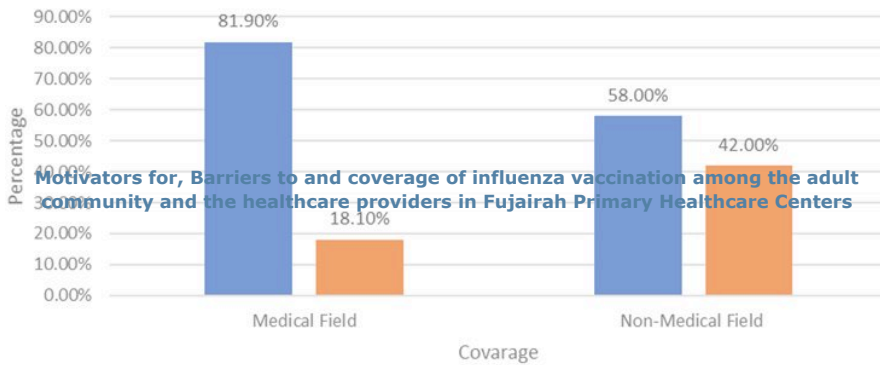




Motivators for, Barriers to and coverage of influenza vaccination among the adult community and the healthcare providers in Fujairah Primary Healthcare Centers

Alabdouli F^{1*}, Varghese R², Akour A³



Abstract

Background: Influenza affects large population around the world annually, with impacts on health, social and economic aspects. Nowadays after the COVID pandemic, Flu vaccine intake globally has been affected both positively and negatively.

Objective: The aim of this study is to assess the uptake, barriers and motivators of influenza vaccines among the community and healthcare providers in Fujairah Primary health care centres. The primary objectives are to: (1) Assess the extent of coverage of seasonal influenza vaccination in Fujairah Primary Healthcare Centers; (2) Identify the barriers of seasonal influenza vaccination; and (3) Identify the motivators of seasonal influenza vaccination. Secondary objective is to identify factors that are potentially correlated to uptake, barriers and motivators toward vaccine uptake.

Methods: This was a cross-sectional descriptive survey among community attending (non-medical) and health care providers (medical) working in the 13 Fujairah Primary Health Care centers. Data was collected electronically from 606 respondents and was analysed statistically using the SPSS v.22.

Result: From the 606 records initially, 519 responses were included in this study, with 68.4% of respondents took the Flu vaccine. The comparison of coverage of Flu vaccine between medical and non-medical respondents showed that out of 226 medical respondents, 81.9 % took the Flu vaccine while out of 293 non-medical respondents, 58% were covered. The main barrier for vaccine uptake was found to be the fear of vaccine adverse reactions (n=141;23.3%) in both medical and non- medical field. Self-protection was found to be the most important motivator for both medical (64.2%) and non-medical (58%) respondents.

Conclusion: The uptake rate on influenza vaccination among health professionals is higher than the community. The study reflected that self-protection was the main motivating factor for flu vaccine coverage while the main barrier was fear of adverse reaction in both healthcare professionals and community. Our recommendations as per the study findings is to create more awareness by providing advanced education about the importance of Flu vaccine uptake and benefits of vaccine, especially in the community.

Keywords: Motivators; barriers; coverage; uptake; influenza vaccination; healthcare workers (HCWs); Primary Healthcare Centers

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Evidence in Context

What Know: Influenza affects large population around the world annually.
What New: Flu vaccine uptake and benefits of vaccine, especially in the community.

To view

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Introduction

Influenza is an acute respiratory tract infection caused by influenza viruses. Seasonal influenza causes an overload of medical services on all levels of medical care and a high influx of patients admitted into hospital. In addition to over-burdened hospitals, these outbreaks also cause major healthcare system disorders, due to a lack of medical staff that suffer from influenza during these outbreaks [6].

Seasonal influenza is a preventable infectious disease, mainly involving respiratory symptoms. Caused by the influenza virus which is moderately infectious, influenza is predominantly spread via droplets and contacts, or indirectly via respiratory secretions on hands, tissues, etc. Aerosol transmission can also play a part in spread of the virus[2].

Seasonal influenza, commonly known as "flu," is a highly contagious disease that is transmitted through coughs and sneezes, contaminated hands, and surfaces during seasonal epidemics. Flu is caused by influenza viruses that include various types, such as Type A, Type B, and Type C.

The viral infection spreads easily to all age groups with rapid transmission in crowded areas that could cause greater risk to some people. The clinical signs and symptoms of flu in the general population range from mild to severe, comprising fever with rigor coldness, sore throat, muscle pain, cough, running nose, fatigue, watery eyes, headaches, body aches, and gastrointestinal symptoms [10].

The global burden of influenza has affected 3-5 million cases per year of severe illness and about 500,000 deaths per year. Additionally, severe influenza could lead to the worsening of other chronic health problems like asthma, diabetes, and heart failure.

Putri et al. provided a clear estimate about the direct cost due to influenza infection which has shown to affect healthcare workers' (HCWs) productivity and medical treatment costs, as well as other indirect costs used for preventive measures.

They reported that the annual economic effect of influenza in the United States (US) was over 11 billion dollars, of which 3 billion represents direct medical costs. The burden of influenza on HCWs was seen during the outbreaks in 1918, where the mortality rates among physicians and nurses presumed to have influenza were 0.64% and 0.53%, respectively, with a higher mortality rate among American nurses and physicians[12].

In 2009, the World Health Organization (WHO) declared influenza infection as a serious public threat and suggested the following prevention measures: use of infection antiviral drugs, frequent hand wash with soap, frequent testing especially during the flu season, and wearing of surgical masks and gloves when handling influenza patients to minimize infection transmission.

However, it has been proposed that the best prevention method to control influenza spread is vaccination of young and old people. Vaccination is the most important public health measure for the prevention of seasonal and pandemic flu.

Vaccination aims to reduce the population's illness rate, the number of patients treated in hospitals and the mortality rate due to influenza complications. Vaccination of health professionals is also a way of maintaining full functionality of the healthcare system and protecting the patients during an epidemic or pandemic.

Health professionals are highly exposed to influenza in their workplace and can transmit the infection onto others. The World Health Organization (WHO) therefore classifies health professionals into the group of people for whom vaccination against influenza is recommended.

According to studies, approx. 20% of health professionals test positive for serologically confirmed influenza viruses during an epidemic. Infections are often asymptomatic, or - in 50% of the cases - subclinical. These individuals represent the potential source of infection at their workplace for patients and their co-workers. Vaccination has been shown to reduce the number of serologically confirmed infections.

In view of this, vaccination is recommended as a preventive measure for self-protection and, consequently, an indirect protection of patients, co-workers, family members and others. Preventing the infection of health professionals is also extremely important for the undisturbed functioning of the system, especially in case of major influenza outbreaks[20].

The evidence that vaccination of health professionals is effective for the protection of patients against influenza and influenza-like infections is relatively scarce. Some studies report a reduced mortality rate, fewer consultations with the family physician and fewer hospitalizations for nursing home residents at the time of an outbreak, if the staff had been vaccinated[20].

Unlike other viruses, influenza changes continuously, and HCWs are usually considered a high-risk cluster, as they are exposed to the influenza virus from visitors, patients, and even from other HCWs.

Some studies were conducted to assess the value of the influenza vaccine as the best prevention method to control influenza and it was showing that although the efficiency of the influenza vaccine varies, immunization reduces the disease risk by 40%-60% among the general population during the period of high circulation of influenza.

Also, it was reported that influenza immunization tends to be more effective against influenza types A and B (H1N1) viruses. Annual vaccination has been considered one of the good health habits for preventing influenza and decreasing the likeliness of a spread through a community.

HCWs' influenza vaccination decreases the risk of disease and absenteeism and reduces nosocomial infections among patients. For these reasons, the seasonal influenza vaccination (SIV) of HCWs is recommended by the US Centre for Disease Control and Prevention (CDC) and the WHO. In this regard, immunization recommendations have been adopted by many nations to prevent influenza from spreading from HCWs to patients.

The Gulf Cooperation Council (GCC) has adopted the guidelines and recommendations established by global health organizations and provides vaccination programs, both epidemic and seasonal, to all HCWs. The GCC includes six Arabian countries: Saudi Arabia, Kuwait, Bahrain, Qatar, United Arab Emirates, and Oman.

These six countries share similar economic and social backgrounds, health issues, and, more importantly, relatively similar health systems and policies which is regulated and shared through the Gulf Health Council.

This council is responsible for advancing and upgrading the health sector in member states by providing constructive initiatives, responding to regional and global health issues and challenges, supporting health decision making and policies.

Thus, the previous article aimed at systemically reviewing the motivators and barriers for SIV among HCWs in GCC countries that would help in the development and in finding the optimum strategy to increase the SIV uptake rate. Moreover, it would help in improving the outcomes and quality of life for HCWs and decreasing the burden of influenza[12].

While most studies evaluated attitudes toward the vaccine in the healthcare workers, few studies assessed attitudes toward the vaccine in the community, and no such study was done in the UAE. Thus, the main aim of this study is to evaluate the uptake, barriers and motivators of influenza vaccines among the community and healthcare providers in Fujairah Primary health care centres.

Thus, the main aim of this study is to assess the uptake, barriers and motivators of influenza vaccines among the community and healthcare providers in Fujairah Primary health care centres.

Methods

Study design and participant recruitment

The study was a cross-sectional descriptive survey of a convenience sample among the community attending and health care providers working in the 13 Fujairah Primary Health Care centers aged ≥ 18 years old, that took place in the period between March 2024 to May 2024. The data were collected electronically through a Microsoft online survey.

Data collection tool

The survey was conducted in Arabic and English, but the data were collected and analysed in English. Questions were created from a thorough review of the literature [20, 22]. Content validity was assured by distributing the survey to a pilot of 15 participants, then evaluated for any unclarity and ambiguity.

Results from these participants were not included in the final analysis. The final approved questionnaire was divided into 3 sections which included demographic data (14 items); coverage and perception data towards seasonal influenza vaccination (11 items) and data to assess motivators for, and barriers to seasonal influenza vaccination (13 items).

The study adhered to ethical guidelines and was reviewed and approved by Ministry of Health and Prevention Research Ethics Committee approval Reference No: MOHAP/DXB-REC/F.F.M/No.12 / 2024. The survey was distributed and filled after taking informed consent was obtained. The confidentiality and anonymity of participants were ensured.

Data management and statistical analysis

The sample size was calculated using a Cleveland Clinic risk calculator library (<https://riskcalc.org/sampleize/>). Altogether, a minimum of 312 participants were expected to have 95% confidence that the obtained type 1 error which was within $\pm 5\%$. No relevant research study was found which included both samples of health care providers and community.

MS Excel 2013 and SPSSv22 was used to enter and analyze data. Categorical data was categorized using frequency and percentage. Chi-square value was used to find out the association between the coverage (uptake) Flu vaccine and their socio-demographic.

It was also used to assess the differences in vaccine uptake/coverage, motivators and barriers between medical and non-medical field participants. p value < 0.05 was considered statistically significant.

Results

A total of 606 participants were approached and 87 respondents were excluded due to missing data, so a total of 519 were considered in this study (Response rate=85.6%). Nearly 43.5% of respondents worked in Primary health care center ($n=226$) and 56.5% of respondents from community ($n=293$). (response rate 85.6%). Figure 1 shows the flow chart of the study.

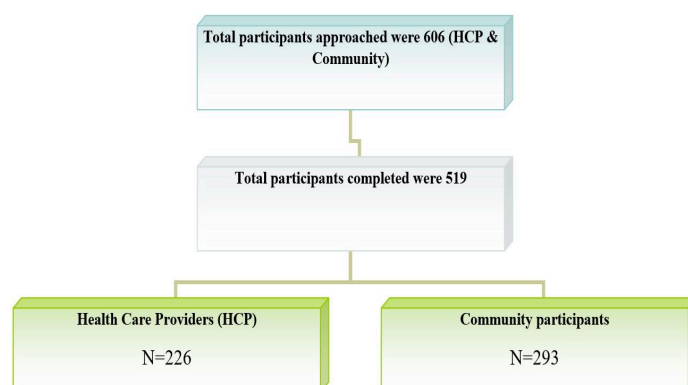


Figure 1: The flow chart of this study.

Sociodemographic characteristics

Majority of our respondents were females which accounted ($n=525$; 86.6%). Approximately ($n=223$; 43.1%) of the respondents were aged 30-39. ($n=483$; 93.1%) of respondents were living within 30 minutes of reaching the health center. The socio-demographic characteristics were not significantly different between HCWs in PHCS and community ($p > 0.05$). The Socio-demographic characteristics of the study participants are presented below in Table 1.

Table 1: Socio- demographic Characteristics of the study participants.

	Categories	Frequency	Percent
Age	18 - 20	14	2.7
	21-29	49	9.5
	30 - 39	223	43.1
	40 - 49	190	36.8
	50 - 59	37	7.2
	60 and above	4	.8
Gender	Male	81	13.4
	Female	525	86.6
Nationality	UAE Citizen	303	50.0
	Non-UAE Citizen	303	50.0
Educational	High School	114	22.0
	University Degree	354	68.2
	Postgraduate degree	51	9.8
Occupational	Government Employee	295	56.8
	Private Employee	52	10.0
	Unemployed	170	32.8
	Business	2	.4
Marital status	Married	434	83.6
	Single	61	11.8
	Divorced	18	3.5
	Widowed	6	1.2
How far the clinic	< 30-minute drive (short distance)	483	93.1
	> 30-minute drive (long distance)	36	6.9
Size of Family	Extended (more than 5)	203	39.1
	Nuclear (5 and less)	316	60.9
Medical Field	Yes	226	43.5
	No	293	56.5
Monthly income/household	Less than 5000 AED	22	4.2
	5000- 10000 AED	191	36.8
	10000- 20000 AED	140	27.0
	More than 20000 AED	166	32.0

The majority (n=347; 57.3%) of respondents did not have any chronic disease whereas only (n=1; 0.2%) have COPD, and 6.1% (n=37); have diabetes, (n=26; 4.3%) have asthma, (n=21; 3.5%) have hypertension and (n=6; 1%) have heart disease, while 13.4% (n=81) of respondents have other diseases (Figure 2).

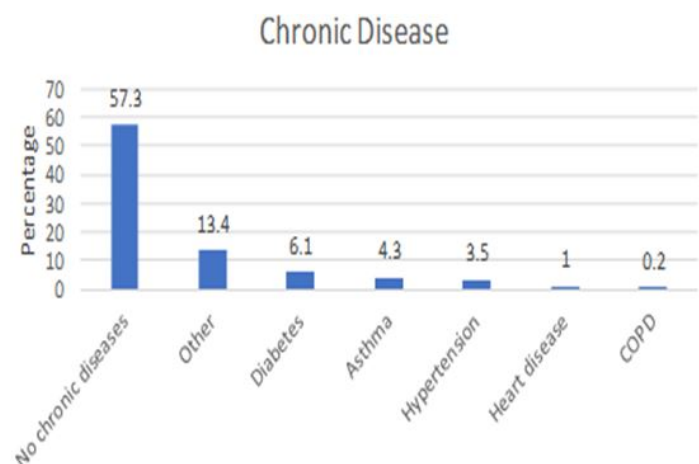


Figure 2: Various chronic diseases among the participant

Coverage of the Flu vaccine

Out of 519, (n=355; 68.4%) of respondents have taken the Flu vaccine whereas (n=164; 31.6%) did not take the Flu vaccine. Of those who took the vaccine, (n=113; 21.8%) took it once in a lifetime while (n=242; 46.6%) took it for multiple times.

Coverage vaccine in general

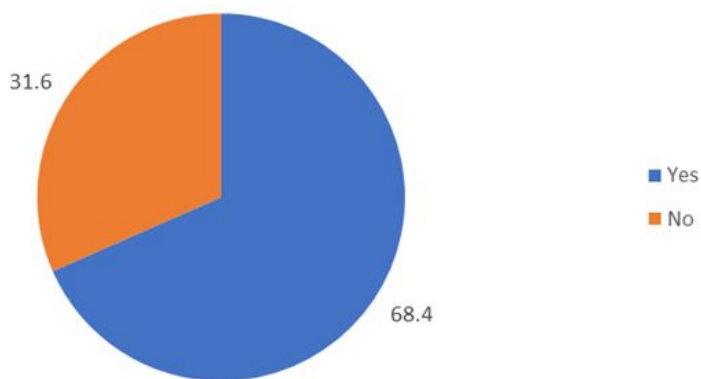


Figure 3: Coverage of flu vaccine

Out of 226 medical field respondents who took Flu vaccine, 81.9% (n=185) took the vaccine, while out of 293 of the non-medical field, i.e. community participants, 58% (n=170) took it (Figure 4). The coverage of vaccine in HCW was significantly higher than that of community (Chi-square p-value <0.001). Most family members (n=318; 52.5%) of respondents did not take Flu vaccine whereas 33.2 % (n=201) of them only took it.

Coverage of Flu vaccine uptake among HCW and Community

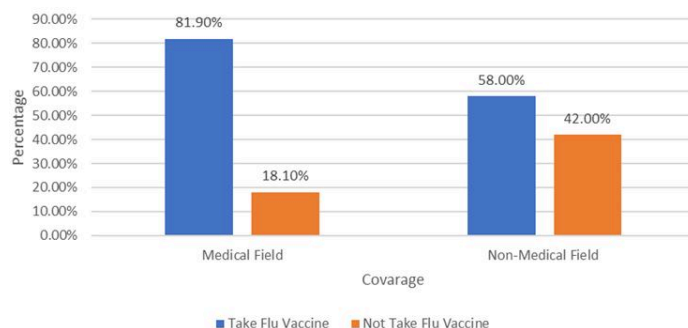


Figure 4: Coverage of Flu vaccine uptake among HCW and community

Barriers to the uptake of Influenza Vaccination

Majority of respondents expressed a fear of vaccine adverse reactions (n=141;23.3%) while few of the respondents had a fear of injection (n=7;1.2%), and 10.2 % (n=62) expressed a lack of time, 9.4 % (n=57) considered not being at risk or no need to get vaccinated while 3.3% (n=20) expressed laziness. Some participants, 3% (n=18) believed that the vaccine is not effective, 2.8 % (n=17) faced problem taking appointments, 1.8% (n=11) had lack of sufficient information on the benefits of the vaccination and the consequences of the disease, whereas 1.5 % (n=9) were concerned for the cost of vaccine itself. Only very few respondents, that is, 0.8 % (n=5) had unsatisfactory experience while 0.2 % (n=1) had allergy to one of the components of the vaccine (Figure 5).

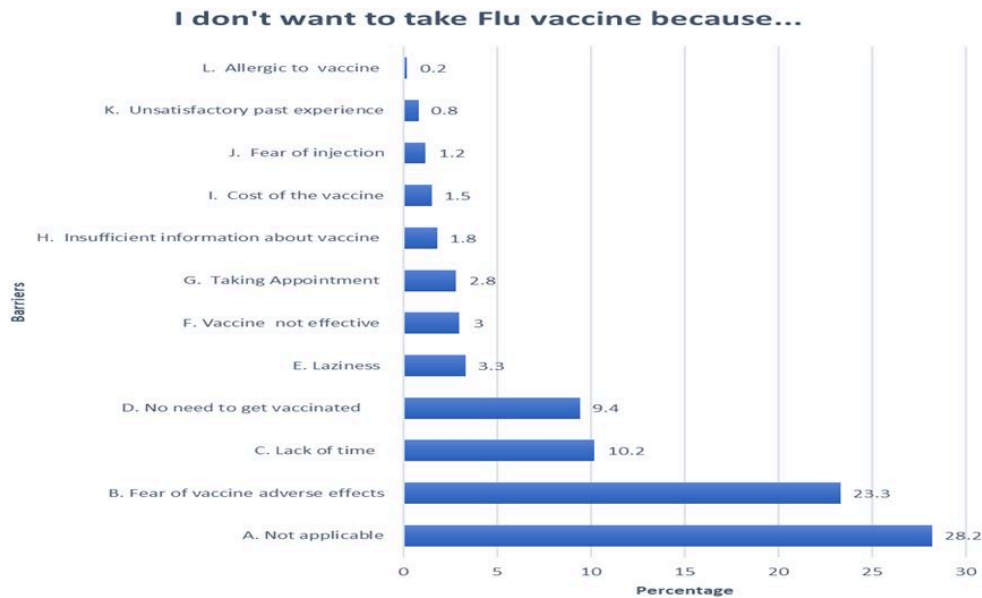


Figure 5: Barriers to take Flu Vaccine

Barriers to take Flu Vaccine among medical and non-medical participants

The survey findings reveal that 33.4%(n=98) of community respondents feared the adverse reactions as compared to HCWs which was only 19% (n=43) (p-value=0.051). Lack of time was perceived more significantly as barrier in 16%(n=47) of community vs. 6.6% (n=15) of HCW's (p-value=0.029). Around 12 % (n=36) of community consider not being at risk or no need to get vaccinated vs. 9.3 % (n=21) from HCW's. (p-value=0.094). Community respondents had a belief that the vaccine is not effective 5.1% (n=15),

A proportion that is significantly higher than medical field workers where 1.3 % (n=3) of HCW (p-value= 0.02). Community participants significantly faced more problem taking appointments while (4.8% (n=14), than HCW's (1.3% (n=3)) (p-value=0.023). Similar levels of laziness were expressed in both community 3.8%(n=11) as compared to 4%(n=9) of HCW's (p-value=0.188). Community participants expressed more significant lack of information 3.4% (n=10) of compared to 0.4 % (n=1) of HCW's (p-value=0.016). Allergy was a minor barrier in both groups, that is 0.30%(n=1) of community were allergic to vaccine as compared to 0 % (n=0) of HCW's (Figure 6).

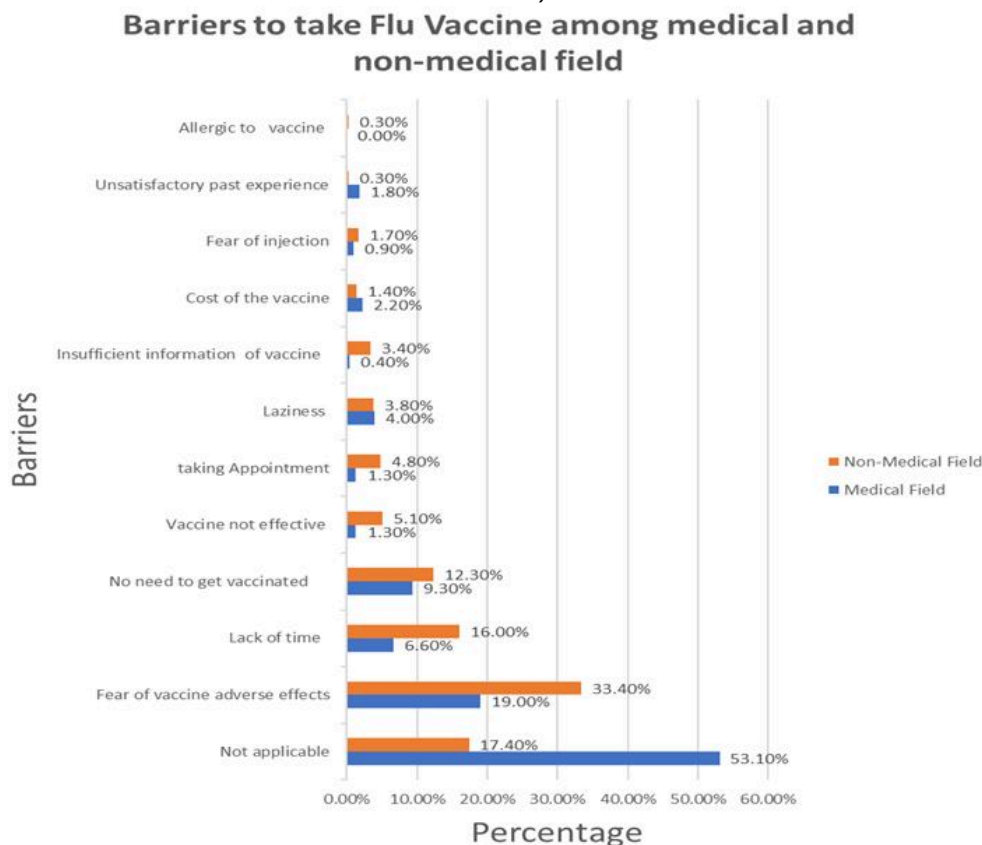


Figure 6: Barriers to take Flu Vaccine among medical and non-medical participants

Motivators for vaccine uptake:

Majority of respondents (HCP's and Community) took vaccine for self-protection (n=315;52%) while few respondents took due to the physician's recommendation, 1.3% (n=8) and 13.5% (n=82) took for protection of family and friends whereas 4% (n=24) took to avoid being severely ill while 2.1% (n=13) had easy access to vaccine, 2% (n=12) took as vaccine was free and accessible, and 1.5 % (n=9) took as they had chronic illness (Figure 7).

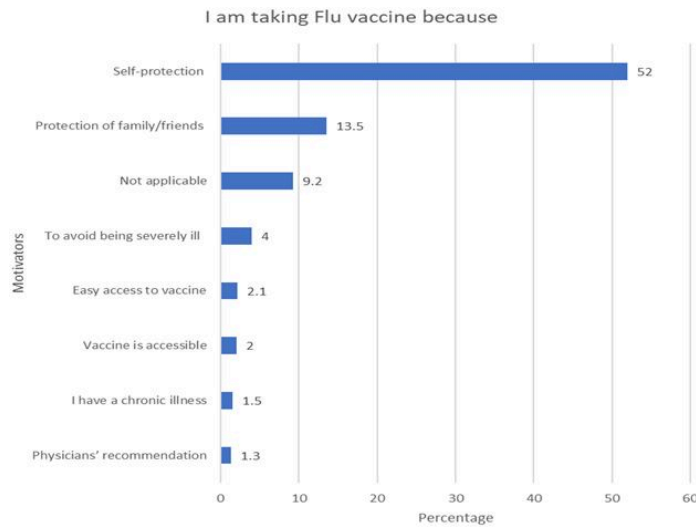


Figure 7: Motivators to take Flu Vaccine in general

Motivators to take Flu Vaccine among medical and non-medical participants

The survey findings reveal that 88.9% (n=8) of community respondents have a chronic illness compared to HCWs which was only 11.1% (n=1). 69.2% (n=9) community respondents had easy access to vaccine whereas only 30.8% (n=4) of HCW had same opinion. 59.8% (n=49) of community took vaccine for Protection of family or friends while 40.2% (n=33) only for HCW's. 58.3 % (n=7) respondents from HCW's took as vaccine is free and accessible while 41.7 % (n=5) only from community. Where 54.0% (n=170) of community took for self-protection, it was found that 46.0% (n=145) of HCW's took for the same reason. The table above shows that community and HCW's had a similar response (50%) on both physicians' recommendation and to avoid being severely ill (Table 2). There were no significant differences in the motivators for vaccine uptake among groups (Table 2).

Table 2: Comparison between the motivators of taking Flu vaccine among the medical and non-medical participants expressed as frequency (%) & p-value.

Groups	Easy access to vaccine	Physicians' recommendation	Vaccine is free & accessible	I have a chronic illness	Not applicable	Protection of family/friends	Self-protection	To avoid being severely ill	Total
Medical	4 (1.8)	4 (1.8)	7 (3.1)	1 (0.4)	20 (8.8)	33 (14.6)	145 (64.2)	12 (5.3)	226 (43.5)
Non-medical	9 (3.1)	4 (1.4)	5 (1.7%)	8 (2.7)	36 (12.3)	49 (16.7)	170 (58)	12 (4.1)	293 (56.5)
P-value	0.264	1.000	0.637	0.067	0.234	0.397	0.707	0.891	

Association between Flu Vaccine uptake with concerns of getting infected with Flu

In the whole cohort, most respondents who took Flu vaccine, because they had concern about infection with Flu were 77% (n=151), while 23%(n=45) amongst non-up takers had the same concern (p<0.001). On other hand, for those did not take Flu vaccine, 36.8%(n=119) were not concerned about it whereas 63.2%(n=204), of respondents who took flu vaccine with same no concern(p<0.001). Comparing between medical and non-medical respondents, HCW were more significantly concerned 58.2%(n=114) about getting the flu than the community participants 41.8 % (n=82). (p<0.001) (Table 3).

Table 3: Comparison between Flu Vaccine uptake with concerns of getting infected with Flu among medical and non-medical participants

Medical Field	Am concerned about you can be infected with Flu?	Not concerned about you can be infected with Flu?	Total
Yes	114(58.2%)	112(34.7 %)	226
No	82 (41.8%)	211(65.3%)	293

Participants were asked if educational aid by the nurse will increase the willingness to take Flu vaccine, survey results showed majority, 66.6%(n=401) agree while only 6.9%(n=42), did not agree and 12.5%(n=76) were not sure about it (Fig. 8).

Do you feel educational aid by the nurse will increase your willingness to take Flu vaccine

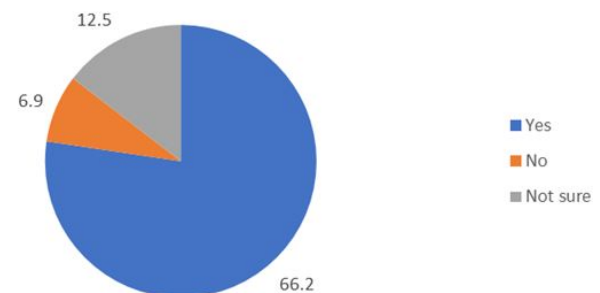


Figure 8: Motivation through educational aids by the nurse to take Flu vaccine

Attitudes toward the uptake of vaccine

Only few, 20.8%(n=126) choose workplace for getting the Flu vaccine while majority, 63.2%(n=383) of respondents preferred clinic or hospital (Figure 9).

Where would you like to get the Flu vaccine

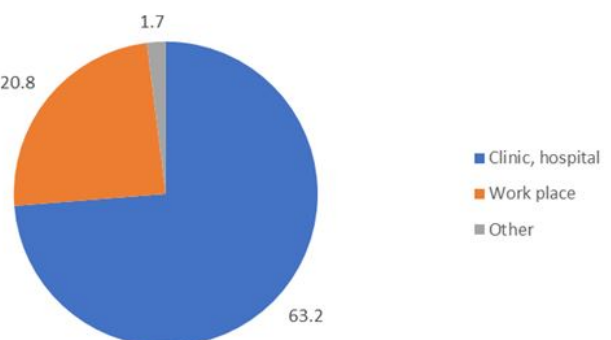


Figure 9: Opinion about the place to receive the flu vaccine

On comparison between who took Flu vaccine and about getting information of Flu vaccine, the study found that majority 73.1% (n=98) of respondents who took vaccine got information of Flu vaccine from Medical websites or journals while 26.9% (n=36) of respondents who did not take vaccine also have information from same source. Those who got information of Flu vaccine from friends and family 69.4%(n=120) of respondents took vaccine while 30.6% (n=53) did not take.

Out of those who receive information of Flu vaccine from social media, 65.3%(n=128) of respondents took vaccine while 34.7%(n=68) of respondents did not take. Those who got information of Flu vaccine from TV, 56.3%(n=9) of respondents took vaccine while 43.8% (n=7) of respondents did not take vaccine.

Table 4: Opinion about the sources of receiving information of Flu vaccine compared to vaccine uptake

Vaccine Uptake	Where do get your information about Flu vaccine?				
	Friends and family	Medical websites/journals	Social media	TV	Total
Yes	120 (69.4%)	98 (73.1 %)	128 (65.3%)	9(56.3%)	355
No	53 (30.6%)	36(26.9%)	68(34.7%)	7(43.8%)	164

For concern about getting infected with Flu, the study found majority of respondents 53.3% (n=323) were not concerned about being infected with Flu while only 32.3% (n=196) were concerned about it.

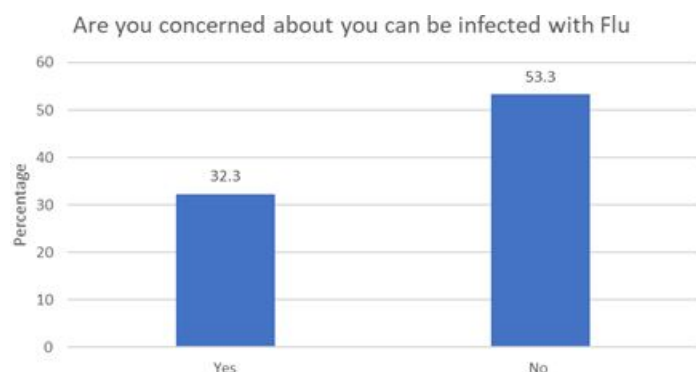


Figure 10: Concerns about getting infected with Flu

Majority of the respondents, 31.4% (n=190), agree that healthy food is better at protecting them from flu rather than routine Flu immunization whereas 15.2% (n=92) did not agree at all. Majority of the respondents, 21.3% (n=129), agree that Lifestyle & stay safe” can help them to prevent flu rather than routine Flu immunization whereas 11.4% (n=69) strongly disagree. Majority of the respondents, 29% (n=176), somewhat agree that consuming herbs or vitamins is better at protecting them from flu rather than routine Flu immunization whereas 19.3% (n=117) did not agree at all. Majority of the respondents, 27.2% (n=165), agree that vaccination is effective in prevention of influenza whereas 12% (n=73) strongly disagree. Majority of the respondents, 30.9% (n=187), disagree that it is no longer necessary to vaccinate because all these diseases are very rare today whereas 3.1% (n=19) strongly agree. Majority of the respondents, 30.4% (n=184), disagree that Post vaccination complication whereas 3.3% (n=20) strongly agree.

Majority of the respondents, 21% (n=127), agree there is not enough evidence that immunization prevents the occurrence of infectious diseases whereas 10.7% (n=65) strongly disagree. Majority of the respondents, 26.6% (n=161), agree that as per medical recommendation, they need to take appointment for getting Flu vaccine which can affect their vaccination schedule whereas 6.6%(n=40) strongly disagree. Majority of the respondents, 31.8% (n=193), agree that they feel safe to get Flu vaccine in clinic whereas 7.8% (n=47) strongly disagree. Majority of the respondents, 19.5% (n=118), agree that giving multiple vaccines at the same time can overload their immune system whereas 12.7% (n=77) strongly disagree. Majority of the respondents, 19.3% (n=117), disagree that fear of connection between vaccines with chronic diseases, such as autism and multiple sclerosis, have led them to doubt about vaccination as safe method whereas 11.2% (n=68) agree. Majority of the respondents, 41.6% (n=252) sometimes listen to news about the Flu vaccine whereas 11.1% (n=67) never. Majority of the respondents, 32.3% (n=196), got information about Flu vaccine from social media whereas only few 2.6% (n=16) from TV. 28.5% (n=173) got information about Flu vaccine from friends and family and 22.1% (n=134) got from medical websites or journals. The study found that majority 72.9% (n=442) of respondents thought Medical center provided enough precautions during the vaccination whereas only few 1.5 % (n=9) did not agree with that.

Discussion

This was a cross-sectional observational study which included community participants and Health Care Workers in 13 primary health-care settings (PHCs) in Fujairah, United Arab Emirates. The objective of this study was to evaluate the motivators for, barriers to and coverage of influenza vaccination among the adult community and the healthcare providers in Fujairah PHCs. Our study revealed a higher rate of flu vaccine coverage among HCW’s than community, potentially due to their medical background higher perception of exposure risk and acting as role models to others. Also, motivators shown in this study were the awareness of the importance of Flu vaccination to protect themselves and their family / friends [29]. Our data are consistent with findings from other studies in that vaccine motivators are almost similar. To explain this correlation, it is worth highlighting findings from other study done by Jedrzejek et al., (2022), demonstrating that self-protection and protection of family or friends were the most common reasons to accept influenza vaccination[14]. Similarly, another study by AlMarzooqi et al. (2018) done in primary healthcare centers in Dubai also revealed that the main reason for vaccination was self-protection, followed by protection of others, i.e., patients and family [3]. In comparison to another study done by Petek et al.(2018) where the greatest motivator for vaccination of health professionals was the awareness about they are in the risk group for infection, followed by the tendency for self-protection while the less motivator was protection of others[22]. Vaccination of health care professionals and community is highly recommended for both self-protection, as well as the indirect protection of patients, family or friends. Data published by other previous authors [3,14,22] and during the pandemic [29] also reflect the same motivations for HCWs’ vaccination.

Compared to the data available in our study which showed 81.9% (n=185) for HCW's and 58% (n=170) for community, a study by Jedrzejek et al., (2022), with a relatively high vaccination rate among 150 HCWs in Wroclaw, Poland (in the range of 47.9 to 61.2% for two influenza seasons), [14], yet they were lower than that observed the current one. Probably because of more awareness campaigns in the UAE, offering free for governmental entities including both HCWs and communities and the study of Jedrzejek et al was performed in the pre-COVID 19 era. Another cross-sectional study done in United Arab Emirates by Barqawi et al.,(2021) stated that around half (54.2%) of the HCWs(n=226) in their study reported that they have received the vaccine[7]

On other hand, a study by Awadalla et al., (2020) showed the seasonal flu vaccine coverage rate was 45.5% in the 2017–2018 vaccination season. Relatively showing that the flu vaccination rates are increasing after the COVID-19 pandemic[6]. In contrast, another study done by Petek et al., (2018) stated that only 12% of included health professionals were vaccinated in the 2014/15 season[22].

In general, the rate of influenza vaccination among HCWs was increasing after the impact of COVID-19 pandemic. This was supported by a study conducted by Soler et al., (2024) which stated Influenza vaccination coverage (VC) among HCWs at Alicante General University Hospital Dr. Balmis before the COVID-19 pandemic (2019/20 season) was 51.9% (1599/3079) and increased during the pandemic in the 2020/21 and 2021/22 seasons to 67.9% and 65.5% (2505/3827), respectively. Also, another study by Thorneloe et. al., (2021) showed that increase perceptions of need for the influenza vaccine and COVID-19 vaccine for protecting themselves, others, and the National Health Service [26]. In our study, most respondents who took Flu vaccine were concerned about infection with Flu (around 77%), while 23% amongst non-uptakers had the same concern.

Our findings also showed that during Flu vaccination it is important not only to focus on patient values, but also on personal benefits for HCWs and community themselves. According to a study done by Challenger et. al., (2023) showed conflicting findings. HCWs underestimated the risks associated with influenza and overestimated the risks of adverse reactions. They have also shown that the lack of concern for the importance of influenza is not a factor in declinations, and that there is a change in attitudes towards perception of risk associated with influenza post-COVID-19. Nevertheless, our study, revealed that the concern of flu infection can be considered as one of the factors for the uptake of Flu vaccine. [10]. The main barrier to vaccine uptake in the current study was fear of vaccine adverse reactions followed by fear of injection and lack of time regardless of their medical background. Our findings were comparable with a study by Jedrzejek et al., (2022), which also identified main hindrance as fear of vaccine's adverse effects[14]. Another supportive study by Hwang, et al., (2014), which had similar factors identified as barriers to influenza immunisation such as misconceptions regarding influenza immunisation, fear of experiencing pain or reaction from the vaccination[13].

On other hand, a systematic review in Gulf Cooperation Council (GCC) countries by Alfouzan, et al. (2010), stated that 'lack of time' was one of main identified factors for HCW's during 2009 [2]. The study done by Hariri et. al., (2022) reported that major reasons that prevent them from being vaccinated were avoiding medications, having concerns about its side effects and belief that seasonal flu is not serious enough to warrant vaccination [12] which showed that fear of adverse reactions were still one of major barriers to uptake of flu vaccine. Another study done by Petek et. al., (2018) which showed an opposite result that health professionals do not feel need for vaccination [22] which also showed less concerns among HCW's before COVID-19. Fear of adverse reactions still was most cited category in most of studies [10,14] done especially during and after COVID-19 pandemic. Our study was first to report flu vaccine uptake in community, thus it included a diverse sample with large sample size. Nevertheless, some limitations should be acknowledged. The cross-sectional nature of this study does not allow fully understanding causes but rather associations of some factors with uptake of vaccine, yet, it is best design for such kind of studies. Also, since this was a convenience sample which was done in one Emirate only, this might introduce selection bias and limited generalizability of study.

Conclusion

This study identified various motivators and barriers which can help us to improve the Flu vaccination uptake among the community. Motivators to the uptake of Flu vaccine were self-protection, protection for family and/or friends and to avoid being severely ill whereas the barriers to the uptake of Flu vaccine were fear of vaccine adverse effects, lack of time and concern that there is no need of vaccination. The Flu vaccination coverage rates were increasing with years as compared to those before 2019. This was likely in part due to COVID-19 pandemic fear which changed peoples' perceptions of the need for influenza vaccination, and also resulted in higher rates of uptake in comparison to previous years prior to COVID-19. In community, well-planned campaigns (e.g., mobile vaccination teams) promoting Flu vaccination should focus on reducing fear of adverse events and increasing knowledge on influenza and the benefits of vaccination. Further research to support the study is needed with qualitative type research to be performed with more community involvement to get deeper insights about aspects and possibilities for the improvement of influenza vaccination. In addition, studies with prospective design that involves more Emirates are warranted.

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