Frequency of human papilloma virus (HPV) vaccination among female health care providers and reasons for non-immunization at a public sector hospital

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Abstract

Objective: To assess the knowledge and attitude of female healthcare providers about human papilloma virus and its vaccination, to determine the frequency of respondents vaccinated against the virus, and to evaluate the reasons for non-immunisation.

Method: The cross-sectional study was conducted at the Jinnah Hospital, Lahore, Pakistan, from January 7 to February 20, 2022, and comprised female health care providers aged 20-60 years. Data was collected using a self-assessing questionnaire. Data was analysed using SPSS 22.

Results: Of the 250 individuals approached, 210(84%) took part in the study. The mean age was 28.9+/-7.99 years. Most of the subjects were house officers, medical officers or senior registrars 138(65.7%), and 126(60%) were unmarried. Overall, 170(81%) respondents knew about human papilloma virus and 174(82.9%) were aware of its link with cervical cancer. Even though 128(61%) respondents knew that the virus can be prevented by vaccine, 14(6.7%) were actually vaccinated. The vaccinated individuals had better knowledge about HPV, its spread, complications, its association with cervical cancer, prevention by vaccination and availability of vaccine compared to the non-vaccinated (p =0.05)

Conclusion: The trend of human papilloma virus vaccination among female health professionals was found to be low, and lack of awareness and counselling was the leading cause.

Key Words: Human papillomavirus, Cervical cancer, Vaccination.

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Introduction

Human papillomavirus (HPV) is the most common viral infection of the reproductive tract. It is the main aetiological agent behind a number of pathologies that vary from common warts to more severe complications, such as cervical cancer[1]. Cervical cancer is the third most common cancer in Pakistan[2]. Majority of the cases go unreported, and every day almost 20 women fall victim to cervical cancer[3], making Pakistan one of the top 10 countries with the highest female mortality rate. Only 5% women in a study were aware of screening, and only 2.6% actually had a pap smear done at least once in a lifetime [4].

HPV subtypes 16 and 18 carry the highest risk of causing cervical cancer[5]. In developed countries, a number of preventive strategies are practised, including the use of two prophylactic vaccines[6] and regular screening tests. Although the HPV vaccine has been identified as the best way to prevent cervical cancer, Pakistan lacks a national immunisation programme against it. However, vaccination is available in the market.

Researches exploring knowledge, attitude and practices (KAP) of the local population in Pakistan towards HPV have been conducted,[7] but barriers to primary prevention, vaccination, against HPV has not been studied extensively. The current study was planned to fill the gap by assessing the knowledge and attitude of female healthcare providers (HCPs) about HPV and its vaccination, and to determine the reasons for non-immunisation. In the light of literature[8], it was hypothesised that the trend of HPV vaccination will be generally low, and the leading cause for this might be a general lack of awareness as well as lack of counselling on part of doctors.

Subjects and Methods

The cross-sectional study was conducted at the Jinnah Hospital, Lahore (JHL), Pakistan, from January 7 to February 20, 2022. After approval from the ethics review board of Allama Iqbal Medical College / JHL, Lahore, the sample size was calculated using OpenEpi calculator[9] at

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95% confidence level with 5% margin of error and 22%anticipated frequency of vaccinated respondents[10]. The sample was raised using stratified random sampling technique from among HCPs associated with the Medical and Allied Department and the Surgical and Allied Department. An equal number of participants were recruited from each department using the lottery method.

Those included were female HCPs aged 20-60 years, including house officers (HOs), medical officers (MOs), senior registrars (SRs), post-graduate (PG) residents, professors, nurses and paramedical staff. Nutritionists, dentists and all male health professionals were excluded.

Data was collected using a self-assessing questionnaire developed on the basis of an extensive literature review[11], which was first evaluated by the research supervisor, and then a pilot study was conducted on 30 participants from among JHL staff. The pilot study confirmed the validity and reliability of the questionnaire, which had 4 sections: socio-demographics, knowledge, attitudes, and factors behind level of HPV awareness and its vaccination.

Data was collected after taking written informed consent from the participants.

Data was analysed using SPSS 22. Mean and standard deviation values were calculated for quantitative variables, and frequencies along with percentages for qualitative variables. Chi-square was used to determine the association between the dependent and independent variables. P<0.05 was considered statistically significant.

Results

Of the 250 individuals approached, 210(84%) took part in the study. The mean age was 28.9+/-7.99 years. Most of the subjects were HOs, MOs or SRs 138(65.7%), and 126(60%) were unmarried. Overall, 170(81%) respondents knew about HPV and 174(82.9%) were aware of its link with cervical cancer.

The spread of HPV infection by venereal route was known to 173(82.4%) subjects, 145(69%) lacked knowledge about the spread of infection through skin contact, and 64(30.5%) had misconception about the spread of the disease through vertical transmission.

Even though 128(61%) respondents knew that the virus can be prevented by vaccine, 14(6.7%) were actually vaccinated. However, 177(90.3%) of the unvaccinated subjects showed a positive intent to get immunised following their doctor's recommendation.

Among the sources of knowledge identified by the

Table-1: Sociodemographic profile of the respondents and their knowledge, attitude and practices regarding human papilloma virus (HPV) vaccination.

Variable		Frequency	Percentages (%)
1-Age of respondents in years			
20-30		157	75
31-40		31	15
41-50		17	8
51-60		5	2
2-Designation			
Paramedic		10	4.8
Nursing		45	21.4
HO/MO/SR		138	65.7
Professor		17	8.1
3-Marital status			
Married		84	40
Unmarried		126	60
4-Heard about HPV			
Yes		170	81
No		40	19
5-HPV link with cervical cancer			
Yes		174	82.9
No		36	17.1
6-Other diseases caused by HPV			
Penile and Other cancers	Yes	66	31.4
Common warts	No	144	68.6
7-Spread of HPV			
Sexual contact	Yes	173	82.4
	No	37	17.6
Skin to skin contact	Yes	65	31
	No	145	69
From mother to child	Yes	64	30.5
during child birth	No	146	69.5
8-Prevention of HPV			
Vaccination practices	Yes	128	61
	No	82	39
Safe sexual practices	Yes	108	51.4
	No	102	48.6
9-Vaccination status of respondents			
	Yes	14	6.7
	No	196	93.3
10-Attitude towards vaccination if doctor suggested			
	Yes	177	84.3
	No	19	9
11-Willingness to get vaccinated			
	Yes	156	74.3
	No	40	19
12-Vaccinated individuals:			
Source of knowledge about HPV vaccination			
Doctor	Yes	7	50
	No	7	50
Family	Yes	1	7.1
	No	13	92.8
Social media	Yes	3	21.4
	No	11	78.5
Syllabus	Yes	4	28.5
	No	10	71.4

HO: House officer, MO: Medical officer, SR: Senior registrar..

Table-2: Vaccination status of the subjects and its association with awareness and attitudes towards human papilloma virus (HPV).

Independent Variable		Vaccination status		P value
		Yes	No	
1-Heard of HPV				
Yes		14	156	
No		0	40	0.013
2-Knowledge of link of HPV with cervical cancer				
Yes		14	160	
No		0	36	0.019
3-How can HPV be prevented				
Vaccination practices	Yes	12	116	
	No	2	80	0.036
Antibiotics	Yes	0	18	0.107
	No	14	178	
Sanitary hygiene	Yes	1	42	
	No	13	154	0.154
Safe sexual practices	Yes	9	99	
	No	5	97	0.315
4-Awareness about availability of vaccine in Pakistan				
	Yes	7	42	0.024
	No	7	154	
5-Reasons for Non-immunization against HPV				
Did not know about	Yes	0	104	< 0.001
vaccine	No	14	92	
Low chances of	Yes	0	43	0.036
contacting HPV	No	14	153	
Pakistan				
Doctor never	Yes	11	63	0.001
recommended	No	3	133	
Too young for it	Yes	1	18	0.632
	No	13	178	
Other reasons	Yes	0	46	0.028
	No	14	150	

HO: House officer, MO: Medical officer, SR: Senior registrar..

vaccinated subjects, physicians played the most critical role (Table 1).

The vaccinated individuals had better knowledge about HPV, its spread, complications, its association with cervical cancer, prevention by vaccination and availability of vaccine compared to the non-vaccinated (p =0.05)

The vaccinated subjects were better informed about the vaccine and HPV prevalence (p=0.036). Differences in perceptions and reasons for immunisation were significant between the vaccinated and the unvaccinated (Table 2).

Discussion

A large number of the subjects (81%) showed good knowledge about HPV and its association with cervical cancer. This is in contrast to similar studies in Nigeria[12] and other studies conducted in Pakistan (57%)[7]. The difference in knowledge can be attributed to the fact that the current sample comprised HCPs. These findings are consistent with similar studies conducted in Turkey [13,14] and Malaysia[15]. Also, HCP were found to have much greater awareness about the fact that HPV infection can be prevented by vaccination (61%) compared to the general population in Pakistan, a vast majority of whom believed that a vaccine against the causative agent did not exist[7]. Despite this, the vaccination trend remained very low among the subjects in the current study, which is in line with low vaccination rates throughout the world[16].

Despite a positive trend in HPV awareness, a significant number of the participants did not know about the availability of the vaccine in Pakistan (79%). This can be attributed to the fact that no government or media programmes regarding this exist. An increase in government interest, funding, and an increase in pharmaceutical advertisements are thus necessary to increase knowledge in this regard[17].

Multiple reasons were highlighted by the participants for non-immunisation, and the most important factor was lack of awareness about the vaccine, which has also been seen throughout the world[8]. However, the such lack of awareness among HCPs is alarming. Several subjects also believed that there is a low risk of contracting HPV in Pakistan, which made vaccination unnecessary. Such perceptions are persistent throughout South East Asia[18]. However, data proving an immense rise in HPV-related cervical cancer cases in Pakistan is also available[19].

Lack of recommendation by doctors was another important factor for not getting the HPV vaccine. This is one of the leading causes of non-immunisation worldwide, and has been highlighted in literature reviews[20]. The lack of doctor's recommendation in Pakistan, however, extends beyond just HPV vaccination, as there have been negative perceptions about immunisation in general in several parts of the country [21].

Although there is some overlap, most factors for non-immunisation in Pakistan are different from those that are seen in the Western world. Many parts of Southeast Asia and the Western part of the world highlight vaccine costs and parental fears that the vaccine would promote sexual activity among adolescents as a leading cause for not getting the vaccine[22], but no such findings were seen in the current study.

An encouraging finding of the current study is that a majority of people were willing to get vaccinated if their physician recommended it. This highlights the increasing need of spreading awareness among HCPs about the

subject and the ever-increasing need for doctors to counsel their patients about clinical care and long-term protection against infections while having minimal contact with patients[23]. The role of family physicians, in this case, is unparalleled to promote HPV-related information and vaccination awareness[24]. Other measures that can be promoted on a national level include television and social media campaigns, symposiums and awareness programmes for doctors, inexpensive and continuous availability of vaccines at tertiary healthcare facilities, and incorporation of such topics into school syllabi at appropriate levels.

A study was conducted in Karachi, another metropolitan city of Pakistan, which assessed barriers to HPV vaccination, but the findings reported by it differed from those found in the current study, with the primary reasons for non-immunisation in Karachi being high cost and the time-consuming process[25]. This highlights the need to carry out more research on the subject, and incorporate a larger number of subjects.

Studies conducted in Pakistan[7,25] target the subjects without gender bias. This, however, was not the case in the current study, as it aimed at focussing only on the female population which is proportionate to the risk they carry[26].

The current study has its limitations having been done at a single public-sector tertiary hospital. Besides, topics related to reproductive health are often considered taboo in Pakistani society, which may alter the answers of the respondents.

Conclusion

The knowledge about HPV was found to be good among female HCPs. However, the frequency of vaccination against HPV was low. The most important barrier to vaccination was lack of awareness and counselling by doctors. Participants showed a positive attitude towards getting vaccinated provided it was recommended by their health professionals.

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References

1. Bosch FX, Manos MM, Muñoz N, Sherman M, Jansen AM, Peto J, et al. Prevalence of human papillomavirus in cervical cancer: a worldwide perspective. International biological study on cervical cancer (IBSCC) Study Group. [Online] [Cited 2022 April 22]. Available from: URL: https://pubmed.ncbi.nlm.nih.gov/7791229/
2. Pakistan--country profile of cancer and cancer control 1995-2004. [Online] [Cited 2022 April 12]. Available from: URL: https://pubmed.ncbi.nlm.nih.gov/16696512/
3. Pap Smear: The Life-Saving Test. [Online] [Cited 2022 April 22]. Available from: URL: https://tribune.com.pk/story/790620/pap-smear-the-life-saving-test
4. Perceptions and practices of a Pakistani population regarding cervical cancer screening. [Online] [Cited 2022 April 22]. Available from: URL: https://pubmed.ncbi.nlm.nih.gov/18439071/
5. de Sanjose S, Quint WGV, Alemany L, Geraets DT, Klaustermeier JE, Lloveras B, et al. Human papillomavirus genotype attribution in invasive cervical cancer: a retrospective cross-sectional worldwide study. [Online] [Cited 2022 April 11]. Available from: URL: https://pubmed.ncbi.nlm.nih.gov/20952254/
6. Wheeler CM. Advances in primary and secondary interventions for cervical cancer: human papillomavirus prophylactic vaccines and testing. [Online] [Cited 2022 April 22]. Available from: https://pubmed.ncbi.nlm.nih.gov/17392713/
7. Khan TM, Buksh MA, Rehman IU, Saleem A. Knowledge, attitudes, and perception towards human papillomavirus among university students in Pakistan. [Online] [Cited 2022 February 6]. 2:122-7. doi: 10.1016/j.pvr.2016.06.001
8. Dorell C, Yankey D, Strasser S. Parent-reported reasons for nonreceipt of recommended adolescent vaccinations, national immunization survey: teen, 2009. [Online] [Cited 2022 February 20]. Available from: URL: https://pubmed.ncbi.nlm.nih.gov/21856964/
9. Open Epi: Sample Size for X-Sectional, Cohort, and Clinical Trials [Online]. [Cited 2023 February 15]. Available from: URL: https://www.openepi.com/SampleSize/SSCohort.htm
10. Products - Data Briefs - Number 354. [Online] [Cited 2022 November 6]. Available from: URL: https://www.cdc.gov/nchs/products/databriefs/db354.htm
11. Lakneh EA, Mersha EA, Asresie MB, Belay HG. Knowledge, attitude, and uptake of human papilloma virus vaccine and associated factors among female preparatory school students in Bahir Dar City, Amhara Region, Ethiopia. PLoS One. 2022; 17:e0276465. doi: 10.1371/journal.pone.0276465
12. Makwe CC, Anorlu RI, Odeyemi KA. Human papillomavirus (HPV) infection and vaccines: knowledge, attitude and perception among female students at the University of Lagos, Lagos, Nigeria. [Online] [Cited 2022 March 12]. Available from: https://pubmed.ncbi.nlm.nih.gov/23856501/
13. Uzunlar Ö, Özyer Ş, Başer E, Toğrul C, Karaca M, Güngör T. A survey on human papillomavirus awareness and acceptance of vaccination among nursing students in a tertiary hospital in Ankara, Turkey. [Online] [Cited 2022 June 14]. Available from: URL: https://pubmed.ncbi.nlm.nih.gov/23375980/
14. Borlu A, Gunay O, Balci E, Sagiroglu M. Knowledge and Attitudes of Medical and Non-Medical Turkish University Students about Cervical Cancer and HPV Vaccination. [Online] [Cited 2022 June 11]. Available from: URL: https://pubmed.ncbi.nlm.nih.gov/26838228/
15. Rajiah K, Maharajan MK, Chin NS, Num KSF. Awareness and acceptance of human papillomavirus vaccination among health

sciences students in Malaysia. [Online] [Cited 2022 March 29]. Available from: https://pubmed.ncbi.nlm.nih.gov/26645041/

16. Holman DM, Benard V, Roland KB, Watson M, Liddon N, Stokley S. Barriers to human papillomavirus vaccination among US adolescents: a systematic review of the literature. [Online] [Cited 2022 January 27]. Available from: URL: https://pubmed.ncbi.nlm.nih.gov/24276343/
17. Marlow LAV, Zimet GD, McCaffery KJ, Ostini R, Waller J. Knowledge of human papillomavirus (HPV) and HPV vaccination: an international comparison. [Online] [Cited 2022 May 18]. Available from: URL: https://pubmed.ncbi.nlm.nih.gov/23246310/
18. Santhanes D, Yong CP, Yap YY, Saw PS, Chaiyakunapruk N, Khan TM. Factors influencing intention to obtain the HPV vaccine in South East Asian and Western Pacific regions: A systematic review and meta-analysis. [Online] [Cited 2022 March 10]. Available from: URL: https://pubmed.ncbi.nlm.nih.gov/29483541/
19. Loya A, Serrano B, Rasheed F, Tous S, Hassan M, Clavero O, et al. Human Papillomavirus Genotype Distribution in Invasive Cervical Cancer in Pakistan. [Online] [Cited 2022 September 22]. Available from: URL: https://pubmed.ncbi.nlm.nih.gov/27483322/
20. Gamble HL, Klosky JL, Parra GR, Randolph ME. Factors influencing familial decision-making regarding human papillomavirus vaccination. J Pediatr Psychol [Online] [Cited 2022 February 13]. Available from: https://pubmed.ncbi.nlm.nih.gov/19966315/
21. Khan TM, Khan AU, Ali I, Wu DBC. Knowledge, attitude and awareness among healthcare professionals about influenza vaccination in Peshawar, Pakistan. [Online] [Cited 2022 March 25]. Available from: URL: https://pubmed.ncbi.nlm.nih.gov/26845740/
22. Javanbakht M, Stahlman S, Walker S, Gottlieb S, Markowitz L, Liddon N, et al. Provider perceptions of barriers and facilitators of HPV vaccination in a high-risk community. Vaccine. 2012; 30:4511-6. doi: 10.1016/j.vaccine.2012.04.062.
23. Frieden TR. A framework for public health action: the health impact pyramid. [Online] [Cited 2022 May 17]. Available from: URL: https://pubmed.ncbi.nlm.nih.gov/20167880/
24. Leung JTC, Law CK. Revisiting knowledge, attitudes and practice (KAP) on human papillomavirus (HPV) vaccination among female university students in Hong Kong. Hum Vaccin Immunother. 2018; 14:924–30. doi: 10.1080/21645515.2017.1415685.
25. Shaikh MY, Hussaini MF, Narmeen M, Effendi R, Paryani NS, Ahmed A, et al. Knowledge, Attitude, and Barriers Towards Human Papillomavirus (HPV) Vaccination Among Youths of Karachi, Pakistan. [Online] [Cited 2022 May 21]. Available from: URL: https://pubmed.ncbi.nlm.nih.gov/31886070/