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# To Create Awareness through Information Booklet on HPV Vaccine among Adolescent Girls in Selected School of Rural Community at Karad Taluka

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## ABSTRACT

**Background:** Evaluative study aimed to develop an informational booklet to educate adolescent girls about Human Pappilomavirus (HPV) and its vaccine. The prevention of HPV by vaccine is important in women's life. Being vaccinated at age 9- 14 years is a highly effective way to prevent HPV infection, cervical cancer and other HPV – related cancers. By assessing their baseline awareness and utilizing the booklet as an educational tool, the study sought to enhance knowledge and promote vaccination based on the objective to assess the knowledge of adolescent girls regarding the HPV vaccine in selected schools. A total of 100 adolescent girls, aged 10-16 years, from Mahatma Gandhi Vidyalaya Kale, enrolled in the study.

**Materials and Methods:** A quantitative evaluative research design was employed. The study sample comprised 100 adolescent girls, enrolled by using purposive sampling technique. Data were collected using a structured knowledge questionnaire, administered as a pre-test and post-test and analyzed through descriptive and inferential statistical analysis.

**Results:** The findings revealed that, in the pre-test, 14% of participants had poor knowledge, 70% had average knowledge, and 16% demonstrated good knowledge. Following the intervention, the post-test results showed a significant improvement, with 66% attaining good knowledge, 30% maintaining average knowledge, and only 4% retaining poor knowledge. The mean pre-test (13.12) and post-test (19.44) knowledge scores found statistical difference. The standard deviation for the pre-test was 3.624, while the post-test standard deviation was 5.480. The computed test statistic value was 21.623, with a p-value of <0.0001, indicating a highly significant improvement in knowledge levels. **Conclusion:** The study demonstrated the information booklet among adolescent girls regarding the HPV vaccine. The significant increase in post-test knowledge scores underscores the importance of structured educational interventions in promoting HPV vaccine awareness and uptake.

***Keywords:*** *Information Booklet, Adolescent Girls, Create Awareness, HPV Vaccine.*

## 1. INTRODUCTION

Human pappilomavirus (HPV) vaccination plays a crucial role, in India adherence to routine cervical Pap smear screening remains low, highlighting the need for effective preventive measures, demonstrated both safety and efficacy. The Indian Academy of Pediatrics Committee on Immunization (IAPCOI) recommends offering the vaccine to all females who have the financial means to access it, as it falls under Category 2 of the IAP vaccine classification. To achieve optimal protection, the vaccine should be administered before exposure to HPV, ideally prior to the onset of sexual activity.

When introducing the vaccine to parents, it is advisable to emphasize its role in framing it as protection against a sexually transmitted infection. While HPV vaccines significantly prevents cervical cancer, they do not offer complete protection,

routine cervical cancer screening remains essential and should not be replaced by vaccination alone. Women are the representation of strength, adaptability, and unvarying intent[1].

Good health is the foundation for a fulfilling and productive life. Without it, even the simplest tasks can become challenging. Physical, mental, and emotional well-being all play a role in maintaining overall health[2]. Women often juggle multiple responsibilities, including family, career, and personal health, which can sometimes lead to neglecting self-care[3].Women's wellness is a vital priority because women still face unfair treatment and barriers in society, which can affect their mental health, reproductive health which is a main part of women's health. Women's reproductive system is a delicate and complex system in the body. It is important to take steps to prevent it from infection and injury and prevent problem including some long-term health problems[4]. Endometriosis, Female sexual dysfunction, cervical cancer, polycystic ovary syndrome (PCOS), and Human immunodeficiency viruses (HIV) are the main reproductive problems in women's health[5].

Cervical cancer is a major global health concern, ranking third in cancer diagnosis and fourth in cancer worldwide accounting for more than 74,000 deaths per year. Globally, cervical cancer amongst women and it is especially common in low- and middle-income countries (LMICs) such as South Africa (SA), India, China and Brazil[6-8]. Cervical cancer develops in a woman's cervix. Infection with high-risk human pappilomavirus (HPV), a prevalent virus shared through close physical contact[9]. Untreated persistent infection of the cervix, the lower part of the uterus or womb, which opens into the vagina, also called the birth canal is responsible for 95% of cervical cancer cases[10.]

**Need for study:** Research indicates that awareness about HPV and its vaccine remains alarmingly low among young women in rural communities. A study by Ghai et al. in 2017 found that only 23% of adolescent girls in rural India had heard of HPV, and even fewer understood its connection to cervical cancer[11]. This lack of awareness can hinder vaccination efforts and increase susceptibility to HPV-related diseases. Cultural beliefs and societal norms in rural communities often create barriers to discussing sexual health and receiving vaccinations. Studies show that stigma around sexual health education, can significantly reduce vaccination uptake[12]. Targeted educational interventions that address these cultural factors are essential for improving HPV vaccination rates. Effective health education materials, such as information booklets, can significantly enhance knowledge and awareness about health issues. A systematic review indicated that educational interventions, particularly those that are culturally tailored, lead to improved knowledge and vaccination rates among adolescents[13]. Developing an information booklet specifically for adolescent girls in rural areas can bridge the knowledge gap. Enhancing awareness about the HPV vaccine is directly correlated with improved health outcomes. The WHO asserts that increasing vaccination rates can lead to a substantial reduction in cervical cancer incidence[14]. Schools are a critical platform for health education, particularly in rural areas where other resources are limited.

**Objectives**: 1. To assess the knowledge of adolescent girls on the HPV vaccine in selected schools. 2. To evaluate the effectiveness of an information booklet on HPV vaccination. 3. To find the association between socio-demographic variables and knowledge levels among adolescent girls.

## 2. MATERIALS AND METHODS

The present study was conducted at Mahatma Gandhi Vidyalaya, Kale, Maharashtra, India, from July 2023 to December 2024. A total of 100 samples were collected from Mahatma Gandhi Vidyalaya, Kale, Taluka Karad, Maharashtra by purposive sampling. The participants in the study included adolescent girls aged 10 to 16 years who were studying at the selected school. Inclusion criteria included those who were willing to participate, could understand, read, and write in Marathi. Exclusion criterion: Critically or psychologically ill adolescent girls. Ethical permission for the study was obtained through Krishna Vishwa Vidyapeeth (Deemed to be University), registration number **KVV/IEC/08/2023 received on 19/07/2023**. Adolescents were enrolled using a purposive sampling technique. During the first day, participants introduced purpose of the study and informed consent was obtained before enrolling adolescent girls in the study from their parents. Data were collected during first day for pretest and Created awareness through Information Booklet. The independent variable was the information Booklet on HPV Vaccination, and the dependent variable was the Acceptance of Vaccination by adolescent girls.

**Research Approach**: Evaluative research approach

**Research Design**: one group pre test and post-test design

**Setting**: Mahatma Gandhi Vidyalaya, Kale, Taluka Karad, Maharashtra

**Study Subjects**: Adolescent girls age 10 to 16 years

**Accessible Population**: Adolescent girls who meet the inclusion criteria

**Sample Size**: 100 Participants

**Sampling Technique**: Purposive Sampling Technique

**Data collected tool**: Structured questionnaire was prepared and collected data

**Section** I: Structured questionnaire was designed to gather data related to demographic variables such as Age, Religion, Education of guardian, Occupation of guardian, Monthly income in rupees, Type of family, Source of information, Type of diet, Dietary Habits etc.

**Section II**: Has includes structured questionnaire on level of awareness about HPV vaccine.

Data Analysis: Descriptive Statistics: frequency and percentage. Inferential Statistics: chi square ($X^2$) test.

Research study was conducted at Mahatma Gandhi Vidyalaya Kale in the rural area of Karad Taluka, Permission taken from Principal of Mahatma Gandhi Vidyalaya, Kale. Data was collected from 6th August 2024. On the first day the pre-test and socio-demographic variables from the adolescent girls in Mahatma Gandhi Vidyalaya, Kale and the same time assessed their knowledge regarding the HPV vaccine. After 7 days researcher assessed the knowledge of adolescent girls with a post-test on 13th August 2024. Data collection steps followed collected socio-demographic data, pre-test questionnaires administered, assessed the knowledge through questionnaire, information booklet about HPV vaccination provided to adolescent girls. Post-test assessment done after 7 days of giving information booklet Inclusion criterion were Adolescent girl's age group 10 to 16 years, those girls are studying in selected school at Mahatma Gandhi Vidyalaya, Kale. Those who are willing to participate in this study, understand and can write and read the Marathi language. Exclusion criterion: Critically and psychologically ill adolescent girls.

**Sample size calculation:** The sample size for adolescent girls was calculated based on a study conducted by Prabhjot Saini and Anamika Saini (2023) to assess the knowledge and attitude regarding the Human Papillomavirus (HPV) vaccine in the prevention of cervical cancer among adolescent girls in selected schools of District Ludhiana, Punjab. A quantitative research approach and a non-experimental research design were used, involving 200 adolescent girls from Government schools in Mansoran and Sarabha, Ludhiana, Punjab. Data were collected using a self-structured questionnaire to assess knowledge and attitude regarding the HPV vaccine in the prevention of cervical cancer among adolescent girls. The results showed that adolescent girls had below-average knowledge and neutral attitudes towards the HPV vaccine.

To calculate the sample size for the present study based on the findings of the study by Prabhjot Saini and Anamika Saini, we used the following formula for proportion-based sample size calculation:

$$n = \frac{Z^2pq}{L^2};$$ $Z\propto=1.96$; Type I error with5%level of significance

p = proportion of awareness on HPV among Adolescents =89.6%

q=100-p

L=Allowable error=6%

n = 99.4≅99

**So the 100 Participants selected for this Research study**

## 3. RESULT

**Table 1: Frequency and percentage distribution of sample characteristics according to Socio-Demographic Variables**

| Demographic Variable | Frequency(N) | Percentage (%) |
|---|---|---|
| **1) Age** | | |
| a)14 years | 40 | 40% |
| b) 15 years | 60 | 60% |
| **2)Religion** | | |
| a) Hindu | 97 | 97% |
| b) Muslim | 3 | 3% |
| **3)Education** | | |

| | | |
|---|---|---|
| a) Post graduate | 3 | 3% |
| b) Graduate | 14 | 14% |
| c) Intermediate or diploma | 8 | 8% |
| d) High School certificate | 38 | 38% |
| e) Middle school certificate | 26 | 26% |
| f) Primary school certificate | 9 | 9% |
| g) Illiterate | 2 | 2% |
| **4)Occupation of guardian** | | |
| a) Legislators, senior official and managers | 2 | 2% |
| b) Professional | 7 | 7% |
| c) Technicians and associate professionals | 5 | 5% |
| d) Clerks | 5 | 5% |
| e) Skilled workers and shop and market sale workers | 6 | 6% |
| f) Craft and related trade workers | 4 | 4% |
| g) Plant and machine operators and assemblers | 11 | 11% |
| h) Elementary occupation | 60 | 60% |
| i) Unemployed | -- | -- |
| **5) Monthly family income in Rupees** | | |
| a) >_199,862 | -- | -- |
| b) 99,931 - 199,861 | -- | -- |
| c) 74,755 - 99,930 | -- | -- |
| d)49,962 – 74,755 | -- | -- |
| e)29,973 – 49,961 | 9 | 9% |
| f)10,002 – 29,972 | 86 | 86% |
| g) <_10,001 | 5 | 5% |
| **6) Type of family** | | |
| a) Nuclear | 53 | 53% |
| b) Joint | 47 | 47% |
| **7)Source of information** | | |
| a) Friends | -- | -- |
| b) Health workers | 42 | 42% |
| c) Public relations | 45 | 45% |
| d) Others | 13 | 13% |
| **8) Type of diet** | | |
| a) Vegetarian | 7 | 7% |

| | | |
|---|---|---|
| b) Mixed diet | 93 | 93% |
| **9) Dietary habits** | | |
| a) Fast food consumption weekly | 95 | 95% |
| b) Fast food consumption daily | 5 | 5% |

Table 1 show's that the majority of subjects (60%) are 15 years old. A significant proportion (97%) Hindus. Regarding education, 38% of the subjects have completed higher studies, while 60% of their guardians are engaged in elementary occupations. The majority of participants (86%) have a family income ranging from Rs. 10,002 to 29,972 Rs. In terms of family type, 53% belong to nuclear families. Regarding the source of information, 45% received information through public relations. Additionally, 93% of participants follow a mixed diet, and 95% consume fast food weekly.

**Findings related to Pre-Test and post-Test Scores**

**Table .2 Pre-Test scores among adolescent girls**

| **Pre- Test score on HPV Vaccination among adolescent girls** | | | |
|---|---|---|---|
| **Level of Knowledge** | **Scoring** | **Frequency(N)** | **Percentage (%)** |
| **Poor** | 0 to 9 | 14 | 14% |
| **Average** | 10 to 17 | 70 | 70% |
| **Good** | 18 to 30 | 16 | 16% |

Table 2 depicts the level of knowledge regarding HPV vaccination among adolescent girls before the intervention. It was observed that 14% of participants had poor knowledge, 70% had average knowledge, and 16% had good knowledge about HPV vaccination. This indicates that the majority of participants had a moderate understanding of HPV vaccination before receiving educational intervention.

**Table 3 Post-Test Scores among Adolescent Girls**

| **Post- Test Score on HPV Vaccination among adolescent girls** | | | |
|---|---|---|---|
| **Level of Knowledge** | **Scoring** | **Frequency(N)** | **Percentage (%)** |
| **Poor** | 0 to 9 | 4 | 4% |
| **Average** | 10 to 17 | 30 | 30% |
| **Good** | 18 to 30 | 66 | 66% |

The post-test results indicate a significant improvement in knowledge levels after the educational intervention. In post test 4% of participants remained in the poor knowledge category, whereas the proportion of adolescents with average knowledge decreased to 30%. Notably, 66% of participants demonstrated good knowledge post-intervention, highlighting the effectiveness of the educational initiative in enhancing awareness and understanding of HPV vaccination.

**Table 4 Comparison of Pre-Test and Post test**

| | | **Pre-Test Scores** | | **Post-Test Scores** | |
|---|---|---|---|---|---|
| **Level of Knowledge** | **Scoring** | **Frequency(N)** | **Percentage (%)** | **Frequency(N)** | **Percentage (%)** |
| **Poor** | 0 to 9 | 14 | 14% | 4 | 4% |
| **Average** | 10 to 17 | 70 | 70% | 30 | 30% |
| **Good** | 18 to 30 | 16 | 16% | 66 | 66% |

Table 4 depicts A comparative analysis of the pre-test and post-test findings reveals a considerable increase in the knowledge

levels of adolescent girls following the educational intervention. The percentage of participants with good knowledge increased from 16% in the pre-test to 66 % in the post-test, whereas those with poor knowledge decreased significantly from 14% to 4%. This demonstrates the positive impact of structured educational programs in improving awareness and knowledge regarding HPV vaccination among adolescent girls.

**Table 5 Distribution according to Mean, Median, Mode, Standard Deviation and Range of Pre-Test and Post-Test Knowledge Score Regarding the HPV Vaccine N -100**

| Participants | Mean | | Mean difference | Standard deviation | | Paired 't' value |
|---|---|---|---|---|---|---|
| | Pre-test | Post-test | | Pre-test | Post-test | |
| Adolescent girls | 13.12 | 19.44 | 6.320 | 3.624 | 5.480 | 21.623<br>Extremely significant<br>P<0.0001 |

The table 5 shows the knowledge level of selected adolescent girls before and after giving awareness through the information booklet with a pre-test mean of 13.12 and a post-test mean of 19.44. The table shows the calculated t-value is 21.623 and the p-value <0. 0001. The computed t-value statistically is 21.623, since the p-value for the test is <0. 0001. So the null hypothesis is rejected. It shows that awareness through the information booklet is an effective method for improving the knowledge level of adolescent girls.

**Table 6 Association between Socio-Demographic Variables and Knowledge of Adolescent Girls on HPV Vaccine**

| | | Level of Knowledge | | | Chi-Square Value | P Value | Level of significance |
|---|---|---|---|---|---|---|---|
| **Sr. No.** | **Demographic Variable** | **Poor** | **Average** | **Good** | | | |
| **1)** | **Age** | | | | 3.594 | 0.1658 | NS |
| | a) 14 | 6 | 31 | 3 | | | |
| | b) 15 | 8 | 39 | 13 | | | |
| **2)** | **Religion** | | | | 1.019 | 0.6009 | NS |
| | a) Hindu | 14 | 68 | 15 | | | |
| | b) Muslim | 0 | 2 | 1 | | | |
| | c) Christian | 0 | 0 | 0 | | | |
| | d) others | - | 0 | 0 | | | |
| **3)** | **Education of guardian** | | | | 17.262 | 0.14 | NS |
| | a) Postgraduate | 0 | 2 | 1 | | | |
| | b) Graduate | 1 | 11 | 2 | | | |
| | c) Intermediate or diploma | 2 | 4 | 2 | | | |
| | d) Highschool certificate | 8 | 28 | 2 | | | |
| | e) Middle school certificate | 3 | 15 | 8 | | | |
| | f) Primary school certificate | 0 | 9 | 0 | | | |
| | g) Illiterate | 0 | 1 | 1 | | | |
| **4)** | **Occupation of guardian** | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | a) Legislators, senior officials, and managers | 0 | 1 | 1 | 16.109 | 0.3068 | NS |
| | b) Professional | 0 | 7 | 0 | | | |
| | c) Technicians and associate professionals | 2 | 2 | 1 | | | |
| | d) Clerks | 1 | 3 | 1 | | | |
| | e) Skilled workers and shop and market sale workers | 1 | 3 | 2 | | | |
| | f) Craft and related trade workers | 2 | 2 | 0 | | | |
| | g) Plot and machine operators and assemblers | 1 | 7 | 3 | | | |
| | h) Elementary occupation | 7 | 45 | 8 | | | |
| | i)Unemployed | 0 | 0 | 0 | | | |
| **5)** | **Monthly income in rupees** | | | | 2.533 | 0.6387 | NS |
| | a) >_199,862 | 0 | 0 | 0 | | | |
| | b) 99,931 - 199,861 | 0 | 0 | 0 | | | |
| | c) 74,755 - 99,930 | 0 | 0 | 0 | | | |
| | d) 49,962 - 74,755 | 0 | 0 | 0 | | | |
| | e) 29,973 - 49,961 | 1 | 6 | 2 | | | |
| | f) 10,002 - 29,972 | 13 | 59 | 14 | | | |
| | g) <_10,001 | 0 | 5 | 0 | | | |
| **6)** | **Type of family** | | | | 0.8430 | 0.6561 | NS |
| | a) Nuclear | 6 | 39 | 8 | | | |
| | b) Joint | 8 | 31 | 8 | | | |
| **7)** | **Source of information** | | | | | | |
| | a) Friends | 0 | 0 | 0 | 6.820 | 0.1457 | NS |
| | b) Health workers | 5 | 26 | 11 | | | |
| | c) public relations | 8 | 34 | 3 | | | |
| | d) Others | 1 | 10 | 2 | | | |
| **7)** | **Type of diet** | | | | 1.470 | 0.4794 | NS |
| | a) Vegetarian | 1 | 6 | 0 | | | |
| | b) Mixed diet | 13 | 64 | 16 | | | |
| **8)** | **Dietary Habits** | | | | 0.2632 | 0.8767 | NS |
| | a) Fast food consumption weekly | 13 | 67 | 15 | | | |
| | b) Fast food consumption daily | 1 | 3 | 1 | | | |

Table 6 shows the association of pre-test knowledge level of selected adolescent girls with their selected demographic variables, using chi-square test, Age (3.594), Religion(1.019),education of guardian (17.262),occupation of guardian (16.109),Monthly income in rupees(2.533),Type of family (0.8430),Source of information(6.820),Type of

diet(1.470),Dietary Habits(0.2632) are Not significant.

## 4. DISCUSSION

In the present study participants were included adolescent girls age group 10 years to 16 years similarity found in another prospective cohort study conducted by Partha Basu, Sylla G Malvi, and Smitha Joshi etal [16] in 2021 among Indian adolescent girls 10 to 18 years of age group.

In the present study majority 70(70%) adolescent girls were having average knowledge in pre-test and 66(66%) transferred into good knowledge in post-test, after giving awareness through information booklet. The findings were supported by a cross – sectional research study conducted by P. Cheena Chowla, Anil Chowla and Seema Choudhary[17]. They found that in Pre-test score about only 47% of respondents recommended young women to get vaccinated against HPV, 81% were found to be aware of the prevention and the highest (88.3%) awareness about the existence of vaccines against HPV and the lowest 64%. Public education is also pertinent for a successful HPV vaccination program in the country.

In the present research study findings shows there was no significant association between the knowledge regarding HPV vaccine among adolescent girls and demographic variables such as age, religion, education of guardian, occupation of guardian, monthly family income, type of family, source of information, type of diet and dietary habits. Another study conducted by Nancy Innocentia Ebu, and Gifty Esinam, etal[18]. In their study revealed that knowledge, there was statistically significant association between age ($X^2$=23.746, P=0.001), Marital status ($X^2$=14.758, =0.005), completed level of education ($X^2$=21.692, =0.001), and duration working at the hospital ($X^2$ =8.424, P= 0.038) and acceptance of HPV vaccination. In the present study there was a significant difference found between the mean pre-test and post-test knowledge of adolescent girls. The effectiveness of information booklet was shown to be effective on the level of knowledge among adolescent girls

In the present research study, Single adolescent not received HPV Vaccine single dose, only 12 adolescent girls had heard the term "HPV," while the remaining 88 adolescents received information about HPV **for the first time**. Similar findings found in study conducted by Iova CF, Badau D, Daina et al[19] More than half (60.0%) of the participants had not heard of the **HPV** vaccine and only 10.2% of the girls were already vaccinated against HPV**.**

## 5. CONCLUSION

Based on the findings of the study the following conclusions were drawn. In the present study majority of the adolescent girls had poor and average knowledge in the pre-test and after giving an information booklet regarding HPV vaccines the level of knowledge was increased to good knowledge.

The findings suggest that educational interventions play a crucial role in enhancing knowledge about HPV vaccination among adolescents. A significant increase in post-test scores highlights the effectiveness of the initiative, reinforcing the need for similar awareness programs to promote better understanding and uptake of HPV vaccination.

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