A study to assess the effectiveness of Structured teaching programme on early detection of breast cancer among girls under GNSU at Jamuhar, Bihar

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***Abstract*—Background Breast cancer remains one of the most prevalent and life-threatening malignancies affecting women worldwide. According to the World Health Organization (WHO), breast cancer accounts for approximately 25% of all cancer cases among women globally. In India, the incidence and mortality associated with breast cancer have been steadily rising due to late diagnosis, lack of awareness, and limited access to healthcare services, particularly in rural and semi-urban regions. Early detection through breast self-examination (BSE), clinical breast examination (CBE), and mammography significantly improves treatment outcomes, survival rates, and quality of life in affected individuals. In this context, educating adolescent girls and young women about breast cancer and its early detection methods is of paramount importance. Early education not only empowers them with knowledge but also encourages a proactive attitude toward selfcare and health-seeking behaviors. Structured teaching programmes serve as an effective tool in nursing education to impart health-related knowledge in a systematic and measurable way.**

This study was undertaken to assess the existing knowledge and to evaluate the effectiveness of a structured teaching programme on early detection of breast cancer among girls studying under Gopal Narayan Singh University (GNSU), Jamuhar, Bihar.

Objectives of the Study

1.To assess the pre-existing knowledge regarding early detection of breast cancer among girls under GNSU.

2.To implement a structured teaching programme on early detection methods of breast cancer.

3.To evaluate the effectiveness of the structured teaching programme by comparing pre-test and post-test knowledge scores.

4.To find out the association between knowledge scores and selected demographic variables such as age, course of study, family history of breast cancer, and source of information.

Methodology

The research design adopted for this study was a pre-experimental one-group pre-test post-test design. The study was conducted among 60 girls selected through purposive sampling technique from GNSU, Jamuhar. A structured knowledge questionnaire was developed, validated, and used as the tool for data collection.

In the first phase, a pre-test was conducted to assess the existing level of knowledge regarding early detection of breast cancer. Following this, a structured teaching programme was implemented using visual aids, PowerPoint presentations, charts, and interactive discussion. After 7 days, a post-test was administered to measure the effectiveness of the teaching programme.

Statistical analysis was carried out using descriptive statistics (mean, frequency, percentage) and inferential statistics (paired t-test and chi-square test) to determine the difference in knowledge scores and their association with selected demographic variables.

Results

The pre-test results revealed that the majority of participants had inadequate to moderately adequate knowledge regarding early signs, risk factors, and preventive measures of breast cancer. After the structured teaching intervention, there was a significant increase in the post-test knowledge scores.

The mean pre-test score was 9.2 ± 2.5, while the mean post-test score increased to 17.6 ± 1.8, indicating a statistically significant improvement ($p < 0.001$). The paired t- test confirmed the effectiveness of the structured teaching programme.

The chi-square test showed a significant association between post-test knowledge scores and demographic variables such as age group, course of study, and previous source of information about breast cancer. However, there was no significant association with variables like family history of breast cancer or residential background.

Interpretation and Conclusion

The findings of the study clearly indicate that the structured teaching programme was effective in improving the knowledge level regarding early detection of breast cancer among girls of GNSU. The increase in knowledge scores post-intervention signifies the importance of educational strategies in raising awareness and promoting self- examination practices among young women.

Breast cancer, though a serious health condition, can be effectively managed if detected early. Hence, introducing structured awareness programmes in educational institutions can act as a preventive measure and empower future generations to take charge of their health. Nurses play a critical role in health education, and this study reaffirms the necessity of integrating such preventive strategies into nursing and public health initiatives.

***Index Terms*—Breast Cancer, Early Detection, Structured Teaching Programme, Awareness, Girls, GNSU, Nursing Education, Preventive Health, Health Promotion, Self-examination.**

I. INTRODUCTION

Breast cancer remains the most common cancer among women globally, accounting for 1 in 8 cancer diagnoses worldwide. It poses a significant public health challenge, especially in low and middle-income countries like India, where awareness and early detection rates remain poor.Early detection of breast cancer significantly improves treatment outcomes and survival rates. Techniques such as Breast Self-Examination (BSE), Clinical Breast Examination (CBE), and mammography are essential components of early detection. Among these, BSE is the most practical and cost-effective method that can be easily taught and practiced by women, particularly in resource-limited settings.Among these, BSE is the most practical and cost-effective method that can be easily taught and practiced by women, particularly in resource-limited settings.In India, breast cancer accounts for about 14% of all cancers in women (ICMR, 2022). Delays in diagnosis and treatment often result from inadequate knowledge, myths, and social stigma. The National Cancer Registry Programme (NCRP) states that more than 60% of Indian women are diagnosed at an advanced stage, leading to poor prognosis.While early detection methods such as Breast Self-Examination (BSE), Clinical Breast Examination (CBE), and mammography are well-established, their implementation and acceptance among adolescent girls and young women remain limited. BSE, in particular, is a low-cost and non-invasive technique that, if practiced correctly and consistently, can aid in the early identification of breast abnormalities. However, lack of awareness, cultural taboos, shyness, and misconceptions often prevent young females from adopting these preventive practices.

Research shows that a large proportion of breast cancer cases in India are diagnosed at an advanced stage, primarily due to limited knowledge and delayed reporting of symptoms. According to the National Cancer Registry Programme (NCRP), over 60% of Indian women with breast cancer are diagnosed in late stages, which significantly reduces the chances of effective treatment and increases mortality.

Adolescence is a critical period for establishing lifelong health behaviors. Educating adolescent girls about breast health, risk factors, and early detection techniques can empower them to take proactive steps in safeguarding their health. This is particularly relevant in the Indian context, where breast health education is not commonly integrated into school or college curricula. As a result, many young women remain unaware of the importance of early detection until much later in life.

Structured teaching programs in schools and colleges offer a promising solution. These programs not only improve knowledge but also positively influence attitudes and practices. Nursing professionals and educators have a unique opportunity to bridge this gap by delivering culturally sensitive, age-appropriate, and practical education to adolescent girls. Their role is vital in demystifying breast cancer, promoting self-examination, and reducing the stigma associated with discussing breast health.

This study, therefore, aims to assess the existing knowledge of adolescent girls regarding the early detection of breast cancer and evaluate the effectiveness of a structured teaching program in improving their awareness and attitudes. The findings of this research may provide valuable insights into designing effective educational strategies and health policies targeted at adolescents, thereby contributing to early diagnosis and better outcomes in the fight against breast cancer.

II. NEED FOR THE STUDY

According to WHO (2023), breast cancer caused 685,000 deaths globally, with the majority in low-resource settings. The Survivorship rate in developed countries is over 80%, while in developing nations it remains less than 50%, primarily due to late-stage presentation.

In India, societal taboos, embarrassment, and lack of knowledge prevent women from seeking timely medical help. Many girls and young women remain unaware of:

- The warning signs and symptoms of breast cancer,
- The importance of monthly BSE,
- When to seek medical consultation.

The adolescent phase is the best time to introduce health-promoting behavior, and teaching about breast cancer aligns with health promotion under the National Health Mission and Ayushman Bharat Yojana goals. Conducting such structured teaching programmes in universities like Gopal Narayan Singh University (GNSU), Jamuhar, Bihar enables early preventive action.

By assessing the knowledge level of girls before and after a structured teaching intervention, this study will generate evidence about the effectiveness of such programmes in improving awareness and encouraging preventive practices.

III. STATEMENT OF THE PROBLEM

"A Study to Assess the effectiveness of Structured Teaching Programme Regarding Early Detection of Breast Cancer Among Girls Under GNSU at Jamuhar, Bihar."

OBJECTIVES OF THE STUDY

1.To assess the pre-test knowledge regarding early detection of breast cancer among girls under GNSU.

2.To evaluate the effectiveness of a structured teaching programme on knowledge regarding early detection of breast cancer.

3.To compare the pre-test and post-test knowledge scores.

4.To find an association between post-test knowledge scores and selected demographic variables (e.g., age, education level, source of information).

HYPOTHESES

H1: There will be a statistically significant improvement in post-test knowledge scores compared to pre-test scores after the structured teaching programme at $p < 0.05$.

H2: There will be a significant association between post-test knowledge scores and selected demographic variables at $p < 0.05$.

IV. MATERIALS & METHODS

Research approach: - The research approach was quantitative research approach.

Research design: - Research design was pre-experimental, one-group pre-test post-test design.

Research setting:- Gopal Narayan Singh University (GNSU), Jamuhar, Bihar

Target population:-Girls studying under GNSU, Jamuhar, Bihar.

Sample size: - Number of Sample size was 40 adolescent girls.

Sampling Technique: - Non-probability purposive sampling

-Independent Variable: Structured teaching programme regarding early detection of breast cancer.

-Dependent Variable: Knowledge level of adolescent girls regarding early detection of breast cancer.

-Extraneous Variables: Factors such as prior knowledge, health background, or influence from peers which may impact the outcome.

Inclusion Criteria

-Adolescent girls studying under GNSU, Jamuhar.

-Girls who were present during the data collection period.

-Girls who could understand Hindi or English.

-Those willing to participate and provide informed consent.

Exclusion Criteria

-Girls who had already undergone breast cancer awareness programmes.

-Those who were not willing to participate.

-Students who were medically unfit at the time of data collection.

Tools:

Section A – Demographic data

Section B – Structured questionnaire (25 MCQs, scored 0–25; classified as poor, average, good knowledge)

Intervention: Planned Teaching Program (25–30min) based on WHO/national guidelines using charts, posters, and pamphlets.
Validity & Reliability: Content validated by experts; reliability tested using split-half method.
DATA COLLECTION
Pre-test: Conducted on Day 1, before the structured teaching program.
Post-test: Conducted on Day 7, using the same tool.
Time allotted per student: 25–30 minutes. Confidentiality and voluntary participation were ensured.
DATA ANALYSIS
-Descriptive statistics: Frequency, percentage, mean, and standard deviation were used to describe the demographic variables and knowledge scores.
-Inferential statistics: Paired t-test was used to evaluate the significance of the difference between pre- and post-test scores. A p-value < 0.05 was considered statistically significant.

V. TABLES & FIGURES

Study findings were organize and presented in following section-
Section A: Description of Demographic Variables of Participants

S. no	Demographic variables	Categories	Frequency (f)	Percentage (%)
1	Age	17–18	20	40%
		19–20	25	50%
		21 and above	5	10%
2	Educational qualifications	Intermediate	28	56%
		Undergraduate	22	44%
3	Family History of breast cancer	Yes	8	16%
		NO	42	84%

Table 1: Description of sample characteristics in term of Frequency and Percentage.
Section B: Knowledge Score – Pre-Test and Post-Test Analysis

Knowledge Score Level	Pre-Test Frequency (%)	Post-Test Frequency (%)
Inadequate (0–8)	30 (60%)	2 (4%)
Moderate (9–16)	18 (36%)	10 (20%)
Adequate (17–25)	2 (4%)	38 (76%)

Table .2: Assessment of Pre-test & post-test Knowledge Level Regarding Warning Signs.

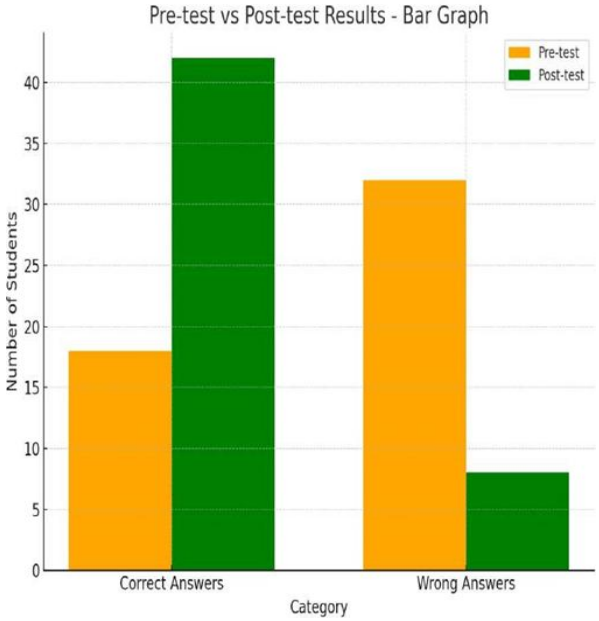


Fig.1: Assessment of Pre-test & post-test Knowledge Level Regarding Warning Signs of breast cancer among adolescent girls.

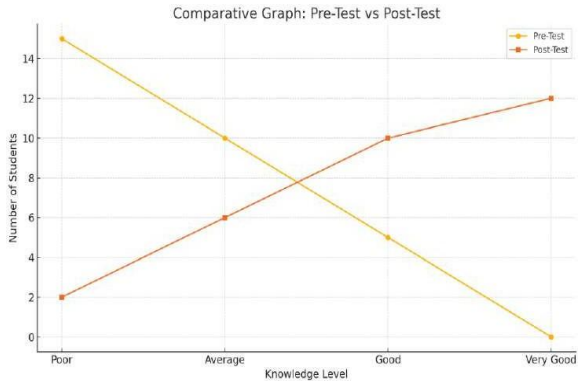
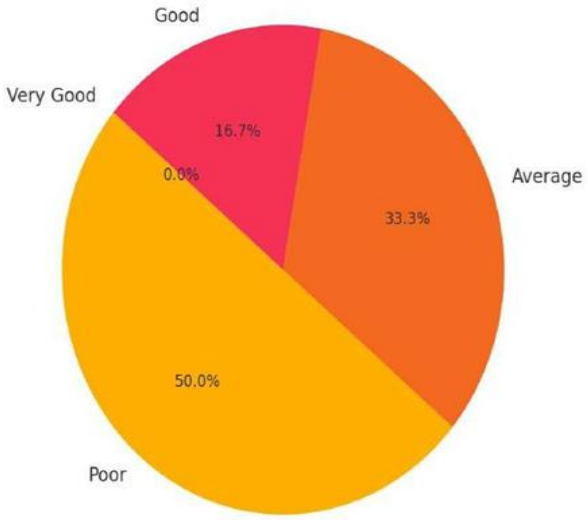


Fig.2: Assessment comparision of Pre-test & post-test Knowledge Level Regarding Warning Signs of breast cancer among adolescent girls.

Section c: Frequency & Percentage Distribution of Pre-Test Scores

Score Range	No. of Students	Percentage
0–8	30	60%
9–16	18	36%
17–25	2	4%

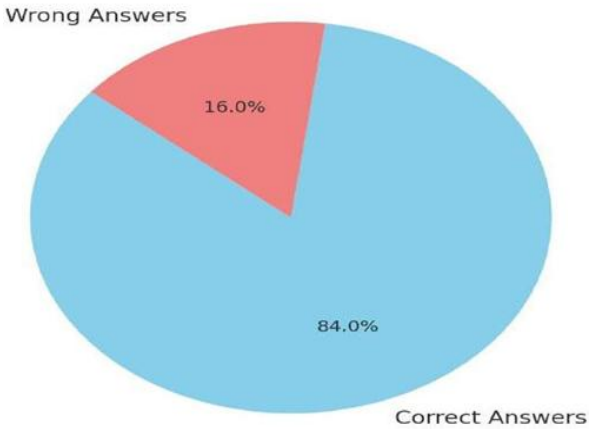
Pie Chart: Pre-Test Knowledge Distribution



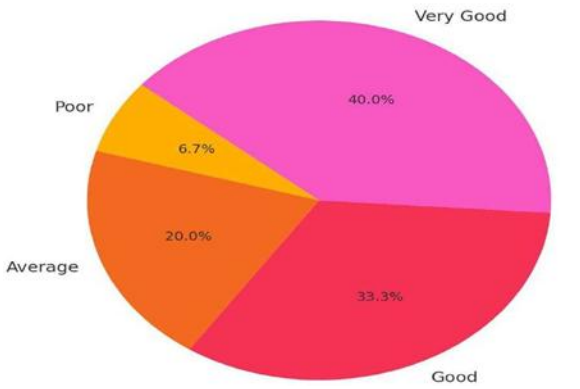
Section D: Frequency & Percentage Distribution of Post-Test Scores.

Score Range	No. of Students	Percentage
0–8	2	4%
9–16	10	20%
17–25	38	76%

Post-test Results - Pie Chart



Pie Chart: Post-Test Knowledge Distribution



Section E: Interpretation of Findings

•Before the structured teaching programme, 60% of students had inadequate knowledge.

•After the programme, 76% of students achieved adequate knowledge.

•The structured teaching programme was effective in enhancing knowledge.

•Significant association found between pre-test knowledge and educational level.

VI. RESULT

1.Pre-test mean score: 11.28 (SD 3.42)

2.Post-test mean score: 21.84 (SD 2.61)

3.Mean Difference: 10.56

4.t-value: 13.29 ($p < 0.001$), which indicates significant improvement after the structured teaching programme

5. Most students improved from inadequate to adequate knowledge levels.

6. Family history and source of information showed significant association with knowledge level.

The mean pre-test score was 11.28 with SD of 3.42, indicating low to moderate knowledge.

The post-test mean score was 21.84 with SD of 2.61, indicating significantly higher knowledge.

A mean difference of 10.56 and a t-value of 13.29 ($p < 0.001$) proved that the structured teaching programme was effective.

In the pre-test, 45% of students had inadequate knowledge, while in the post-test, 85% had adequate knowledge.

A significant association was found between knowledge level and family history of breast cancer and source of information.

Interpretation:

The Planned Teaching Program was highly effective in improving knowledge about Breast cancer. Prior exposure to education positively influenced baseline awareness, whereas formal education alone did not. This highlights the importance of focused health education as part of routine breast care services..

VII. DISCUSSION

The structured teaching programme was effective in increasing the awareness and knowledge level of students about early detection of breast cancer. The study also established that structured educational interventions can serve as powerful tools in community awareness programs.

This research highlights the importance of health education among young nursing students, who will eventually be the frontline educators in the community. By improving knowledge about early detection, the programme contributes to long-term cancer prevention strategies.

VIII. CONCLUSION

The study concludes that the structured teaching programme was highly effective in improving the knowledge of nursing students regarding early detection of breast cancer. There was a marked improvement in knowledge level from pre-test to post- test, confirming the effectiveness of the educational intervention.

REFERENCES

[1] American Cancer Society. (2022). Breast Cancer Early Detection and Diagnosis. Retrieved from https://www.cancer.org

[2] World Health Organization. (2021). Breast cancer: Prevention and control. Retrieved from https://www.who.int

[3] Sharma, R., & Singh, A. (2020). Awareness of Breast Cancer and Screening Methods among College Girls. International Journal of Nursing Research, 8(2), 45-50.

[4] Gupta, A., & Verma, R. (2019). Impact of Structured Teaching Programme on Knowledge Regarding Breast Cancer Among Adolescent Girls. Journal of Nursing and Health Science, 8(6), 34–39.

[5] Kumari, S., & Das, P. (2018). A Study to Assess the Knowledge and Practice Regarding Breast Self-Examination Among College Students. Indian Journal of Nursing Studies, 7(3), 15–22.

[6] National Cancer Institute. (2023). Breast Cancer Treatment (PDQ®)–Patient Version. Retrieved from https://www.cancer.gov

[7] Sreevani, R. (2020). A Guide to Mental Health and Psychiatric Nursing. Jaypee Brothers Medical Publishers.

[8] Dutta, D.C. (2018). Textbook of Obstetrics including Perinatology and Contraception (8th ed.). New Central Book Agency.

[9] Polit, D. F., & Beck, C. T. (2021). Nursing Research: Generating and Assessing Evidence for Nursing Practice (11th ed.). Wolters Kluwer.

[10] Kaur, H., & Singh, M. (2021). Effectiveness of Awareness Program on Knowledge Regarding Breast Cancer among Girls. Asian Journal of Nursing Education and Research, 11(1), 56–60.