

Awareness and Attitudes Towards Influenza and Influenza Vaccination among Healthcare Professionals in Pakistan

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ABSTRACT

Background: The coverage of the vaccine for health workers is not satisfactory. The study was conducted with health workers in a large community. A self-administered questionnaire was used based on "Awareness and Attitudes. Several factors may be related to influenza vaccination, and identifying these can support the development of policies and strategies that expand vaccination coverage.

Aim: To identify vaccination-related factors based on awareness and attitudes, but priority is still scarce.

Methods: It was a cross-section study among 349 healthcare workers to determine their attitudes and awareness toward the vaccine. The results were evaluated statistically to observe the significant association using the Fisher's exact/Chi-square tests respectively. A p-value <0.05 is taken as significant.

Results: Three hundred and forty-nine responses were analyzed (190 men and 159 women). The average age of vaccines was 41.10±11.90 years. 186(53.2%) patients aged >40 yrs, while the majority of 263(75.4%) of the study group were physicians, 78(22.3%) were pharmacists, and only 5(1.4%) were nurses. A percentage increase was seen of healthcare professionals from private set-up who were less susceptible to influenza 109(59.6%) compared to other HCPs in public sector, GP clinics and vaccination centers (P=0.010*).

Practical implication: Healthcare professionals with a good attitude about the flu shot are more likely to receive the shot themselves and encourage their coworkers and patients to do the same. This can increase overall vaccination rates and assist in stopping the influenza virus from spreading. Healthcare workers are more likely to take preventative measures to stop the transmission of the virus, such as wearing masks and washing their hands, if they are informed of the risks of influenza and the advantages of vaccination.

Conclusion: There is a lack of awareness about the nosocomial nature of influenza among HCPs. Awareness and counseling can increase in the vaccination rate among healthcare workers.

Keywords: Influenza vaccination, Healthcare workers, attitudes and knowledge

INTRODUCTION

Influenza is considered a significant health problem worldwide¹. The World Health Organization (WHO) estimates between 3 million to 5 million cases of severe illness and 290,000 to 650,000 flu-related deaths occur globally annually². Worldwide, it is estimated that annually there will be 3 to 5 million severe cases of influenza, culminating in 250 to 500,000 deaths, hospitalizations, and social and economic losses³.

On the other hand, vaccination is an effective tool in preventing influenza and serious cases and hospitalizations related to this disease⁴. Health workers are one of the priority groups for which the influenza vaccine is recommended annually⁵. However, studies conducted in different places in the world often show low coverage of influenza vaccine among health workers, which can have repercussions on illness, absenteeism, and transmission of influenza to patients, compromising the adequate functioning of health services^{6,7}.

Several factors may be related to influenza vaccination, and identifying these can support the development of policies and strategies that expand vaccination coverage⁸. In Pakistan, where the influenza vaccine is recommended for all health workers, scientific production to identify vaccination-related factors in this group priority is still scarce⁹. Several factors may be related to influenza vaccination, and identifying these can support the development of policies and strategies that expand vaccination coverage.

Influenza is a respiratory tract infection categorized into upper respiratory tract infection (URI) and lower respiratory tract infection (LRI). The agents that are responsible for causing these infections include viruses, bacteria, and mycobacteria. According to research studies, influenza affects approximately 20% of the world's population yearly, increasing the risk of serious illness and death¹¹.

This increase in influenza epidemics has given rise to significant mortalities and morbidities, as the flu is still a major problem worldwide^{9,10}.

The healthcare workforce includes doctors, paramedics, nurses, and pharmacists, frequently interacting with patients with known or unknown flu-like sicknesses at hospitals or healthcare facilities. Such healthcare facilities are prime locations for the rapid spread of influenza and have a high potential to be a source of nosocomial infections for admitted patients. Nosocomial infections propose a substantial probability of triggering an epidemic⁽³⁾. Thus, healthcare professionals are more prone to contract influenza-like flu and transfer it to patients they cater to. They are even likely to suffer the symptoms themselves, which can be unpleasant when caring for the patients. Among many other infections, HIV infection is an important risk factor for influenza and is also associated with mortality. Such individuals experience substantially elevated influenza-associated mortality due to their compromised immune systems⁴.

Many problems prevail in Pakistan regarding barriers to vaccine administration in HCPs. These problems include a lack of adequate storage, sufficient staff to administer the vaccine, fear of needles, cost concerns, and doubts about the vaccine's effectiveness. Pakistan has gaps in published guidelines for influenza vaccination and a lack of research studies conducted on influenza. Data on HCPs' attitudes, practices, knowledge, and challenges related to influenza vaccination are scarce in Pakistan⁷. This study was carried out to determine the current influenza vaccination among HCPs from across Pakistan. A KAP survey design was used to gather information on HCPs' attitudes, practices, knowledge, and knowledge-related barriers surrounding influenza vaccination. The study also evaluated HCP knowledge of HCPs towards influenza vaccination, determined why HCPs not vaccinated, and identified factors associated with influenza vaccination.

This study aimed to ascertain the attitudes of healthcare workers working in different health care sectors about the influenza

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vaccine, their status of being vaccinated, and analyze the personal characteristics that affect vaccination.

METHODOLOGY

This multicenter cross-sectional study was conducted with HCPs across Pakistan to determine knowledge, attitude, practice, and barriers regarding influenza vaccination. The study was conducted in both urban and rural areas of Pakistan from November 2022 and January 2023. The research population was comprised of all the healthcare workers who work in the facility. However, to ensure a high percentage of participation in the research, teaching staff and physicians who work in basic sciences and are unlikely to have contact with patients were not included in the study. The study participants were health workers: General practitioners, consultants, nurses, nursing technicians/auxiliaries, physiotherapists, nutritionists, technicians, laboratory workers, and sanitization workers in professional practice during the collection period data. The survey included multiple-choice and closed-ended questions about knowledge, attitudes, practices, and barriers to influenza vaccination. Data were gathered through in-person interviews. Each interview took about 15 to 20 minutes. The participants could easily understand the English language questions that were written. For each questionnaire, a unique identifying number with a code was provided to protect the answers' privacy. In the current study, 300 HCPs from all around Pakistan participated. The questionnaire was divided into five sections: the first section contained demographic information with five items; the second section asked questions about HCPs' attitudes about influenza vaccination or the reasons they chose not to do so with six items; the third section asked a few questions about their knowledge of influenza and the influenza vaccine with eleven items; and also the final section asked questions about the understanding of influenza vaccination.

The minimum sample size required was estimated considering a bilateral error of 0.05, a statistical power of 0.8, a prevalence of the behaviors considered of 0.7, and an odds ratio (OR) of the prevalence of these behaviors of the vaccinated for the unvaccinated of 2.0, with which the minimum number of professionals to be surveyed was estimated at 185. Since it was proposed to study the objectives in at least five different strata, the minimum number of surveys needed was 349. The analyses were conducted using the statistical software IBM SPSS Statistics for Windows version 22.0 (IBM Corp, Armonk, NY, USA). The data punch operator passed the information gathered on CRFs to be entered twice. The primary and secondary analyses analyzed all categorical variables as frequencies and percentages.

Moreover, continuous variables were reported as means with standard deviation (SD). Fisher exact/ Chi-square test was used to see the association among groups. A two-sided tailed test with a 95% confidence interval (CI) by taking a 5% significance level was used.

RESULTS

The study sample comprised 349 Health care workers with a mean age of 41.10 (11.90%) years, and 190(54.4%) were males. 186(53.2%) patients belonged to age >40 yrs, while the majority of 263(75.4%) of the study group were physicians, 78(22.3%) were pharmacists, and only 5(1.4%) were nurses. The education status of participants 187(53.6%) took MMBS, followed by 56(16%) were MCPS, 41(11.7%) were Pharm-D, 55(15.8%) were FCPS, and 7(2%) were took MD degree. Furthermore, 6(1.7%)&2(0.6%) took a diploma in pharmacy and nursing, and 8(2.3%) took other degrees. 181(51.9%) participants had 1-5 years of professional experience. The research population comprised all the healthcare workers who work in the facility and found that 195(55.9%) collected data from a private hospital, 78(22.3%) from govt. Hospital, 130(37.2%) were collected from outpatients and 50(14.3%) from the Vaccinator center, as presented in (Table-1).

The healthcare workers of knowledge and attitudes toward influenza and influenza vaccination influenza vaccines are summarized in Table 2. A percentage increase was seen of healthcare professionals from private set-up who were less susceptible to influenza 109(59.6%) compared to other HCPs in public sector, GP clinics and vaccination centers (P=0.010*). A significant number of HCP believed that they can spread influenza infection even they feel they are well (P=0.035). Majority of the participants from private sector reported that the vaccine didn't protect them from influenza 109(58.6%) compared to public sector, GP clinics and vaccination centers. In contrast, Adults with influenza commonly experience nausea, vomiting, or diarrhea, which was higher in private and vaccination centers (P=0.01*). The vaccine's lack of proper storage area was found to be significantly very low in all sectors except private sectors (P=0.013*). Surprisingly a higher percentage of HCP from the private sector 65(56.4%) reported it is not compulsory for HCPs to get an influenza vaccine (P=0.023*). Other knowledge and attitude barriers do not reflect the significant association among all sectors in Pakistan (P>0.05*).

Table. 1: Responders' characteristics (n=349)

Parameters	Values
Age in years <i>mean (SD)</i>	41.10 (11.90)
Physicians <i>n (%)</i>	263 (75.4)
Pharmacist <i>n (%)</i>	78 (22.3)
Nurses <i>n (%)</i>	5 (1.4)
FCPS <i>n (%)</i>	55 (15.8)
MCPS <i>n (%)</i>	56 (16.0)
MBBS <i>n (%)</i>	187 (53.6)
MD <i>n (%)</i>	7 (2.0)
Pharm D <i>n (%)</i>	41 (11.7)
Diploma Pharmacy <i>n (%)</i>	6 (1.7)
Diploma Nursing <i>n (%)</i>	2 (0.6)
Others	8 (2.3)
Experience <i>n (%)</i>	
1-5 years	181 (51.9)
>5 years	168 (48.1)
Private hospital <i>n (%)</i>	195 (55.9)
Govt. hospital <i>n (%)</i>	78 (22.3)
Outpatient clinic <i>n (%)</i>	130 (37.2)
Vaccinator center <i>n (%)</i>	50 (14.3)
Others <i>n (%)</i>	15 (4.3)
GSK <i>n (%)</i>	2 (0.6)
Indoor too detention <i>n (%)</i>	1 (0.3)
Medical center <i>n (%)</i>	1 (0.3)
NBH <i>n (%)</i>	1 (0.3)
Pharmaceutical <i>n (%)</i>	3 (0.9)
Private company <i>n (%)</i>	2 (0.6)
Sanofi Aventis pvt. limited <i>n (%)</i>	4 (1.1)
Ward <i>n (%)</i>	1 (0.3)
Public <i>n (%)</i>	78 (22.3)
Private <i>n (%)</i>	187 (53.6)
General Practitioner <i>n (%)</i>	52 (14.9)
Vaccination center <i>n (%)</i>	32 (9.2)

Fig. 1: Distribution of gender

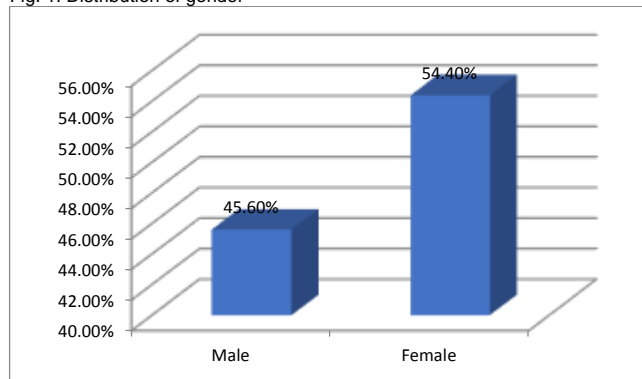


Table 2. Comparison of vaccination effectiveness among different sectors.

Questions	Private	Public	GP	Vaccination center	p-values
Do you think the influenza vaccine is effective in preventing the flu	133 (53.2)	60 (24.1)	36 (14.3)	20 (8.0)	0.488
Do you believe the Center for Disease Control (CDC) recommends that healthcare workers receive the flu shot	92 (46.9)	50 (25.5)	36 (18.4)	18 (9.2)	0.102
Are you aware of the guidelines published by the Advisory Committee Immunization Practice	115 (49.4)	56 (24.0)	39 (16.7)	23 (9.9)	0.327
Healthcare professionals are less susceptible to influenza than other people	109 (59.6)	32 (17.5)	30 (16.4)	12 (6.6)	0.010
Influenza is transmitted primarily by coughing and sneezing	132 (52.0)	61 (24.0)	41 (16.1)	20 (7.9)	0.487
Influenza is more serious than a common cold	126 (52.3)	56 (23.2)	41 (17.0)	18 (7.5)	0.842
The signs and symptoms of influenza include fever, headache, sore throat, cough, nasal congestion, aches, and pains	19 (32.2)	18 (30.5)	21 (35.6)	1 (1.7)	0.454
HCPs can spread influenza even when they are feeling well	98 (57.3)	38 (22.2)	20 (11.7)	15 (8.8)	0.035
People with influenza can transmit the infection only after their symptoms appear	114 (53.0)	47 (21.9)	37 (17.2)	17 (7.9)	0.340
Influenza is transmitted primarily by contact with blood and body fluids	99 (53.8)	36 (19.6)	33 (17.9)	16 (8.7)	0.382
The flu shot contains live viruses that may cause some people to get influenza	105 (56.8)	34 (18.4)	32 (17.3)	14 (9.6)	0.593
Influenza vaccination does not work in some persons even if the vaccine has the right mix of viruses	109 (58.6)	32 (17.2)	23 (12.4)	22 (11.8)	<0.001
Adults with influenza commonly experience nausea and vomiting, or diarrhea	124 (60.2)	38 (18.4)	34 (16.5)	10 (4.9)	0.001
Symptoms typically appear 8-10 days after a person is exposed to influenza	120 (54.5)	48 (21.8)	34 (15.5)	18 (8.2)	0.535
Lack of proper storage area for vaccine	112 (56.3)	33 (16.6)	34 (17.1)	20 (10.1)	0.013
Not compulsory for HCPs to get an influenza vaccine	65 (56.4)	30 (23.3)	19 (14.7)	15 (11.6)	0.023
Influenza is not a serious condition	78 (54.2)	32 (22.2)	23 (16.0)	11 (7.6)	0.966
The influenza vaccine is costly	96 (54.2)	35 (19.8)	33 (18.6)	13 (7.3)	0.431
Safety and side effect concerns are hindering HCPs from getting the influenza vaccine	100 (53.8)	45 (24.2)	31 (16.7)	10 (5.4)	0.440
I do not like needles (Fear of needles)	65 (51.6)	27 (21.4)	24 (19.0)	10 (7.9)	0.833

DISCUSSION

HCPs are more likely to contract and spread the illness to their patients because influenza is highly contagious. The most successful technique for preventing influenza virus infection and the problems that go along with it is immunization. This study evaluated HCPs' knowledge, attitudes, awareness, and impediments surrounding influenza vaccination. The behavioral domain is represented by knowledge, attitude, and awareness factors. It is commonly established that a person's preventative habits can be influenced by their knowledge and attitude¹².

Awareness regarding vaccination safety and efficacy will make vaccination programs successful in the country. For this, first of all, the factors that cause anti-vaccine attitudes and strategies for changing it. Healthcare professionals play a very important role in recommending influenza vaccination to all those included in the groups for which it is indicated^{13,14}.

The situation remains unsatisfactory in similar low- and middle-income countries, such as Pakistan, where a recent study found only 8.84% vaccine uptake among doctors¹⁵. In a Sierra Leone study by James et al., a lack of awareness (82.73%) was cited as the primary reason for low vaccination rates. This contradicts the current study's findings, which found that more than 95% of respondents were aware of the vaccination. More than half of the healthcare providers who participated in the survey thought they were less susceptible to influenza infections than others¹⁶. In the Pakistani study, 72.6% of doctors didn't know that the Centers for Disease Control (CDC) and Advisory Committee on Immunization Practices (ACIP) advised vaccinating against influenza¹⁷.

Giannattasio et al¹⁸ conducted a study of 2557 healthcare workers in 2015, finding that they were not vaccinated. The reasons are that I don't feel in the risk group (32.6%), and the vaccine doubts its effectiveness (33.7%)¹⁸. Rashid et al¹⁹ found that the most common reason for not getting vaccinated in 2015 in their study of 211 healthcare staff was not finding time for vaccination (56.2%). The most frequent vaccine appeared in a meta-analysis of twenty studies.

First, the factors that cause anti-vaccine attitudes should be put forward, and strategies should be developed to change them.

Similarly, in earlier published studies, HCPs understood they were included in the high-risk group and should be vaccinated annually. They knew WHO guidelines for influenza vaccination. Further HCPs also understand their role in disease transmission and that vaccination helps prevent infection from spreading to others¹⁹. Similarly, the "lack of time" was also reported in other studies, and it was also shown that some interventions²⁰ might increase vaccination rates^{21,22}.

Another important finding was the higher vaccination rate in those who had worked for more than six years in internal medicine departments and emergencies. Those working in internal medicine departments may have been convinced of the need for vaccination by more recent education about vaccination in their work environment. In the same way, an increase in years of work experience may have made physicians more sensitive to the benefits of being vaccinated. Another study also found that increased education or medical knowledge score was accompanied by increased vaccination rates^{23,24}. The important issue is the higher tendency to be vaccinated in some groups. Examining the characteristics of these groups and determining factors influencing being vaccinated could also increase the vaccination rate in other groups. The reporting supports our opinion in other studies that was arranging for education programs and organization of vaccination implementation within the facility increased the vaccination rate^{25,26}.

An increase in the vaccination rate among healthcare workers, especially physicians, may improve the population's health. To increase this rate, healthcare units should create education programs that would help change the attitudes of healthcare workers and organize vaccination services that can be accessed easily. Also, special invitations which indicate the vaccination time should be sent to healthcare workers.

Additionally, research on vaccine technology should be encouraged. That would help to reduce the number of people who avoid vaccination because of its side effects.

CONCLUSION

There is a lack of awareness about the nosocomial nature of influenza among HCPs. Awareness and counseling can increase in

the vaccination rate among healthcare workers. To increase this rate, healthcare units should create education programs that would help change healthcare workers' attitudes and organize vaccination services that can be accessed easily. Also, special invitations which indicate the vaccination time should be sent to healthcare workers. Additionally, research on vaccine technology should be encouraged. That would help to reduce the number of people who avoid vaccination because of its side effects.

Conflict of interest: Nil

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