

# Awareness and Perceptions about Human Papilloma Virus (HPV) Vaccination among Community Health Workers of Lucknow district, Uttar Pradesh, India

Vidushi Varma<sup>1</sup>, Reema Kumari<sup>2</sup>

<sup>1</sup>Junior Resident, Department of Community Medicine & Public Health, <sup>2</sup>Professor, Department of Community Medicine & Public Health,  
King George's Medical University, Lucknow, Uttar Pradesh, India

Corresponding Author: Reema Kumari

DOI: <https://doi.org/10.52403/ijhsr.20250305>

## ABSTRACT

**Introduction:** Cervical cancer is a major public health problem in India, predominantly affecting women of lower socioeconomic status. Knowledge of HPV vaccination among community health workers: ASHA (Accredited Social Health Activist) and ANM (Auxiliary Nurse Midwife) is vital as it can influence the broader population and avoid this preventable disease at the grass root level. Currently, effective and safe vaccines are available to prevent HPV 16 and HPV 18 infection in HPV-naïve women in the form of bivalent and quadrivalent vaccines. Poor awareness exists about cervical cancer and its prevention among women in India. Community Health Workers (CHWs) link the health system to the masses and thus play an important role in the promotion of HPV Vaccines and educating the community about the same. This study aimed to assess the awareness and perceptions of CHWs on HPV vaccination in a rural block of Lucknow.

**Methods:** A community based cross-sectional study was conducted among 60 CHWs (ASHA & ANM) in a rural block of Lucknow using a pretested Semi-structured questionnaire will be used for data collection.

**Results:** About 21 (35%) CHWs had awareness about Human Papilloma Virus (HPV) infection (Figure 2). Among the ASHA workers, 10 (27.7%) out of 36 workers interviewed had awareness about HPV infections while among the 24 ANMs interviewed, 11(45.8%) had HPV infection awareness. Regular training on cervical cancer and its screening should be integrated into their routine sessions at Primary Health Centers (PHCs) and Community Health Centers (CHCs).

**Keywords:** HPV, awareness, vaccination, Community Health Worker, Perceptions,

## INTRODUCTION

Human papillomavirus (HPV) is a prevalent sexually transmitted infection that affects almost all sexually active individuals at some point, often without symptoms. While most infections clear on their own, certain strains, particularly HPV 16 and 18, can

lead to genital warts and cervical cancer, which accounts for over 90% of HPV-related cancers in women. Symptoms of cervical cancer may include abnormal bleeding and unusual vaginal discharge, but early stages typically show no symptoms. [1-3]

Key risk factors for HPV infection include multiple sexual partners, early sexual activity, tobacco consumption, smoking, and prolonged oral contraceptive use. Preventative measures include condom use and quitting tobacco and smoking. [4] Regular screening, starting at age 30, is crucial as cervical cancer has a long precancerous phase, allowing for timely detection and treatment. [5-6]

The highest rates of cervical cancer incidence and mortality are in low- and middle-income countries mainly due to the lack of access to national HPV vaccination, cervical screening and treatment services, and social and economic factors. In India, cervical cancer is the second leading cause of cancer in women, with about 123,907 new cases diagnosed annually. [7]

Vaccines such as Cervarix (bivalent) and Gardasil (quadrivalent) effectively protect against high-risk HPV types – HPV 16 and 18 and are recommended for girls aged 9–14 before they become sexually active. [8] The nona-valent vaccine, in addition to protecting against HPV 16 and 18, also protects against high-risk HPV types 31, 33, 45, 52, and 58. [9] However, awareness of the link between HPV and cervical cancer remains low, which can hinder vaccine acceptance. Community health workers, particularly ASHA (Accredited Social Health Activist) and ANM (Auxiliary Nurse Midwife), play a vital role in educating women about HPV and cervical cancer screening, which is essential for increasing vaccination rates and improving public health outcomes. [10-12]

### Objectives

- To assess the Community Health Workers'(CHW) awareness on Human Papilloma Virus (HPV) infection and its vaccination.
- To evaluate the CHW's perceptions on HPV infection and its vaccination.
- To find association between awareness and demographic variables of Community Health Workers.

### MATERIALS & METHODS

A community-based descriptive cross-sectional study was conducted in Lucknow district of Uttar Pradesh, India, during period of October 2023 to November 2023. Study site was purposively selected as the Primary Health Centre from Sarojini Nagar Block (rural field practice area). All Community Health Workers (CHWs) – ASHA (Accredited Social Health Activist) and ANMs (Auxiliary Nurse Midwife) visiting Sarojini Nagar PHC and available during the period of data collection were enrolled. Consent was obtained from the participants. A total of 60 community health workers were enrolled.

Data collection was done using in-person interview after taking verbal informed consent from community health workers in the form of Google form.

The questionnaire contained questions regarding knowledge of cervical cancer, HPV and awareness about HPV vaccine. For most of the questions “yes”, “no”, “don't know” or appropriate multiple choices were given as answers. The data from questionnaire were processed anonymously.

### STATISTICAL ANALYSIS

Statistical package for social sciences, version-26 (SPSS-26, IBM, Chicago, USA) was used for data analysis by applying appropriate statistical test (Chi square test/ Fisher exact test), where p value less than 0.05 considered to be statistically significant.

### RESULT

#### Sociodemographic Profile

A total of 60 community health workers participated in the study out of which 60% (36) were ASHA workers and 40% (24) were ANMs (Figure 1). The mean age of the participants was  $39.8 \pm 8.3$ (SD) years. 95% (57) participants were married and had 63.3% (38) participants had  $\geq 10$  years of work experience in the field. 70% (17) of the ANMs were educated up to graduate level and beyond while 33.33% (12) of

ASHA workers were educated up to secondary and 30.5% (11) up to high school level.

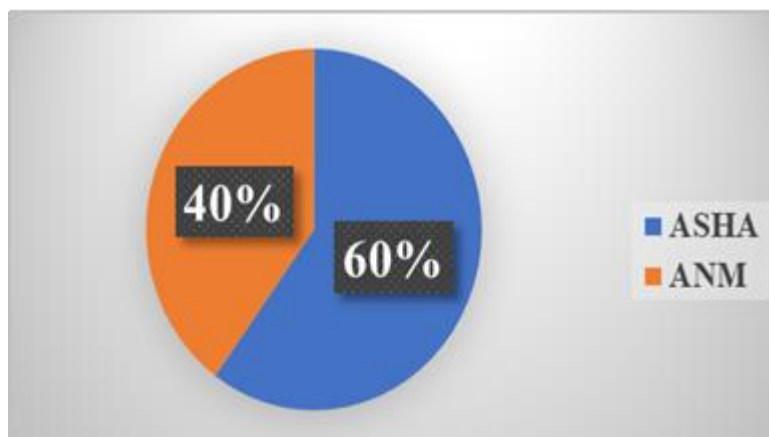


Figure 1: Distribution of Community Health Workers visiting Sarojini Nagar PHC, Lucknow

### Knowledge

About 21 (35%) CHWs had awareness about Human Papilloma Virus (HPV) infection (Figure 2). Among the ASHA workers, 10 (27.7%) out of 36 workers

interviewed had awareness about HPV infections while among the 24 ANMs interviewed, 11(45.8%) had HPV infection awareness (Table 1).

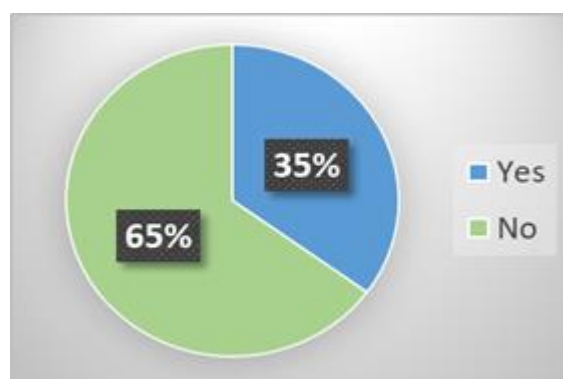


Figure 2: Awareness about HPV (Human Papilloma Virus) infection among Community Health Workers.

Table 1: Awareness about HPV infection among ASHA workers and ANMs.

	No	Yes	Total
ASHA (Accredited Social Health Activist)	26 (43.3%)	10 (16.66%)	36 (60%)
Auxiliary Nurse Midwife)	13 (21.66%)	11 (18.33%)	24 (40%)
Total	39 (65%)	21 (35%)	60

Table 2 shows the descriptive analysis of HPV infection and HPV vaccines among the Community Health workers. It is evident that >50% of Community Health Workers did not know about the nature of HPV infection, cancer caused by HPV, infected population, the mode of spread and the risk factors of HPV. Only 35% of CHWs had awareness about the uses of Pap smear test, 46.7% had heard about Pap smear but did

not know its uses while 18.7% of participants had not even heard of Pap smear test.

Only 40% of the Community Health Workers were aware about HPV vaccines out of which only 5% could name the vaccines available against HPV infection. Only 38% CHWs had correct knowledge about the number of doses of HPV doses required for effective vaccination and 43.3%

could tell the ideal age for HPV vaccination. Majority (66.7%) of CHWs were not sure if Pap smear screening is required after

complete HPV vaccination while 33.3% believed it to be necessary.

**Table 2: Descriptive analysis of knowledge about HPV infection and HPV vaccines among Community Health Workers (n = 60)**

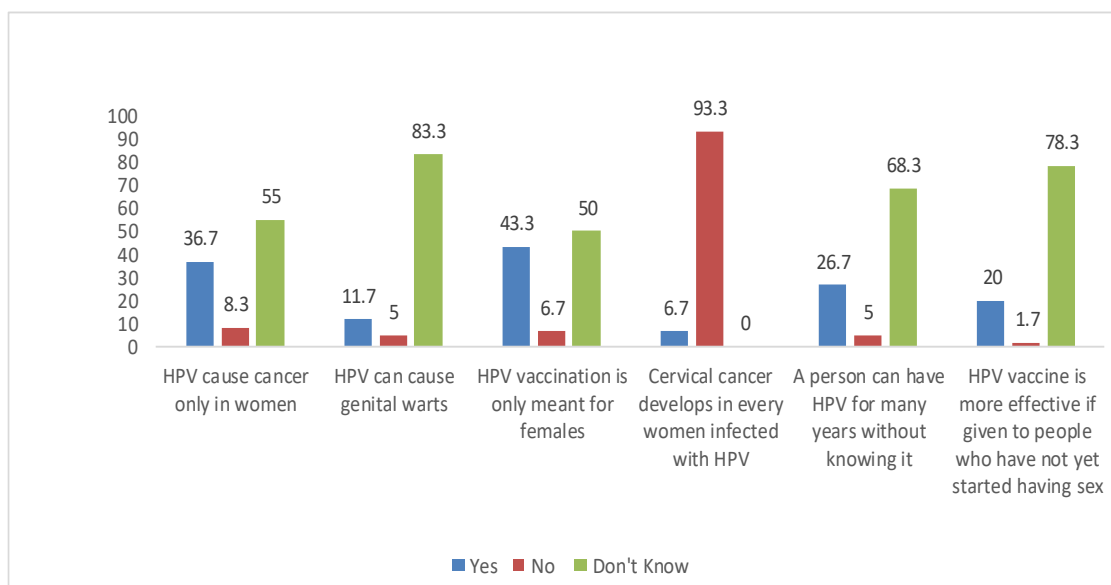
Knowledge regarding HPV vaccination		Frequency (n =60)	Percentage (%)
What kind of infection is HPV?	Respiratory infection	1	1.7
	Genitourinary infection	17	28.3
	Don't Know	42	<b>70</b>
What does HPV mainly cause?	AIDS	2	3.3
	Cervical cancer	17	28.3
	Don't know	41	<b>68.3</b>
In whom does HPV occur?	Only females	24	40
	Both males and females	5	8.3
	Don't know	31	<b>51.7</b>
How does HPV infection spread?	Sexual contact	19	31.7
	Other	5	8.3
	Don't know	36	<b>60</b>
What are risk factors of HPV?	Multiple sexual partners	12	20
	Poor hygiene	5	8.3
	Don't know	43	<b>71.7</b>
What is Pap smear used for?	Cervical cancer screening	20	33.3
	Testing STDs	1	1.7
	Don't know	28	<b>46.7</b>
	Never heard of Pap smear	11	18.3
Aware about HPV vaccine?	Yes	24	40
	No	36	<b>60</b>
Source of knowledge about HPV and HPV Vaccines	Awareness campaign	9	15
	Health officials	18	30
	Television	4	6.6
Name of vaccines	yes	3	5
	no	57	<b>95</b>
How many doses of HPV vaccine required?	Single dose	2	3.3
	Multiple dose	23	38.3
	Don't know	35	<b>58.3</b>
Ideal age of HPV vaccine administration	9-14 years	26	<b>43.3</b>
	Any age	1	1.7
	Don't know	33	<b>55</b>
Is Pap smear screening required after complete vaccination?	Yes	20	33.3
	Not sure	40	<b>66.7</b>

### Perceptions

Figure 3 shows the perceptions of Community Health Workers (CHWs) towards Human Papilloma Virus (HPV) infection and vaccination. Majority (>50%) of the participants did not have any perceptions regarding HPV. 36.7% of CHWs had a perception that HPV causes cancer only in women while 8.3% did not believe so. Rest of the participants did not have any perceptions regarding this.

93.3% of participants did not believe that cervical cancer develops in every woman infected with HPV. 83.3% of CHWs did not know whether HPV can cause genital warts or not while 11.7% had a perception that HPV can cause genital warts. Around 43.3% of CHWs had a perception that HPV vaccination is only meant for females. 26.7% of the participants perceived that a person can have HPV for many years without knowing while 68.3% did not have

any perception regarding this. 20% of CHWs believed that HPV vaccine is more effective if given to people who have not yet started having sex.



**Figure 3: Perception about HPV vaccination among community health workers**

### Association between demographic variables and knowledge about HPV vaccination

Table 3 shows the association between demographic variables like age of the Community Health Workers (CHWs), Occupation of CHWs (ASHA worker or ANM) and years of experience in field as a CHW; and knowledge of CHWs about HPV infection and vaccination considering p-value of <0.05 to be statistically significant. It was found that the age of the community health workers was significantly associated with awareness about HPV (p-value of

0.014) with greater awareness among the younger age group (25-40 years) as compared to the older group (>40 years). Similarly, age was also significantly associated with knowledge regarding the ideal age for HPV vaccination (p-value of 0.043).

The relation between the occupation of Community Health Worker (ASHA/ANM) and the knowledge about use of Pap smear test was found to be statistically significant (p-value of 0.007) where ASHA workers had more knowledge about the uses of Pap smear than the ANMs.

**Table 3: Association between demographic variables and knowledge about HPV vaccination.**

Knowledge	Age			Occupation			Experience			
	25-40	>40	p-value	ASHA	ANM	p-value	<5	5-15	15-25	p-value
<b>Heard about HPV?</b>										
Yes	18	3	<b>0.014</b>	10	11	0.151	4	13	4	0.200
No	21	18		26	13		7	16	16	
<b>What does HPV mainly cause?</b>										
Cervical Cancer	12	5	0.449	11	6	0.205	3	8	6	0.692
AIDS	2	0		0	2		0	2	0	
Don't know	25	16		25	16		8	19	14	
<b>How does HPV infection spread?</b>										
Sexual contact	14	5	0.401	13	6	0.488	4	10	5	0.777
Other	4	1		2	3		0	3	2	
Don't know	21	15		21	15		7	16	13	

<b>Risk factors of HPV</b>										
Multiple sexual partners	9	3	0.536	8	4	0.582	2	6	4	0.442
Poor hygiene	3	2		4	1		2	1	2	
<b>Heard about Pap smear</b>										
Yes	22	10	0.515	19	13	0.916	8	15	9	0.325
No	17	11		17	11		3	14	11	
<b>Use of Pap smear</b>										
Cervical Cancer Screening	13	7	0.764	17	3	<b>0.007</b>	4	9	7	0.440
Testing STD	1	0		0	1		1	0	0	
Don't know	19	9		12	16		6	14	8	
<b>Aware about HPV vaccine</b>										
Yes	17	7	0.439	13	11	0.451	5	12	7	0.832
No	22	14		23	13		6	17	13	
<b>Ideal age for HPV vaccine</b>										
9-14 years	21	5	<b>0.043</b>	15	11	0.694	6	14	6	0.419
Any age	0	1		1	0		0	0	1	
Don't know	18	15		20	13		5	15	13	
<b>Is HPV vaccine part of UIP?</b>										
Yes	4	1	0.594	2	3	0.620	2	1	2	0.602
No	10	4		9	5		3	7	4	
Don't know	25	16		25	16		6	21	14	
<b>Is Pap smear required post vaccination?</b>										
Yes	15	5	0.251	14	22	0.264	5	9	6	0.639
Don't know	24	16		6	18		6	20	14	

## DISCUSSION

This study provides important insights into the knowledge and perceptions of Community Health Workers (CHWs) in Lucknow regarding Human Papillomavirus (HPV) infection and vaccination. The findings indicate that ASHA and ANM workers demonstrate significantly lower awareness levels (17-20%) about HPV and its vaccine compared to other CHWs. This is particularly concerning, as ASHA and ANM workers are crucial for community health initiatives and play a vital role in health education and vaccination promotion. Our results align with previous studies in India showing low awareness of cervical cancer and HPV among various groups, including only 15% in medical students [11,13] and 8% in Peripheral Health Workers.[14] Research in Delhi NCR found similar low awareness (15%) among students and their parents.[15] In contrast, some studies indicate that medical students and healthcare professionals exhibit higher

awareness levels (up to 89.6%) regarding HPV and cervical cancer risk factors. [16-17]

Specifically, only 22% of ASHAs and 16.66% of ANMs recognized multiple sexual partners as a risk factor for HPV, with even lower awareness regarding poor hygiene (11% for ASHAs and 4% for ANMs). Although, 53.33% of CHWs had heard of the Pap smear test, but only a third understood its purpose in cervical cancer screening. Awareness was notably higher among ASHAs than ANMs, likely due to recent training. This finding is consistent with a study conducted in Lucknow where only about one fourth of the ASHAs (19.5%) and BHWs (37.2%) were aware that 'poor sexual hygiene' can increase the risk of cervical cancers. [15] Still lower awareness was noted among community women as reported by other researchers. [18-19]

Despite both Cervarix® and Gardasil® vaccines providing protection against HPV types 16 and 18, only 40% of respondents were aware of HPV vaccines, with just 5%

able to name them. A cross-sectional study conducted among PHWs of Lucknow reported that 17 per cent of the PHWs were aware of HPV vaccine availability and only 29 per cent from them could name the vaccine [14]. A cross-sectional study conducted among the nursing staff in a tertiary level teaching institution of rural India found that only 25 per cent of the participants had heard of vaccines to prevent cervical cancer [20]. These findings highlight the need for ongoing educational interventions for healthcare workers, particularly in rural areas, to improve awareness and understanding of HPV and its associated health risks.

## CONCLUSION & RECOMMENDATIONS

The study reveals a significant knowledge gap among ASHA and ANM workers regarding HPV vaccination, which hampers effective promotion in Lucknow. To address this issue, targeted training and ongoing education for these healthcare workers are crucial. Regular training on cervical cancer and its screening should be integrated into their routine sessions at Primary Health Centers (PHCs) and Community Health Centers (CHCs). This approach will ensure they receive consistent, up-to-date information, ultimately enhancing the effectiveness of HPV vaccination programs. Additionally, public education on HPV vaccination is vital, as informed healthcare providers can better educate patients about cervical cancer prevention and management in a region with a high disease burden.

### Limitations

More studies like this can be conducted on more than one facility and covering large sample size to increase the generalizability of result.

### Declaration by Authors

**Ethical Approval:** Approved

**Source of Funding:** None

**Conflict of Interest:** The authors declare no conflict of interest.

### Authors' contribution:

The First and the corresponding author contributed equally for Final approval of the version to be published; and All authors worked equally on the Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of the work are appropriately investigated and resolved.

## REFERENCES

1. <https://www.who.int/news-room/fact-sheets/detail/human-papilloma-virus-and-cancer> (accessed on 31/07/24)
2. Kaarthigeyan K. Cervical cancer in India and HPV vaccination. *Indian J Med Paediatric Oncol.* 2012;33(1):7
3. de Martel. Catherine et al. Global burden of cancer attributable to infections in 2018: a worldwide incidence analysis. *The Lancet Global Health* vol. 8,2 (2020): e180-e190. doi: 10.1016/S2214-109X(19)30488-7
4. Bansal AB, Pakhare AP, Kapoor N, Mehrotra R, Kokane AM. Knowledge, attitude, and practices related to cervical cancer among adult women: A hospital-based cross-sectional study. *J Nat Sci Biol Med.* 2015;6(2):324.
5. WHO/ICO Information Centre on HPV and Cervical Cancer (HPV Information Centre). *Human Papillomavirus and Related Cancers in World. Summary Report, 2010.*
6. Yeole BB, Kumar AV, Kurkureet A, Sunny L. Populationbased survival from cancers of breast, cervix and ovary in women in Mumbai. *Asian Pac J Cancer Prev.* 2004; 5:308-315.
7. *Human Papillomavirus and Related Diseases Report INDIA* (Version posted at [www.hpvcentre.net](http://www.hpvcentre.net) on 10 March 2023)
8. Arbyn M, Xu L. Efficacy and safety of prophylactic HPV vaccines. *A Cochrane review of randomized trials. Expert Rev Vaccines* 2018; 17: 1085–91.
9. Joura EA, Giuliano AR, Iversen OE et al. A 9-valent HPV vaccine against infection and intraepithelial neoplasia in women. *N Engl J Med* 2015; 372: 711–23.
10. Sankaranarayanan R, Nene BM, Shastri SS, Jayant K, Muwonge R, et al. (2009) HPV screening for cervical cancer in rural India. *N Engl J Med* 360: 1385–1394.

11. Saha A, Chaudhury AN, Bhowmik P, Chatterjee R (2010) Awareness of cervical cancer among female students of premier colleges in Kolkata, India. *Asian Pac J Cancer Prev* 11: 1085–1090.
12. Singh E, Seth S, Rani V, Srivastava DK (2012) Awareness of cervical cancer screening among nursing staff in a tertiary institution of rural India. *J Gynecol Oncol* 23: 141–146.
13. Mehta S, Rajaram S, Goel G, Goel N (2013) Awareness about Human Papilloma Virus and its Vaccine Among Medical Students. *Indian J Community Med* 38: 92–94.
14. Ansari A, Agarwal M, Singh VK, Nutan K, Deo S. Cervical cancer: perception of peripheral health workers in Lucknow: a cross-sectional study. *Int J Community Med Public Health* 2019; 6:1536-44.
15. Hussain S, Nasare V, Kumari M, Sharma S, Khan MA, et al. (2014) Perception of Human Papillomavirus Infection, Cervical Cancer and HPV Vaccination in North Indian Population. *PLoS ONE* 9(11): e112861. doi: 10.1371/journal.pone.0112861
16. Pandey D, Vanya V, Bhagat S, Vs B, Shetty J (2012) Awareness and attitude towards human papillomavirus (HPV) vaccine among medical students in a premier medical school in India. *PLoS One* 7: e40619.
17. CHAWLA et al (2016): Knowledge, attitude & practice on human papillomavirus vaccination: A cross-sectional study among healthcare providers *Indian J Med Res* 144, November 2016, pp 741-749 DOI: 10.4103/ijmr.IJMR\_1106\_14
18. Sudharshini S, Anantharaman V, Chitra A. A cross-sectional study on knowledge, attitude, and practice on cervical cancer and screening among female health care providers of Chennai corporation. *J Acad Med Sci.* 2012;2(4):124.
19. Jain S. Awareness of cervical cancer and Pap smear among nursing staff at a rural tertiary care hospital in Central India. *Indian J Cancer.* 2016;53(1):63.
20. Shekhar S, Sharma C, Thakur S, Raina N. Cervical cancer screening: knowledge, attitude and practices among nursing staff in a tertiary level teaching institution of rural India. *Asian Pac J Cancer Prev* 2013; 14: 3641-5.

How to cite this article: Vidushi Varma, Reema Kumari. Awareness and perceptions about human papilloma virus (HPV) vaccination among community health workers of Lucknow district, Uttar Pradesh, India. *Int J Health Sci Res.* 2025; 15(3):32-39. DOI: <https://doi.org/10.52403/ijhsr.20250305>

\*\*\*\*\*