

KNOWLEDGE, ATTITUDE AND PRACTICES REGARDING HUMAN PAPILLOMAVIRUS (HPV) VACCINATION AMONG ADOLESCENT GIRLS IN BIHAR AND EVALUATE THE FACTORS INFLUENCING IT- A CROSS SECTIONAL STUDY AT A TERTIARY CARE HOSPITAL.

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Abstract

Background

Human Papillomavirus (HPV) is the causal factor for the development of carcinoma cervix in almost all cases. HPV vaccine is 100% effective against high-grade cervical lesions. Despite the availability of the HPV vaccine in India, the incidence of carcinoma cervix is likely to increase because of a lack of awareness of the HPV vaccine and less acceptability of the vaccine.

Aim

To assess the knowledge, attitude, and practices regarding HPV vaccination among adolescent girls in Bihar and evaluate the factors influencing it

Material and methods

A questionnaire-based cross-sectional study was done among 456 adolescent girls coming to the Outpatient Department. Questions related to knowledge about HPV infection and HPV vaccine were asked. Vaccination status and willingness to get vaccinated were also inquired of.

Results

The majority of patients (61.85%) were from rural areas, with the highest age group being 17-19 years (mean age 17.2 ± 2.7 years). Most participants were educated up to 12th grade, belonging to socioeconomic classes I and II. 7.68% hadn't experienced menarche, 7.9% had a family history of malignancy, and 2.41% had sexual exposure. Awareness of cervical cancer was at 12.94%, with only 2.63% aware of the HPV vaccine. Healthcare workers were the primary source of information about the HPV vaccine. Only one participant had received the HPV vaccine. The majority (74.34%) were willing to get vaccinated if the vaccine was free, while uncertainty prevailed regarding parental willingness to pay (69.07% uncertain).

Conclusion

The awareness about HPV infection and vaccination is very low among adolescent girls in Bihar. The vaccine uptake is almost zero.

Recommendation

There is a need for increased sensitization among adolescent girls to improve HPV vaccine coverage.

Keywords: Knowledge, Attitude, Practice, Human Papillomavirus infection, vaccine, adolescents, carcinoma cervix

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Introduction:

HPV is a common sexually transmitted infection. HPV is the causal factor for the development of carcinoma cervix in virtually 100% of cases [1]. Cervical cancer ranks as the 2nd most frequent cancer among women in India and the 2nd most frequent cancer among women between 15 and 44 years of age [2]. About 70% of cervical cancer related to HPV is caused by persistent infection by high-risk HPV strains i.e. HPV 16 and HPV 18 [3]. Following HPV infection, precancerous lesions usually develop after 5 to 7 years and the latency period for carcinoma cervix is

about 20 years [4]. Currently, there is no treatment for HPV infection. There are vaccines available to prevent HPV infection. It is now well established through clinical trials, that the HPV vaccine is 100% effective against cervical high-grade lesions when administered to HPV-naive girls of 15 to 26 years of age [5]. Currently, there are six licensed HPV vaccines: three bivalent, two quadrivalent, and one nonavalent vaccine [6]. All these vaccines are intended to be given before the onset of

sexual activity. In most of the countries, the primary target group is young adolescent girls, aged 9-14 years.

As per the data from the National Cancer Registry Programme, India, the incidence of cervical cancer cases in India is likely to increase from 75209 in 2020 to 85241 in 2025 [7]. This is despite the availability of the HPV vaccine in India. Lack of awareness about vaccines and less acceptability of the vaccine is probably a major reason for this. Keeping this in mind, the present study was done to assess the KAP of the HPV vaccine in adolescent girls of Bihar.

Material and Methods:

Study design

A cross-sectional study was done among adolescent girls aged 10 – 19 years.

Study setting

The study was conducted at Indira Gandhi Institute of Medical Science (IGIMS), Patna, Bihar, India. It was done over one year from October 2022 to September 2023.

Participants

A purposive sampling technique was used.

Inclusion Criteria

1. Adolescent girls aged between 9 to 18 years residing in Bihar.
2. Participants who have not received the HPV vaccine previously.

Exclusion Criteria

1. Adolescent girls who have received the HPV vaccine previously.
2. Individuals with cognitive impairments or mental illnesses that may hinder comprehension or communication.
3. Patients with severe medical conditions that may preclude their participation or ability to provide accurate information.

Bias

It was avoided by giving all participants identical information and hiding the group allocation from the nurses who collected the data.

Sample size calculation

Sample size was calculated using the formula $n = Z^2 p(1-p) / e^2 = 456$.

Where,

n: Sample size

Z: Z-score corresponding to the desired confidence level

p: Proportion of the population estimated to have the characteristic of interest (prevalence or proportion)

e: Margin of error

Procedure

It was a questionnaire-based study. The questionnaire used in the study was predesigned and validated by pilot testing. Further improvement was made in the questionnaire accordingly. The questionnaire included demographic details like age, background, educational status of the subject and her mother, and socioeconomic status. Family history of malignancy was also asked. Subjects were also enquired about whether they had attained menarche or not as well as about sexual exposure.

The questionnaire interrogated about awareness of the risk of cervical cancer from all participants. Those who were aware of cancer cervix were further asked about HPV as one of its causative agents. We enquired if they knew about the availability of the HPV vaccine and that the HPV vaccine can effectively prevent cervical cancer. Those who were aware of the HPV vaccine were asked about the source of their knowledge.

The subjects were asked about their vaccination status against HPV. In those not vaccinated, it was tried to assess about their willingness to get vaccinated. They were further questioned about the fact that whether their parents would pay for the vaccine and whether would they get vaccinated if the vaccine was made available to them free of cost. Response was noted using a 3- 3-point Likert scale (Agree, Uncertain, Disagree).

Statistical analysis

The data obtained from the study was arranged in a tabulated manner in an Excel sheet, and the data was then subjected to statistical analysis. Statistical analysis was done using SPSS software.

Ethical considerations

The study was approved by the ethics committee of the institute. The study was conducted according to the

principles of the Helsinki Declaration. After explaining the objective and nature of the study verbally to them,

consent was obtained from them for participation in the study.

Table 1: Socio demographic profile of participant

Age	Number (456)	Percentage
10-13	59	12.93
14-16	145	31.79
17-19	252	55.26
Background		
Urban	174	38.15
Rural	282	61.85
Socio economic status		
Class I	19	4.1
Class II	67	14.69
Class III	173	37.94
Class IV	128	28.07
Class V	69	15.13
Educational status		
Illiterate	28	6.14
Below 8 th	48	10.53
8 th	98	21.49
10 th	107	23.47
12 th	132	28.94
Graduation	43	9.43
Educational Status of mother		
Illiterate	89	19.52
8 th	77	16.89
10 th	134	29.39
12 th	98	21.49
Graduation	46	10.09
Postgraduation	12	2.63

Results

Table 1 shows the sociodemographic profile of the patient. Age wise distribution showed maximum number of subjects in 17-19 years age group. The mean age group was 17.2 years with a SD of 2.7 years. Out of 456 participants, most (61.85%) were from rural background. Majority of them (28.94%) were educated up to class

12th. According to modified BG prasad Classification, most of the patients belonged to class – I followed by class- II. 37.94% of the girls belonged to class III socio economic status.

As shown in table 2, 7.68% of the patients had not achieved menarche. 7.9% of the participants had family history of malignancy. 2.41 % of the patients gave history of sexual exposure. 12.94% people were aware of cervical cancer. Only 2.63% had heard of HPV vaccine.

Table 2: Questionnaire based response of participants

	Number (456)	Percentage
Attained menarche		
Yes	421	92.35
No	35	7.65
Family history of malignancy		
Yes	36	7.9
No	420	92.1
History of sexual exposure		
Yes	11	2.41
No	445	97.59
Have you heard of cervical cancer		
Yes	59	12.94
No	397	87.06
Does HPV cause cervical cancer?		
Yes	24	5.26
No	432	94.74
Have you heard of HPV vaccine?		
Yes	12	2.63
No	444	97.37
Does HPV vaccine effectively prevent cervical cancer?		
Yes	9	1.97
No	447	98.03

Table 3: Source of knowledge of HPV vaccine

TV	0
Newspaper	2
Radio	0
Friend	1
Family	0
Health care worker	5
Magazine	0
Book	0
Internet	4

Table 3 shows that commonest source of information about HPV vaccine was health care workers.

Table 4: Vaccination status against HPV

Vaccination Status	Number (456)	Percentage
Yes	1	0.22
No	408	89.47
Don't know	48	10.53

Table 5: Attitude regarding vaccination against HPV

Question	Agree	Uncertain	Disagree
Are you willing to get vaccinated against HPV?	132	200	124
You think your parents would pay for the vaccine?	44	315	97
Would you get vaccinated if vaccine were for free of cost?	339	71	46

As shown in table 4, only one participant was vaccinated against HPV.

Most (69.07%) were uncertain about whether parents would pay for vaccines. 74.34% of the patients were willing to get vaccinated if the vaccine was free of cost.

As shown in Table 5, a median number of patients were uncertain about getting vaccinated. Only 9.64 % of participants responded as "agree" to the question regarding their parents' willingness to pay for the vaccine.

Discussion

In this study, only 12.94% of patients were aware of carcinoma cervix. In a similar survey in Karnataka, 15% of the women were aware of cervical cancer [8].

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Only 5.26 % had an awareness of HPV infection as the causative agent of carcinoma cervix. This is in contrast to a study by Leung et al, where 65.1 % of the participants were aware of the fact that cancer cervix is caused mainly by HPV infections [9]. This may be due to increased awareness of HPV vaccination in Hong Kong and also because the participants in the later study were university students. In a similar study by Kumari et al, 7.55% of the participants were aware of the causal relationship of HPV infection with cancer cervix [5]. This shows the overall decreased awareness regarding HPV infection in the Indian adolescent population and emphasizes the need for more awareness programs by the government.

Only 2.63% of the subjects had heard of the HPV vaccine. Only 2.01 % believed that the HPV vaccine could effectively prevent cervical cancer. This percentage was quite similar to the study by Kumari et al [5], whereas in a study by Yingnan et al, 78.6% of the female participants were aware of the HPV vaccine [10].

The most common source of information about the HPV vaccine was health care workers followed by the internet where as in a study among adolescent girls of UP, the most common source of knowledge about the HPV vaccine was through books [5].

Only one of the participants was vaccinated against HPV. In a study among young women in Thailand, 1.2% had received at least one dose of HPV vaccine [11]. This number is quite less as compared to a study in Hong Kong, where the percentage of vaccinated participants was 9.5 % [10].

28.5% of the participants agreed to get vaccinated against HPV, which shows that counseling by health care workers can play an effective role in awareness about the HPV vaccine. Participants with a family history of malignancy were more receptive to HPV vaccination.

Only 9.64% agreed that their parents would pay for the vaccine, while 74.34 % of the participants were willing to get vaccinated, provided the vaccine was made available free of cost. This emphasizes the high cost of vaccines as one of the major hindrances in the acceptability of the vaccine. A study by Montgomery et al also cited cost and low level of perceived risk as a barrier to vaccination. [8] In a study by Singh et al in Delhi, 61.82% of females had their daughters either already vaccinated or were willing to get them vaccinated [12]. In a project by a non-government health organization, where HPV vaccination was delivered through schools and health centers, vaccine

coverage achieved through campaigns in India ranged from 77.2% to 87.8% [13].

Generalizability

The study findings on HPV vaccination among adolescent girls in Bihar may be broadly applicable due to a representative sample, encompassing urban-rural demographics, healthcare infrastructure influence, and attitudes reflecting cultural norms. The data suggests healthcare workers play a key role in information dissemination, while high willingness for free vaccination underscores potential barriers regarding affordability.

Conclusion

We conclude that the awareness about HPV infection and vaccination is very low among adolescent girls in Bihar. The vaccine uptake is almost nil. But the positive aspect is that the participants have overall good acceptability towards HPV vaccination and the most important factor which may help in increasing vaccine uptake is making the vaccine more affordable as its high cost is a major reason affecting the acceptability of vaccine, to protect the masses from this vaccine-preventable deadly disease.

Limitation of the study

The study population consisted of participants who attended OPDs of the hospital and may not have been representative of the general adolescent population of Bihar. Additionally, the history of sexually transmitted infections was not taken into account due to cultural barriers, which could have influenced attitudes toward vaccination.

Recommendations

There is a need for more sensitization and awareness programmes to improve knowledge about HPV infection and vaccination. Health care workers may also pioneer this work by taking the opportunity to educate the adolescent population or their parents visiting the hospitals for other health-related needs.

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List of abbreviations

HPV: Human Papillomavirus

OPD: Out Patient Department

KAP: Knowledge, Attitude, Practice

SD: Standard Deviation

Informed Consent

Page | 6 A written informed consent was obtained from each participant before enrolment into the study.

Declaration of Helinski statement

The study was conducted according to the principles of the Helsinki Declaration.

Availability of research data

Authors are available and ready to supply the data upon request through the corresponding author.

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Conflict of interest

Authors have no conflict of interest to declare.

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