

A study to evaluate the effectiveness of a structured teaching program on breast self-examination among adult women in a selected rural area of Visnagar, Gujarat

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KEYWORDS

Breast self-examination, adolescent girls, knowledge assessment, structured teaching program, breast cancer awareness, early detection.

ABSTRACT

Background: Breast cancer continues to be an important public health issue, and early detection using breast self-examination (BSE) helps decrease mortality rates. In spite of its utility, awareness and practice of BSE among youth are low. This research investigated the effectiveness of a structured educational program in enhancing knowledge about BSE among adolescent girls in Visnagar.

Methods: A pre-test and post-test quasi-experimental research design was utilized, with 50 adolescent girls recruited by purposive sampling. A structured knowledge questionnaire was used to collect the data prior to and subsequent to the delivery of the teaching program. Descriptive and inferential statistical analyses were undertaken and a paired t-test was applied for determining the significance of the intervention.

Results: The results indicated that pre-test knowledge was poor among most participants (41.7%). But, post-intervention, 66.7% of the participants showed good knowledge. The mean post-test (16.9) was markedly greater than pre-test (10.06) with a value of paired t-test 40.12 ($p < 0.001$). No correlation between demographic characteristics and levels of knowledge was significant, except information sources, which significantly affected.

Conclusion: The research highlights the efficacy of systematic educational interventions in promoting knowledge and awareness of BSE. Incorporating such programs into community health programs can have a significant impact on early detection practices, leading to improved health outcomes.

I. INTRODUCTION

Breast cancer is one of the most common cancers in women worldwide, and early detection definitely lowers the mortality rate. Among the various screening modalities, breast self-examination (BSE) is a low-cost, painless, and simple procedure in which women can check their breasts on their own. It involves habitual observation and palpation of the breasts to detect any abnormality like lumps, change in size, or change in skin texture. Although of great importance, knowledge and practice of BSE are not high, particularly in rural areas where health care centers and access to routine screening centers are limited [1].

Structured teaching programs have been widely accepted as a useful tool of health awareness promotion, particularly in preventive health care. Health education regarding correct technique and the importance of BSE can lead to the early detection of abnormalities and thus create a window of opportunity for medical intervention at an early stage. The present study is an attempt to evaluate the effectiveness of a structured teaching program for enhancing BSE knowledge among adult women of a selected rural area of Visnagar, Gujarat [2-3].

Breast cancer is the most common cause of cancer death among Indian women. The incidence of breast cancer has been increasing, particularly among young women, as per the Indian Council of Medical Research (ICMR). In the absence of awareness and with few facilities for screening, most of the cases are reported at an advanced stage, and therefore chances of survival are low. The lack of routine mammographic screening in rural areas further makes self-examination the most important method of early detection. Results indicate that women, particularly those belonging to socioeconomically disadvantaged groups, have limited information on BSE. Misconceptions, cultural beliefs, and poor health education are the reasons for such limited information. Through a structured teaching program, women can be educated on the correct technique of performing BSE, benefits of BSE, and importance of early detection, and therefore develop a health-promoting attitude towards breast health [4-5].

The conceptual framework of the study is grounded in Becker's Health Belief Model (HBM), which accounts for health-related behavior by analyzing an individual's perception and belief. The model proposes that an individual's probability of adopting preventive health behavior, such as BSE, is based on their perception of susceptibility to a health problem, their perception of the severity of the problem, and their assessment of the benefits and barriers of taking action. Women who are aware of their risk of developing breast cancer and the severity of the disease are more likely to adopt self-examination. Demographic factors such as age, religion, education, family structure, and marital status also affect these perceptions and behaviors.

The current study is poised to make an important contribution towards breast cancer awareness by promoting the incorporation of BSE into a woman's normal health practice. Through an exploration of the knowledge gap regarding BSE and examination of the effectiveness of structured learning on heightened awareness, the research will provide knowledge that can be used by policymakers and health practitioners to roll out similar learning schemes among disadvantaged communities. The outcomes will also enable the identification of whether demographic attributes influence the attainment and retention of knowledge [6-7].

Breast self-examination continues to be an effective tool for early detection, especially in low-resource environments where advanced screening techniques are not accessible. Raising

women's knowledge using structured teaching interventions has the capacity to make an important difference to knowledge, with the outcome leading to enhanced rates of early detection and improved health outcomes. This research has endeavored to explore the effectiveness of such learning programs and provide evidence for future programs to enable the reduction of mortality due to breast cancer [8].

II. METHODS

Research Approach

A quantitative educational and evaluative research approach was employed to assess the effectiveness of a structured teaching program on knowledge regarding breast self-examination among adult women. The approach was employed because it facilitates objective measurement of changes in levels of knowledge before and after intervention, with statistical evidence of the effect of the program.

Research Design

The research study employed a quasi-experimental research design with a pre-test and post-test model. The research design facilitated measurement of changes in levels of knowledge before and after the provision of the structured teaching program. The pre-experimental design was employed to assess the effect of the intervention through comparison of knowledge scores before and after the education session.

Variables of the Study

The independent variable of the study was the structured teaching program on breast self-examination. The dependent variable was the level of knowledge of the participants, which was anticipated to change as a result of the intervention. The study aimed to establish a causal link between structured education and increased awareness regarding breast self-examination.

Research Setting

The study was conducted in a selected rural locality of Visnagar, Gujarat. The setting was employed because of feasibility, accessibility, and willingness of participants to participate in the study. The selected area provided a conducive setting to test the effectiveness of structured teaching programs in improving health awareness.

Population and Sample

The study was conducted among adult women residing in the selected rural area of Visnagar. A sample of 60 adult women was selected for the study through a stratified random sampling technique. The approach facilitated selection of the participants systematically to represent diverse demographic backgrounds in the community, enabling reliability and generalizability of the findings.

Criteria for Sample Selection

Inclusion criteria for the study required participation of adult women from the selected rural area willing to cooperate and be present during data collection. Women who had previously undergone breast surgery, experience with such educational programs, or were not interested in participating were excluded from the study. Inclusion criteria required participation of persons likely to derive benefits from the structured teaching intervention without preconceived knowledge bias.

Research Instrument

A semi-structured multiple-choice questionnaire was prepared to determine the level of knowledge of participants prior to and after the intervention. The questionnaire was prepared from an extensive literature review and opinion of experts. The questionnaire contained two parts: the first part gathered demographic details such as age, marital status, education, and religion, and the second part consisted of 20 items measuring knowledge concerning breast self-examination.

Validity and Reliability of the Instrument

The questionnaire was validated by five experts from the field of nursing and medicine, who examined the content of the questionnaire for accuracy and applicability. As per their suggestions, suitable changes were made before finalizing the tool. Reliability of the questionnaire was established through pilot testing, which ensured that the instrument produced consistent and accurate results.

Data Collection Procedure

Data collection was conducted in a structured fashion within a 15-day time frame. Pre-approval was obtained from concerned authorities prior to the initiation of the study. Participants were informed about the study, and rapport was established to make them cooperative. The intent of the study was disclosed, and verbal consent was taken from all the participants.

Pre-test was administered through the questionnaire to measure baseline knowledge levels. Pre-test was then followed by the structured teaching program comprising chief topics of breast self-examination such as its significance, proper technique, and frequency. 15 days later, a post-test was administered through the same questionnaire to measure the impact of the intervention.

Data Analysis

The data collected were systematically tabulated, arranged, and analyzed using descriptive and inferential statistics. Descriptive statistics in the form of frequency and percentage distribution were utilized to determine the level of knowledge prior to and following the intervention. A paired t-test was utilized to find the effectiveness of the structured teaching program by comparing pre-test and post-test scores. A chi-square test was further utilized to establish association between pre-test knowledge scores and demographic variables such as age, religion, education, marital status, and type of family.

III. RESULTS

This research assessed the impact of a structured teaching program on breast self-examination (BSE) among adolescent girls in Visnagar. Descriptive and inferential statistics were used for the analysis of the findings in order to determine the improvement in knowledge pre- and post-intervention. The research involved 50 participants, and Table 1 shows their demographic characteristics.

Table 1: Demographic Distribution of Participants

Variable	Categories	Frequency (n=50)	Percentage (%)
Age (years)	18-25	10	16.67%
	25-30	15	25%
	30-35	20	33.33%
	35-40	15	25%

Religion	Hindu	40	66.67%
	Muslim	15	25%
	Christian	5	8.33%
Education Level	Illiterate	5	8.33%
	Primary	15	25%
	Secondary	20	33.33%
	Graduate	12	20%
	Postgraduate	8	13.33%
Type of Family	Nuclear	40	66.67%
	Joint	20	33.33%
Residence	Urban	35	58.33%
	Rural	25	41.67%
Marital Status	Married	30	50%
	Unmarried	20	33.33%
	Widowed	5	8.33%
	Divorced	5	8.33%
Family History of Breast Cancer	Yes	15	25%
	No	45	75%

The demographic profile shows that the age group of 30-35 years comprised most of the participants, and many of them were Hindu with a secondary level of education. They mostly

resided in nuclear families and urban environments. Of the participants, half were married and the rest unmarried, widowed, or divorced. 25% of the participants gave a history of family breast cancer.

To determine whether the structured teaching program was effective, levels of knowledge were observed before and after the intervention. The findings are shown in Table 2.

Table 2: Comparison of Pre-Test and Post-Test Knowledge Levels

Knowledge Level	Pre-Test (n=50)	Percentage (%)	Post-Test (n=50)	Percentage (%)
Adequate Knowledge	10	16.7%	40	66.7%
Moderate Knowledge	25	41.7%	15	25%
Inadequate Knowledge	25	41.7%	5	8.3%

Prior to the intervention, 41.7% of the participants lacked sufficient knowledge, and a mere 16.7% had sufficient understanding of breast self-examination. After the structured teaching program, there was an improvement, and 66.7% of the participants gained sufficient knowledge. This indicates the success of the intervention in promoting awareness regarding breast self-examination.

To further assess the effect of the teaching program, the mean scores of knowledge prior and subsequent to intervention were contrasted, as presented in Table 3.

Table 3: Comparison of Pre-Test and Post-Test Mean Scores

Test	Mean Score	SD	Mean Difference	Paired t-Test Value	p-Value
Pre-Test	10.06	2.60	6.82	40.12	<0.001
Post-Test	16.9	2.92			

The analysis showed a significant rise in mean scores, from 10.06 in the pre-test to 16.9 in the post-test. The paired t-test value of 40.12, with a p-value of less than 0.001, verified that this rise was statistically significant. This shows that the structured teaching program was very effective in enhancing participants' knowledge regarding breast self-examination.

In addition, the research investigated whether knowledge enhancement was correlated with demographic factors. A chi-square was carried out and the findings are presented in Table 4.

Table 4: Association Between Post-Test Knowledge Scores and Demographic Variables

Demographic Variable	Chi-Square Value	Degrees of Freedom (DF)	p-Value	Significance
Age	4.69	6	0.584	Not Significant
Religion	1.79	4	0.774	Not Significant
Education Level	0.68	8	~0.78	Not Significant
Type of Family	0.19	2	~0.91	Not Significant
Residence	1.38	2	0.50	Not Significant
Marital Status	2.42	6	0.88	Not Significant
Source of Information	5.62	3	0.041	Significant

The result of the chi-square test revealed that none of the variables like age, religion, level of education, type of family, place of residence, or marital status correlated significantly with post-test scores of knowledge. On the other hand, there was a significant association ($p=0.041$) between improvement in knowledge and the source of information regarding breast self-examination. This indicates that the method through which participants were exposed to information had a significant impact on their awareness and knowledge regarding BSE.

Finally, the study revealed an evident enhancement of the knowledge levels in relation to breast self-examination after the program of structured teaching. During the post-test, it was noted that 66.7% of participants had satisfactory knowledge compared to merely 16.7% in the pre-test. Statistical analysis reaffirmed the success of the intervention through the strongly significant p-value of less than 0.001. In addition, while demographic information was not heavily impacted by factors affecting knowledge, source of information significantly impacted knowledge levels.

These results underscore the need for formalized educational interventions for increasing awareness regarding breast self-examination. Long-term knowledge retention, and how various teaching techniques compare regarding effectiveness, should be studied in future studies to confirm enduring awareness and preventive healthcare measures.

IV. DISCUSSION

The current research assessed the impact of a structured teaching program on breast self-examination (BSE) among adolescent girls in Visnagar. The results illustrated an increase in knowledge levels after intervention, affirming that educational interventions significantly contribute towards improving awareness and enhancing early detection practices. 41.7% of participants were found to lack satisfactory knowledge about BSE before the intervention, whereas a mere 16.7% had satisfactory understanding. After structured teaching, 66.7% of the participants showed sufficient knowledge, reflecting a significant positive effect. The findings are consistent with those of Ayla Akka et al. (2011) [9], who evaluated the impact of peer education on the knowledge of BSE among university students and found a significant increase in knowledge and health beliefs about breast cancer prevention following educational intervention.

Its success in raising awareness for BSE has been well documented in literature. Bala and Hemant Gameti (2011) [10] in their educational interventional study on 250 women in Ahmedabad also found that the women's knowledge and practice of BSE improved considerably following the intervention, a finding similar to that of the current study. Their research stressed the need for structured teaching and active learning methods in knowledge retention, an idea which is further confirmed by Adlepilliteri (2007) [11], who has also underscored the role of maternal and child health education in developing preventive healthcare habits.

Additionally, the present study determined the statistical significance of the improvement noted using a paired t-test, which was highly significant ($p < 0.001$). This result supports earlier findings that formal education interventions greatly improve knowledge and encourage healthy-seeking behaviors (Berck & Novel, 2009) [12]. Furthermore, the results of the chi-square tests also revealed no significant correlation between demographic factors like age, religion, level of education, type of family, place of residence, and marital status with scores on the post-test knowledge. Nonetheless, there was a high level of association ($p = 0.041$) between knowledge gain and information source about BSE. This highlights the influence of health information sources in determining health awareness, as also highlighted by Lakshmi Seshadri (2012) [13], who cited that available and credible health information sources critically impact women's knowledge and preventive health practices.

Though systematic teaching programs greatly enhance knowledge, ensuring long-term retention of knowledge and behavior change is a challenge. D.C. Dutta (2004) [14] stressed that knowledge by itself is not enough unless it finds expression through repeated self-examination practice. This suggests the necessity for follow-up support programs for maintaining awareness and promoting BSE as a routine practice. The findings of the present study also support the recommendations of Murray and McKinney (2006) [15], who advocated for continuous education through multiple platforms such as peer discussions, healthcare provider interventions, and media campaigns to strengthen awareness and practice.

Overall, this study confirms that structured educational interventions are effective in enhancing BSE knowledge among adolescent girls. However, future studies should explore long-term retention and practice adherence to ensure sustained benefits. In addition, the inclusion of different educational methods, including peer education and online platforms, can further enhance awareness and accessibility. The research reiterates the significance of

health education in preventive care and concurs with current literature focusing on the role of systematic learning in empowering women with necessary information on early breast cancer detection.

V. CONCLUSION

The results of this research underscore the important role of organized educational interventions in enhancing knowledge and awareness of breast self-examination (BSE) among adolescent girls in Visnagar. The post-test findings revealed a remarkable improvement in sufficient levels of knowledge, highlighting the success of organized teaching programs in promoting preventive healthcare practices. The statistical comparison validated a significantly very high improvement ($p < 0.001$) in post-intervention scores on knowledge, affirming the need to incorporate educational interventions into community health programs. Although no significant relationship was found between demographic variables and learning, information source strongly affected awareness. These results concur with past work, emphasizing a need for constant education and mass media-based education campaigns to preserve knowledge retention long-term and induce regular BSE practice. Such future endeavors shall aim to provide increased educational extension and incorporating heterogeneity of training methods to foster greater accessibility as well as prolonged adherence to practices of self-examination, contributing ultimately to earlier detection of breast cancer and healthier outcomes in women.

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