Journal of Population Therapeutics & Clinical Pharmacology

RESEARCH ARTICLE
DOI: 10.53555/xnpe0v91

"HPV VACCINE VOICES: UNDERSTANDING THE KNOWLEDGE, ATTITUDE, AND PRACTICE TOWARDS THE HPV VACCINATION"

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ABSTRACT

BACKGROUND: There have been few minor modifications in the eligibility criteria for the HPV vaccination, and a new type of vaccine has been approved in our country. Despite the expanded reach of health education programs, HPV vaccination rates remain low in India. Hence, this study aims to investigate the prevalence of HPV vaccination, assess the existing knowledge gaps, barriers to vaccination, and evaluate attitude toward the vaccine among the Indian population.

MATERIALS AND METHODS: A cross-sectional, questionnaire-based study, conducted by including 1000 study participants of either gender, aged >18 years and willing to be the part of the study.

RESULTS: The majority of participants in our study were from South India. Females and individuals aged 41 and older demonstrated significantly accurate knowledge about the HPV vaccine. Participants attending the scientific sessions, organized female health education programmes, had better understanding. 76.9% of the overall population were aware of the vaccine's availability, and only 4.8% had received the HPV vaccination. The primary barrier to immunization was uncertainty about which vaccine to choose and cost of the vaccine.

CONCLUSION: Frequent health education programmes to update the knowledge about HPV infection, the cancer prevalence, available vaccination, and the government policies to provide the Vaccine for free of cost would help increase the rate of vaccination.

KEY WORDS: Human papillomavirus, India, HPV vaccine, Attitude about HPV vaccine

INTRODUCTION

Cervical cancer is the most common cancer among women aged 15 years or older in India, with a huge adverse social and economic impact on families.[1] Human papillomavirus has been one of the preventable causes of not only the cervical cancer but also the oro-pharyngeal, laryngeal and cancer of the penis. Though there has been availability of the vaccination against HPV for decades yet the the population vaccinated is still significantly less.[2,3]

It could be due to the lack of knowledge, hesitation towards vaccination, the epidemiological belief, economical aspect, or the dilemma about administering the vaccination. Hence, there is a need to analyze the knowledge and attitude to understand the barrier. This would help the healthcare professionals to provide the updated education in this regard. Also, determining their acceptability and the barriers would help in breaking those barriers to improve the status of vaccination.[4]

Various clinical evidences we came across have addressed the knowledge before the revised schedule of the HPV vaccine. Also, there is an advanced approach through social media regarding any given field. The updates on the HPV vaccine have also been widely spread on social media. Hence, the present study has been planned. [5,6]

MATERIALS AND METHODLOGY

This was a community-based cross-sectional study conducted for 6 months. We included all the individuals aged more than 18 years, either gender, residents of India and are willing to participate in the clinical study. We included the allied health care professionals as well. The responses about the HPV vaccine on a pre-validated structured questionnaire were obtained.

Sample size was calculated using the formula: z^2pq/d^2, where; z = 1.96, p is the prevalence – we considered 62.2% (the awareness about vaccination as per Arunkumar P et al), q = 100- p, d is the allowable error – which we considered as 5%, considering the chances of incompletely filled questionnaires. The sample size obtained was 362. We considered 1000, 100% filled questionnaires for analysis to improve the external validity.

Informed oral consent was taken from all the study participants. We collected data both online by posting the Google form on various platforms and offline from the patients attending the outpatient departments of various specialties. For online responses, we added the consent-related question in the beginning. None of the questions were made mandatory for proving the free will to answer or refuse to answer any questions.

The number of correct answers was allotted 5 marks each, and the total was calculated. The knowledge about HPV vaccine preventing the cancer, HPV vaccine for 9 years and above, For either gender, number of doses, site of injection, heard about types of vaccines available in India, have already taken the vaccine or willing to take and the participants are willing to educate others were allotted 5 marks for appropriate knowledge and 1 if they have not. So, the total marks for 40. Of which partially correct answers were allotted 2.5 each. The total marks obtained by the subjects were compared between the various parameters such as age, gender, education status, and occupation. The data was analysed as below.

STATISTICAL ANALYSIS

The collected data were obtained as a Google Excel document. Microsoft Excel formulas were used for further analysis. Descriptive statistics were used. The distribution of age was analysed as a frequency distribution. The responses for each question were assessed with percentages. Univariate analysis using the Chi-square test and multivariate analysis with ordinal regression were done to compare the correct knowledge based on various parameters.

RESULTS

The obtained results are represented as graphs and tables below.

Out of 1000 study participants, about 46.8% (468) knew that a few cancers are preventable. Of these, many believed that it is from lifestyle modification rather than from vaccination. Only 39% knew that there are vaccines available for preventing a few types of cancers. 1.8% of the study participants had at least one of their family members or any close relative diagnosed with cervical cancer, and none of these patients had a history of HPV vaccination.

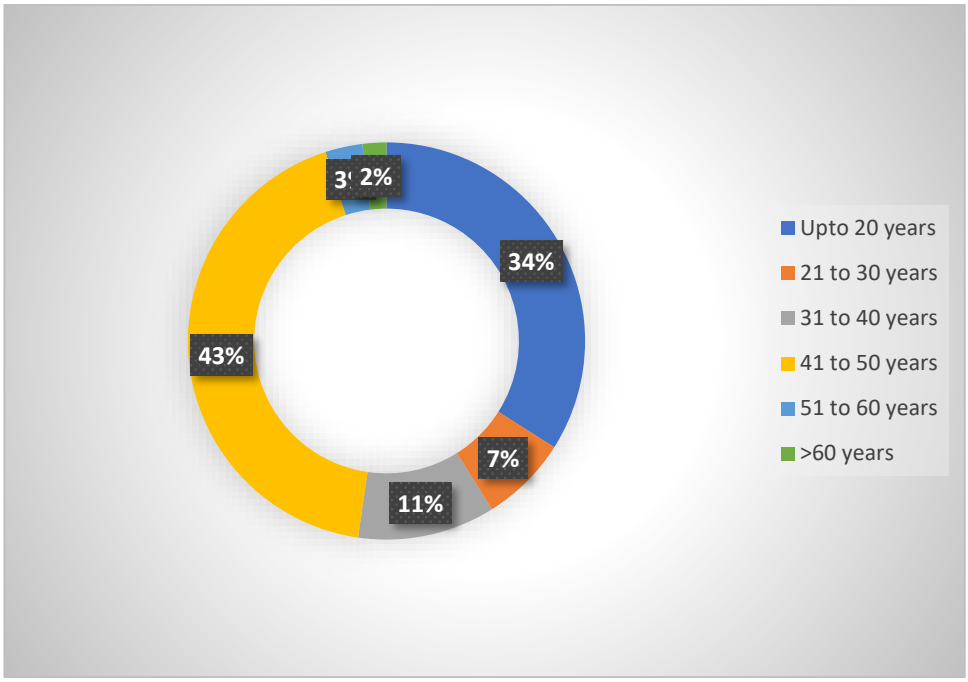

Figure 1: Distribution of age

The majority of the study population that participated in our study were aged between 41 to 50 years and accounted for almost 43% of the study population, followed by 31 to 40 years. Of the 1000 respondents, 686 of them were females, and 306 were males. Four of the participants were transgender and did not want to specify. 306 males.

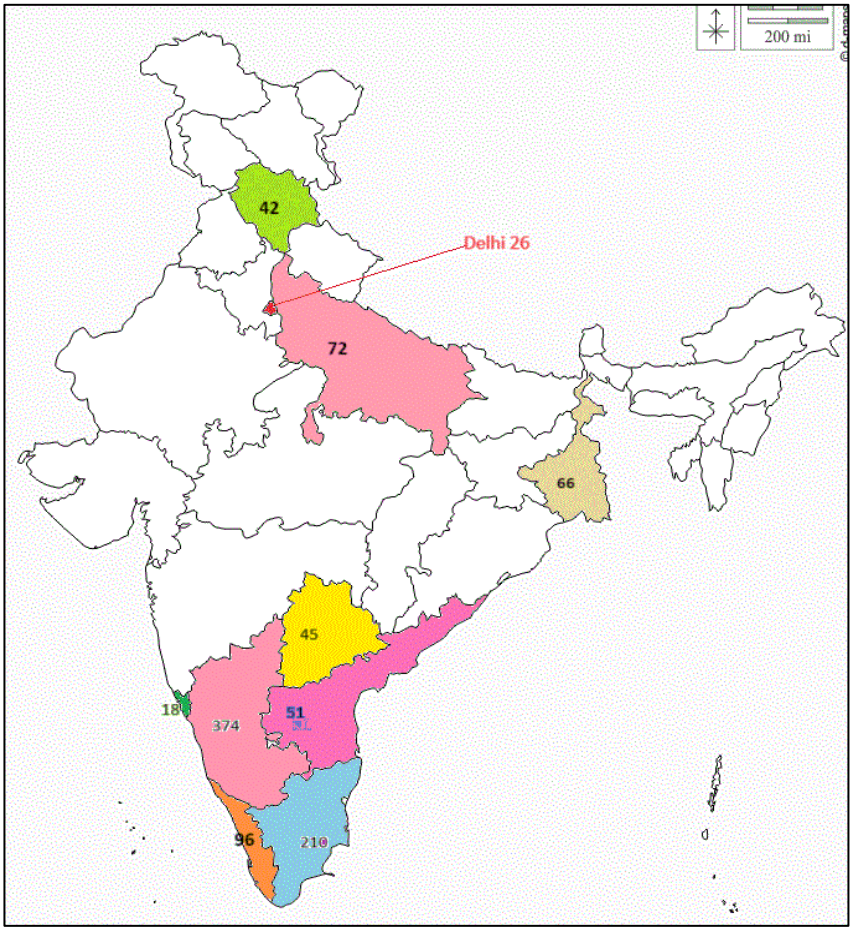

Figure 2: State-wise distribution of study population

Most of our study population were from Karnataka and Tamilnadu, accounting for 374 (37.4%) and 210 (21%), respectively.

Table 1: Distribution of the study population based on their education

Education status	N	%
Graduates	708	70.8%
High school	39	3.9%
Middle school	4	0.4%
Post graduation	31	3.1%
Pre university	316	31.6%
High school	2	0.2%

The majority of participants were graduates, accounting for about 70.8%, followed by 316 (31.6%) of them had completed their pre-university.

Table 2: Distribution of the study population based on occupation

Occupation	N	%
Healthcare sector	158	15.8%
Administrative work	214	21.4%
Clerical	119	11.9%
Self employed	82	8.2%
Home maker	236	23.6%
Teacher	135	13.5%
Social media related	16	1.6%
Student	40	4.0%

Healthcare workers (15.8%) and teachers (13.5%) should ideally have better awareness about HPV vaccination, yet the study doesn't confirm that their knowledge was significantly higher than others. Homemakers (23.6%) and clerical workers (11.9%) also formed a large part of the study population, showing a mix of working and non-working individuals.

Table 3: Distribution of knowledge of the study population about HPV

Parameter	N	%
Knew about the availability of the HPV	769	76.9%
HPV increases risk of cancer	753	75.3%
Know that the HPV vaccine is protective against cancer	334	33.4%
Knew that the vaccine has to be taken intramuscularly	791	79.1%
Knowledge about the advisable age group for vaccination		
9 years and above	44	4.4%
18 and above	357	35.7%
Only sexually active	589	58.9%
Restricted to females	199	19.9%
High-risk group only	182	18.2%
After menopause	30	3%
Number of doses to be taken		
1	22	2.2%
2	288	28.8%
3	328	32.8%
4	12	1.2%
Not sure	350	35.0%

Out of 1000 respondents, 22 people thought 1 dose was enough, while 350 were unsure. The correct regimen (2 to 3 doses) was known by 288 and 328 participants, respectively. About the eligible age for administration of the vaccine, only 4.4% of them knew that 9 years is the minimum age for administration of the vaccine, but most of them believed it is restricted to females.

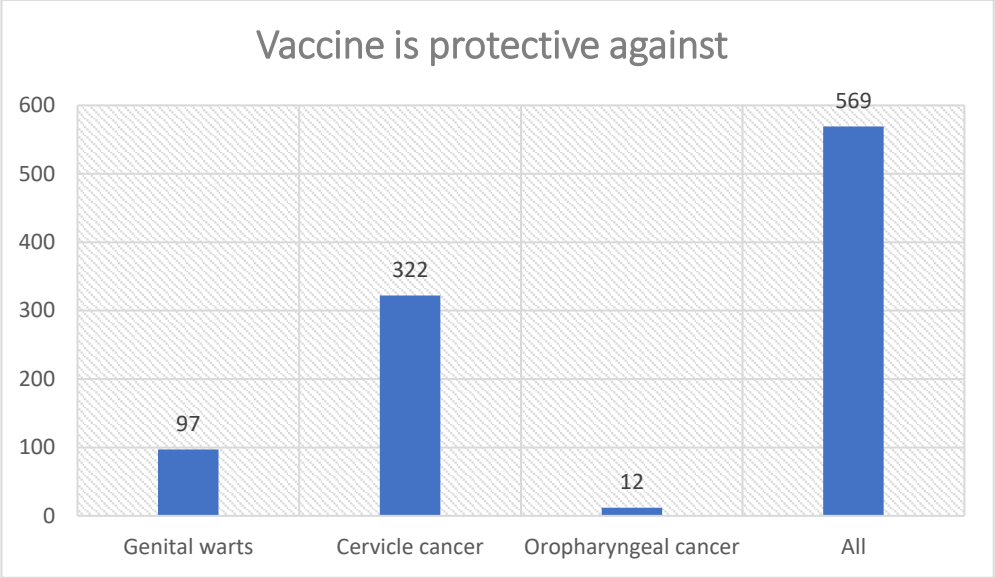

Figure 3: Distribution of study population based on the knowledge about the disease prevented by HPV vaccination

From the above bar graph, we can see that 56.9% of them believed that the vaccine is effective in preventing cervical cancer, genital warts, penile cancer, and oropharyngeal cancer. 32.2% thought it could prevent cervical cancer only.

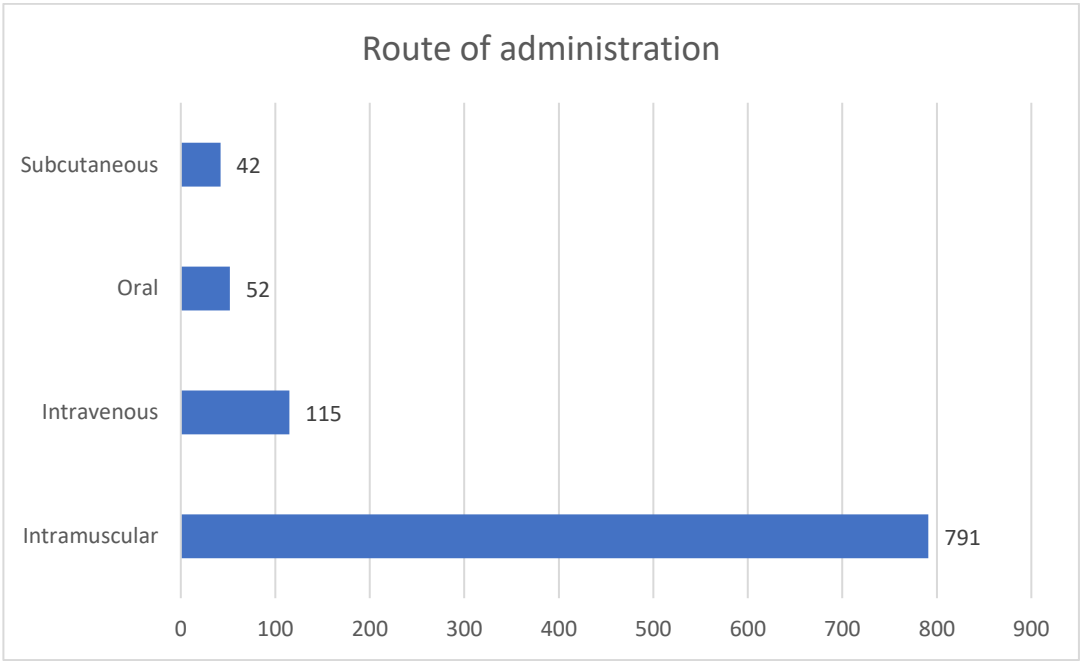

Figure 4: Distribution of the study population based on the knowledge about route of administration of HPV vaccine

79.1% of our study population knew that intramuscular injection is the route of administering the HPV vaccine, and 11.5% thought it is intravenous.

Table 4: Distribution of population based on the knowledge about available brands

Parameter	N (%)
Availability of different types	628 (62.8%)
Cervarix	141 (14.1%)
Gardasil	75 (7.5%)
Both	281 (28.1%)
None	503 (50.3%)

62.8% of them knew that there are different types of HPV vaccines available. 141 participants knew about Cervarix and 75 knew about Gardasil, but the majority of them (50.3%) did not know the exact type or brands available.

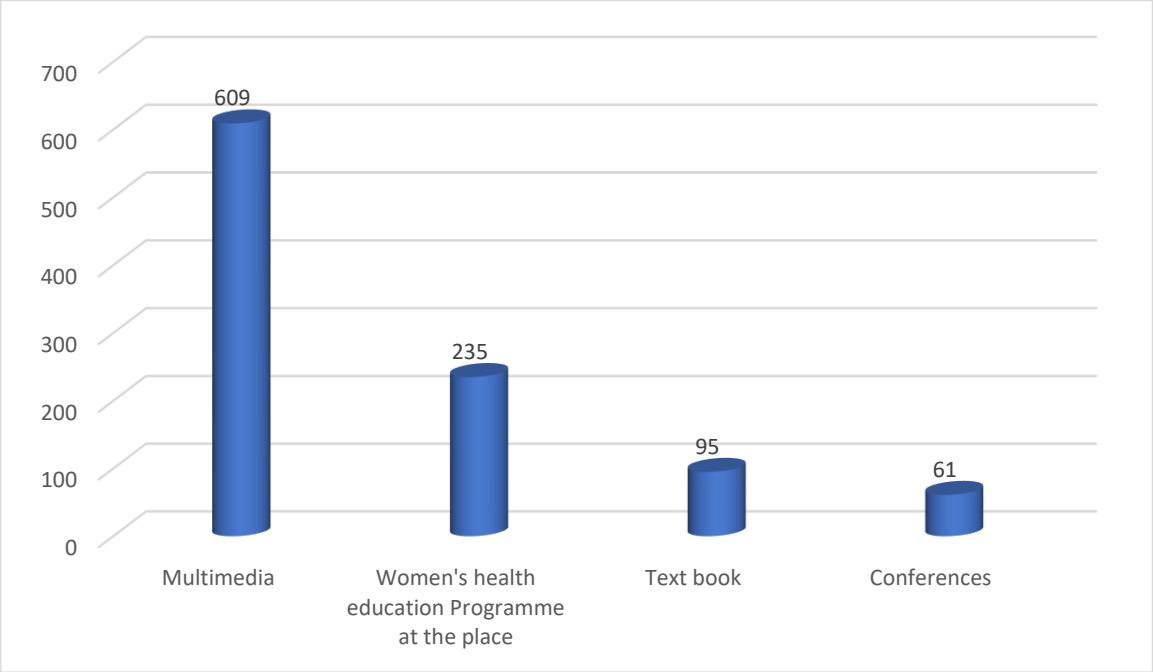

Figure 5: Distribution of population based on the source of information

Multimedia was the most common source, which accounted for about 60.9%, followed by workplace education among 235 (23.5%) of the study population, textbooks among 95, and conferences were the source for 61 (6.1%) of the respondents.

Table 5: Distribution of attitude and practice towards vaccination

Parameter	N (%)
Immunized against HPV	48 (4.8%)
Not being immunized against HPV	769 (76.9%)
Will soon take the vaccine	497 (49.7%)
Will take Cervarix	97 (9.7%)
Will take Gardasil	117 (11.7%)
Will take the opinion of the health care professional before taking the vaccine	503 (50.3%)
Either	96 (9.6%)
Willing to educate others	971 (97.1%)

From Table 5, we could analyse that only 4.8% of them were vaccinated against HPV, and only 49.7% of them were ready to get the vaccination. 50.3% responded saying they would like to take the opinion

of health care professionals before taking the vaccine. Rest had answered they are not sure what to decide.

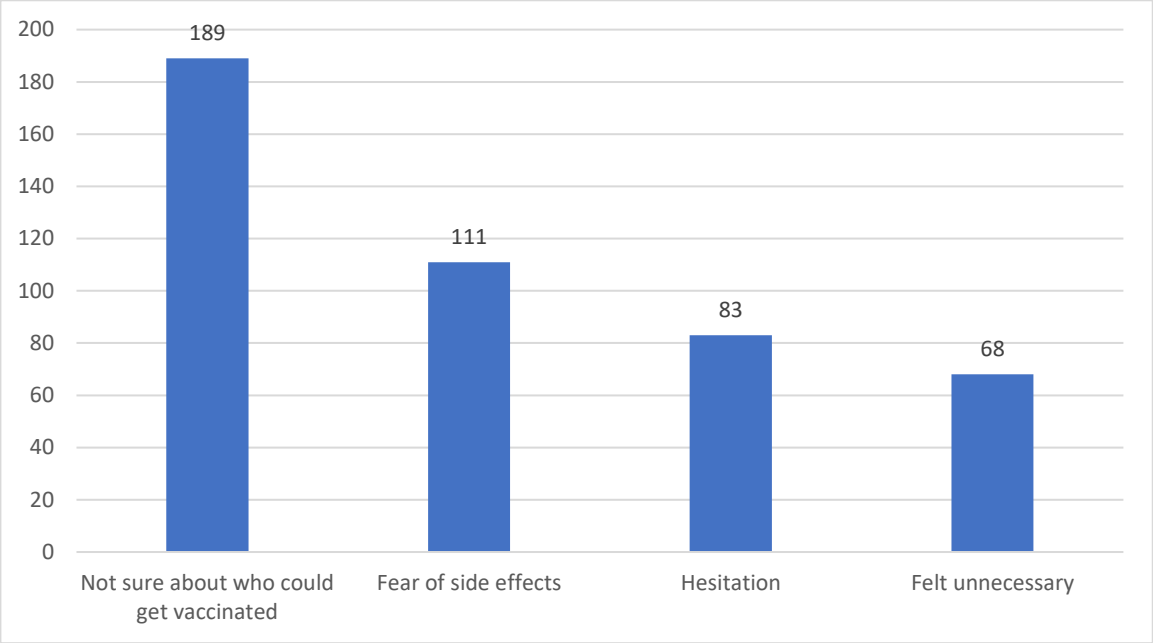

Figure 6: Distribution of study population based on the reason for not being vaccinated against HPV

189 of 1000 did not know the right age and scenario for getting vaccinated. 111 of them were scared about the side effects of vaccination. 83 and 68 participants, respectively, were hesitant and felt it was unnecessary.

Table 6: Association between different parameters and the correct knowledge

Parameter	Mean Score Out of 40	Average % population with maximum correct answers	P-value
Male	27.5	30.5%	<0.0001
Female	32.8	68.8%	
<40 years	29.3	48.7%	0.031
41 and above	33.4	70.3%	
Graduates	33.1	50.5%	0.094
High school	25.6	68.3%	
Middle school	24.8	58.3%	
Post graduation	30.7	62.3%	
Pre university	24.9	70.5%	
High school	24.3	68.7%	
Healthcare sector	37.4	94.4%	<0.0001
Administrative work	32.5	92.7%	<0.0001
Clerical	31.6	63.8%	0.13
Self employed	29.3	40.6%	0.78
Home maker	28.2	52.6%	0.32
Teacher	30.5	70.8%	0.17
Social media related	32.3	84.5%	0.019
Student	25.6	72.8%	0.094
Multimedia	32.5	60.3%	0.08
Women health Programme	40.3	73.8%	0.029
Text books	33.8	72.9%	0.041
Conference	35.7	78.4%	0.017

We observed that the females had significantly better knowledge than the males. The respondents aged 41 years and above had significantly better knowledge. Those working in the healthcare sector, administration, and social media sectors had better knowledge than others. Those who had attended women's health programmes, read from the books, or attended the conference had significantly accurate knowledge than others.

DISCUSSION

For any given vaccination status, accurate knowledge and a positive attitude are the essential prerequisites. Although there has been a drastic improvement in the educational status and the multimedia approach to healthcare updates, the HPV vaccination status has been observed to be very low.

Recently, the criteria for the eligible age at which the vaccine has to be administered have been revised to 9 years and above. This might not be perceived by many individuals, and also, the need for vaccination might not be well understood. Also, our country has recently approved a new type of HPV vaccine, which is available to the public but has neither been made mandatory nor made available free of cost.

Hence, we conducted the present study by including the adult population from various parts of India to understand how they have perceived the knowledge about the HPV vaccine and accepted the same. Most of our study population was from the Southern part of India (Figure 2). As we belong to the same epidemiological area, the social media platform on which we shared the questionnaire might be a majority of them from states similar to the northern part.

The average age of our study population was 47.8 years. There were 41 to 50 years, and they accounted for almost 43% (Figure 1). This was similar to the outcome of **Rehman A et al** in which the women aged 30 and above had significantly better knowledge.[8]

Out of the 1000 respondents, only 46.8% (468) knew that some cancers are preventable. 686 of them were females, and 306 were males (Table 2). Four of the participants were transgender and did not want to specify. 306 males. We observed that the majority of the male population was not interested in taking part in this study, which could be due to their limited knowledge about HPV.

In our study, 76.9% knew about the availability of the vaccine (Table 2), whereas in **Kumari S et al.,** only 2.08% of participants had HPV vaccine knowledge.[1] As the study population they included were adolescent girls, they might not have been educated yet about the HPV vaccines. Now the age limit of vaccination has been reduced to 9 years above, it is better to educate them and their parents to encourage for vaccination.[1] Whereas in **Singh J et al.,** 85% of women surveyed were aware of cervical cancer, and 32.4% of them were aware of its causal relationship with HPV.[9] **Montgomery MP et al,** observed that 50% of their sample population were aware that cervical cancer was sexually transmitted.[10]

The majority of males who participated in the study had thought that the HPV vaccine is for females only (Table 2). The four transgender individuals who participated in our study had nearly 100% accurate knowledge about HPV, and 50% (2/4) of them were already vaccinated. The other two also had a positive attitude towards the vaccination but were not sure which type has to be taken. Better knowledge and positive attitude and practice among them were observed.

We observed that although 70.8% of our participants were graduates, indicating higher educational status (Table 1), the knowledge about the HPV vaccine was limited, and also the attitude was negative about the same. Though 76.9% of the overall population knew about the availability of the vaccine, only 4.8% of them were immunized against HPV (Table 5). Even in **Swarnapriya K et al.,** although 430 (44.9%) displayed good knowledge, only 65 (6.8%) had received HPV vaccination.[11] This was even consistent with the observation by **Rehman A et al, Oluwole et al** and **Remschmidt et al.** Hence, motivating individuals to get vaccinated is the need of this hour, irrespective of the epidemiological area.[8,12,13]

The major source of information was multimedia, followed by women's health education programmes at their respective workplaces, accounting for 60.9% and 23.5%, respectively. Scientific sources provided them appropriate knowledge than other sources (Figure 6, table 6).
141 (14.1%) of the respondents knew about Cervarix and 75 (7.5%) about Gardasil, but nearly 51% were not aware of either (Table 4). After analysing their knowledge about the HPV vaccination, nearly 97% of them were ready to educate others.
In the suggestions box, 89.6% have opined that making the vaccine available at workplaces or health camps as they did for the COVID-19 vaccine and including it under the National Immunization Programme to provide it free of cost would improve the proportion of individuals vaccinated. Even in **Kumari S et al.,** 35.95% of adolescent participants agreed that their parents would pay for vaccines, and 79.17% of participants agreed to be vaccinated if it were free of cost.[1]

CONCLUSION

Most of the study population in our study were from South India. Females and individuals aged 41 and above had significantly better knowledge about the HPV vaccine. Those who had attended scientific sessions about vaccines had significantly accurate knowledge than others. Though 76.9% of the overall population knew about the availability of the vaccine, only 4.8% of them were immunized against HPV. The major barrier to getting the vaccine was that they were not sure which vaccine to take. Hence, the frequent healthcare programmes about HPV infection, the cancer prevalence, available vaccination, and the government policies to provide it free of cost would help increase the vaccination rate.

REFERENCES

1. Kumari S, Singh A, Sangal R, Sharma NR. KAP study on cervical cancer and HPV vaccine acceptability among adolescent girls of Eastern UP: a cross sectional study. Int J Reprod Contracept Obstet Gynecol 2021;10:2031-5.
2. Ferris D, Samakoses R, Block S. L, et al, Long Term Study of a Quadrivalent Human Papillomavirus Vaccine, Paediatr. 2014;134(3):e657-e665.
3. Andrade C, Menon V, Ameen S, Praharaj SK. designing and conducting knowledge, attitude and practice surveys in psychiatry: Practical guidance. Indian J Psychol Med. 2020;42(5):478-81.
4. Charakorn C, Rattanasiri S, Lertkhachonsuk AA Thanapprapasr D, Chittithaworn S, Wilailak S. knowledge of Pap smear, HPV and HPV vaccine and the acceptability of HPV vaccine by Thai women. AsiaPacific J Clin Onco. 2011;7(2):160-7.
5. Basu P, Sarkar S, Mukherjee S. Women's perceptions and social barriers determine compliance to cervical screening: Results from a population-based study in India. Can Detect Prev. 2016;30(4):369-74.
6. Perlman S, Wamai RG, Bain PA, Welty T, Welty E, et al. Knowledge and Awareness of HPV Vaccine and Acceptability to Vaccinate in Sub-Saharan Africa: A Systematic Review. PLoS ONE. 2014;9(3):e90912.
7. Juntasopeepun, P. Davidson, P. M. Suwan, N. Phianmongkhol et al. Human Papillomavirus Vaccination Intention among Young Women in Thailand. Asian Pacific J Can Preven. 2011;12(12):3213-9.
8. Rehman A, Srivastava S, Garg PR, Garg R, Kurian K, Shumayla S et al. Awareness about Human Papillomavirus Vaccine and Its Uptake among Women from North India: Evidence from a Cross-Sectional Study. Asian Pac J Cancer Prev. 2022 Dec 1;23(12):4307-4313.
9. Singh J, Roy B, Yadav A. Cervical cancer awareness and HPV vaccine acceptability among females in Delhi: A cross-sectional study. Ind J Can. 2018;55(3):233-7.
10. Montgomery MP, Dune T, Shetty PK, Shetty AK. knowledge and Acceptability of Human Papillomavirus Vaccination and Cervical Cancer Screening among Women in Karnataka. Ind J Can Educ. 2015;30(1):130- 7.

11. Swarnapriya K, Kavitha D, Reddy GM. Knowledge, Attitude and Practices Regarding HPV Vaccination Among Medical and Para Medical in Students, India a Cross Sectional Study. Asian Pac J Cancer Prev. 2015;16(18):8473-7.
12. Oluwole EO, Idowu OM, Adejimi AA, et al. Knowledge, attitude and uptake of human papillomavirus vaccination among female undergraduates in Lagos State, Nigeria. Fam Med Prim Care Rev. 2019;8:3627.
13. Remschmidt C, Walter D, Schmich P, et al. Knowledge, attitude, and uptake related to human papillomavirus vaccination among young women in Germany recruited via a social media site. Hum Vaccin Immunother. 2014;10:2527–35.