DOI: https://doi.org/10.54393/pjhs.v5i10.2134

PAKISTAN JOURNAL OF HEALTH SCIENCES
(LAHORE)
https://thejas.com.pk/index.php/pjhs
ISSN (P): 2790-9352, (E): 2790-9344
Volume 5, Issue 10 (October 2024)

Original Article

OPEN ACCESS

Uptake of influenza Vaccination among Health Care Workers in Federal General Hospital, Islamabad

AS-Saba[1], Muhammad Iftikhar Khattak[1], Muhammad Aleem Uddin[2], Nazish Asghar[1], Fatima Naseem[1] and Faisal Rashid[3*]

[1]Health Services Academy, Islamabad, Pakistan
[2]Department of Medicine, Sahara Medical College, Narowal, Pakistan
[3]Department of Ophthalmology, Services Institute of Medical Sciences, Services Hospital, Lahore, Pakistan

ARTICLE INFO

Keywords:
Federal General Hospital, Healthcare Workers, Influenza, Vaccination

How to Cite:
Saba, A., Khattak, M. I., Uddin, M. A., Asghar, N., Naseem, F., & Rashid, F. (2024). Uptake of influenza Vaccination among Health Care Workers in Federal General Hospital, Islamabad: Uptake of influenza Vaccination among Health Care Workers . Pakistan Journal of Health Sciences, 5(10). https://doi.org/10.54393/pjhs.v5i10.2134

Corresponding Author:
Faisal Rashid
Department of Ophthalmology, Services Institute of Medical sciences, Services Hospital, Lahore, Pakistan
optometristfaisalrasheed@gmail.com

Received Date: 17th August, 2024
Acceptance Date: 26th October, 2024
Published Date: 31st October, 2024

ABSTRACT

Influenza, a highly contagious respiratory illness, imposes a substantial public health burden globally. **Objectives:** To identify reasons for not taking influenza vaccination shots and to explore whether healthcare workers are following any Standard operating procedure. **Methods:** In the present study, a structured questionnaire was employed, which was adapted from a previously published research study. This research was conducted at the Federal General Hospital located in Islamabad. The target population for this study consisted of healthcare workers employed at Federal General Hospital, Islamabad. The questionnaire was designed to gather information regarding influenza vaccination, including uptake rates, and to identify barriers and factors influencing the decision to take influenza vaccination among healthcare workers. **Results:** Three hundred workers were registered for the following study. About half of the participants, 47.7%, reported receiving immunizations in the past six months, which shows active participation in vaccination practices. A significant association was observed in assessing knowledge of vaccination, with 22.1% of individuals demonstrating knowledge of immunization. There was a strong association for specific knowledge (OR=2.750). No significant association was found for understanding (OR=0.482, p=2.048). No significant association was seen between barriers (OR=0.708) (p-value=1.00) **Conclusions:** It was concluded that established guidelines and recommendations, a notably small percentage of healthcare workers opted for influenza vaccination. To rectify this situation, comprehensive strategies are required, encompassing various elements. These strategies should include initiatives to heighten awareness regarding the significance of the influenza vaccine and align vaccination practices with international guidelines.

INTRODUCTION

Influenza is an infectious respiratory illness caused by the influenza virus. According to the World Health Organization (WHO), there have been reports of 3-5 million instances of severe illness and 290,000-650,000 deaths attributed to seasonal influenza epidemics. It is an acute respiratory illness caused by the influenza virus known as seasonal influenza [1]. Activity of flu generally increased between December and February. It can last until May. Deforestation worsens weather and is associated with an increase in the growth of the population [2]. Environmental factors such as humidity, temperature, and precipitation significantly influence the survival and activity of viruses. [3]. Influenza risk groups encompass individuals who face an elevated likelihood of being exposed to influenza viruses and those who are at a heightened risk of developing severe illness and complications, with a potentially high mortality rate if not hospitalized [4]. Healthcare workers (HCWs) are considered a high-priority group for influenza vaccination due to their potential to transmit the flu to patients, colleagues, and relatives, and the subsequent negative impact on productivity and increased absenteeism [5]. Annual vaccination against seasonal influenza has proven to be highly effective in reducing the occurrence of influenza [6]. Influenza presents a significant global disease burden and Healthcare workers (HCWs) are particularly vulnerable to influenza transmission due to their work environment and job responsibilities [7]. Research has shown that while healthcare workers are

DOI: https://doi.org/10.54393/pjhs.v5i10.2134

aware of the benefits of immunization, many harbor concerns and mistrust toward health authorities [8]. Nevertheless, the rate of vaccination among HCWs is still relatively low, primarily due to insufficient knowledge and a lack of evidence-based guidance [9]. Influenza risk groups include two categories: individuals with an elevated risk of exposure to influenza viruses and those with a heightened susceptibility to severe disease and complications, often resulting in increased mortality rates if hospitalization is not provided [10]. Several studies have shown that healthcare professionals continue to work at Long-term care facilities (LTCFs) even after contracting the flu [11]. Despite the recommendation by the WHO advisory committee on immunization for annual influenza vaccination among HCWs, the uptake of vaccination in European countries remains remarkably low. None of the member states in Europe have achieved the target coverage limit of 75%. [12]. In Asia, the public health impact of influenza is significant, despite the availability of effective influenza vaccines. Annual vaccination against seasonal influenza has proven to significantly reduce the incidence of the disease [13]. A research study conducted in Peshawar, Pakistan, aimed to identify the obstacles faced by healthcare workers in receiving influenza vaccination. The findings revealed that 67.4% of the participants were aware of the effectiveness of the vaccine in preventing influenza [14].

This study aims to identify reasons for not taking influenza vaccination shots and to discover whether healthcare workers are following any SOPS.

METHODS

To understand the influenza shots of healthcare workers a cross-sectional quantitative study was carried out to understand vaccination rates among healthcare workers. The study was conducted in the capital city of Pakistan i.e. Islamabad. The research was carried out in the Federal General Hospital Islamabad. The research was carried out from May to December 2023. Since the research was based on Quantitative Comparative Analysis, the data were collected from a quantitative questionnaire. To answer the study objectives primary data were collected by administering questionnaires with HCW. The questionnaire comprises almost 25 questions. The sample population for this survey was hospital staff (healthcare professionals who had direct interaction with patients). Respondents comprised Registered Nurses (RN), Interns, paramedics, and lab technicians. All male and female working in hospitals and direct contact with the patients included in the study. The participants were surveyed using a non-probability consecutive sampling technique using a structured questionnaire. The data analysis plan involved quantitative variables to understand healthcare workers' knowledge, attitudes, and behaviors regarding influenza vaccination. The key outcome variables included vaccination status, such as whether participants had been vaccinated in the last 6-12 months against any disease or specifically for influenza, and their perceptions of the effectiveness and necessity of the influenza vaccine. Variables in the study, measured as "Yes" or "No" responses, included concerns about the side effects of the vaccine, whether participants had experienced adverse effects after receiving the influenza vaccine, beliefs about the vaccine's effectiveness in preventing flu, and whether they thought vaccination was necessary to protect both themselves and their patients. A total of six were questioned for knowledge and five for barriers mentioned in the questionnaire. Total healthcare workers including doctors, nurses, and paramedics/technicians included in the sample size calculation. Sample size was calculated according to the formula [n=[(Za/2)2. P(1- P)]/d2]. Where Z is the critical value of normal distribution at a 95% level of confidence. The Literature review indicates the prevalence of Influenza vaccination to be around 75-80% [15]. After extensive review, a prevalence of 75%, with a margin of error of 5%, and a confidence level of 95% the sample size was calculated to be 280. Rounding up to account for missed errors, a sample size of 300 was used. All clinical staff who work in the morning or evening time and have direct contact with a patient were included in the study. Healthcare workers who are on long-term training, education, and extended leave at the time of study will be excluded. The questionnaire was adopted from a previous study on the same topic in Peshawar [16]. The questionnaire was comprised of 25 questions. A data analysis was run to calculate frequencies and proportions (percentages) for categorical variables. Mean (standard deviation) and their association were also calculated. Data were analyzed by using SPSS version 22.0. The categorization of "good" and "poor" understanding and knowledge was based on a scoring system derived from responses to the questionnaire. The questionnaire contained multiple questions assessing the participants' understanding of influenza and its vaccination. The determination of "good" or "poor" understanding was quantified by setting a threshold score, which was calculated based on the distribution of responses. A cutoff point was established: participants scoring above this threshold were labelled as having "good understanding," while those below it was labelled as having "poor understanding. Similarly, the presence or absence of barriers to vaccination was determined through direct questions asking participants whether they faced specific obstacles, such as concerns about vaccine safety, lack of time, or fear of needles. The study obtained ethical clearance from the IRB Department of the Federal General Hospital, Islamabad with reference no.F.2.110/ADMN-EC-FGH. Autonomy was maintained, individuals who participated in the study had their rights protected, and written consent was obtained.

RESULTS

The survey data show that the majority of respondents are aged 26-35 (38.0%) and 30.3% are above 35. The gender distribution is balanced, with 55.3% female and 44.7% male respondents. Half of the respondents have 6-10 years of job

DOI: https://doi.org/10.54393/pjhs.v5i10.2134

experience. In terms of vaccinations, 47.7% have been vaccinated in the last 6-12 months, but 52.3% have not (Table 1).

Table 1: Socio Demographics of HCW

Variables	Categories	Frequency (%)
Age	<25	42 (14.0%)
	26-30	114 (38.0%)
	31-35	53 (17.7%)
	>35	91 (30.3%)
Gender	Male	134 (44.7%)
	Female	166 (55.3%)
Graduation Level	Undergraduate	22 (7.3%)
	Graduate	148 (49.3%)
	Postgraduate	130 (43.3%)
Job Experience	Less Than 1	30 (10.0%)
	1-2	63 (21.0%)
	3.5	57 (19.0%)
	6-10	150 (50.0%)
Designation	Medics	166 (55.3%)
	Paramedics	134 (44.7%)
Vaccination in the Last 6- 12 Months Against Any Disease	Yes	143 (47.7%)
	No	157 (52.3%)
Vaccination Done in Last 6-12	Yes	12 (4.0%)

The results indicate a mixed outlook regarding the vaccine's effectiveness and necessity. While 37.0% of respondents believe the influenza, vaccine is effective in preventing the flu, a majority of 63.0% express skepticism. Similarly, 46.0% of healthcare professionals consider vaccination necessary for self-protection and protecting their patients, but 54.0% harbor doubts about its necessity. The cost factor emerges as a potential barrier, with 59.0% finding the annual vaccination costly. On the other hand, 41.0% do not perceive it as an expensive option (Table 2).

Table 2: HCW's General Understanding of the Influenza Vaccine

Variables	Categories	Frequency (%)
Do you think the influenza vaccine is effective in preventing the flu?	Yes	111 (37.0%)
	No	189 (63.0%)
Do you believe that the influenza vaccination is necessary to protect yourself and your patients?	Yes	138 (46.0%)
	No	162 (54.0%)
Do you think annual vaccination is costly?	Yes	177 (59.0%)
	No	123 (41.0%)
Do you know the Centers for Disease Control recommended guideline that healthcare professionals receive and the "FLU" shot?	Yes	181 (60.3%)
	No	119 (39.7%)
Have you followed all SOPS related to? Influenza vaccination?	Yes	164 (54.7%)
	No	136 (45.3%)

The data reveal mixed levels of knowledge among healthcare professionals at the Federal General Hospital regarding influenza and influenza vaccination. While respondents demonstrate a clear understanding of influenza transmission through sneezing and the lack of transmission through bodily fluids, there is uncertainty about their susceptibility to influenza infections, with 65.0% expressing they are not less susceptible. 48.3% disagree that influenza is more severe (Table 3).

Table 3 : Knowledge of Healthcare Workers About Vaccines

Variables	Federal General Hospital	
	Categories	Frequency (%)
Healthcare professionals are less susceptible to influenza infections than other people.	Yes	105 (35.0%)
	No	195 (65.0%)
Influenza is more serious than a "common cold	Yes	155 (51.7%)
	No	145 (48.3%)
Influenza is transmitted by sneezing	Yes	300 (100.0%)
	No	0.00
Influenza is transmitted by bodily fluids	Yes	0.00
	No	300 (100%)
People with influenza can transmit the infection after their symptoms appear	Yes	63 (21.0%)
	No	237 (79.0%)
Healthcare professionals don't need to get vaccinated for Influenza	Yes	166 (55.3%)
	No	134 (44.7%)

The data analysis revealed the barriers to receiving vaccination against influenza, including the perception that influenza is not severe enough to warrant vaccination, laziness or lack of time, insufficient staff to administer the vaccine, and needle fear. Understanding these barriers is crucial for designing targeted strategies and educational campaigns to increase influenza vaccination uptake (Table 4).

Table 4 : Barriers to Not Taking Influenza Vaccination

Variables	Categories	Frequency (%)
Influenza is not a serious condition therefore not worth vaccinating against	Yes	90 (30.0%)
	No	210 (70.0%)
Laziness or lack of time	Yes	190 (63.3%)
	No	110 (36.7%)
There is insufficient staff to administer the vaccine	Yes	212 (70.7%)
	No	88 (29.3%)
Due to needle fear, I don't like to get vaccinated	Yes	72 (24.0%)
	No	228 (76.0%)
Do You worry about the side effects of this vaccine?	Yes	43 (14.3%)
	No	257 (85.7%)

The analysis of the provided data reveal several notable findings. Firstly, when considering the knowledge of vaccination, a significant association was observed, with 22.1% of individuals knowing vaccination, and this group exhibited an odds ratio (OR) of 2.750, indicating a substantial association compared to those without knowledge, with a 95% confidence interval (CI) of [0.628, ∞] and a highly significant p-value of 0.00. Conversely, regarding general understanding of vaccination, although 51.5% of participants reported having such understanding, the calculated OR was 0.482, suggesting no significant association, supported by a p-value of 2.048. Similarly, for barriers to vaccination, where 39.4% of individuals faced

DOI: https://doi.org/10.54393/pjhs.v5i10.2134

barriers, the OR of 0.708 and a p-value of 1 indicate no significant relationship (Table 5).

Table 5: Scores for Knowledge, Awareness, and Barriers of the Influenza Vaccine

Variables	Good	Poor	OR 95% CI		p-value
			Upper	Lower	
Knowledge of Vaccination					
Yes	25 (22.1%)	8 (4.3%)	2.750	0.628	0.00
No	88 (77.9%)	179 (95.7%)			
General Understanding of Vaccination					
Yes	17 (51.5%)	16 (48.5%)	0.482	2.048	1.00
No	138 (51.7%)	129 (48.3%)			
Barriers					
Yes	13 (39.4%)	20 (60.6%)	0.708	3.14	0.00
No	81 (30.3%)	186 (69.7%)			

DISCUSSION

The current research is pioneering in its estimation of influenza vaccination coverage among healthcare workers (HCWs) and delving into their knowledge and understanding of seasonal influenza vaccination. The study aims to enhance vaccination coverage among HCWs through a comprehensive understanding of their vaccination behaviours and perceptions. Despite the evidence supporting the benefits of vaccination, the uptake of influenza vaccines among HCPs remains suboptimal. Multiple factors contribute to this low uptake [16]. Socio-demographics play a role, with higher vaccine coverage observed among female HCWs compared to males, possibly indicating higher confidence in the vaccine's efficacy among females. This study also showed the vaccination rate among females is higher 55% than among males. In contrast, medical professionals, particularly medical residents, tend to have higher compliance with getting vaccinated, while nurses and other staff show a lower inclination towards vaccination, consistent with findings from existing literature [17]. Influenza vaccination among healthcare professionals (HCPs) is crucial in preventing infections, reducing transmission to vulnerable patients, and minimizing mortality and morbidity [18]. Influenza vaccination among healthcare professionals (HCPs) is crucial in preventing infections, reducing transmission to vulnerable patients, and minimizing mortality and morbidity [19]. About 54.7% have good knowledge of taking vaccination Similarly, a Canadian study in a Neonatal Intensive Care Unit found that a large proportion of HCPs affected by influenza were unvaccinated, underlining the importance of vaccination in HCW. Our study also showed that people have good knowledge of vaccination but most of them were unvaccinated. According to our studies, 85% of our population does not worry about the side effects of this vaccine. Interestingly, fear of side effects was less frequently reported in the study which shows beliefs and attitudes towards vaccination compared to data from developed countries. Only 24.4% have needle fear as a barrier to receiving vaccination [20]. Lack of time or laziness was also cited as a reason for not receiving the vaccination by a significant portion of healthcare workers [21]. Similarly, 63.3% also showed this behaviour in our studies.

CONCLUSIONS

It was concluded that better knowledge and attitudes regarding influenza vaccination have been found better in doctors as compared to paramedics. This study showed that Paramedics had a low level of knowledge and attitude towards vaccination. Effective and goals-oriented training programs are frequently required to address the issue and increase practices among them. The findings of the current study can be used to formulate a policy brief addressing the gaps and ways to better understand the importance of the vaccination rate. The findings of the current study also will help to address the issue more appropriately and inform plans for better training programs and monitoring of healthcare workers.

Authors Contribution

Conceptualization: AS
Methodology: AS, MIK, NA, FN
Formal analysis: MIK, NA
Writing review and editing: MAU, FR

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

All the authors declare no conflict of interest.

Source of Funding

The author received no financial support for the research, authorship and/or publication of this article.

REFERENCES

[1] Bechini A, Lorini C, Zanobini P, Mando Tacconi F, Boccalini S, Grazzini M *et al*. Utility of Healthcare System-Based Interventions in Improving the Uptake of Influenza Vaccination in Healthcare Workers At Long-Term Care Facilities: A Systematic Review. Vaccines. 2020 Apr; 8(2): 165. doi: 10.3390/vaccines8020165.

[2] Anwar MM, Sumon SA, Mohona TM, Rahman A, Md Abdullah SA, Islam MS *et al*. Uptake of Influenza Vaccine and Factors Associated with Influenza Vaccination among Healthcare Workers in Tertiary Care Hospitals in Bangladesh: A Multicenter Cross-Sectional Study. Vaccines. 2023 Feb; 11(2): 360. doi: 10.3390/vaccines11020360.

[3] Brixner A, Brandstetter S, Böhmer MM, Seelbach-Göbel B, Melter M, Kabesch M *et al*. Prevalence of and Factors Associated with Receipt of Provider Recommendation for Influenza Vaccination and Uptake of Influenza Vaccination During Pregnancy:

DOI: https://doi.org/10.54393/pjhs.v5i10.2134

Cross-Sectional Study. BioMed Central Pregnancy and Childbirth. 2021 Dec; 21: 1-2. doi: 10.1186/s12884-021-04182-w.

[4] Durovic A, Widmer AF, Dangel M, Ulrich A, Battegay M, Tschudin-Sutter S. Low Rates of Influenza Vaccination Uptake among Healthcare Workers: Distinguishing Barriers Between Occupational Groups. American Journal of Infection Control. 2020 Oct; 48(10): 1139-43. doi: 10.1016/j.ajic.2020.02.004.

[5] Kopsidas I,Tsopela GC,Maroudi-Manta S, Kourkouni E, Charalampopoulos D, Sirogianni A *et al*. Increasing Healthcare Workers' Uptake of Seasonal Influenza Vaccination in A Tertiary-Care Pediatric Hospital in Greece with A Low-Cost, Tailor-Made, Multifaceted Strategy. Vaccine.2020 Jun;38(29):4609-15.doi: 10.1016/j.vaccine.2020.05.021.

[6] Yu M, Yao X, Liu G, Wu J, Lv M, Pang Y *et al*. Barriers and Facilitators To Uptake And Promotion of Influenza Vaccination among Health Care Workers in the Community in Beijing, China: A Qualitative Study. Vaccine.2022 Mar; 40(14): 2202-8. doi: 10.1016/j.vaccine.2022.02.060.

[7] Oguz MM. Improving Influenza Vaccination Uptake among Healthcare Workers by On-Site Influenza Vaccination Campaign in A Tertiary Children's Hospital. Human Vaccines & Immunotherapeutic. 2019 Mar; 15(5): 1060-1065. doi: 10.1080/21645515.2019.1575164.

[8] Kyaw WM, Chow A, Hein AA, Lee LT, Leo YS, Ho HJ. Factors Influencing Seasonal Influenza Vaccination Uptake among Health Care Workers in an Adult Tertiary Care Hospital in Singapore: A Cross-Sectional Survey. American Journal of Infection Control. 2019 Feb; 47(2): 133-8. doi: 10.1016/j.ajic.2018.08.011.

[9] McGovern I, Bogdanov A, Cappell K, Whipple S, Haag M.Influenza Vaccine Uptake in the United States before and during the COVID-19 Pandemic. Vaccines. 2022 Sep; 10(10): 1610. doi:10.3390/vaccines10101610.

[10] Arghittu A, Dettori M, Azara A, Gentili D, Serra A, Contu B *et al*. Flu Vaccination Attitudes, Behaviours, and Knowledge among Health Workers. International Journal of Environmental Research and Public Health. 2020 May; 17(9): 3185. doi:10.3390/ijerph17093185.

[11] Tognetto A, Zorzoli E, Franco E, Gervasi G, Paglione L, Di Ninno F *et al*. Seasonal Influenza Vaccination Among Health-Care Workers: The Impact of Different Tailored Programs in Four University Hospitals in Rome. Human Vaccines & Immunotherapeutic.2020 Jan; 16(1): 815.doi:10.1080/21645515.2019.1632684.

[12] Kini A, Morgan R, Kuo H, Shea P, Shapiro J, Leng SX *et al*. Differences and Disparities in Seasonal Influenza Vaccine, Acceptance, Adverse Reactions, and Coverage by Age, Sex, Gender, and Race. Vaccine. 2022 Mar; 40(11): 1643-54. doi: 10.1016/j.vaccine.2021.04.013.

[13] Sheldenkar A, Lim F, Yung CF, Lwin MO. Acceptance and Uptake of Influenza Vaccines in Asia: A Systematic Review. Vaccine.2019 Aug; 37(35): 4896-905. doi: 10.1016/j.vaccine.2019.07.011.

[14] Ali I, Ijaz M, Rehman IU, Rahim A, Ata H. Knowledge, Attitude, Awareness, and Barriers Toward Influenza Vaccination among Medical Doctors at Tertiary Care Health Settings in Peshawar, Pakistan–A Cross-Sectional Study. Frontiers in Public Health. 2018 Jun; 6: 173. doi: 10.3389/fpub.2018.00173.

[15] Razzaghi H. Influenza and COVID-19 Vaccination Coverage among Health Care Personnel—United States, 2021–22. Morbidity and Mortality Weekly Report. 2022 Oct; 71(42): 1319–1326. doi:10.15585/mmwr.mm7142a2.

[16] Umbreen G, Rehman A, Avais M, Jabeen C, Sadiq S, Maqsood R *et al*. Knowledge, Attitude, Practice and Barriers Associated with Influenza Vaccination among Health Care Professionals Working at Tertiary Care Hospitals in Lahore, Pakistan: A Multicenter Analytical Cross-Sectional Study.Vaccines.2023Jan; 11(1): 136. doi: 10.3390/vaccines11010136.

[17] Genovese C, Picerno IA, Trimarchi G, Cannavò G, Egitto G, Cosenza B *et al*. Vaccination Coverage in Healthcare Workers: A Multicenter Cross-Sectional Study in Italy. Journal of Preventive Medicine and Hygiene. 2019 Mar; 60(1): E12. doi: 10.15167/24214248/jpmh2019.60.1.1097.

[18] Dini G, Toletone A, Sticchi L, Orsi A, Bragazzi NL, Durando P. Influenza Vaccination in Healthcare Workers: A Comprehensive Critical Appraisal of the Literature. Human Vaccines & Immunotherapeutic. 2018 Mar; 14(3): 772-89. doi: 10.1080/21645515.2017.1348442.

[19] Alhalaseh L, Fayoumi H, Khalil B. The Health Belief Model in Predicting Healthcare Workers' Intention for Influenza Vaccine Uptake in Jordan. Vaccine. 2020 Oct; 38(46): 7372-8. doi: 10.1016/j.vaccine.2020.09.002.

[20] Hofmann F, Ferracin C, Marsh G, Dumas R. Influenza Vaccination of Healthcare Workers: A Literature Review of Attitudes and Beliefs. Infection. 2006 Jun; 34: 142-7. doi: 10.1007/s15010-006-5109-5.

[21] Alshammari TM, AlFehaid LS, AlFraih JK, Aljadhey HS. Healthcare Professionals' Awareness of, Knowledge About and Attitude to Influenza Vaccination. Vaccine. 2014 Oct; 32(45): 5957-61. doi: 10.1016/j.vaccine.2014.08.061.