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EFFECTIVENESS OF INFORMATION EDUCATION COMMUNICATION ON KNOWLEDGE REGARDING HUMAN PAPILLOMAVIRUS VACCINE AMONG ADOLESCENT

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INTRODUCTION

Genital human papillomavirus (HPV) is one of the most common sexually transmitted infections worldwide, primarily spreading through sexual contact, including vaginal, anal, and oral intercourse. It is a significant public health concern, with approximately 630 million people already infected and around 6 million new cases reported each year. The prevalence of HPV tends to increase among individuals aged 14 to 24 years before gradually declining. Studies suggest that nearly 80% of women will acquire an HPV infection at some point in their lives. Even among those who have had only one sexual partner, the risk of contracting HPV within three years of their first sexual encounter is estimated to be 46%. Vaccination of secondary target populations, such as older adolescent females and young women, may be considered if it is financially viable, does not divert resources from vaccinating the primary target group, and does not interfere with cervical cancer screening programs. However, this strategy is most effective when a significant proportion of the secondary target population has not yet been exposed to vaccine-related HPV types.

The inclusion of males is particularly beneficial in regions with low female vaccination rates or where high-risk sexual behavior is more common. The choice of vaccine—whether bivalent, quadrivalent, or nonavalent should be based on multiple factors, including the prevalence of HPV-related diseases in the region, characteristics of the target population, delivery strategies, vaccine safety and efficacy, cost-effectiveness, and logistical considerations such as cold-chain storage requirements.

By considering these factors, healthcare systems can effectively tailor HPV vaccination programs to meet the needs of their population. Expanding access to HPV vaccines remains a crucial step in the global effort to reduce the burden of HPV-related cancers and improve overall public health outcomes, especially in low-resource settings where cervical cancer continues to be a leading cause of death among women. This study was designed to assess the effectiveness of information education communication on knowledge regarding Human Papilloma Virus Vaccine among adolescent girls at Williams Matric Higher Secondary School at Vellore.

METHODOLOGY

POPULATION : Population is an aggregate of totality of all subjects that posses a set of specification (pilot and hunger). The target Population of the present study wasl be adolescent girls who fulfills the inclusion criteria .

The Accessible population of the present study, adolescent girls in Williams Matric Higher Secondary School at Vellore.

VARIABLES :

INDEPENDENT VARIABLE: The independent variable of the present study was

Information Education Communication

DEPENDENT VARIABLE :The dependent variable of the present study was knowledge on Human Papilloma Virus Vaccine.

SAMPLE : Sample refers to a fraction or portion of element in a universe drawn out deliberately in a planned representative manner for studying interested characteristics of a large group of

population Polit

The sample comprise of 50 Adolescent girls.

SAMPLING TECHNIQUES :

Sampling technique is the process of selecting the study sample for the researcher. For this study the researcher was adopt , non probability convenient sampling technique.

CRITERIA FOR THE SELECTION OF SAMPLE :

INCLUSION CRITERIA

Adolescent girls who were ,

1. willing to participate
2. present at the time of data collection
3. able to understand English

EXCLUSION CRITERIA

Adolescent girls who were ,

1. exposed to the same kind of the study before
2. not willing to participate
3. adolescent (especially boys)

SELECTION OF INSTRUMENTS AND TOOLS

Section A : Demographic variables

Section B : Structured knowledge questionnaire

DESCRIPTION OF THE TOOLS

SECTION A

DEMOGRAPHIC DATA

It deals with demographic variables such as age of the Student , gender, religion, type of family, occupation of father, family monthly income, location of residence.

SECTION B

STRUCTURED KNOWLEDGE QUESTIONNAIRE

The questions were selected and four options were given below each questions. The structured questionnaire consisted of 20 multiple choice questions, and each questions had three options which included correct answers. The participants were free to choose any one option for each questions. The score was calculated by dividing the total number of obtained score by the total number of maximum score and expressed in percentage. Based on the scores the knowledge was graded.

S.No	Score	Percentage	Level of knowledge
1.	1-9	<50%	Inadequate
2.	10-20	51-70%	Moderately adequate
3.	Above 21	>70%	Adequate

RELI ABILITY

The reliability was established by inter rater method to assess the internal consistency of the tool. The score was r =0.9. Hence the tool was reliable and considered for proceedings.

VALIDITY

Validity refers how well an instrument as measures what it is intended to measure The content of the instrument was validated by two experts in the field of nursing.

DATA COLLECTION PROCESS:

Prior permission was obtained from the head of the institution. A separate room was arranged for data collection. Samples were selected based on inclusion and exclusion criteria using a non-probability convenient sampling technique. Demographic variables were collected from the participants. The researcher assessed the pre-test knowledge of the samples using a self-structured questionnaire and provided education regarding the Human Papillomavirus (HPV) vaccine through Information, Education, and Communication (IEC) methods—such as PowerPoint presentations and video assisted teaching. After a week, posttest was conducted to assess the participants' knowledge and evaluate the effectiveness of the IEC. Upon completion of data collection, statistical analysis was carried out.

PLAN FOR STATISTICAL ANALYSIS

The data collected were analysed using descriptive and inferential statistics The plan for data analysis as follows:

- Data were collected and organized in master sheet.
- The frequency and percentage for analysis of demographic variable like age, gender, education, etc.
- Mean score of the study group.
- Computing chi square to determine the association between of knowledge scores with the selected demographic variables.

RESULTS

Table 1 : Frequency and percentage distribution of Adolescent girls based on demographic variables. (N= 50)

S.NO	DEMOGRAPHIC VARIABLE	FREQUENCY (F)	PERCENTAGE %
1.	Age □ 11– 14 years □ 15 – 18years	 24 16	 48% 32%
2.	Religion □ Christian □ Hindu □ Muslim	 7 42 1	 14% 84% 2%
3.	Standard □ 8th std □ 9th std □ 10th std	 14 13 23	 28% 26% 46%
4.	Location □ Urban □ Rural □ Semi -urban	 37 9 4	 74% 18% 8%
5.	Type of family □ Nuclear □ Joint	 29 21	 58% 42%
6. 7.	Family Income □ 20,000-30,000 □ 40,000-50,000 □ Above 1 lakh Have you ever heard about HPV vaccine □ Yes □ No	 26 17 6 16 34	 52% 34% 12% 32% 68%

The demographic data of the adolescent girls revealed the following distribution: According to age, the majority 24 (48%) were between 11–14 years, while 16 (32%) were in the 15–18 years age group. Regarding religion, 42 (84%) of the participants were Hindu, 7 (14%) were Christian, and 1 (2%) was Muslim. In terms of educational level, 14 (28%) were studying in 8th standard, 13 (26%) in 9th standard, and 23 (46%) in 10th standard. As for

residential location, most of the participants, 37 (74%), resided in urban areas, followed by 9 (18%) from rural areas, and 4 (8%) from semi-urban areas. Considering the type of family, 29 (58%) belonged to nuclear families, and 21 (42%) belonged to joint families. With respect to family income, 26 (52%) reported a monthly income of ₹20,000– ₹30,000, 17 (34%) had an income between ₹40,000–₹50,000, and 6 (12%) reported a monthly income above ₹1,00,000. Finally, when asked if they had heard about the Human Papillomavirus (HPV) vaccine, 16 (32%) responded "Yes," while the remaining 34 (68%) responded "No."

TABLE:2 Frequency and percentage distribution of level of knowledge regarding Human Papilloma Virus Vaccine among adolescent girls.

S.NO	LEVEL OF KNOWLEDGE	PRE TEST		POST TEST	
		F	%	F	%
1.	Inadequate	17	34%	5	10%
2.	Moderately adequate	27	54%	23	46%
3.	Adequate	6	12%	22	44%

Table 2 depicts the percentage distribution of Adolescent girls according to their level of knowledge. In Pre test 17(34%) were belongs to inadequate, 27(54%) were belongs to moderately adequate and 6 (12%) were belongs to adequate knowledge. In post test 22(44%) were belongs to adequate;23(46%) belongs to moderately adequate 5(10%) were belongs to inadequate knowledge.

TABLE:3 Comparison between pre-test and post-test level of knowledge regarding Human papilloma virus vaccine

Descriptive statistics	Level of knowledge (n=50)			t-value
	Pre-test	Post-test	Difference (post-pre)	
Mean	10.49	13.73	3.24	t=10.110 df=49 Significant
Standard deviation	4.18	3.61	0.57	

*P<0.05 ,significant and **P<0.01& ***P<0.001, Highly significant.

The findings in the above table describes a comparison between the pre-test and posttest knowledge levels regarding the Human Papilloma Virus (HPV) vaccine among 50 participants. The mean pre-test score was 10.49 with a standard deviation of 4.18, indicating a lower and more varied level of knowledge before the intervention. Following the educational program, the post-test mean score increased to 13.73, with a reduced standard deviation of 3.61. This shows an improvement in knowledge and a slight decrease in variability among participants. The mean difference between the pre-test and post-test scores was 3.24. The calculated t-value was 10.110 with degrees of freedom (df) = 49,the critical tvalue at $p < 0.05$ is ±2.009. Since the calculated t-value (10.11) is greater than the critical tvalue (2.009), the result is highly significant. Hence H1 hypothesis is accepted. This suggests that the educational intervention was effective in improving the participants' knowledge regarding the HPV vaccine.

SECTION – D

TABLE:4 Association between level of knowledge regarding HPV Vaccine and selected demographic variables among adolescent girls.

S.NO	DEMOGRAPHIC VARIABLE	LEVEL OF KNOWLEDGE						X2 (df)
		INADEQUATE		MODERATELY ADEQUATE		ADEQUATE		
		F	%	F	%	F	%	
1.	Age a) 9-14 years b) 15-18 years	4 3	 8% 2%	19 4	 38% 8%	11 11	22% 22%	X^2=5.863 df=1 P=0.015* Significant
2.	Religion a) Christian b) Hindu c) Muslim	0 5 0	0% 10% 0%	3 19 1	6% 38% 2%	4 18 0	8% 36% 0%	X^2=2.333 df = 2 P= 0.1267 Not significant
3.	Standard a) 8th b) 9th c) 10th	3 0 2	6% 0% 4%	6 3 15	12% 6% 30%	5 10 6	10% 20% 12%	X^2=11.641 df=2 P=0.006* Significant.
4.	Location a)Urban b) Rural c)Semi-Urban	2 1 2	4% 2% 4%	18 5 0	36% 10% 0%	17 3 2	39% 6% 4%	X^2=9.565 df =2 P=0.002* Significant
5.	Family a) Nuclear b) Joint	2 3	4% 6%	14 9	28% 18%	13 9	26% 18%	X^2=0.754 df =1 P=0.3852 Not-Significant

6.	Income a)20,000-30,000 b)40,000-50,000 c)above 1 lakh	 2 3 0	 4% 6% 0%	 16 5 1	 28% 10% 2%	 7 9 5	 14% 18% 10%	X^2=10.102 df =2 P=0.0015* Significant
7.	Have you ever heard about HPV vaccine a)Yes b) No	 0 5	 0% 10%	 4 19	 8% 38%	 12 10	 24% 20%	X^2= 9.748 df= 1 P=0.0018* Significant

*P<0.05 ,significant and **P<0.01& ***P<0.001, Highly significant.
The findings revealed a statistically significant association between the level of knowledge regarding HPV vaccine and selected demographic variables such as age at p<0.05, while standard, location, income, and prior awareness of the HPV vaccine showed a highly significant association at p<0.01. This indicates that these factors had an impact on the knowledge level of adolescent girls. Hence, the research hypothesis H2 was partially accepted.

DISCUSSION

This study assessed the effectiveness of Information education communication(IEC)on knowledge regarding Human Papillomavirus Vaccine among adolescent girls in Williams Matric Higher Secondary School at Vellore.

In Pre test 17(34%) were belongs to inadequate, 27(54%) were belongs to moderately adequate and 6 (12%) were belongs to adequate knowledge. In post test 22(44%) were belongs to adequate ;23(46%) belongs to moderately adequate 5(10%) were belongs to inadequate knowledge.

The findings revealed the mean pre-test score was 10.49 with a standard deviation of 4.18, indicating a lower and more varied level of knowledge before the intervention. Following the educational program, the post-test mean score increased to 13.73, with a reduced standard deviation of 3.61. This shows an improvement in knowledge and a slight decrease in variability among participants. The mean difference between the pre-test and post-test scores was 3.24. The calculated t-value was 10.110 with degrees of freedom (df) = 49, the critical t-value at $p < 0.05$ is ±2.009. Since the calculated t-value (10.11) is greater than the critical t-value (2.009), the result is highly significant.Hence H1 hypothesis is accepted. This suggests that the educational intervention was effective in improving the participants' knowledge regarding the HPV vaccine.

The findings of the present study are supported by several national and international studies that emphasize the importance of IEC strategies in improving knowledge about HPV and its vaccination among adolescents.

A quasi-experimental study conducted by Swathi and Indira (2024) in selected colleges in Guntur assessed the effectiveness of a structured teaching programme on knowledge regarding the HPV vaccine among adolescent girls. Their study included 60 participants divided equally into experimental and control groups. The intervention was a structured teaching session lasting 45 minutes .In the pre-test, 87% of the experimental group had inadequate knowledge, which drastically improved post-intervention, with 80% attaining adequate knowledge. The calculated paired t-test value was 8.1, indicating high statistical significance. Although their method involved structured classroom teaching and the current study used IEC with audiovisual tools, both showed significant knowledge gains—supporting the use of organized, nurse-led educational efforts in adolescent populations.

Chowdhury and colleagues (2023)conducted a descriptive cross-sectional study among medical students in Bangladesh to assess knowledge, attitude, and practices related to HPV and its vaccine. The study revealed that 42.5% of participants had good knowledge after an educational session, while prior awareness levels were lower. Their study emphasized that educational background and exposure to accurate information were key factors influencing HPV vaccine awareness. This supports the study's findings, especially since both target adolescent or youth groups, highlighting the need for early education, even before college years.

The findings revealed a statistically significant association between the level of knowledge regarding HPV vaccine and selected demographic variables such as age at p<0.05, while standard, location, income, and prior awareness of the HPV vaccine showed a highly significant association at p<0.01. This indicates that these factors had an impact on the knowledge level of adolescent girls. Hence, the research hypothesis H2 was partially accepted.

A study conducted by Lalia (2023) in Greater Noida to assessed the effectiveness of a structured teaching programme on HPV knowledge among adolescent girls. The study used a pre-test and post-test design with a paired t-test value of 15.5, demonstrating statistically significant improvement .This study also used adolescent girls as the target population, similar to current study, and found that the majority had inadequate knowledge in

the pre-test. After a structured educational session, the post-test scores showed marked improvement. This again supports the effectiveness of planned educational interventions for promoting preventive health knowledge among adolescents.

Addisu and colleagues (2023) conducted a study in Ethiopia assessing knowledge, attitude, and uptake of the HPV vaccine among adolescents. They found a strong correlation between exposure to health education and improved knowledge levels. The study concluded that school-based educational campaigns are vital for increasing vaccine uptake and reducing stigma associated with HPV-related diseases. This aligns well with your study, where IEC (a school-based campaign) led to improved knowledge, reinforcing the global importance of adolescent-targeted education on HPV.

- Future studies can include more variables such as attitude and practice regarding HPV vaccination.
- Similar studies can be conducted with larger sample sizes for better generalization.
- Nurse researchers can explore the effectiveness of various IEC methods (e.g., digital media, role play, posters) on adolescent health education.
- IEC strategies can be tested in different settings like rural schools or community centers to assess adaptability and effectiveness.

CONCLUSION

The conclusion of this present study was to assess the effectiveness of Information education communication (IEC) on knowledge regarding Human Papillomavirus Vaccine among adolescent girls in Williams Matric Higher Secondary School at Vellore. The excavated results support revealed that there is a significant level of knowledge regarding HPV Vaccine.

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