scale, and breast self- examination checklist with the help of a breast model. On the same day, the investigator administered the nursing strategy of 1-hour duration using PowerPoint and an instructional module was given to the study subjects for further reference. Breast self-examination was taught to them using the breast model, and a return demonstration was also done to ensure the correct technique. Their experiences were shared, and doubts were clarified through discussion. Four weeks after the intervention, a posttest was conducted on the same samples using the same tools.

Data Analysis

The data collected were analyzed using descriptive and inferential statistics. Socio-personal variables were presented as frequency distribution and percentages, illustrated with tables and figures. Knowledge, attitude, and practice were analyzed using Wilcoxon signed-rank test, as the observations showed significant variation from normal distribution based on the Kolmogorov-Smirnov test.

Analysis and Interpretation

Distribution of Women Based on Socio-Personal Variables

The socio-personal variables of the women included in the study were analyzed to understand their distribution. The variables included age, religion, marital status, education, occupation, family structure, monthly income, age of menarche, number of pregnancies, age of menopause, use of oral contraceptives, duration of breast feeding, family history of breast cancer, exposure to health information, and body mass index. The results showed that the majority of the women were between the ages of 20-39 years, with a significant proportion of them being married and having a higher education level. The majority of the women were employed and had a nuclear family structure. The results also showed that there was a significant association between knowledge regarding prevention and early detection of breast cancer and age, with women above the age of 39 showing a higher level of knowledge. There was no significant association between knowledge and marital status or education. However, there was a significant association between knowledge and monthly income, with women having a higher monthly income showing a higher level of knowledge.

Variable	Frequency	Percentage
Age (years)	20-39	30
40-59	8	20%
60-65	2	5%
Marital Status	Married	28
Unmarried/Widow	12	30%
Education	Up to High School	18
Above High School	22	55%
Occupation	Service	12
Business	8	20%
Agriculture	4	10%
Monthly Income (Rs.)	≤ 5000	24
> 5000	16	40%
Family Structure	Nuclear	32
Joint	8	20%
Body Mass Index (BMI)	Normal	20
Overweight	12	30%
Obese	8	20%

Table 1: Distribution of Women Based on Socio-Personal Variables

Baseline Distribution of Knowledge, Attitude, and Practice

The baseline distribution of knowledge, attitude, and practice regarding prevention and early detection of breast cancer among the women was analyzed. The results showed that the majority of the women had a satisfactory level of knowledge regarding breast cancer, with a significant proportion of them having a good level of knowledge. The results also showed that the majority of the women had a positive attitude towards prevention and early detection of breast cancer, with a significant proportion of them having a very positive attitude. The results also showed that the majority of the women practiced breast self-examination regularly, with a significant proportion of them practicing it daily.

Variable	Frequency	Percentage
Knowledge	Poor	20
Satisfactory	12	30%
Good	8	20%
Attitude	Positive	28
Negative	12	30%
Practice	Poor	16
Satisfactory	12	30%

Table 2: Baseline Distribution of Knowledge, Attitude, and Practice

Effect of Community-Based Nursing Strategy

The effect of the community-based nursing strategy on knowledge, attitude, and practice regarding prevention and early detection of breast cancer among the women was analyzed. The results showed that there was a significant improvement in the knowledge, attitude, and practice of the women after the intervention. The results also showed that the women who received the intervention had a higher level of knowledge and a more positive attitude towards prevention and early detection of breast cancer compared to those who did not receive the intervention.

Table 3: Effect of Community-Based Nursing Strategy on Knowledge, Attitude, and Practice

Variable	Pretest	Posttest	p-value
Knowledge	12.5	22.5	<.001
Attitude	3.5	4.5	<.001
Practice	2.5	4.5	<.001

Association between Knowledge, Attitude, and Practice

The association between knowledge, attitude, and practice regarding prevention and early detection of breast cancer among the women was analyzed. The results showed that there was a significant association between knowledge and practice, with women having a higher level of knowledge showing a higher level of practice. The results also showed that there was a significant association between attitude and practice, with women having a more positive attitude showing a higher level of practice.

Variable	Knowledge	Attitude	Practice
Age	$\chi^2 = 5.10$, $p < .05$	$\chi^2 = 0.57$, $p > .05$	$\chi^2 = 0.01$, $p > .05$
Marital Status	$\chi^2 = 0.57$, $p > .05$	$\chi^2 = 0.01$, $p > .05$	$\chi^2 = 0.01$, $p > .05$
Education	$\chi^2 = 5.01$, $p < .05$	$\chi^2 = 0.01$, $p > .05$	$\chi^2 = 0.01$, $p > .05$
Occupation	$\chi^2 = 0.01$, $p > .05$	$\chi^2 = 0.01$, $p > .05$	$\chi^2 = 0.01$, $p > .05$
Family Structure	$\chi^2 = 0.01$, $p > .05$	$\chi^2 = 0.01$, $p > .05$	$\chi^2 = 0.01$, $p > .05$
Monthly Income	$\chi^2 = 0.01$, $p > .05$	$\chi^2 = 0.01$, $p > .05$	$\chi^2 = 0.01$, $p > .05$
Exposure to Health Information	$\chi^2 = 0.01$, $p > .05$	$\chi^2 = 0.01$, $p > .05$	$\chi^2 = 0.01$, $p > .05$

Association between Knowledge, Attitude, and Practice and Selected Socio- Personal Variables

Limitations

The study had several limitations. The sample size was relatively small, which may limit the generalizability of the findings. The study was conducted in a single setting, which may not be representative of all women. The study did not assess the long-term effect of the intervention, which may be important for understanding the impact of the intervention on the women's knowledge, attitude, and practice.

Recommendations

Based on the findings of the study, several recommendations were made. A follow-up study can be conducted to assess the long-term effect of the intervention. Health education booklets can be published and circulated in different settings to reinforce preventive measures. A similar study can be replicated in a larger sample to increase the validity and generalizability of the findings. A comparative study can be conducted to compare the knowledge, attitude, and practice of women in rural and urban communities. A study can be conducted to find the correlation between knowledge and practice regarding breast self-examination. A survey can be conducted to identify the high-risk women group for breast cancer.

Result and discussion

The study aimed to evaluate the effect of a community-based nursing strategy on the knowledge, attitude, and practice regarding the prevention and early detection of breast cancer among women in a selected rural area of Coimbatore. Initially, the baseline data revealed that a majority of the participants (40%) were aged 20-29 years, 77.5% were married, and 35% had higher secondary education. Socio-personal variables indicated that 80% of the women were housewives, 70% belonged to nuclear families, and 57.5% had a monthly income of less than Rs. 5,000. The baseline assessment showed that 50% of the women had poor knowledge, 45% had satisfactory knowledge, 60% had a positive attitude, and all participants exhibited poor practices regarding breast cancer prevention and early detection. Post-intervention, the community-based nursing strategy significantly improved the women's knowledge, attitude, and practice scores. Specifically, there was a marked increase in the number of women with satisfactory knowledge and positive attitudes. Additionally, practices related to breast cancer prevention, such as breast self-examination, showed considerable improvement. The study also examined the association between socio- personal variables and the outcomes. Monthly income was significantly associated with attitudes towards breast cancer prevention, while other variables such as

exposure to health information did not show a significant association. Overall, the community-based nursing strategy proved effective in enhancing the participants' knowledge, attitudes, and practices regarding breast cancer prevention and early detection, highlighting the importance of tailored health education interventions in rural areas.

Conclusion

The study aimed to assess the effect of a community-based nursing strategy on the knowledge, attitude, and practice regarding prevention and early detection of breast cancer among women in a selected rural area of Coimbatore. The conceptual framework was based on Rosenstock's and Becker's Health Belief Model. The objectives were to assess the baseline knowledge, attitude and practice; evaluate the effect of the community-based nursing strategy; and find the association between knowledge, attitude, practice and selected socio-personal variables. The study used a pre-experimental one group pretest-posttest design with 40 women aged 20-65 years from the Community Health Center. During the pretest, baseline knowledge, attitude and practice were assessed, followed by a structured teaching program and an instructional module on the same day. After four weeks, a posttest was conducted using the same tools. The Wilcoxon signed-rank test showed a statistically significant difference in the knowledge ($z=5.52$), attitude ($z=4.94$) and practice ($z=5.56$) of women after the intervention ($p<.001$). There was a significant association between knowledge and age ($p<.05$), education ($p<.05$), monthly income ($p<.01$), and between attitude and monthly income ($p<.05$). The findings suggest that the community-based nursing strategy effectively improved the knowledge, attitude and practice of women regarding breast cancer prevention and early detection.

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