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# Effectiveness of a Planned Teaching Program on Knowledge of Early Detection and Prevention of Cervical Cancer among Mahila Samaja Members in Bagalkot, Karnataka

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## ABSTRACT

**Background:** Cervical cancer remains a major public health issue worldwide, especially in developing countries where it is the leading cause of cancer-related morbidity and mortality among women. This study aimed to assess the effectiveness of a planned teaching programme (PTP) on knowledge regarding early detection and prevention of cervical cancer among Mahila Samaja members of B.V.V. Sangha's Akkanabalaga, Bagalkot, Karnataka.

**Methods**: The study employed a pre-experimental design with a single group, using a pre-test and post-test format, comprising 40 participants selected by simple random sampling. Data were collected using a structured, self-administered questionnaire with 30 items across three sections, and reliability was established using the Spearman-Brown prophecy formula (r=0.85).

**Results**: Before the intervention, 45% of participants demonstrated poor knowledge; post-intervention assessments showed notable improvement, with 50% classified as having good knowledge and 40% as having excellent knowledge. The paired t-test ($t=21.12$, $p<0.05$) confirmed a significant difference between pre- and post-test knowledge scores, validating the effectiveness of the teaching programme. The Chi-square test results indicated that, although no significant relationships were observed between post-test knowledge and most socio-demographic variables, family type emerged as a significant factor.

**Conclusion**: The study concludes that structured educational interventions effectively enhance awareness and knowledge regarding cervical cancer prevention and early detection among women's community groups.

**Key-words:** Cervical cancer, Effectiveness, Knowledge, Mahila Samaj members, Socio-demographic variables

## INTRODUCTION

Cervical cancer is one of the most common and preventable cancers among women, yet it remains a major public health concern, particularly in developing countries.[1]

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It accounts for a large proportion of cancer-related deaths due to limited awareness, inadequate screening, and delayed diagnosis. Each year, nearly half a million new cases are reported globally, with around 80% occurring in developing nations.[2] Human papillomavirus (HPV) infection is the leading cause of cervical cancer. Other risk factors include early onset of sexual activity, multiple sexual partners, smoking, weakened immunity, and low socioeconomic conditions. Common warning signs are irregular vaginal bleeding, pelvic pain, and abnormal discharge—symptoms often ignored until the disease progresses to advanced stages.[3]

However, cervical cancer is largely preventable through regular Pap smear screening, HPV vaccination, and

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health education on safe sexual practices. Studies show that early detection can improve survival rates dramatically, with over 90% of women surviving when diagnosed at an early stage.[4]

Awareness and preventive education remain the most powerful tools in combating cervical cancer.[5] Community-based health programs and teaching initiatives can significantly increase women's knowledge about prevention, early detection, and the importance of timely medical intervention.[6]

Cancer is a complex disease involving the uncontrolled proliferation of abnormal cells, which, if untreated, can lead to significant morbidity and mortality. Among various malignancies, cervical cancer remains one of the most prevalent yet preventable cancers affecting women worldwide. Despite advances in diagnostic and preventive measures, it continues to contribute substantially to the global cancer burden due to inadequate awareness, limited access to screening, and late diagnosis.[7]

In India, cervical cancer constitutes a major public health issue, accounting for nearly one-sixth to one-half of all female cancers. According to the National Cancer Registry Programme (NCRP) of the Indian Council of Medical Research (ICMR), the age-adjusted incidence rate ranges from 19.4 to 43.5 per 100,000 women. Each year, approximately 100,000 new cases are diagnosed, with about 70% detected at Stage III or later, when curative treatment becomes less effective.[8] Studies indicate that five-year survival rates decline sharply with disease progression—from over 60% in Stage I to below 10% in Stage IV.[9]

Globally, about 520,000 new cases and 274,000 deaths occur annually due to cervical cancer, with approximately 86% of these cases reported in developing countries. The disparities in morbidity and mortality between developed and developing regions are mainly attributed to differences in screening coverage, health education, and timely access to medical services. Regular Pap smear testing and HPV vaccination have been proven effective in early detection and prevention, significantly reducing incidence in countries with well-implemented programs.[10]

Given the high disease burden, particularly among women of low socioeconomic status and those in rural communities, it is imperative to enhance knowledge and awareness about cervical cancer.[11] Educational interventions can play a crucial role in empowering women with the information necessary for prevention, timely screening, and early treatment. Therefore, this study seeks to evaluate the effectiveness of a planned teaching programme in improving knowledge regarding the early detection and prevention of cervical cancer among women's community groups.[12]

## MATERIALS AND METHODS

**Study Duration-** The study was conducted over a period of one month, from 20 November 2015 to 20 December 2015, at Akkana Balaga Mahila Samaja, an institution under B.V.V. Sangha's, located in Bagalkot, Karnataka, India.

**Inclusion Criteria-** Mahila Samaja members who attended Akkana Balaga, B.V.V. Sangha's, Bagalkot, were literate in Kannada or English, were available for both pre-test and post-test data collection, and were willing to participate in the study were included.

**Exclusion Criteria-** Mahila Samaja members who were uncooperative during the study period or unwilling to participate were excluded.

**Research Design-** A pre-experimental one-group pre-test post-test design was adopted to assess the effectiveness of a planned teaching programme on knowledge regarding cervical cancer. Baseline knowledge was assessed using a structured self-administered questionnaire, followed by the implementation of the teaching programme. The same questionnaire was administered post-intervention to evaluate changes in knowledge.

**Population and Sample-** The target population comprised all Mahila Samaja members residing in Bagalkot, Karnataka. The accessible population included members of B.V.V. Sangha's Akkana Balaga in Bagalkot. A total of 40 Mahila Samaja members were selected using a simple random sampling technique to ensure representativeness and minimize selection bias.

**Sample Size-** The final sample consisted of 40 participants. This sample size was considered adequate to achieve the study's objectives and assess the effectiveness of the planned teaching programme.

 

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**Data Collection Tool-** Data were collected using a structured self-administered questionnaire designed to assess knowledge regarding cervical cancer.

**Statistical Analysis-** Data were analyzed using descriptive and inferential statistics. Frequencies and percentages were used for demographic variables, while mean and standard deviation were used for knowledge scores. The paired t-test was applied to compare pre-test and post-test knowledge levels, and the chi-square test was used to assess associations between knowledge and selected demographic variables.

**Ethical Considerations-** Ethical approval and necessary permissions were obtained from the Principal of Shri B.V.V. Sangha's Sajjalashree Institute of Nursing Sciences and the Chairman of Akkana Balaga, B.V.V. Sangha's, Bagalkot. Written informed consent was obtained from all participants before data collection.

## RESULTS

Data from 40 Mahila Samaja members were analyzed using descriptive and inferential statistics to evaluate baseline knowledge, intervention effectiveness, and associations with socio-demographic variables.

Most participants (70%) were aged 33+ years, all were Hindu (100%), and 57.5% belonged to nuclear families. Education levels showed 35% with postgraduate or higher education, while 82.5% were housewives and 35% had monthly family incomes of ₹20,000+. Other profiles included 37.5% with 3 pregnancies, 100% without HPV vaccination, 95% with no family history of cervical cancer, and 72.5% receiving information via mass media. Table 1 reveals Pre-test results indicated poor knowledge: 45% poor, 30% very poor, 25% average (mean score: 9.34±4.24; 29.81%). Post-test showed marked improvement: 50% good, 40% excellent, 10% average (mean score: 23.02; mean difference: 13.65).

**Table 1:** Percentage-wise distribution of study subjects according to levels of knowledge in pre test

| Knowledge Level | Pre-Test (%) | Post-Test (%) |
|---|---|---|
| Excellent | 0 | 40 |
| Good | 0 | 50 |
| Average | 25 | 10 |
| Poor | 45 | 0 |
| Very Poor | 30 | 0 |

Table 2 presents the area-wise means, standard deviations, and mean percentages of pre-test and post-test knowledge scores among Mahila Samaja members. In the pre-test, mean percentage scores were 22.85% for general aspects, 30.25% for risk factors, signs, and symptoms, and 36.34% for prevention. Following the Planned Teaching Programme, post-test mean percentages increased to 53.57%, 77.74% and 88.65%, respectively, with the highest gain observed in preventive measures.

**Table 2:** Area-wise mean, S.D and mean percentage of the knowledge scores in pretest and post-test

| Knowledge Area | Pre-Test Mean±SD (% Mean) | Post-Test Mean±SD (% Mean) | Gain (% Mean) |
|---|---|---|---|
| General Aspects | 1.6±0.87 (22.85) | 3.7±1.37 (53.57) | 30.72 |
| Risk Factors/Signs | 3.02±1.18 (30.25) | 7.77±1.22 (77.74) | 47.49 |
| Prevention | 4.72±2.19 (36.34) | 16.25±31.48 (88.65) | 52.31 |
| Total | 9.34±4.24 (29.81) | 27.72±34.07 (73.32) | 43.51 |

Table 3 shows the comparison between pre-test and post-test knowledge scores of Mahila Samaja members. The mean knowledge score increased from 9.34±4.24 in the pre-test to 23.02±3.75 in the post-test. The paired t-test value of 21.12 exceeded the table value of 1.96 at the 5% level of significance, indicating a statistically significant improvement in knowledge following the Planned Teaching Programme.

 

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**Table 3:** Significant difference between the pretest knowledge and post-test knowledge scores of Mahila Samaja members

| Test | Mean | Mean Diff. | SD Diff. | t-value | Table Value |
|---|---|---|---|---|---|
| Pre-Test | 9.37 | 13.65 | 4.01 | 21.12 | 1.96 |
| Post-Test | 23.02 | | | | |

Table 4 reveals that the chi-square test showed a significant association only with the type of family ($\chi^2$=5.95>3.84, p<0.05), accepting $H_2$ for this variable; others (age, education, income, etc.) were non-significant. The planned teaching programme significantly enhanced knowledge on cervical cancer prevention and early detection.

**Table 4:** Association between post-test knowledge scores and selected socio-demographic variables

| Variable | $\chi^2$ Value | df | Table Value | Significant |
|---|---|---|---|---|
| Type of Family | 5.95 | 1 | 3.84 | Yes |
| Age | 1.21 | 1 | 3.84 | No |
| Education | 0.41 | 1 | 3.84 | No |
| Others | < 1.5 | 1 | 3.84 | No |

**DISCUSSION**

The present study assessed the effectiveness of a PTP on knowledge regarding early detection and prevention of cervical cancer among Mahila Samaja members in Bagalkot, Karnataka. The findings revealed that participants' baseline knowledge was predominantly poor to very poor, which improved substantially following the educational intervention. This marked improvement in post-test scores supports the study hypothesis and confirms the effectiveness of structured teaching programmes in enhancing women's knowledge on cervical cancer prevention [11,12].

Before the intervention, 45% of participants had poor knowledge and 30% had very poor knowledge, with none attaining good or excellent knowledge levels. This is noteworthy, as a considerable proportion of participants were relatively well educated, with 35% having postgraduate or higher education. These findings indicate that formal education alone does not ensure adequate awareness regarding cervical cancer and its prevention. Similar observations have been reported in previous studies, which showed low baseline awareness even among educated women, highlighting the need for targeted health education [12-14].

Following the PTP, a significant shift in knowledge distribution was observed. Post-test results showed that 50% of participants attained good knowledge and 40% achieved excellent knowledge, while none remained in the poor or very poor categories.

The mean knowledge score increased from 9.34±4.24 (29.81%) in the pre-test to 27.72±34.07 (73.32%) in the post-test. Comparable improvements have been reported in studies by Jajmohan Raj et al. and Isaac S. and Patro BK, in which structured teaching programmes led to a transition from inadequate to adequate or good knowledge levels among women [15,16]. These similarities suggest that planned educational interventions are effective across different community and institutional settings.

The statistically significant difference between pre-test and post-test knowledge scores (t=21.12, p<0.05) further establishes the effectiveness of the PTP. This finding is consistent with earlier pre-test–post-test and quasi-experimental studies that documented significant knowledge gains following structured teaching programmes on cervical cancer prevention [11,15]. The consistency of these findings strengthens the evidence supporting the use of planned teaching programmes as an effective educational strategy.

An important observation in the present study was that none of the participants had received HPV vaccination, despite being multiparous adult women. This highlights a major gap in preventive practices and reflects the poor uptake of HPV vaccination reported in many Indian studies. Similar lack of awareness and acceptance of HPV vaccination has been documented across different age groups, including adolescents and adult women, indicating that preventive strategies remain

 

underutilized [8,13]. The absence of HPV vaccination among all participants underscores the need for educational programmes that emphasize vaccination as a key preventive measure.

In the present study, 95% of participants reported no family history of cervical cancer, yet baseline knowledge remained poor. This finding suggests that the absence of familial risk does not motivate women to seek information or engage in preventive practices. Similar findings have been reported in other studies, where participants without a family history of cervical cancer also demonstrated inadequate knowledge and low screening awareness [12,14]. These observations highlight the importance of population-based education rather than reliance on perceived personal risk.

Area-wise analysis showed improvement across all knowledge domains following the PTP, with the greatest gains observed in preventive measures, followed by risk factors and signs and symptoms. Improvement in preventive knowledge is particularly significant, as it directly influences early detection and adoption of protective behaviors. Comparable domain-wise improvements have been reported in earlier studies evaluating structured teaching programmes among women and students, where post-test scores consistently exceeded pre-test scores across all content areas [11,16].

The present study also examined the association between post-test knowledge scores and selected socio-demographic variables. No significant association was found with age, religion, education, income, occupation, number of pregnancies, family history of cervical cancer, or source of information. Only the family type showed a significant association with post-test knowledge. These findings suggest that the PTP was effective across diverse demographic groups, supporting earlier studies that reported similar non-significant associations with most socio-demographic variables [14]. This indicates that structured educational interventions can reduce baseline inequalities in awareness.

Although attitude and practice were not assessed in the present study, the significant improvement in knowledge is an important outcome, as knowledge forms the foundation for the development of a positive attitude and behaviour change. Previous studies have demonstrated that structured teaching programmes not only improve knowledge but also foster favourable attitudes towards cervical cancer prevention [16]. The findings of the present study are therefore encouraging and suggest potential benefits beyond knowledge gain.

## CONCLUSIONS

The planned teaching programme significantly enhanced knowledge regarding early detection and prevention of cervical cancer among Mahila Samaja members, demonstrating its effectiveness as a scalable community-based intervention. With substantial pre-post gains ($t=21.121$, $p<0.05$) and applicability across most socio-demographic profiles, such structured educational initiatives should be integrated into women's health programs in high-burden regions like Karnataka to reduce cervical cancer incidence and mortality.

Future research should explore longitudinal effects of PTP on actual screening behaviours and HPV vaccination uptake, while expanding to larger, multi-center trials across diverse rural-urban populations. These findings have practical implications for public health policy, advocating routine incorporation of similar programmes into Mahila Samaja networks and national cervical cancer elimination strategies under India's HPV vaccination drive.

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## CONTRIBUTION OF AUTHORS

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