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To evaluate the effectiveness of structured teaching programme on knowledge regarding cervical cancer among women in selected village, Odisha

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Abstract
Background: The study aimed to evaluate the effectiveness of a structured teaching programme (STP) on knowledge regarding cervical cancer among women in Mahanga, Cuttack.
Methods: A pre- experimental one- group pre- test design was adopted, and data were obtained from 80 women through a structured interview schedule.
Result: It showed a significant increase in knowledge after the STP mean pre test score 11.30 (SD 4.645) and post test mean 23.08 (SD 4.065). The difference was significant (t = 17.767, p<0.001).
Conclusion: The STP was effective in improving women's knowledge regarding cervical cancer.

Keywords: Structured teaching programme, knowledge, cervical cancer, and women

Introduction

Rniku *et al*. (2013) conducted a study on women regarding cervical screening facilities. Their study explained that a lack of screening facilities and awareness leads to diagnosis at advanced stages. Early screening for high-risk groups and education on preventive measures for cervical cancer can help reduce the incidence of the disease in the future [1].

Worldwide literature (2010) reports that more than 50% of patients with cancer of the cervix are diagnosed before the age of 50 years. Even though cancer screening has become prevalent with the aim of early diagnosis and treatment, about 60% of patients still present at an advanced stage [2].

Barry H. C., Smith M., Webmantel D., and French (2019) Conducted a study is Lansing Michigan, to assess the feasibility of risk- based cervical cancer screening in primary care. Using questionnaires, they found that 83% of women had at least one risk factor, such as a history of sexually transmitted disease or smoking. Despite this, only 54% had proper history documentation and 4% underwent STI testing, showing gaps in early detection and screening practice [3].

Chhabra S., Sonak M., Prem V., and Sharma A. (2012) studied the patteren of gynaecological malignancies concerning socioeconomic status, age, parity, and contraceptive use. They found that 44.6% of cervical cancer cases occurred among women aged 39-49 years, highlighting the higher prevalence in this age group. The study revealed that, irrespective of social class or cancer site, the number of gynecological cancers has been increasing over the years, with most cases occurring at a younger age [4].

Bishas L. N., Manna B., Maiti P., and Sen Gupta K. (2017) conducted a hospital-based case-control study to investigate the role of sexual risk factors in cervical cancer among rural Indian women. The study included 268 women 134 with invasive cervical and 134 controls and found a significant link between early sexual activity and cervical cancer, emphasizing these factors role in the disease's developing among rural Indian women [5].

Rajkumar T. *et al*. (2011) conducted a study in Chennai, India, on the role of paan chewing and dietary habits in cervical carcinoma. The study found that non-viral factors such as low education level, low body weight, paan chewing, and low intake of fruits and vegetables increase the risk of invasive cervical cancer. Among HPV-positive women, paan chewing was linked to a higher prevalence of HPV infection, while higher fruit and vegetable intake showed a protective effect [6].

Dhamija S., Sehgal *et al*. (2013) conducted a community-based study to assess women's knowledge of cervical cancer. A total of 1,411 women were selected through two-stage stratified random sampling. The study found that younger women had better awareness about cervical cancer, but 50% had never undergone screening, and 77.8% presented with gynecological complaints [7].

Swaddiwadti pong, Chaovakirati pong, Nguntra, and Mahasakpasu (2011) conducted a study in a district of northern Bangkok an interview- based survey was conducted in seven village in January 1991 among women aged 18- 65 years (excluding those with hysterectomy) to assess their knowledge and prevalence of pap smear screening. Only 333 of 1,603 women (20.8%) knew about the Pap test, and 319 had ever been screened [8].

Sunitha Saxena and Kishore Chaudhuri (2004) studied health workers in Mudzi, Zimbabwe, and found low knowledge of cervical cancer risk factors and screening. While 50% knew about Pap smears, most were unaware of HPV testing, visual inspection, or LEEP. Most believed they were not at risk, and 81.7% had never been screened. The study recommended cervical cancer training for health workers [9].

Gajakslakshmi, C.K., Krishnamurthy, Anahd, and R. Shanta V. (2013) conducted a study in Tamil Nadu, India, to assess the feasibility of training village health nurses for cervical cancer screening. A total of 101 nurses were trained, achieving 95% accuracy in identifying cervical abnormalities, and 90% of Pap smears collected met WHO adequacy criteria [10].

Sathya Narayana G. (2013) reported on a cancer detection camp in rural Andhra Pradesh, organized with Reliance Club and medical college staff. An interview- based survey was conducted in seven village in January 1991 among women aged 18- 65 years (excluding those with hysterectomy) to assess their knowledge and prevalence of pap smear screening.

The study highlighted that cancer prevention, education, and early detection can be effectively implemented through such rural camps [11].

Basu M. (2004) the study evaluated how a single round of visual inspection with acetic acid (VIA) affected cervical cancer incidence and mortality among women in South India. In a cluster randomized trial in Dindigul District, 118 clusters of women aged 30-59 were randomized, with 57 clusters (48,225 women) receiving VIA screening [12].

Methodology

Study Design

This study adopted a quantitative Pre-experimental, one-group pretest-posttest design.

(O_1 - X - O_2)

O_1 = Pretest

X = Structured Teaching Programme

O_2 = Posttest

Study Setting

Conducted among women residing in Mahanga, Cuttack District, Odisha.

Population

All women aged 18-45 years residing in Mahanga, Cuttack District in the selected setting.

Sampling Method

In this study convenient sampling technique is used.

Study duration

Six weeks, including pre-test, intervention, and post-test.

Sample size

A total of 80 womens were included in this study. The sample size was determined using Yamane's formula.

According to Yamene's formula

$n = N/ (1+ N e^2)$

Here n= Sample size, N = Population size, e = Percentage of error i.e. 0.05

Inclusion and exclusion criteria

Inclusion criteria included women aged 18-45 years, Willing to participate, Residing in Mahanga, Cuttack, able to communicate in Odia, Hindi, or English and available during data collection.

Women diagnosed with or having a history of carcinoma cervix, those who have undergone hysterectomy, unwilling participants, unable to communicate in Odia, Hindi, or English were excluded.

Description of the tools

Structured Interview Schedule consisting of two parts:

Part I: Demographic data (age, marital status, education, occupation, religion, income, health information source, etc.)

Part II: Knowledge questionnaire on cervical cancer — 32 multiple-choice questions on definition, risk factors, signs and symptoms, investigation, management, and prevention.

Scoring:

Adequate knowledge: 75-100%

Moderately adequate: 50-74%

Inadequate: <49%

Tool validation

Content validity: Reviewed by 5 experts (1 medical professionalism, 4 nursing professionalism).

Reliability tested using test-retest method; correlation coefficient (r = 0.9), indicating high reliability. Pre-testing (tryout) done in hospital for clarity, ambiguity, and timing.

Study variables

Demographic variables: Age, marital status, education, occupation, religion, income, health information source.

Independent variables: Structured Teaching Programme on cervical cancer.

Dependent variables: Knowledge level of women regarding cervical cancer.

Data collection procedure

Permission obtained from authorities. Investigator personally visited homes of participants and administered pre test using structured questionnaire.

Structured Teaching Programme (lecture cum discussion method using charts and flashcards) was administered.

Post test was conducted after 7 days using the same tool to evaluate effectiveness.

Ethical considerations

Approval obtained from Dissertation Committee of the College of Nursing, Cuttack. Permission obtained from local

village president. Informed written consent taken from each participant. Confidentiality of data maintained.

Statistical Analysis

SPSS version 21 was used for data analysis. Demographic information and baseline characteristics were summarized using descriptive statistics, including mean values, standard deviations, and frequency counts. The data will be collected and analyzed with descriptive and inferential statistical techniques. The demographic variables will be analyzed by using frequency and percentage. The frequency tables will be formulated for all significant information. Descriptive statistics (frequency, percentage, mean, SD) for demographic data and knowledge scores. Inferential statistics: paired 't' test to compare pre-test and post-test scores, Chi-square to test association with demographic variables.

Theoretical framework

It identifies four major components:

1. Self-care: Refers to women taking responsibility for their cervical health by undergoing regular Pap smear screening, adopting healthy lifestyle practices, and maintaining consistent follow-ups.
2. Self-care capabilities: Denotes women's understanding of the importance, purpose, and recommended frequency of cervical cancer screening.
3. Therapeutic self-care demand: Indicates the necessity for women to gain adequate knowledge about cervical cancer prevention and Pap smear testing.
4. Nursing capabilities (Nursing Agency): Refers to nurses' roles in assessing women's awareness, implementing structured educational programmes, and evaluating their outcomes.

Theory and Model Used:

1. Wholly Compensatory System
2. Partly Compensatory System
3. Supportive-Educative System

Conceptual Model

The model visually and conceptually connects Orem's theoretical elements:

Nursing Actions

Assess knowledge on cervical cancer
Conduct structured teaching program
Evaluate post-test knowledge

Women's Actions

Acquire knowledge about cervical cancer
Engage in regular Pap smear screening
Modify lifestyle and follow preventive measures

The framework demonstrates that when nurses provide supportive education, women enhance their self-care knowledge and practices regarding cervical cancer prevention.

Results

Table 1: Frequency and percentage distribution of demographic variables. (N= 80)

Sl. No	Demographic Variables		Frequency (f)	Percentage (%)
1.	Age in years	18- 27 years	22	27.5
		28- 37 years	26	32.5
		38- 45 years	32	40
2.	Religion	Hindu	51	63.8
		Christian	15	18.8
		Muslim	14	17.5
3	Marital Status	Married	43	53.8
		Unmarried	37	46.3
4.	Educational Qualification	Illiterate	12	15
		Primary	33	41.3
		High school	18	22.5
		Higher Secondary & above	17	21.1
5.	Occupation	House wife	25	31.3
		Coolie	36	45
		Others	19	23.8
6.	Income	Less than 1000	21	26.3
		1001- 4000	33	41.3
		More then 4001	26	32.5
7.	Health Information	Mass media	28	35
		Friends	27	33.8
		Health Personnel	25	31.3

The above table-1 revealed that age in years, religion, marital status, educational qualification, occupation, income, health information.

Table 2: Levels of knowledge of the women's in pre and post test. (*n* =80)

Sl. No	Level of Knowledge	Pretest		Posttest	
		Frequency	Percentage%	Frequency	Percentage%
1.	Inadequate (0-49%)	61	76.3%	-	-
2.	Moderate (50%-74%)	18	22.5%	43	53.8%
3.	Adequate (75%-100%)	01	1.2%	37	46.2%

The data presented in table-2 revealed that the pre-test assessment of cervical cancer knowledge among 80 women, 61 (77%) exhibited inadequate knowledge, 18 (23%) showed moderately adequate knowledge, and only 1 (1%) demonstrated adequate knowledge. Following the structured teaching program, post-test results revealed that 37 (46%) of the women achieved adequate knowledge, while 43 (54%) attained moderately adequate knowledge. These findings suggest that the structured teaching program was highly effective in enhancing women's knowledge regarding cervical cancer.

Table 3: Comparison of pre and post test of women's knowledge. (n =80)

Group	N	Mean	SD	Mean Changes	Paired 't' test	P-Value
Pretest	80	11.30	4.645	11.78	17.767	<0.001 Significant
Posttest	80	23.08	4.065			

Table- 3 shows that significant improvement in knowledge about cervical cancer was observed after the structured teaching program compared to the pre-test. The mean post-test knowledge score (23.8) was higher than the mean pre-test score (11.3). The paired 't' test value of 17.767, which was significant at $p<0.001$, confirmed a substantial enhancement in participants' knowledge levels. This indicates that the structured teaching program was highly effective.

Table 4: Association between women's post- test knowledge scores and their selected demographic characteristics. (n= 80)

Sl. No.	Group	No. of Subject	Mean	SD	Chi- square
1.	**Age in Years**				0.803NS
	18-27Years	22	11.55	5.680	
	28-37Years	26	11.62	4.167	
	38-45Years	32	10.88	4.338	
2.	**Religion**				0.442NS
	Hindu	51	11.80	5.000	
	Christian	15	10.40	3.996	
	Muslim	14	10.43	3.877	
3.	**Educational Qualifications**				0.069NS
	Illiterate	12	8.33	2.674	
	Primary	33	11.18	4.391	
	Highschool	18	12.44	5.032	
	HigherSecondary Andabove	17	12.41	5.173	
4.	**Occupation**				0.288NS
	Housewives	25	10.08	3.936	
	Coolie	36	11.89	4.874	
	Others	19	11.79	4.984	
5.	**Income**				0.344NS
	1000	21	12.05	5.143	
	1001-4000	33	10.39	4.301	
	4001-above	26	11.85	4.636	

*significant at p≤0.05 level

It shows that women aged 18-27, 28-37, and 38-45 years had mean knowledge scores of 11.55, 11.62, and 10.88, respectively, with no statistically significant difference ($p<0.001$). Similarly, knowledge scores did not significantly differ by religion—Hindu (11.80), Christian (10.40), or Muslim (10.43). Education level also showed no significant association, with mean scores of 8.33 (illiterate), 11.18 (primary), 12.44 (high school), and 12.41 (higher secondary and above). Occupation (housewives 10.08, coolie workers 11.89, others 11.79), income level, and source of information (mass media 10.71, friends/relatives 11.56, health personnel 11.68) likewise showed no significant difference in knowledge scores on cervical cancer.

Discussion

Ruder K. *et al*. (2007) emphasized that evaluating patients after therapy is essential. Recurrent cervical cancer, when detected at an early stage, can often be effectively managed through surgery, radiation, chemotherapy, or a combination of these treatments. Approximately 35% of patients with invasive cervical cancer experience persistent or recurrent disease following treatment. [13]

Nicholas G. (2009) reported that the prognosis of cervical cancer largely depends on its stage at the time of treatment. The five-year relative survival rate for early-stage invasive cervical cancer is about 92%, while the overall survival rate across all stages is approximately 72%. These figures may improve for women newly diagnosed, considering that outcomes are influenced by advances in treatment methods. [14]

Elizabeth C. (2006) conducted a study on perceptions and practices regarding cervical cancer. The findings revealed that the main barriers among women who did not undergo regular Pap screening were lack of health insurance (33%), forgetting to schedule a Pap test (32%), and dislike of the procedure. However, most participants expressed an intention to continue regular screening in the future. The study concluded that there is significant scope for improving women's knowledge, perceptions, and practices related to cervical cancer screening [15].

Delimitation of the study

1. Women who were willing to participate in the study.
2. Women residing in Mahanga, Cuttack District.
3. A sample size limited to 100 women.
4. The study period was limited to six weeks.

Limitation

Study limited to women willing to participate. Sample size: 80 women. Study period: 6 weeks. Conducted only in one village (Mahanga, Cuttack), hence generalizability limited.

Conclusion

The pre-test revealed inadequate knowledge among women about cervical cancer, while the post-test showed a marked improvement following the Structured Teaching Programme (STP). This training proved effective in enhancing knowledge, with no significant association found between pre-test scores and demographic variables such as age, education, or income. Thus, the hypothesis was accepted, confirming the STP's effectiveness in improving women's knowledge of cervical cancer.

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Conflicts of interest

There are no conflicts of interest for the writers.

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Ethics Approval

Approval obtained from Dissertation Committee of the College of Nursing, Cuttack. Permission obtained from local village president. Informed written consent taken from each participant. Confidentiality of data maintained.

Data Availibility

The data is available and can be accessed with a reasonable request.

Abbreviations

STP: Structured Teaching Programme, HPV: Human Papilloma Virus, O_1: Pretest, O_2: Posttest, X: Intervention (Teaching Programme)

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