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Original Research Article

A study on assessment of knowledge and acceptance of human papilloma virus vaccination among the parents of adolescent girls of North Karnataka

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ABSTRACT

Background: Infection with the human papillomavirus (HPV) is the most common sexually transmitted infection (STI). In India, cervical cancer is the second most common women's cancer in the country. Approximately 80% of cancers caused by HPV can be prevented by administering the HPV vaccine. The current study was taken up to identify the factors influencing HPV knowledge and vaccine acceptance in the parents of adolescent girls.
Methods: A school based cross sectional study design was used. A total of 240 parents participated in the present study. A predesigned questionnaire was used for obtaining their knowledge and acceptance of HPV vaccine for their children. Statistical analysis was done using SPSS software 19.0.
Results: In the present study only 49.6% of them had acceptance about HPV vaccinations for their daughters. 78.3% of them felt that vaccine could prevent infection and could be safe. 54.6% knew about cervical cancer. 34.2% of them felt that the vaccine is painful and may have side effects. 50.8% of them thought that their children are too young to get cervical cancer. 74.6% felt the protection from the vaccine is short lived.
Conclusions: Despite the high efficacy rate of HPV vaccines, adolescent vaccine coverage is very poor due to lack of awareness of its efficacy and safety among parents of adolescent children. Concerted efforts are needed by public and private healthcare sectors to increase the awareness of the disease and increase HPV vaccine coverage.

Keywords: Acceptance, Adolescent, HPV vaccination, Knowledge, Parents

INTRODUCTION

Infection with the human papillomavirus (HPV) is the most common sexually transmitted infection (STI) of the reproductive tract with the majority of the sexually active population estimated to acquire the virus at some point in their lifetime.[1,2] The HPV family consists of more than 150 viral genotypes of which 13 are identified as carcinogenic or high risk.[3] Notably, 90% of the new infections will clear up without long-lasting implications. Implementation of preventive vaccination against the carcinogenic genotypes has been shown to significantly reduce the incidence of HPV-related cancer cases.

Globally, it is estimated that 570,000 cancer cases in women per year are related to HPV, majority of them, occurring in low- and middle-income countries. In India, a country home to one-sixth of the global population, cervical cancer is the second most common women's cancer in the country.[4] Cervical cancer ranks second among the women's cancers in India, with over 1.23 lakh new cases and 77000 deaths reported in 2020. Regular screening with pap smears or HPV tests can detect precancerous lesions enabling early intervention and cancer prevention. However, screening rates in India, particularly in rural areas are alarmingly low, leading to late-stage diagnosis and inadequate access to timely

treatment, resulting in avoidable loss of life and unfulfilled potential of screening tests. Numerous efforts have been undertaken in India to control cervical cancer.

In 1975 the Government of India launched the first National Cancer Control Program aiming to provide cytology-based exams for women. However, the development of HPV vaccines has offered new opportunities for early prevention. Approximately 80% of cancers caused by HPV can be prevented by administering the HPV vaccine.[5] Currently, in India 3 licensed HPV vaccines are available, namely Cervarix (HPV 16 and 18), Gardasil (HPV 6, 11, 16, 18) and Gardasil 9 (HPV 6, 11, 16, 18, 31, 33, 45, 52 and 58). The approved vaccines are recommended for adolescent girls aged between 9-14 years. More recently, certain countries have extended HPV vaccination to males within their gender-neutral vaccination programs.[5] Developing nations like India that have high rates of cervical cancer and yet lack comprehensive screening coverage will majorly benefit from vaccinating the adolescents. Parents have the authority to take most decisions about the vaccination. Hence, the success of HPV vaccination programmes will largely depend on parental decision making. A number of factors influence the vaccination success at individual level knowledge and information, risk perception, perceived importance of vaccination, social and religious norms, cost and availability of vaccine.[6]

Through the cervical cancer elimination strategy, the World Health Organisation (WHO) and United Nations Children's Fund (UNICEF) aim to increase the HPV vaccination global coverage to 90% of adolescent girls by 2030 globally.

Recently, Government of India announced the inclusion of HPV vaccine in national immunisation schedule. The success of this initiative could be achieved only by utilization of the services. The NTAGI (National Technical Advisory Group for Immunization) has recommended the introduction of the HPV vaccine into UIP on June 28th, 2022, proposing a one-time catch-up programme for adolescent girls aged 9-14 years followed by routine introduction at 9 years of age.

Lack of awareness of vaccination and its importance with several socio-cultural inhibitions could adversely affect the vaccination drive against cervical cancer.

The current study was taken up to identify the factors influencing HPV knowledge and vaccine acceptance in the parents of adolescent girls, which could help in improving the vaccine outreach to the target population.

METHODS

Study design

It was a school based cross-sectional study.

Study setting

The study was carried out at schools (during parents meet).

Study methods

Sample size

Sample size estimation was done using Open Epi software version 2.3.1 at 95% confidence level, according to the study conducted by Rehman et al.[6]

The proportion of women who had heard about the HPV vaccine = 18% = p

At 5%, Absolute precision.

Sample size estimated was 227, which was rounded off to 230.

Formula used $n=[DEFF*Np(1-p)]/[(d^2/Z^2_{1-\alpha/2}*(N-1)+p*(1-p)]$

The present study was conducted at a school under the urban field practice area of the department of community medicine, S. Nijalingappa Medical College, Bagalkote located in north Karnataka. The study was conducted from November 2023 to March 2024.

Data collection

Institutional ethical clearance was obtained. Permission from the school administrative authorities and school head were sought. Parents of daughters aged between 9-14 years who consented for the study were included. Parents who could not attend the study sessions and who did not consent to participate were excluded from the study.

Written informed consent was taken from the parents for their participation. A total of 240 parents participated in the present study. Parents meeting sessions in the school was arranged with prior information to them. A predesigned questionnaire (both in English and Kannada) was be used for obtaining their baseline knowledge and acceptance of HPV vaccine for their children. The data was obtained by self-administration, in case if they are illiterate, the data was obtained by asking questions. Later the data was coded and entered in Excel sheet.

Plan for statistical analysis

Statistical analysis was done using SPSS software 19.0. Data obtained was tabulated in the Excel sheet was analysed.

Quantitative data was expressed as mean±standard deviation and nonparametric data was expressed as median and min-max values. Percentages are used for representing qualitative data. $P<0.05$ was considered statistically significant.

RESULTS

In the present study, a total of 240 parents (mothers and fathers) participated in the study. Maximum (72.9%) of mothers were in the age group of 31-40 years. Maximum (62.5%) of fathers were in the age group of 36-45 years. Maximum of 88.3% of them belong to class 2 and class 3 socio-economic class according to modified B. G. Prasad classification (Table 1).

In the present study, only 49.6% of them had acceptance about HPV vaccinations for their daughters. 78.3% of them felt that vaccine could prevent infection and could be safe. 54.6 % knew about cervical cancer. 34.2% of them felt that the vaccine is painful and may have side effects. 50.8 % of them thought that their children are too young to get cervical cancer. 74.6% felt the protection from the vaccine is short lived (Table 2).

In the present study the overall attitude about the vaccination and its safety was negative (Table 3).

In the present study, the parents felt that schools are the preferred venue for their kids to get vaccinated (Table 4).

Table 1: Baseline characteristics of study participants (parents of adolescents).

Variables	Characteristics	Number	Percentage
Mothers age	≤30	18	7.5
	31-40	175	72.9
	41-50	44	18.3
	51+	3	1.3
Fathers age	≤35	4	1.7
	36-45	154	62.5
	46-55	77	32.1
	56+	5	2.1
Socioeconomic status according to Modified B. G. Prasad classification	1	19	7.9
	2	67	27.9
	3	145	60.4
	4	9	3.8
Total		240	

Table 2: Knowledge and acceptance about the HPV vaccination among parents.

Knowledge and acceptability	Yes (%)	No (%)	Don't know (%)
Acceptability of HPV vaccine	119 (49.6)	109 (45.4)	12 (5)
HPV vaccination can prevent HPV infections	188 (78.3)	23 (9.6)	29 (12.1)
HPV vaccine is safe and effective	183 (76.3)	27 (11.3)	30 (12.5)
I have good knowledge on cervical cancer, HPV, and HPV vaccine	131 (54.6)	84 (35)	25(10.4)
Vaccination is a social norm.	142 (59.2)	64 (26.7)	34 (14.2)
The vaccine has many side effects and the injection is painful	82 (34.2)	116 (48.3)	42 (17.5)
My child is too young to get cervical cancer	122 (50.8)	77 (32.1)	41 (17.1)
The vaccine will not protect my child throughout the life	179 (74.6)	24 (10.0)	37 (15.4)
HPV vaccine is expensive	86 (35.8)	101 (42.1)	53 (22.1)

Table 3: Attitude about HPV vaccination in parents.

	Strongly agree (%)	Agree (%)	Neither agree nor disagree (%)	Disagree (%)	Strongly disagree (%)
HPV vaccine is highly effective	48 (20)	148 (58.3)	13 (5.4)	3 (1.2)	28 (10.4)
HPV vaccine is safe	39 (16.2)	156 (65)	12 (5)	3(1.2)	30 (12.5)
Vaccine can prevent some of the sexually transmitted diseases	28 (10.4)	149 (62)	14 (5.8)	3 (1.2)	46 (19.1)
Vaccine should be given only in severe cases	7 (2.9)	72 (30)	75 (31.5)	11 (4.5)	75 (31.5)

Maximum number of parents had heard about HPV, cervical cancer and vaccine from family, friends and family doctors (Table 5).

Table 4: Preference of venue of vaccination for their children.

Venue	Number
School	182
Government hospital	14
Private clinics	9
Any others	35

Table 5: Source of knowledge about HPV vaccine.

Source of knowledge	Number
Family, friends and relatives	38
Family doctor	32
Teachers	30
Government bulletin/pamphlets	3
Mass media	13
Social media	3

DISCUSSION

HPV is a prevalent STI and has been linked to a variety of cancers in both males and females.[7] Vaccination is the most direct and effective measure to prevent HPV infection and HPV associated diseases.[8] Vaccination acceptance is critical to ensuring the success of National Immunisation Program of the country, and the knowledge about vaccination benefits and safety among parents of the target population is a prerequisite for informed decision making and vaccine acceptance.[9] The main aim of our study was to review the knowledge and acceptance of HPV vaccination among parents of adolescent girls.

In the present study, 78.3% of the parents had knowledge that the vaccine could prevent HPV infection and cervical cancer in women. But despite this knowledge about the vaccination, only 49.6% of them had acceptance of the HPV vaccinations for their daughters. This low rate of acceptance despite good knowledge is attribute to the limited access to the vaccination in only select private hospitals and clinics in India, to the high cost of the imported vaccines currently available and doubts regarding the safety and appropriate age of vaccination.

34.2% of parents thought the vaccine is painful with side effects and 50.8% parents felt that their children are too young to take the HPV vaccine. 74.6% parents felt the protection from vaccine is short lived. In the present study, the overall attitude about the HPV vaccination and its safety was negative. This throws light on the need to educate and create awareness among parents of the primary target population of girls aged between 9-14 years, about the safety profile of HPV vaccine and stress the need of vaccine to reduce the disease burden. Increasing awareness of HPV vaccines increases parental acceptance of adolescent vaccination.[10] It is thus recommended that the Government of India and the private healthcare providers need to promote awareness of HPV vaccination through extensive educational campaigns, especially in schools, primary health centres and through mass media.

In the current study, parents felt that schools are the preferred venue for their kids to get vaccinated which can be taken into consideration by the Government of India for mass outreach and convenience of vaccination while drafting the implementation program.

In our study, most of the parents had heard about HPV, cervical cancer and HPV vaccination from friends, relatives and family doctors. The role of mass media, government bulletins/pamphlets to reach out to the target population or public at large was minimal.

The low acceptance of HPV vaccine due to its high cost could be addressed by introduction of this vaccine in the National Immunisation Program, by reimbursement of vaccine through health insurance and reduction of vaccine price.[11] Availability of domestic quadrivalent vaccine at lower affordable price will help in improving the vaccine outreach to the lower socio-economic section of the society.[11]

Recognition of the social and economic impact of the entire HPV disease burden is still inadequate.[12] The vast majority of the disease burden can be prevented by HPV vaccination. However, the population is not aware of all this information which is reflected in our study too. The main drivers for HPV vaccination included the perception of HPV severity and impact and the belief that HPV vaccines are effective and safe and hence more efforts are needed to increase HPV awareness in the population.[13]

The study sample in the present study is limited to only a single school in semiurban area of north Karnataka which may not be reflective of the findings in other parts of the state/country. Larger study samples including more diverse population and geographical areas across the country will better reflect about the awareness of HPV vaccination in the country, to formulate strategies to increase coverage rate of HPV vaccination nationwide.

CONCLUSION

Despite the high efficacy rate of HPV vaccines, adolescent vaccine coverage is very poor due to lack of awareness of its efficacy and safety among parents of adolescent children. Further the high cost and limited availability of these vaccines are a major barrier. The inclusion of HPV vaccination in the National Immunisation Program by the government of India is a welcome move in addressing this problem. However, concerted efforts are needed by public and private healthcare sectors to increase the awareness of disease burden of HPV infections and increase easy access to HPV vaccination to the target population at large.

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