

Influenza Vaccination: The Health Care Workers' Opinion

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Abstract

Background: The Ministry of public health recommends yearly influenza vaccination to health care workers (HCWs) in most of the countries in the Middle East. However, the compliance among HCWs in this region is considerably low. Given the emergence of new contagious infections as Covid-19 and the necessity for preserving human resource personnel, it is important to acknowledge reasons influencing the decision of the HCWs for vaccination in order to address it in the awareness campaigns and achieve the highest rate of vaccination and the lowest rate of influenza infection.

Methods: This descriptive study aims to present the barriers and the facilitator factors of influenza vaccination via a questionnaire-based survey distributed in two tertiary health care centers.

Results: 598 HCWs responded to the questionnaire. Nearly half (49.5%) of them refused the influenza vaccine. Among them, 48.3% were nurses and 10.8% were doctors.

The main reasons for refusal among HCWs were the post-vaccination flu-like symptoms (62.7%), the tenderness at the injection site (17.5%). Surprisingly, 5.8% never heard about the influenza vaccine.

The contributor factors for vaccination were enhancing immunity against influenza (46.4%), self-protection (39.1%), and protection of the family members (13.9%).

Conclusion: The results show that current vaccination campaigns do not emphasize the benefit-risk regarding the common side effects after vaccination and forget to focus on targeting populations at risk. Understanding these barriers will improve awareness and thus increase the vaccination rate among HCWs to help avoid the emergence of an unwanted influenza endemic infection in the current Covid-19 pandemic.

Key words: Health care worker; Influenza; Vaccination; Acceptance.

INTRODUCTION

Human influenza viruses belong to the Orthomyxoviridae family. It is responsible for mild to severe illness and even death, particularly in high-risk individuals: the aged > 65 years, the very young (aged 6 months to 5 years), pregnant women, immuno-compromised, and patients with multi-morbidities (asthma, diabetes mellitus, or cardiac failure). The virus includes 4 types A, B, C, and D.

Type A influenza viruses are further divided into subtypes according to the different combinations of two

constantly evolving surface proteins, the hemagglutinin or "H" protein and the neuraminidase or "N" protein responsible for antigenic drift (minor change) and antigenic shift [1].

Until the emergence of the Covid-19 pandemic, influenza was the respiratory viral infection of greatest concern in the US as well as an economic burden in societies [2,3]. It is not only associated with direct medical costs (consultations and hospitalizations) but also indirect costs due to absenteeism and lost productivity [4].

With this confirmed significant public health issue prevention is the most effective treatment in influenza virus and vaccination remains the most effective prevention.

The available influenza vaccine in the region is the Quadrivalent inactivated influenza. This vaccine protects against four different strains of the flu virus (two influenza A viruses: sous-type H1N1 that caused the pandemic in 2009 and H3N2 and two influenza B viruses: sous type Yamagata and Victoria). This vaccine fits with the current evolving influenza epidemiology [5,6].

Despite the recommendation of the ministry of public health for annual influenza vaccination, many people including health care workers refuse flu vaccination for different reasons [7-9].

This descriptive study will explore the reasons for acceptance and refusal of the influenza vaccine among health care workers in the Middle East via a questionnaire-based survey so that some improvement can be made to awareness vaccination campaigns to ensure the safety of the individuals providing and accessing the health service.

MATERIALS AND METHODS

The questionnaire was distributed to two Middle Eastern tertiary health care centers.

A total of 598 health care workers answered the survey: 59 physicians (D), 281 nurses (N), 216 caregivers (C), 17 paramedical personnel (PP), 17 administrative personnel (PA), and 2 other employees (one pharmacist and one physiotherapist).

We selected closed-ended questions about the reasons for accepting vaccination or not to obtain measurable and quantitative data for better understanding and analysis. Responders were asked to fill in their age, sex, professional status, years of expertise, and vaccination choice.

An anonymous questionnaire designed specifically for this study (Annexe 1) was used to collect responses about willingness to accept the influenza vaccine or rejecting it.

The questionnaire had seven choices for opting out for vaccination: The fear of live vaccines, the fear of all-kind vaccination, feeling sick after the vaccine, pain at the injection site, its high cost, lacking knowledge about the vaccine, or lack of information about the logistics for vaccination.

The options that facilitate the intention to accept the vaccine were improving immunity against the influenza virus, prevention of contracting the virus, protecting family members from contracting the virus, and the importance of the vaccine to health.

Statistical analysis was performed with the PSPP program and the associations between variables were interpreted using the Chi-square test.

RESULTS

A sample of 598 healthcare workers responded to the survey; 453 (75.8%) were women, the health care age ranged from 18 to 64 years old with a mean age of 35.65 (+ or - 11.39 years standard deviation),

An average of 12.3 years of experience in their profession was calculated.

Our health care sample consisted of 281(47%) nurses, 216 (36.1%) caregivers, and 59 doctors (9.9%), 17 paramedical personnel (2.8%), 17 (2.8%) non-medical personnel (administrative), one pharmacist and one physiologist.

Nearly half 296 (49.5%) of the healthcare workers reported refusal to take the influenza vaccine.

Of those motivated to get the vaccine 138(45.7%) were nurses, 119(39.4%) were caregivers and 27(8.9%) were doctors.

Among those who do not have the intention to take the vaccine, a higher percentage of doctors (10.8%) and nurses (48.3%) was noted. Twelve of seventeen non-medical personnel (administrative) chose not to take the vaccine, the physiotherapist will not take the vaccine, but the pharmacist will.

The reasons that motivated health care workers are listed in (Table 1).

Table 1: Motivating factors for influenza vaccination

	N	%
Enhance the immunity against influenza virus	140	46.4
It is important for the health	46	15.2
The vaccine prevents me from contracting the virus	118	39.1
The vaccine prevents my family members from contracting the virus	42	13.9
All the reasons above	17	5.6
Others	17	5.6

The main facilitator of the acceptance of vaccination is boosting the immunity against the influenza virus seen

in 140 HCWs (46.4%). The positive attitude toward vaccination to prevent contracting the virus was seen in 118(39.1%) and 46(15.2%) health care workers who believe in the importance of the vaccine to their health. Someone had the intention to get vaccinated due to his asthma condition.

One health care worker thinks vaccines shorten the infection course, and one correlates influenza vaccination to milder symptoms during the disease.

In those unwilling to take the influenza vaccine, 183(62.7%) health care workers considered their choice was related to feeling sick after the vaccine, and 51(17,5%) complained of tenderness at the injection site. 17(5.8%) HCWs never heard of the influenza vaccine.

The fear of live vaccine was noted in 32 (11%) HCWs and the fear of all-type vaccine in 22 (7.5%).

Only one person considered the cost of the vaccine high and five didn't have access to a vaccination location. (Table 2).

Table 2: Inhibitors factors of influenza vaccination.

	N	%
I fear live vaccins	32	11
I Feel sick every time I take the flu vaccine	183	62.7
I feel tenderness at the injection site of the vaccine	51	17.5
I have never heard about the vaccine	17	5.8
I fear of all-type vaccination	22	7.5
The cost of the vaccine is high	1	0.3
I don't know where to get the vaccine	5	1.7

Three health care workers were forced to get the vaccine in their health department.

Although one attributed his choice of vaccination to his asthma condition, medical causes were a barrier to getting the vaccine in four health care workers and two hesitated in taking the vaccine stating they were "unsure about the efficacy of the vaccine".

Moreover, in our survey, eight health care workers reported no need for vaccination, seven consider the vaccine is unnecessary or inutile and five preferred not to take it since they had never had the flu.

DISCUSSION

Despite the logic that the choice of vaccination acceptance increases with professional status, 45.7% (138/285N) of health care workers not having the intention to get vaccinated were nurses and 8.9% (27/59D) were doctors,

whereas ten of seventeen paramedical personnel were motivated to take the vaccine.

The highest percentage of resistance to getting the vaccine was found in caregivers. (119/216).

Neither age nor sex affected the choice of getting vaccinated. However, our study covered only the adult range age from 18 to 64 and promoting vaccination in the 19 to 64 age group had previously been addressed in many studies due to lower overall uptake in this population [10].

The same proportion of males (23-25%) and females (75%) was found in the category receiving the vaccine and the category rejecting it. Previous studies in the US and Europe have shown inconsistent results regarding which gender had a higher rate of influenza vaccination, though results most often demonstrate a higher rate in females. Research from the National Health Interview Survey published by the CDC showed a consistently higher tendency to vaccination among females from 2000-2018 with an overall rate for females of 48.9% and 42.7% for males. Whereas a French study of general practitioners published in 2013 concluded that the male gender was a predictor of vaccination [11,12].

Inhibiting Factors of Vaccination

The main reason for not getting vaccinated is experiencing flu symptoms after the vaccination. The most common adverse reactions written in literature are soreness and tenderness at the injection site. Other symptoms include mild headache or nausea, slightly raised temperature and body aches, fatigue cough or sneezing, and sore throat. These rare side effects last only a few days after vaccination did not cause reduced daily activity and therefore should not prompt for refusal of the vaccination [13]. Moreover, we should be well informed that these symptoms are not caused by flu illness, the flu vaccine contains the inactivated virus that can't transmit the infection.

On another hand, one health care worker hesitated to take the vaccine due to his allergy. Most of the intramuscular inactivated influenza vaccines and the intranasal live attenuated influenza are cultured on fluid from chicken embryos thus including a little egg protein. This fact leads to the theory of allergic reaction after the influenza vaccine in those with egg allergy.

Because those same people are also at higher risk of contracting the virus many studies have focused on

egg allergy after the influenza vaccine. These studies demonstrated that the benefits of the vaccination outweighed the risks and concluded in the safety of the administration of the vaccine. Other risks of anaphylaxis to vaccine or fatal reaction are extremely rare [14,15].

Moreover, our results, with five health care workers thinking if they had never had the flu, they should not receive the vaccination, supported the findings of previous studies talking about this common misconception [16].

By adding the number of twenty health care workers who consider the influenza vaccine is unnecessary or prefer not to take it, to seventeen health care workers who have never heard of it, lack of knowledge is considered a minor barrier to influenza vaccination. This conclusion illustrates the effectiveness of vaccination awareness campaigns in motivating health care workers [17].

Contrary to the results presented in the 7th MENA-ISON, the cost of the vaccine was not a major factor of resistance to vaccination in our survey since it's taken in charge by the hospital administration. From here we can point out that the first step to ensure employees' motivation to vaccination is to provide the vaccine at no cost [18].

The centers of vaccination were known for almost all the health care workers. This is to be explained by the fact that the two hospitals where the questionnaire was held provided influenza vaccination to their staff.

In our survey, one person was concerned about the safety of the vaccine in her pregnancy and chose not to get the vaccine. Despite proven studies that pregnancy is associated with a higher risk of severe complications and hospitalizations related to influenza, uptake is poor among this category, the main reason is related to anxiety about the safety of the vaccine.

Low acceptance in pregnant women is explained by the ineffectiveness of health care recommendations about the safety and risks of influenza vaccination. This is to be considered to reassess knowledge and awareness of the vaccine in this special category. A gynecologist education program can address the advantages and safety of the vaccine to administer at any semester during pregnancy.

In addition to reducing the risk of flu-associated respiratory infection in pregnant women, some studies demonstrated that vaccination protects the baby from contracting the virus after his birth for several months [19-21].

Facilitator Factors for Vaccination

For most of HCWs, as written in literature, influenza vaccination is needed for self-protection (15.2%), but also for the protection of their loved ones living with them (42%) [22,23]. This is important to address because, in order to achieve high coverage of influenza vaccination in the community, health care workers play a major role in raising awareness, and if patients are to be educated about the advantages of vaccination then health care workers, especially doctors and nurses need to be convinced of the safety and the reasons behind the effectiveness of the vaccine.

Although hospitals want to reduce the influenza infection among their workers to protect patients, many health care workers believe forcing vaccination is nonbeneficial. The pressure of mandatory vaccination put on them could decrease their intention for vaccination, as they will consider their decisional health autonomy being manipulated by their superiors.

It is true that employees should have the right to decide, however honoring the ethical concept, written in the Hippocratic Oath, first no harm, the right to protect the patients from unvaccinated workers spreading the flu comes first and therefore the obligation of vaccination in hospitals and public health centers can be explained since voluntary compliance in these places is low [24].

Many health care workers stated that the vaccine can enhance the immune response against the flu. According to the CDC, inactivated influenza vaccines IIVs achieve protection by developing serum antibodies against hemagglutinin. These antibodies reduce the risk of infection caused by strains that share the same antigen or the same type or subtype of the vaccine.

Despite the proven superiority of the immunogenicity of the currently licensed IIV4s compared with the corresponding IIV3, the immunity level is never fully reached, and antibody titers will not surely prevent the individual from contracting the virus [6]. However, studies have shown that Flu vaccination by boosting immunity against the influenza virus reduced the risk of going to the doctor by 40-60%. The CDC estimated that Flu vaccination during 2019-2020 prevented 7.5 million influenza illnesses, 3.7 million influenza-associated medical visits, 105,000 influenza-associated hospitalizations, and 6,300 influenza-associated deaths [2].

Flu vaccination does not reduce the duration of the symptoms as noted by one of our health care workers but instead reduced the severity of illness. A 2018 study showed that vaccination for influenza was associated with 83% less admission to the ICU from flu [25]

Fewer complications related to influenza were also seen in asthmatic vaccinated patients. It is true as noted by one of our responders to report his asthma as a reason for vaccination. In fact, asthma was considered a risk factor related to hospitalization during the 2009 influenza pandemic. Asthmatic patients are considered high-risk populations susceptible to significant morbidity and mortality related to influenza and vaccination remains the best option to lessen the impact of the infection, because of the high resistance to treatment in these patients [26,27].

All these factors are of major importance to enhance willingness to influenza vaccination especially among HCWs. Hospitals employees, even administrative personnel outside the medical field, are in contact with patients as an essential part of their daily routine. Contagious infections can easily spread from patients to HCWs to other patients encountered through the day as seen in the Covid-19 pandemic recently, consequently, resulting in human resources shortage.

Continued awareness about the importance of influenza vaccination will also help the population avoid a possible outbreak of Covid-19 by limiting the number of health care workers infected and conserving human personnel, one of the most health care resources, to manage patients with Covid infections.

LIMITATIONS

Due to the format of our data collection (closed-ended questions), the inhibitors and facilitators of vaccination were presented in a limited way, and we would have gathered more reasons regarding respondents' knowledge attitudes and beliefs, and subsequent behavior.

Although the response rate was overall good, the sample was taken from two tertiary care centers restricted in the same region and the results may be biased due to the underrepresentation of all health care workers in the sample.

Finally, our questionnaire's subjective intention to vaccination and is not based on chart interpretation which may have led to a slightly overreported vaccination rate.

CONCLUSION

In conclusion, compliance to influenza vaccine, as written in literature, is considered low among health care workers based on a survey done in two tertiary health care centers [28,29]. It seems that HCWs do not ignore the importance of vaccination and its effectiveness in preventing the infection, but lack information about its safety, and the balance of benefice-risk regarding the common side effects. Nearly all the world's infectious diseases specialists and public health professionals agree on the importance of vaccination, however, their recommendations are less taken into consideration than a cardiologist recommendation of taking an aspirin for secondary prophylaxis for example, even though adverse secondary effect can occur from just any pharmaceutical drug as vaccination.

Understanding these barriers and targeting these subjects in influenza vaccine campaigns in health care departments will therefore lead to improving the decision-making ability. Furthermore, developing interventions and educational programs among health care workers about who would benefit most from vaccination would improve the acceptance and compliance to the immunization program.

No one is at higher risk of spreading contagious diseases as influenza than health care workers, so increasing acceptance rate among them should grab the attention of all public health organization and alternative method is needed than simply spreading awareness among health care workers and waiting for their vaccination. Because in the end, after the Covid-19 Pandemic, we all should be convinced that "vaccination should be the rule rather than the exception".

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