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Comprehensive Understanding of Human Papillomavirus Vaccination Among Mothers of Adolescent Girls from Urban Slums: A Descriptive Study

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ABSTRACT

Background: India accounts for 1/6th of the population around the world, with cancer of the cervix being 2nd commonest cancers to be affecting women as compared to other cancers. It is also said to be calculated for 25% in terms of sickness & death ratios. Out of average studies, few focused on adolescent girls , teenage girls and adults. Health awareness intervention was effective in raising the awareness & willingness towards vaccination. Barriers were identified among them relate to cultural influences. It was concluded that action towards health awareness among the mothers, parents, women population has to be increased.

Statistics in Maharashtra revealed that 10,666 women among one crore are suspected to be suffering with cervical cancer. Additional Directorate of Health Services stated that Human Papillomavirus vaccine would soon be included in the immunization schedule. Hence it has been stressed time and again the importance of health education in various health programs launched by government. It has be seen as a tool for vaccine acceptance among the population.

Methodology: This descriptive study was conducted in the urban slums of metropolitan city in the state of Maharashtra between July 2024 to January 2025, among mothers of adolescent girls from urban slums. A structured tool which was validated & was found to be reliable was utilized to understand the knowledge level of the samples.

Results: Total samples who participated in the study were 200, where the maximum age of the samples was between 36-40 years, 51% of samples were secondary educated, 48.5% were employed in government and private services, an equal number were from middle class income group, when questioned about their awareness about Human Papillomavirus it was revealed that 43% got information from television , 31% were informed by health workers , 20% educated from mass media & 6% received information from family and friends. Statistical analysis depicted that 50% of the samples had average knowledge, 45% had good knowledge & 5% of mothers of adolescent girls had poor knowledge ($p<0.05$). The mean score calculated was 14.15 for standard deviation of 3.24.There is significant association between knowledge score and demographic variables education and information of HPV vaccine with chi square statistical calculations. Demographic variable of education saw significant association with knowledge level at df of 4, Chi square cal val 11.472 > Chi t val 9.4877 for p val 0,021> 0.05 , which revelas significant association.The dempgraphic variable of spurce of information was also associated with the knowledge level at df of 1, Chi square cal val 37.65 > Chi t val 3.84 for p val 0.001> 0.05 , which reveals significant association.

Conclusions: This study highlights the importance of education and information dissemination in promoting awareness of the HPV vaccine among mothers. The findings suggest that mothers with higher education levels are more likely to have better knowledge about the HPV vaccine, indicating that education may be a critical factor in improving vaccine uptake. Moreover, the significant association between prior knowledge of the vaccine and higher scores emphasizes the need for targeted public health campaigns to raise awareness among those who are less informed.The lack of association between knowledge and other demographic factors such as age, occupation, or income suggests that misconceptions about the vaccine may be prevalent across various socioeconomic groups. Public health interventions should thus be broad-based but tailored to address specific gaps in understanding.

Categories: Public Health, Obstetrics & Gynaecology Nursing, Health Education

Keywords: *Understanding, Human Papillomavirus, vaccination, mothers of adolescent girls urban slums.*

1. INTRODUCTION

Throughout the globe one of the most dreaded cancer affecting the women is cervical cancer, which is the 4th commonest among all the cancers. More than 6 lac new cases have been detected in the year 2022. Mortality rate was highest of about 94% in women belonging to the low income category. Many reasons have been shortlisted to know the cause of these deaths few of them being no vaccination, poverty and lack of knowledge.1However the known causes of predominating HIV status cannot be ignored. The age group mostly affected are young women, adolescent girls, middle aged women.2.

Human Papiilomavirus which is known to cause infections in the genital system, skin etc is responsible cause for Cervical Cancer. The age group above 18 years of age or predominantly active in their sexual choices have the threat of contracting the disease, with a weaker immune system the risk increases. Long exposure to the risk factors with H-P-V it increases the cells abnormal in nature.

With the increase in the abnormal cells it gives rise to the occurrence of cervical cancer with 95% chances. Duration differs anywhere from 5 to 10 years and even beyond with weakened immunity, also contraceptives, pregnancy at young age increases the chances. Various measures are promoted to stop the occurrence of H-P-V related cancers. Majority is raising awareness in the vulnerable groups and their care takers, parents, increasing the availability of resources providing information will surely act as control policies

Out of average studies taken into consideration few focused on adolescent girls, teenage girls and adults. Health awareness intervention was effective in raising the uptake of willingness of vaccine. Barriers were identified among them relate to cultural influences. It was concluded that action towards health awareness among the mothers, parents , women population has to be increased. With multiple efforts there has been an steady increase in the increase of H-P-V vaccination in India with maximum coverage. With the new advent of vaccines were both male and female will be immunized with an affordable cost to be popularized through education & awareness.

Hence it has been stressed time and again the importance of health education in various health programs launched by government. It has been seen as a tool for vaccine acceptance among the population. But still there are a few aspects which can be dealt with through imparting public education among the population to prove its mass effect.

While conducting a home-to-home visit during surveys it was noted that many were eager know regarding Human Papillomavirus vaccination, and they had many queries as well related to the vaccine. This gave in to the thought process of knowing the knowledge of adults especially women towards vaccination of Human Papilloma Virus, therefore this study was undertaken.

2. MATERIAL & METHODS

The study was studied with a quantitative based approach with descriptive survey design. The duration of the study lasted from July 2024 to January 2025.The study had approval of Institutional Research &Recommendation Committee of Bharati Vidyapeeth (DU),College of Nursing, Pune (BV(DU)/CON/IRRC/165/2024.The study participants were mothers who could read & write the local language as well as English language , the ones who had adolescent girls, within the age group of 30 to 45 years and the ones who had given written informed consent. Mothers who already were exposed to the knowledge were excluded. The total sample size was 200 who participated in the study. The participants were informed regarding the purpose of the study, and the questionnaire was administered to the participants which mentioned their demographic details and questions related to knowledge regarding Human Papillomavirus vaccination. The total time taken was approximately 20-25 mins. It was instructed that they need to answer all the questions.

Statistical Analysis

The data was collected through pen and paper mode, all the responses were coded and entered into Microsoft excel as per the coding of the data. Scoring was done as per the response to the question, each correct answer was scored as 1 and incorrect answer as scored as 0.A total of 24 questions were with multiple options were constructed. A score from 0-8 was scored as poor knowledge, average score ranged between 9-16 and good knowledge was scored between 17-24 marks. Data was coded, calculated , represented and interpreted as per the statistical calculation, statistical calculation included frequency & percentage for demographic characteristics , mean and SD for knowledge score, and Chi -square for association .

3. RESULTS

Total samples who participated in the study were 200, where the maximum age of the samples was between 36-40 years, 51% of samples were secondary educated, 48.5% were employed in government and private services, an equal number were from middle class income group, when questioned about their awareness about Human Papillomavirus it was revealed that 43% got information from television , 31% were informed by health workers , 20% educated from mass media & 6% received information from family and friends..

		FREQUENCY (N)	PERCENTAGE (%)
Age in years	30 – 35	75	37.5
	36– 40	89	44.5
	41 – 45	36	18
Educational Status	Primary	10	05
	Secondary	102	51
	10^{TH} and above	88	44
Occupation	Homemaker	88	44
	Job	97	48.5
	Business	15	7.5
Family Income	> 10000/-	80	40
	10001 to 20000/-	97	48.5
	20001 to 30000/-	15	7.5
	More than 30000/-	08	04
Do you know about HPV vaccine	Yes	112	56
	No	88	44
If yes: Source of knowledge	Mass media (Mobile Phone, Radio, Newspaper)	40	20
	Television	86	43
	Family and Friends	12	06
	Health Workers	62	31

Table No:1 **Distribution of samples as per the demographic data**

Level of knowledge	Frequency	Percentage	Mean	SD
Poor knowledge	05	5	14.15	3.24
Average knowledge	100	50		
Good knowledge	95	45		

Table No 2 Knowledge regarding HPV vaccine among mothers of adolescent girls

Statistical analysis depicted that 50% of the samples had average knowledge, 45% had good knowledge & 5% of mothers of adolescent girls had poor knowledge ($p<0.05$). The mean score calculated was 14.15 for standard deviation of 3.24.

Chi square association with demographic Data

There is significant association between knowledge score and demographic variables education and information of HPV vaccine with chi square statistical calculations. Demographic variable of education saw significant association with knowledge level at df of 4, Chi square cal val 11.472 > Chi t val 9.4877 for p val 0,021> 0.05 , which reveals significant association. The demographic variable of source of information was also associated with the knowledge level at df of 1, Chi square cal val 37.65 > Chi t val 3.84 for p val 0.001> 0.05 , which reveals significant association.

DEMOGRAPHIC VARIABLE	Poor knowledge	Average knowledge	Good knowledge	DF	Chi.-Square Statistic value.	Chi-square table value.	P Value	Remark
Age in years								
a.30 – 35 years	03	45	27	4	7.1709	9.4877	0.12	NS
b.36 – 40 years	01	40	48					
c.41 – 45 years	01	15	20					
Education								
a. Primary	3	52	33	4	11.472	9.4877	0.021	***S**
b. Secondary	1	44	57					
c. 10TH and above	1	4	5					
Occupation								
a. Homemaker	2	44	42	4	1.2105	9.4877	0.87	NS
b. Job	2	50	45					
c. Business	1	6	8					
Family Income								
a. Less than Rs 10,000/-	2	43	35	6	8.8433	12.59	0.18	NS
b. 10,000-20,000/-	1	48	48					
c. 20,001-30,000/-	1	6	2					
d. More than 30,000/-	1	3	4					

Table No 3: Chi square association with demographic Data

(*NS: No significant association, *S: Significant association)

Do you know about HPV vaccine ?								

a. Yes	1	37	75	1	37.65	3.84	0.0001	*S
b. No	04	63	20					
What is the source of information for HPV vaccine?								
a. Mass Media	1	13	8	6	3.79	12.59	0.67	NS
b. Television	1	23	24					
c. Health Workers	2	16	17					
d. Family and Friends	1	4	2					
Table No 3: Chi square association with demographic Data (*NS: No significant association, *S: Significant association)								

4. DISCUSSION

This study highlights the importance of education and information dissemination in promoting awareness of the HPV vaccine among mothers. The findings suggest that mothers with higher education levels are more likely to have better knowledge about the HPV vaccine, indicating that education may be a critical factor in improving vaccine uptake. Moreover, the significant association between prior knowledge of the vaccine and higher scores emphasizes the need for targeted public health campaigns to raise awareness among those who are less informed.The lack of association between knowledge and other demographic factors such as age, occupation, or income suggests that misconceptions about the vaccine may be prevalent across various socioeconomic groups. Public health interventions should thus be broad-based but tailored to address specific gaps in understanding.

This research contributes to the understanding of how maternal knowledge impacts HPV vaccination rates and suggests that efforts to improve education, especially in regions with lower literacy rates, are crucial to increasing vaccine coverage. Moreover, leveraging mass media and healthcare workers to provide accurate and accessible information could help bridge the knowledge gap and dispel myths surrounding the vaccine.

5. CONCLUSION

The main purpose of this study was to assess the knowledge regarding HPV vaccine among mothers of adolescent girls. The researchers decided to use a quantitative research approach for this study. They chose a non-experimental, descriptive design to assess knowledge about HPV vaccine among mothers of adolescent girls in specific areas of Pune city. The study population included mothers of adolescent girls from Pune City. sample size of 200 mothers of adolescent girls using non-probability purposive sampling were selected . After taking data from 200 mothers of adolescent girls result shows that , 50% of samples had average knowledge regarding HPV vaccine , 45% of samples had good knowledge regarding HPV vaccine and 5% of samples had poor knowledge regarding HPV vaccine.

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agrees to be accountable for all the aspects of the work.

Concept and design: Supriya Pottal Ray, N Sujita Devi, Manisha Gadade, L Sushila Devi

Acquisition, analysis, or interpretation of data: Supriya Pottal Ray, N Sujita Devi, Manisha Gadade, L Sushila Devi

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Disclosures

Human subjects: Consent was obtained by all participants in the study. Institutional Research &Recommendation Committee of Bharati Vidyapeeth (DU),College of Nursing, Pune (BV(DU)/CON/IRRC/165/2024

Animal subjects: All authors have confirmed that this study did not involve animal subjects or tissue.

Conflict of interest: In compliance with the ICMJE uniform disclosure form, all authors declare the following

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