Research Article

Effectiveness Of Structured Teaching Program on Knowledge Regarding Cervical Cancer and Its Prevention Among Adolescent Girls in Ramaiah Composite Pre-University College, Bengaluru

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Abstract

Background: Globally cervical cancer is the one of the most leading causes of cancer related morbidity and mortality among women all over the world. Although it is largely preventable through HPV vaccination, regular screening, and early detection, lack of awareness remains a major challenge particularly among adolescent girls. School based health education is one of the effective ways to improve knowledge and promote preventive measures.

Objective: To assess the effectiveness of a structured teaching program on knowledge regarding cervical cancer and its prevention among adolescent girls and to determine association between pretest knowledge and selected sociodemographic variables.

Method: A quantitative pre-experimental one group pretest-posttest design conducted among 100 adolescent girls in Ramaiah composite pre-university college in Bengaluru. Participants were selected using non probability convenience sampling. Knowledge regarding cervical cancer and its prevention was assessed using structured 30 items knowledge questionnaire. Following the pretest, a structured teaching program lasting approximately 20-25mins was administered. The posttest was conducted 10 days after the intervention using the same questionnaire. Descriptive and inferential statistics, including paired t-test and chi-square/Fisher's exact test, were used to analyse the data.

Result: Study result show's that mean pretest knowledge score was 14.54 + 2.90, which increased to 22.67+ 3.32 after the structured teaching program. The improvement was significant ($t = -24.646$, $p < 0.001$). Before the intervention, 90% of the participants have moderate knowledge and only 2 % had adequate knowledge. After the intervention, 70% shows adequate knowledge. Know significant association was observed between pretest knowledge score and selected socio-demographic variables.

Conclusion: The structured teaching program was effective in significantly improving knowledge regarding cervical caner and its prevention among adolescent girls. Nurse led educational interventions implemented in educational institutions can improve awareness regarding HPV vaccination, cervical caner screening, and preventive health practices, thereby contributing to long term cervical cancer and its prevention.

Keywords: Cervical cancer, prevention, adolescent girls, HPV vaccination, knowledge, structured teaching programme.

Introduction

Cervical cancer is one of the leading causes of cancer-related morbidity and mortality among women worldwide despite being largely preventable. According to the World Health Organization (WHO), it is the fourth most common cancer among women globally, with approximately 604,000 new cases and 342,000 deaths reported annually.(Sung et al., 2021) The burden is highest in low- and middle-income countries because of inadequate screening, delayed diagnosis, and limited access to human papillomavirus (HPV) vaccination(Jouya et al., 2026). Persistent infection with high-risk HPV types, particularly HPV-16 and HPV-18, is the primary cause of cervical cancer, while factors such as early sexual activity, multiple sexual partners, smoking, immunosuppression, and lack of regular screening further increase the risk.(Sung et al., 2021)

To eliminate cervical cancer as a public health problem, the WHO launched the Global Strategy for Cervical Cancer Elimination, targeting 90% HPV vaccination, 70% screening coverage, and 90% access to treatment by 2030. In India, cervical cancer remains the second most common cancer among women, with approximately 123,907 new cases and 77,348 deaths each year. Despite national screening and vaccination initiatives, awareness and utilization of preventive services remain low.(world health organization, 2020)

Adolescence provides an important opportunity to promote awareness of cervical cancer and its prevention.

Educating adolescent girls about HPV infection, vaccination, and screening can improve knowledge and encourage healthy preventive behaviours(. et al., 2022). However, previous studies have reported inadequate knowledge regarding cervical cancer and HPV vaccination among adolescent girls, highlighting the need for effective educational interventions.(International agency for research on cancer, 2020; Nganga et al., 2022; world health organization, 2024)

Structured teaching programmes are effective nurse-led educational interventions that improve health knowledge and promote preventive practices. However, evidence regarding their effectiveness among adolescent girls in Bengaluru is limited. (Archana, 2019)Therefore, the present study was undertaken to evaluate the effectiveness of a structured teaching programme on knowledge regarding cervical cancer and its prevention among adolescent girls in a selected pre-university college in Bengaluru.(Archana, 2019)

Method and Materials

A quantitative research approach with a pre-experimental one-group pretest–posttest design was adopted to assess the effectiveness of a structured teaching programme on knowledge regarding cervical cancer and its prevention among adolescent girls. The study was conducted at Ramaiah Composite Pre-University College, Bengaluru, Karnataka. The study population comprised adolescent girls studying in first and second pre-university courses. A total of 100 participants who fulfilled the inclusion criteria were selected using a non-probability convenience sampling technique. Adolescent girls aged 16–19 years who were willing to participate and available during the period of data collection were included in the study, whereas those who had previously received formal education regarding cervical cancer and its prevention were excluded.

Administrative permission was obtained from the Principal of Ramaiah Composite Pre-University College before commencing the study. Written informed consent was obtained from all participants, and confidentiality and anonymity were maintained throughout the study.

The data collection instruments included: (1) a socio-demographic questionnaire to collect baseline characteristics of the participants, and (2) a structured knowledge questionnaire consisting of 30 multiple-choice items developed to assess knowledge regarding cervical cancer and its prevention. The questionnaire covered causes, risk factors, signs and symptoms, screening methods, HPV vaccination, and preventive measures. The content validity of the instrument was established by a panel of eight experts in nursing and medical education. The reliability of the questionnaire was determined using Cronbach's alpha coefficient, which was 0.741, indicating good internal consistency.

Data collection was carried out from 9 February 2026 to 28 February 2026. A pretest was conducted using the structured knowledge questionnaire to assess the participants' baseline knowledge. Immediately after the pretest, a structured teaching programme on cervical cancer and its prevention was delivered through a PowerPoint presentation for approximately 20 minutes. The educational programme included information on cervical cancer, risk factors, warning signs, HPV infection, screening methods, HPV vaccination, and preventive measures. A posttest was conducted 10 days after the intervention using the same structured questionnaire to evaluate the effectiveness of the teaching programme.

The collected data were entered into Microsoft Excel and analysed using SPSS version 20. Descriptive statistics, including frequency, percentage, mean, and standard deviation, were used to summarize the data. Inferential statistics, including the paired t-test and Chi-square/Fisher's exact test, were used to evaluate the effectiveness of the intervention and determine the association between knowledge scores and selected socio-demographic variables. Statistical significance was set at $p < 0.05$.

Result

A total of 100 adolescent girls participated in the study. The majority of participants were aged 17–18 years (89%),

were studying in the 11th standard (100%), and belonged to the commerce stream (100%). Most participants were Hindus (85%) and resided in urban areas (100%). The majority of fathers were engaged in business (42%), while most mothers were homemakers (39%). Eighty percent belonged to nuclear families, 32% had a monthly family income of ₹60,001–70,000, and 56% had no siblings. More than half (55%) reported having previous knowledge regarding cervical cancer, with social media (32%) being the most common source of information. None of the participants had received HPV vaccination (Table 1).

Table 1.: Frequency and percentage distribution of selected socio-demographic variables. (n=100)

Sl. No	Socio-Demographic variables	Frequency (f)	Percentage (%)
1	Age (years)		
	15–16 years	11	11
	17–18 years	89	89
2	Class (Educational Level)		
	11th Standard	100	100
3	Religion		
	Hindu	85	85
	Muslim	8	8
	Christian	7	7
4	Stream of Study		
	Commerce	100	100
5	Father's Educational Qualification		
	No formal education	24	24
	Primary education	23	23
	Secondary education	15	15
	Higher secondary	21	21
	Graduate & above	17	17
6	Mother's Educational Qualification		
	No formal education	19	19
	Primary education	19	19
	Secondary education	18	18
	Higher secondary	21	21
	Graduate & above	23	23
7	Area of Residence		
	Urban	100	100
8	Father's Occupation		
	Business	42	42
	Government job	19	19
	Private job	21	21
	Farming	18	18
9	Mother's Occupation		
	Homemaker	39	39

	Government job	19	19
	Private job	22	22
	Farming / Business	20	20
10	Type of Family		
	Nuclear	80	80
	Joint	20	20
11	Monthly Family Income (₹)		
	Below 50,000	23	23
	50,001–60,000	20	20
	60,001–70,000	32	32
	Above 70,000	25	25
12	Number of Siblings		
	None	56	56
	One	44	44
13	Previous Knowledge on Cervical Cancer		
	Yes	55	55
	No	45	45
14	Source of Information on Cervical Cancer		
	Teachers	15	15
	Parents	16	16
	Friends / Peers	7	7
	Social media	32	32
	Internet websites	24	24
	TV / Radio / Newspaper	6	6
15	Received HPV Vaccination		
	No	100	100

Before the structured teaching programme, 90% of participants had moderate knowledge, 8% had inadequate knowledge, and only 2% had adequate knowledge regarding cervical cancer and its prevention. Following the intervention, 70% demonstrated adequate knowledge, while 30% had moderate knowledge, and none had inadequate knowledge, indicating a marked improvement in knowledge levels (Table 2).

Table 2: Frequency and percentage distribution of knowledge regarding cervical cancer and its prevention. (n=100)

	Pre Test		**Post Test**	
Knowledge Level	**Frequency(f)**	**Percentage %**	**Frequency(f)**	**Percentage%**
Inadequate Knowledge	8	8	0	0
Moderate Knowledge	90	90	30	30
Adequate Knowledge	2	2	70	70

The effectiveness of the structured teaching programme was evaluated using a paired t-test. The mean pre-test knowledge score was 14.54 ± 2.90, which increased to 22.67 ± 3.32 in the post-test. The difference was statistically significant ($t = -24.646$, $p < 0.001$), indicating that the structured teaching programme significantly improved participants' knowledge regarding cervical cancer and its prevention (Table 3).

Table 3: Effectiveness of structured teaching Programme on knowledge regarding cervical cancer and its prevention among adolescent girls. (n=100)

Variable	Mean	Standard Deviation	t value	P value
Pre-test knowledge	14.54	±2.900	– 24.646	0.000
Post-test knowledge	22.67	±3.315		

The association between pre-test knowledge and selected socio-demographic variables was analyzed using the Chi-square test or Fisher's exact test. No statistically significant association was found between knowledge scores and age, religion, parents' educational qualification, parents' occupation, monthly family income, number of siblings, previous knowledge regarding cervical cancer, or source of information ($p > 0.05$), indicating that baseline knowledge was independent of these selected socio-demographic characteristics (Table 4).

Table 4: Association between level of knowledge regarding cervical cancer and its prevention and selected socio-demographic variables.(n=100)

Sl.no	Socio demographic variables	Knowledge on cervical cancer and its prevention			Chi square (X2)/Fishers exact test	df	p value
		Inadequate knowledge	Moderate knowledge	Adequate knowledge			
1	Age (years)				4.097 Chi square (X2)	2	0.129
	15–16 years	0	10	1			
	17–18 years	8	80	1			
2	Religion				2.041 Fishers exact test		0.667 NS
	Hindu	7	76	2			
	Muslim	0	8	6			
	Christian	2	0	0			
3	Father's Educational Qualification				7.804 Fishers exact test		0.310 NS
	No formal education	2	22	0			
	Primary education	1	22	0			
	Secondary education	0	14	1			
	Higher secondary	4	16	1			

	Graduate & above	1	16	0			
4	Mother's Educational Qualification				5.505 Fishers exact test		0.751 NS
	No formal education	1	17	1			
	Primary education	3	16	0			
	Secondary education	2	16	0			
	Higher secondary	1	19	1			
	Graduate & above	1	22	0			
5	Father's Occupation				4.490 Fishers exact test		0.599 NS
	Business	3	39	0			
	Government job	2	17	0			
	Private job	1	19	1			
	Farming	2	15	1			
6	Mother's Occupation				3.120 Fishers exact test		0.865 NS
	Homemaker	2	35	2			
	Government job	2	17	0			
	Private job	2	20	0			
	Farming / Business	2	18	0			
7	Monthly Family Income (₹)				6.069 Fishers exact test		0.317 NS
	Below 50,000	3	20	0			
	50,001–60,000	2	17	1			
	60,001–70,000	3	29	0			
	Above 70,000	0	24	1			
8	Number of Siblings				2.519 Fishers exact test		0.244 NS
	None	6	48	2			
	One	2	42	0			
9	Previous Knowledge on Cervical Cancer				3.218 Chi square (X2)	2	0.201 NS
	Yes	6	47	2			
	No	2	43	0			

10	Source of Information on Cervical Cancer				9.675 Fishers exact test		0.353 NS
	Teachers	1	13	1			
	Parents	2	14	0			
	Friends / Peers	0	7	0			
	Social media	2	30	0			
	Internet websites	2	22	0			
	TV/Radio/Newspaper	1	4	1			

Discussion

The present study assessed the effectiveness of a structured teaching programme on knowledge regarding cervical cancer and its prevention among adolescent girls. Before the intervention, most participants had moderate knowledge (90%), while only 2% had adequate knowledge. Although more than half of the participants had previous knowledge regarding cervical cancer, none had received HPV vaccination, indicating inadequate awareness regarding preventive measures. Similar findings have been reported by (Shanbhag, 2021)and (Sabeena, 2019)who found inadequate knowledge regarding cervical cancer and HPV vaccination among adolescent girls.(Global Strategy to Accelerate the Elimination of Cervical Cancer as a Public Health Problem, 2020)

Following the structured teaching programme, participants showed a significant improvement in knowledge. The mean knowledge score increased from 14.54 ± 2.90 in the pre-test to 22.67 ± 3.32 in the post-test ($t = -24.646$, $p < 0.001$). The proportion of participants with adequate knowledge increased from 2% to 70%, demonstrating the effectiveness of the intervention. These findings are consistent with those of (Archana, 2019)(Singh et al., 2023) and (Sabeena, 2019)who also reported significant improvement in knowledge following educational interventions.

The study also found no significant association between pre-test knowledge and selected socio-demographic variables ($p > 0.05$), suggesting that inadequate knowledge existed irrespective of participants' background. Similar findings were reported by (Menges et al. 2020), indicating the need for universal cervical cancer awareness programmes for adolescent girls.(Gnanadhinahari & Sheema, 2023)

The findings show the important role of nurses in promoting cervical cancer prevention through school-based health education. Regular structured teaching programmes can improve awareness regarding HPV infection, vaccination, screening, and preventive practices, thereby supporting early prevention and contributing to the reduction of the future burden of cervical cancer.

Conclusion

The findings of the present study demonstrated that the structured teaching programme was effective in improving knowledge regarding cervical cancer and its prevention among adolescent girls. A statistically significant increase in post-test knowledge scores indicated that the educational intervention enhanced participants' understanding of cervical cancer, HPV infection, risk factors, screening methods, vaccination, and preventive measures. The study highlights the importance of school-based health education programmes in promoting awareness and encouraging preventive health behaviours among adolescents. Therefore, structured teaching programmes can be considered an effective nurse-led strategy for improving cervical cancer awareness and supporting future cervical cancer prevention.

Conflict of Interest: None.

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