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A study to assess the Knowledge on Prevention of Human Papillomavirus (HPV) Infection among Adolescent Girls of selected college

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ABSTRACT

Background: Human Papillomavirus (HPV) is a primary contributor to cervical cancer, particularly in developing nations such as India. Young girls frequently have insufficient knowledge regarding HPV transmission, preventive measures, and the significance of vaccination. This lack of awareness may elevate their susceptibility to infection. Evaluating their understanding is crucial for pinpointing deficiencies and advancing effective health education initiatives aimed at HPV prevention within educational environments.

Aim: This study aimed to assess the Knowledge of Adolescent girls on the prevention of Human Papillomavirus (HPV) Infection and to find out the association between knowledge on the prevention of Human Papillomavirus (HPV) Infection among adolescent girls with their selected sociodemographic variables.

Methods: A quantitative research methodology featuring a descriptive design was employed to evaluate the understanding of Human Papillomavirus (HPV) infection prevention among adolescent females. The research took place in a chosen para-medical college. By utilizing a non-probability purposive sampling method, adolescent girls aged 12 to 19 years who provided consent were included in the study, whereas those who declined or male students were excluded. Data collection tools included a structured knowledge questionnaire and an observational checklist.

Results: The vast majority of adolescent girls (92.7%) were between the ages of 18 and 19, with a significant number enrolled in B.Sc. programs (57.3%) and living in rural regions (55.3%). The primary source of information regarding HPV was school or college (58.7%). Although 58% had heard of HPV before, only 46.7% exhibited a strong understanding, while 48% had an average level of knowledge. There was a statistically significant correlation between age and course with knowledge level (p=0.002 and p=0.0001, respectively), whereas factors such as residence, source of information, and prior awareness did not reveal significant correlations.

Conclusion: The study found that age (p = 0.002) and course of study (p = 0.0001) had a significant association with HPV knowledge, with older girls and those from the B.Sc. Nursing course students' backgrounds show better awareness. Other factors like residence, source of information, and prior awareness showed no significant association. There is a need for a structured teaching program to improve knowledge among adolescent girls regarding the prevention of HPV Infection.

INTRODUCTION

Human Papillomavirus (HPV) Infection: The infection caused by Human Papillomavirus (HPV) is recognized as the most prevalent sexually transmitted disease globally, particularly affecting young individuals and adolescents. It significantly contributes to the overall health burden, especially among women, leading to cervical cancer, which is the fourth most frequently diagnosed cancer in females worldwide. Although effective vaccines against HPV are available, the lack of awareness and acceptance of these vaccines remains a significant issue in numerous regions across the globe. HPV infection is preventable; however, a considerable number of adolescent girls lack knowledge regarding its transmission, consequences, and the preventive measures available.

The adolescent period is crucial for health education, particularly in the realm of sexual and reproductive health. This is the time when young girls start to form their attitudes and behaviours concerning health. In the absence of sufficient awareness and appropriate guidance, these girls may inadvertently engage in activities that increase their risk of contracting HPV infection. Evaluating their existing knowledge would assist in rectifying misinformation and providing these girls with accurate health information, empowering them to make informed decisions.

In India, including regions such as Gujarat, there have been very few studies examining the levels of knowledge regarding HPV infection and its prevention among adolescent girls. Cultural taboos surrounding sexual topics, the lack of sexual health education in educational institutions, and misconceptions about reproductive health further hinder open dialogue and awareness. Particularly, girls pursuing non-medical fields of study have limited opportunities to access reliable information about HPV. For colleges, there exist significant opportunities for health promotion through a well-structured health education program. However, to reach out effectively, it is essential first to assess the baseline knowledge and awareness levels.

METHODOLOGY

This study adopted a quantitative research approach with a descriptive research design to evaluate the level of knowledge regarding the prevention of Human Papillomavirus (HPV) infection among adolescent girls. The research was conducted in a selected college, chosen for its accessibility and the availability of participants aged between 12 to 19 years. The descriptive design was suitable for obtaining detailed information about existing knowledge without altering any variables. A total of 150 adolescent girls participated in the study, selected using a non-probability purposive sampling technique. The inclusion criteria consisted of girls aged 12–19 years who were willing to participate, while those outside the age range or unwilling to participate were excluded. The population was appropriate as adolescence is a critical period for HPV education and preventive awareness.

Data were collected using a structured knowledge questionnaire developed by the researcher, with input from the literature and experts. The tool had two sections: Section A focused on demographic data, and Section B assessed knowledge of HPV infection, including its transmission, risk factors, prevention, screening, and vaccination. Each correct answer was awarded one mark, and scores were categorized into poor knowledge (0-7 score), Average knowledge score (8-12 score), Good knowledge score (13-18score), and very good knowledge score (19-26 score) levels of knowledge.

Inclusion Criteria:

- Adolescent girls aged 12 to 19 years.
- Willing to participate and available for assessments.

Exclusion Criteria:

- Girls who are below 12 years of age and girls who are above 19 years of age.
- Girls who are not willing to participate in the study.
- One research instruments were used for data collection: a structured knowledge questionnaire. The knowledge questionnaire included 32 multiple-choice questions assessing theoretical aspects of the prevention of Human Papillomavirus Infection, such as what is HPV Infection, Risk factors, Mode of transmission, and Prevention (safe practices, screening, and vaccination).

Validity of the Tool: The tool was validated by a panel of experts from the fields of nursing, obstetrics and gynaecology, and research methodology to ensure content validity. Modifications were made based on expert feedback to ensure clarity and relevance.

Reliability of the Tool: The reliability of the tool was established by using the test-retest method, and the reliability coefficient was calculated. A reliability score of 0.8, which indicates an acceptable reliability of the tools.

Pilot Study: A pilot study was conducted on 10% of the sample to test the feasibility, clarity, and applicability of the tool and procedures.

Ethical approval was obtained from the Institutional Ethics Committee (Approval No-PUIECHR/PIMSR/00/081734/82347). Written informed consent was taken from all participants. Confidentiality and anonymity were maintained, and participants were informed about their right to withdraw from the study at any stage without academic penalty.

RESULTS

Table 1: Frequency and percentage distribution of demographic variables of Knowledge on Prevention of Human Papillomavirus (HPV) Infection among Adolescent Girls.

Sr. No	Demographic Data	Category	Frequency f	Percentage %
1	Age	14-15 Year	00	00
		16-17 Year	11	7.3
		18-19 Year	139	92.7
2	Course (para-medical)	B.Sc.	86	57.3
		GNM	64	42.7
3.	Place of residence	Rural	83	55.3
		Urban	67	42.7
4	What is your primary source of information about HPV?	School/college	88	58.7
		Friends or Family	62	41.3
		Social media	00	00
		Healthcare Professional	00	00
5	Have you heard of HPV before this study?	Yes	87	58
		No	63	42

A significant portion of the participants (92.7%) fell within the age range of 18 to 19 years, with the majority pursuing a B.Sc. in Nursing (57.3%). More than half (55.3%) lived in rural regions. For 58.7% of the participants, schools and colleges served as the main source of information regarding HPV, whereas 58% had prior knowledge of HPV before the study commenced. Social media and healthcare professionals were not mentioned as sources of information.

Table 2: Frequency and percentage distribution of Knowledge on Prevention of Human Papillomavirus (HPV) Infection among Adolescent Girls.

Level of Knowledge	Level of Knowledge	
	f	%
Poor Knowledge score (0- 7 Score)	8	5.3

Average Knowledge score (8-12Score)	72	48
Good Knowledge score (13-18Score)	70	46.7
Very good Knowledge score (19-26Score)	00	00

The majority of teenage girls exhibited average (48%) or good (46.7%) understanding of HPV prevention. A mere 5.3% displayed poor knowledge, and none showed very good knowledge. This underscores the necessity for improved awareness initiatives

Demographic Data	Category	Pretest Level of Knowledge				Chi-Value	df	p-Value
		Poor	Average	Good	Very good			
Age	14-15 Year	00	00	00	00	12.860	2	0.002*
	16-17 Year	00	11	00	00			
	18-19 Year	8	61	70	00			
Course (paramedical)	B.Sc. Nursing	01	31	54	00	23.80	2	0.0001
	GNM	07	41	16	00			
Place of residence	Rural	04	34	45	00	4.279	2	0.118
	Urban	04	38	25	00			
What is your primary source of information about HPV?	School/ college	7	40	41	00	3.030	2	0.220
	Friends or Family	01	32	29	00			
	Social media	00	00	00	00			
	Healthcare Professional	00	00	00	00			
	Yes	07	42	38	00	3.258	2	0.196

Have you heard of HPV before this study?	No	01	30	32	00			

Table 3: Association between pretest knowledge score with selected demographic variables.

The research identified a notable correlation between pretest knowledge scores and age ($p = 0.002$) as well as course ($p = 0.0001$), suggesting that older adolescents and B.Sc. students exhibited greater knowledge regarding HPV prevention. Nevertheless, no significant correlation was found concerning place of residence, source of information, or previous awareness of HPV ($p > 0.05$), indicating that these factors did not have a substantial impact on knowledge levels.

DISCUSSION

The current study sought to evaluate the understanding of adolescent girls regarding the prevention of Human Papillomavirus (HPV) infection and to explore the relationships between knowledge levels and specific sociodemographic factors. The findings indicated that among 150 participants, 5.3% exhibited poor knowledge, 48% demonstrated average knowledge, and 46.7% possessed good knowledge, with none of the participants showing very good knowledge. Statistical analysis revealed a significant correlation between knowledge levels and both age ($p = 0.002$) and course of study ($p = 0.0001$), implying that older adolescents and those enrolled in B.Sc. Nursing programs displayed greater awareness. Conversely, other factors such as place of residence, primary source of information regarding HPV, and prior awareness of HPV did not show a significant relationship with knowledge levels.

When juxtaposing these results with previously published research, the findings are closely aligned with those of Bhattacharya et al. (2024) in Kolkata, India, where nursing students exhibited heightened awareness concerning HPV infection and vaccination. This resemblance reinforces the idea that educational background, especially in health sciences, significantly influences awareness and comprehension. Patel et al. (2023) conducted a comparable study in Gujarat, revealing that only 35% of adolescent girls had even heard of HPV, with a mere 10% aware of the vaccine. In contrast, the current study discovered that 58% of participants had heard of HPV, indicating a slight improvement in awareness within the selected college environment, potentially attributed to academic influence or peer discussions.

On an international scale, Eke et al. (2022) in Nigeria reported that a substantial number of students had inadequate knowledge, with only 15% correctly identifying HPV as a cause of cervical cancer. This contrasts with the present findings, where only 5.3% of adolescent girls exhibited poor knowledge, suggesting regional disparities in access to sexual health education and public health initiatives.

Additionally, Sharma and Kaur conducted a quasi-experimental study in Punjab that demonstrated a notable increase in knowledge levels after an awareness program. Their pre-test results indicated that only 40% of participants possessed adequate knowledge, which rose to 90% following the intervention, suggesting that structured educational programs can significantly improve awareness about HPV among adolescent girls.

In the current study, age was found to be significantly related to knowledge levels, with girls aged 18–19 exhibiting higher knowledge scores compared to those aged 16–17. This observation aligns with the developmental stage of older adolescents, who are more likely to have encountered reproductive health information through educational settings or social interactions. Furthermore, the field of study was a significant factor, as B.Sc. Nursing students achieved higher scores than General Nursing and Midwifery (GNM) students. This pattern corroborates findings from earlier research and underscores the influence of curriculum content on health literacy. Notably, factors such as place of residence (urban versus rural), sources of information (school, peers, social media), and prior awareness of HPV did not significantly affect knowledge levels. This indicates that, irrespective of their backgrounds, many adolescent girls experience similar deficiencies in understanding due to insufficient formal education about HPV in their curricula.

In summary, the results of this study underscore the pressing need for structured and comprehensive educational interventions within schools and colleges. Incorporating HPV education into health curricula across both medical and non-medical disciplines could help close existing knowledge gaps. Educational institutions can act as effective platforms for enhancing HPV awareness, particularly given that adolescence is a crucial time for establishing lifelong health behaviors. The findings also emphasize the necessity for increased engagement from healthcare providers and educators in disseminating accurate and accessible information regarding HPV prevention, vaccination, and screening practices.

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