www.jmscr.igmpublication.org
Impact Factor (SJIF): 6.379
Index Copernicus Value: 79.54
ISSN (e)-2347-176x ISSN (p) 2455-0450
crossrefDOI: https://dx.doi.org/10.18535/jmscr/v6i10.40

IGM Publication
Journal Of Medical Science And Clinical Research
An Official Publication Of IGM Publication

Research Paper

Awareness of Knowledge about and Attitudes to Influenza Vaccination among Health Care Professionals' in Security Forces Hospital Program (SFHP) Riyadh, Saudi Arabia

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Abstract
Background: *Influenza (flu) is a contagious illness that can cause morbidity and mortality among patients. Influenza can rapidly spread among health care workers (HCWs). Therefore, Seasonal influenza vaccination is recommended for healthcare workers (HCWs). However, the rate of influenza vaccination among HCWs is known to be low and may be due to misconceptions about influenza vaccination.*
Aim: *To identify the awareness, knowledge, and attitude towards influenza immunization among Health Care Professionals'.*
Methods: *A cross-sectional study conducted at Security Forces Hospital in Riyadh, Saudi Arabia.350 anonymous questionnaires were distributed to physicians and nurses during the 2017–2018 influenza season.*
Results: *A total of 350 survey sheets were distributed and 303 (86.6%) were completed. Of the total respondents, 127 (41.9%) were physicians, 176 (58.1%) were nurses, The overall influenza vaccination rate was 40% in physicians, and 60% in nurses. The most common reasons given by physicians and nurses for not getting vaccinated was not everyone is familiar with influenza vaccination. In addition, fear of its adverse effects and safety concerns to get vaccinated for influenza. Almost 60 % of physicians and nurses were aware of effectiveness of vaccine in disease prevention.*
Conclusion: *The rate of influenza vaccination among HCWs was low at our hospital and familiar with influenza vaccination were the most common reason for not having the vaccine among the healthcare workers.*
Keywords: *Influenza vaccine, Knowledge, Attitude, Health care workers.*

Introduction

Influenza (flu) is a contagious illness caused by influenza viruses. It can cause mild to severe illness[1]. Serious outcomes of flu infection can result in hospitalization or death. Some people, such as young children, older people, and people with certain health conditions, are at high risk of serious Influenza complications[2-3]. Influenza is one of the most common contagious disease that can cause morbidity and mortality in the community[5].

Flu can rapid spread among health care workers (HCWs) and have been identified as the primary vectors for spreading influenza virus[6], health care workers (HCWs) may develop influenza because of the regular close contact with infected patients[7].

Healthcare workers are exposed to influenza in the workplace and, consequently, they are at risk of getting sick with seasonal flu and spreading it to others. They may act as vectors of transmission. Therefore, vaccination is the best way to reduce influenza transmission so, flu vaccines is essential element of prevention programs[1].

Influenza vaccination for HCWs is recommended by US Center for Disease Control and Prevention (CDC) and World Health Organization (WHO) to prevent the transmission of influenza virus from HCWs to the patients[4]. The United States Advisory Committee on Immunization Practices (ACIP) advises all HCPs to be vaccinated annually against influenza and It is also recommended that healthcare facilities implement policies and procedures to encourage HCWs vaccination.[8]

The rate of influenza vaccination among HCWs is known to be low and is far below the level needed to achieved[3] Certain factors were associated with unacceptance of influenza vaccination among HCWs which include the effectiveness of the vaccine, fear of its adverse effects and the other barriers include lack of knowledge or misconceptions about influenza infection and the potential severity of the disease[12]. However, understanding these barriers is essential to improve low compliance for vaccination and appropriate use of vaccination as a preventive measure[2].

Review of literature

In several studies from different countries, it was found that the rate of influenza vaccination among HCWs is known to be low and is far below the level needed to achieved .In a study in Al-Ahsa, Saudi Arabia, it was found that the rate of influenza vaccination among HCWs low at 42% [12].

In Sydney, Australia study**,** it was found that only 22% of the HCWs who replied reported receiving the vaccine the year the survey was conducted[6].

In UK, it was found in one study that Influenza vaccination is routinely offered to health care workers to prevent influenza spread to patients and illness among health care workers. Despite its importance uptake has been low in the UK[7].

In a USA study vaccination program increased emphasis on HCWs to receive the vaccine were associated with a significant decrease in the rate of nosocomial influenza and a significant increase in vaccine acceptance[13]. Other studies in USA population showed that 83% of the United States population is specifically recommended for annual vaccination against seasonal influenza[14-17].

In a study ona large urban teaching hospital in New York, it was found that 50% of respondents did not receive an influenza vaccination. Certain factors were associated with noncompliance with vaccination, which include misconceptions regarding influenza vaccine efficacy, concerns about adverse effects, and fear of contracting illness[18].

There were several studies reported a significant low rate of influenza vaccination among HCWs and all studies focused on studying the barriers for low compliance with influenza vaccination among health care workers (HCWs). This study explored awareness of knowledge and attitudes toward influenza vaccination among health care workers in Security Forces Hospital Program (SFHP). Riyadh, Saudi Arabia

Materials and Methods

Sample size

The sample size considered as a survey for the physicians and nurses working at Security Forces Hospital. A total of 350(150 physicians and 200 nurses) survey sheets were distributed and 303 were completed. Of the total respondents, 127 were physicians and176 were nurses. This number of participants accounts for 84.6% physicians and 88% nurses response rate. The sample was collected over the period between 1st of February 2018 to 28th May 2018. Multiple waves were carried out to achieve the final sample size.

Study Area

This study conducted at Security Forces Hospital in Riyadh which is a government hospital has over 500 beds and it is one of hospital that provides services to Ministry of Interior personnel and their families.

Target population

Physicians and nurses working at Security Forces Hospital.

Exclusion criteria

This study excluded pharmacist, lab workers, physiotherapist, technicians and non-clinical support staff.

Study design and sampling method

The study design is cross-sectional. The sample size considered as a survey for the healthcare workers. The available participants are 200 nurses, 150 physicians.

Questionnaire items

Self-administered questionnaire. The questionnaire had been developed previously[12], was modified to collect information on the age and gender, professional title, job experience in years and measured attitude to influenza vaccination by asking whether participants routinely got vaccinated against influenza, and their reasons for not getting vaccinated included the fear of needles, availability of vaccines in institution, not compulsory for HCW to get vaccine , fear of vaccine adverse events, no vaccine efficacy, influenza is neither serious nor common. Also, questionnaire tested knowledge about the vaccine and awareness of susceptibility to and risks associated with influenza infections for HCPs, signs and symptoms of influenza infection, potential seriousness of influenza

Statistical analysis

Data were entered and analyzed using SPSS software version 25; (IBM, Inc. In the first stage of the study, we will do the reliability and validity of the questionnaire by using the alpha cronpach test and the Numbers and percentages will be used to summarize categorical & qualitative. Where numeric/quantitative data will be summarized by means and for normal data and medians and inter quartile ranges for non-normal data. Comparison between groups of categorical variables will be done using chi-square or Fisher's exact test. We will use t-test or Mann-Whitney U test for comparison between groups of quantitative variables for two groups and analysis of variance (ANOVA) or Kruskal-Wallis H test for three or more groups. To identify risk factors or to estimate the adjusted association, we will use logistic regression models.

Ethical considerations

The study was approved by the ethical committee of SFHP. All the participants were informed that their participation is voluntary. Additionally, they were informed that they have the right to withdraw at any point without being persuaded. Also, the participants have assured their anonymity, the privacy of the data, and that their no repercussions or consequences for refusal to participate or to withdraw.

Results

The results of the statistical analysis of the data collected are presented in this section which consists of two parts: Demographic data for the sample of the study and the second part data analysis of the awareness of knowledge and attitude to award influenza vaccination among physician and nurse.

Demographic charctristics

Demographic data. Overall, participants as shown in Table 1, 104 (34.3%) were males, and 199 (65.7%) females, with a mean age of 47.3 ± 10.4 years (50.4 ± 9.3 in males vs. 49.4 ± 8.1 in females, p = 0.582), and 16 (5.3%)of the participants were > 50 year-old. Among the sampled subjects, 127(41.9%)were physician and 176(58.1%) nurse.

Table 1 Demographic characteristics for physician and nurse (n=303)

Characteristics	N (%)
Gender	
Males	104 (34.3)
Females	199 (65.7)
Age (years)	
20-30	104 (34.3)
31 – 40	137 (45.2)
41 – 50	46 (15.2)
≥ 50	16 (5.3)
Profession	
Physician	127(41.9)
Nurse	176(58.1)
year Experience	
1 to 2 years	53(17.5)
3 - 5 years	76(25.1)
6 - 10 years	72(23.8)
more than 10 years	98(32.3)

The relationship between specialization and vaccination by Physician and nurses. During the analysis, 60% of nurses were vaccinated and 40% of physician were vaccinated..fig 1 show the relation.

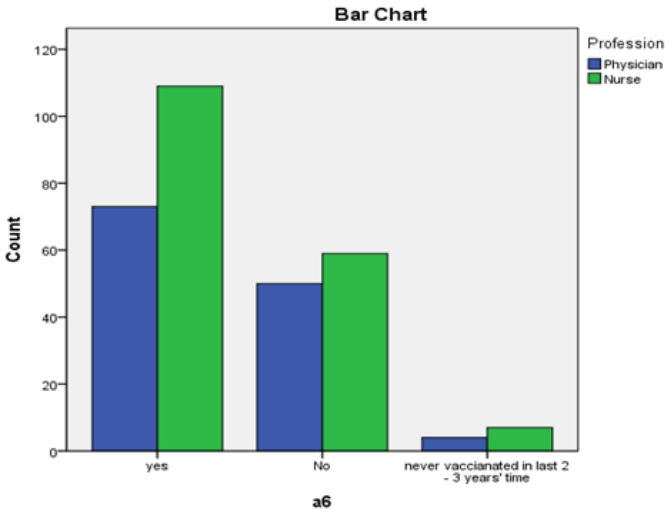

Fig 1 Vaccination according to profession (n=303**)**

The relationship between specialization Lack of proper of storage area for vaccines by Physician and nurses. During the analysis, 53.1% of nurses were said there is Lack of proper of storage area for vaccines and 46.9 % Physician were said there is Lack of proper of storage area for vaccines. Fig 2 show the relation.

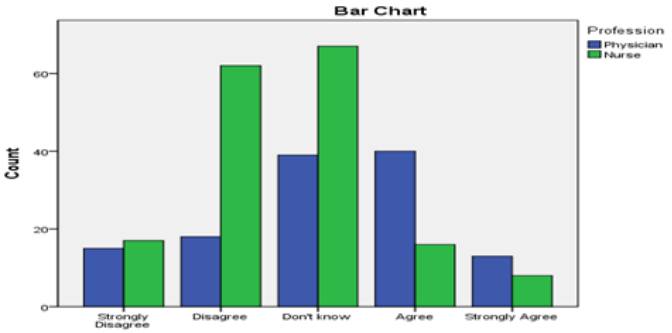

Fig 2 Lack of proper of storage area for vaccines according to profession (n=303)

The relationship between specialization and Vaccination its not compulsory for health care professional. During the analysis, 73.3% of nurses were Strongly Disagree and 26.71% Physician were Strongly Disagree. fig 3 show the relation.

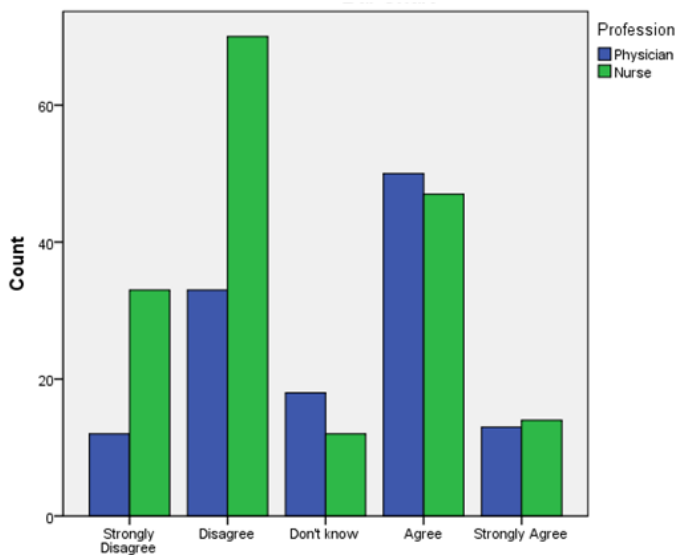

Fig 3 Vaccination not compulsory for health care (n=303)

The relationship between specialization and the seriousness of influenza disease and the importance of vaccination, where 64.3% of nurses strongly agree and 66.3% do not agree, 62.3 do not know, 38.3 agree and 22.2 disagree strongly. Doctors, we find that 35.7 do not agree strongly and also find that those who do not 33.7 percent agree with the doctors and 77.8 percent do not agree strongly. Fig 4 show the relation.

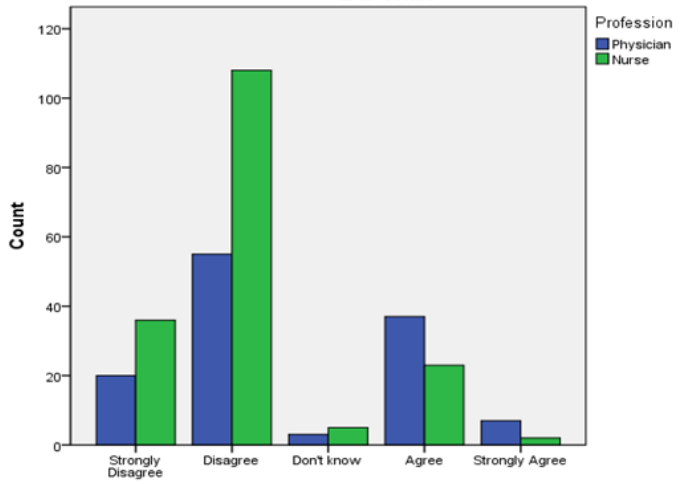

Fig 4 The relationship between specialization and the seriousness of influenza disease and the importance of vaccination (n=303)

The relationship between specialization and not everyone is familiar with influenza vaccination by Physician and nurses. During the analysis, 71.4 of nurse are Strongly Disagree of nurses was said there

is not everyone is familiar with influenza vaccination and 28.6% of Physician are Strongly Disagree. Fig 5 show the relation.

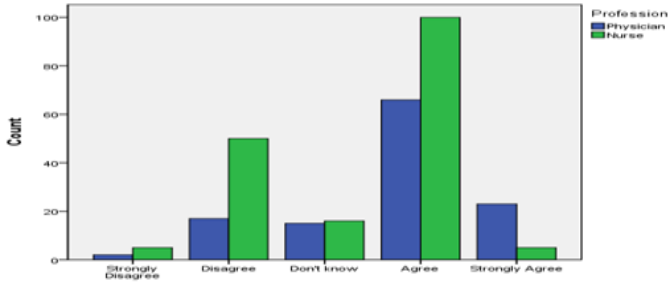

Fig 5 The relationship between specialization and not everyone is familiar with influenza vaccination by Physician and nurses. (N=303)

The ratios and frequencies for both doctors and nurses. The value of chi square is 0.004, which is smaller than 0.05, which confirms that there are differences of statistical significance between the doctors and nurses for side effects and safety concerns to get vaccinated for influenza. There are differences of statistical significance. As shown in Figure 6

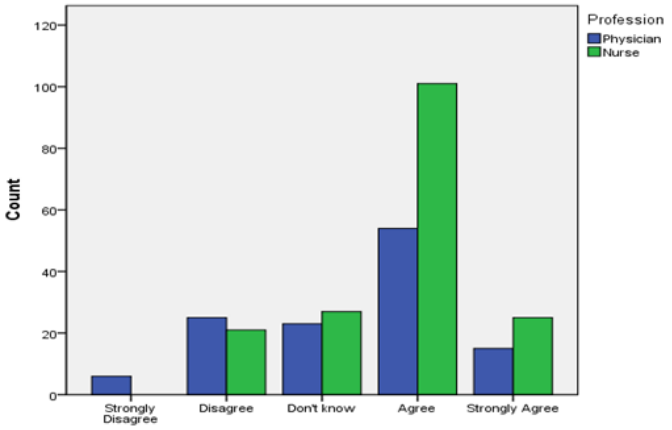

Fig 6 Relationship between specialization for side effects and safety concerns to get vaccinated for influenza. (N=303)

The ratios and frequencies for both doctors and nurses regarding fear of needle. As shown in Figure 7

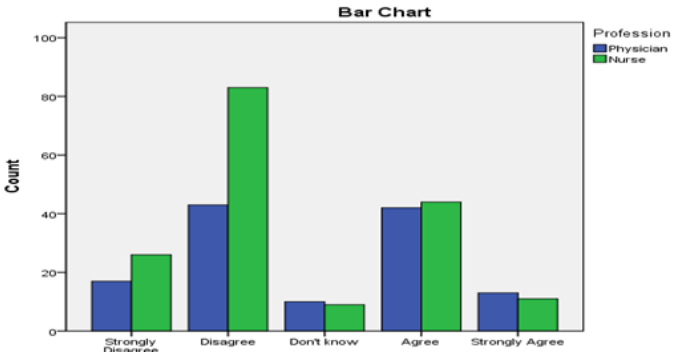

Fig 7 Relationship between specialization and fear of needles. (N=303)

The ratios and frequencies between the doctors and nurses for the effectiveness of vaccine. As shown in Figure 8

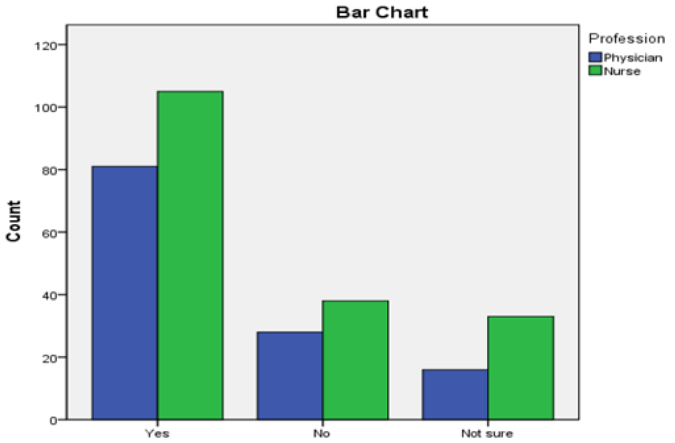

Fig 8 Relationship between specialization and effectiveness of vaccine (N=303)

The ratios and frequencies between the doctors and nurses for the administration of flu vaccine. As shown in Figure 9

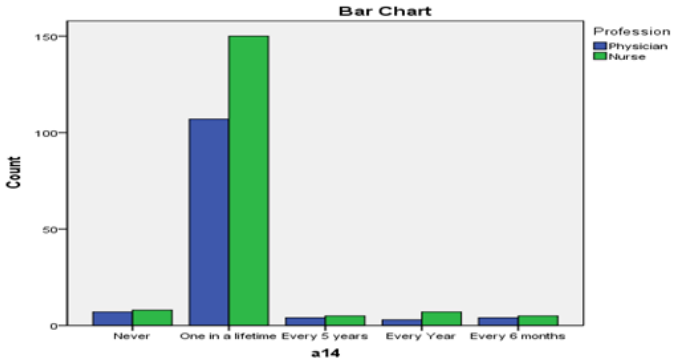

Fig 9 Relationship between specialization and administration of vaccine. (N=303)

Table 2 Awareness of healthcare professionals (HCPs) about influenza and the influenza vaccine

Questions	Correct	incorrect
Health care professionals are less susceptible to influenza infections than other people		
Physician	46(58.2%)	79(35.9%)
Nurses	33(41.8%)	141(64.1%)
Influenza is transmitted primarily by coughing and sneezing		
Physician	107(40.8%)	17(48.6%)
Nurses	155(59.2%)	18(51.4%)
Influenza is more serious than a "common cold"		
Physician	103 (38.9%)	20 (62.5%)
Nurses	162(61.1%)	12(37.5%)
The signs and symptoms of influenza include fever, headache, sore throat, cough, nasal congestion, and aches and pains		
Physician	115(40.2%)	10(83.3%)
Nurses	171(59.8%)	2(16.7%)
HCPs can spread influenza even when they are feeling well		
Physician	103(42%)	20(39.2%)
Nurses	142(58%)	31(60.8%)
People with influenza can transmit the infection only after their symptoms appear		
Physician	55(42%)	69(41.8%)
Nurses	76(58%)	96(58.2%)
Influenza is transmitted primarily by contact with blood and body fluids		
Physician	35(64.8%)	90(37%)
Nurses	19(35.2%)	153(63%)
The flu shot contains live viruses that may cause some people to get influenza		
Physician	82(41.6%)	41(42.7%)
Nurses	115(58.4%)	55(57.3%)
Influenza vaccination does not work in some persons, even if the vaccine has the right mix of viruses		
Physician	97(42.9%)	25(38.5%)
Nurses	129(57.1%)	40(61.5%)
Adults with influenza commonly experience nausea and vomiting or diarrhea		
Physician	58(46%)	67(39.4%)
Nurses	68(54%)	103(60.6%)
Symptoms typically appear 8–10 days after a person is exposed to influenza		
Physician	61(38.1%)	62(46.3%)
Nurses	99(61.9%)	72(53.7%)

Table 2: shows the awareness of physician and nurses towards influenza and influenza vaccine. Both of the respondents believe that influenza is more serious than common cold and most of them know the significant symptoms of influenza. Moreover, the respondents believe that asymptomatic infected HCPs could still spread the infection to other. In addition, the nurses more believe that the influenza Symptoms typically appear 8–10 days after a person is exposed to influenza.

Discussion

The results of the statistical analysis of the study data revealed that there were statistically significant differences among the sample of the study in terms of specialization where it was found that the nurses are more concerned and keen to vaccinate against the influenza. The awareness of knowledge and attitude toward influenza vaccination among physician and nurse in (SFHP) show that the knowledge and attitude are more available to nurses than doctors, because nurses are more likely to be sick than doctors. Although evidence has shown that vaccination is the best defence against influenza, it appears that it is still not a priority for physician to accept the influenza vaccination. Comparing the current study with previous studies, we find that the current study coincided with a cross-sectional study conducted by Al-shammari and Al-Fehaid, 245 anonymous questionnaires were distributed in 6 major hospitals in Saudi Arabia to a convenient sample of staff found influenza vaccination rate of 38% during 2012-2013 influenza season[2].

Conclusions

In conclusion, the rate of influenza vaccination among HCWs is known to be low and is far below the level needed to achieved

Limitations

This study is limited by the fact that it was conduct in one hospital and during one influenza season.
Another limitation was this study conduct to physician and nurses. So, we excluded other health care worker from our study.

Acknowledgment

I would like to thank Dr. Jamal Al-Hamad for his cooperation and supervision, as well as his beneficial advice.
I also would like to thank Dr. Medhat Ghoraba for his support toward me and toward all of us as Family Medicine Residents at Security Forces Hospital.
Lastly, I would like to thank Department of Nursing for their assisted me with the data collection.

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List of Abbreviation

Abbreviation	Meaning
HCW	Health Care Worker
CDC	US Center for Disease Control and Prevention
ACIP	Advisory Committee on Immunization Practices
WHO	World Health organization
SPSS	Statistical Package for the Social Sciences
SD	Standard Deviation
N	Number