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Beliefs on Influenza Disease and Vaccine among Health Care Workers in Jeddah, Saudi Arabia

Khalid A Alghamdi [1], Adnan A Alshumrani[1], Majed A Althagafi [2], Saleh H Alzahrani [3], Mohammed A Althagfi [4]

[1]Ibn Sina National College for Medical Studies,[2]Batterjee Medical College, [3]Umm Al-Qura University,[4]King Abdulaziz University

ABSTRACT

Background: Seasonal influenza is considered to be a serious public health problem that may cause death in high risk population. It is very important for healthcare workers who are in direct contact with patients to get influenza-vaccinated. However most of the Middle East countries provide many vaccination programs to healthcare workers against influenza virus, the current vaccination rates are very low. This highlight the need to study the current knowledge and awareness about influenza vaccination in healthcare workers (HCWs) in Middle East and specifically Saudi Arabia.

Objectives: The aim for this study was to assess beliefs and awareness level about influenza vaccine among healthcare workers in Jeddah, Saudi Arabia.

Subjects and methods: A cross-control study was conducted using an anonymous web-based survey. A total of 172 subjects from Jeddah, Saudi Arabia took part in this survey during the period from 6 January 2018 to 20 January 2018.

Results: The majority of the subjects were females (58.7%), Saudi (88.4%), Muslims (99.4%), single (62.8%) with a mean (±SD) age of 27.28 ±8.39 years. 74.4% answered that their work is clinical. There was a statistically significant correlation between the knowledge score and each of "marital status" (p=0.039), "medical history" (p=0.032), "those intending to get vaccinated for the next season" (p=0.006). The highest scores were reported among "single" subjects, subjects with no "medical history" and those who were intending to get vaccinated for the next season.

Conclusion: Beliefs and awareness about influenza vaccination have very important effects on the rate of seasonal influenza vaccine of health care workers. We recommend tailoring educational programs and awareness campaigns in order to achieve better vaccination rates and decrease the risks associated with influenza infections in Saudi Arabia.

Keywords: Influenza, Seasonal Influenza, Vaccination, Knowledge, Saudi Arabia.

INTRODUCTION

According to European Centre for Disease Prevention and Control (ECDPC), seasonal influenza causes 15,000-70,000 European deaths every year of causes associated with influenza[1]. Although the duration of illness is usually short, the yearly economic and healthcare burden of influenza is major. Over the years, vaccination has been the main master plan for both controlling and preventing influenza[2,3].

A meta-analysis conducted in 2011 to explore the effectiveness of influenza vaccines revealed that the vaccines provides moderate protection against influenza. The vaccine continually shows appropriate efficacy in children aged up to 7 years. However, there was no enough evidence of protection among elderly individuals aged 65 years[4].

It is very important for healthcare workers who are in direct contact with patients to get influenza-vaccinated every year to protect them from getting influenza and to reduce transmission of influenza to whomever they are in contact with[5].

In World Health Organization fact sheet about seasonal influenza, it was recommended for pregnant women, children aged between 6 months to 5 years, elderly individuals, individuals with chronic medical conditions and healthcare workers to get a yearly influenza vaccination[6].

MATERIALS AND METHODS

Subjects

This cross-sectional study was conducted using an anonymous web-based questionnaire. A total of 172 healthcare workers from Jeddah, Saudi Arabia took part in this survey.

Participants were asked to fill an anonymous questionnaire about their demographic characteristics, occupation, medical history and influenza vaccination history in addition to other questions related to their knowledge in relation to influenza vaccination. The study was conducted during the period from 6 January 2018 to 20 January 2018. Institutional review board approval

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was obtained before conducting any study-related procedures.

Data collected

The questionnaire consisted of 25 questions. Seven questions collected general information about age, gender, nationality, religion, marital status and occupation. Six questions were about medical history and influenza vaccination history. The remaining 12 questions collected data about knowledge of healthcare workers in relation to the importance of influenza vaccination. A five-point Likert scale was used in each question.

Provided options for knowledge module included (strongly agree, agree, neutral, disagree or strongly disagree). A relevant score from 1 to 5 for each of the previous answers was assigned. The total knowledge score for each patient was calculated based on his answers and the scores were correlated to demographic characteristics, occupation, medical history and influenza vaccination history.

The study was done after approval of ethical board of King Abdulaziz university.

Statistical analysis

Data were statistically described in terms of frequencies (number of cases) and valid percentages for categorical variables. Mean, standard deviations, minimum and maximum were used to describe numerical variable. Spearman's correlation was used to investigate the relationship between numerical variables. P values less than 0.05 were considered statistically significant. All statistical calculations were done using computer program IBM SPSS (Statistical Package for the Social Science; IBM Corp, Armonk, NY, USA) release 21 for Microsoft Windows.

RESULTS

Participants' characteristic

Analyzing data collected from our online survey showed that out of the 172 participants, 101 (58.7%) were females while 71 (41.3%) were males. The majority were Saudi (152, 88.4%) and Muslims (171, 99.4%). Their mean (±SD) age was 27.28 ±8.39 years with a minimum of 16 years and a maximum of 62 years.

Regarding marital status, 108 (62.8%) subjects were single, 58 (33.7%) were married, three (1.7%) were divorced and another three (1.7%) were widowed.

Subjects were asked about their work nature and 128 (74.4%) answered "clinical" and 44 (25.6%) answered "non-clinical".

Table (1) Demographics of participants

Age (years)	Minimum		Maximum		Mean		Std. Deviation	
	16.0		62.0		27.286		8.3903	
62								
Gender	Males				Females			
	n		%		n		%	
	71		41.3		101		58.7	
Nationality	Saudi				Not Saudi			
	n		%		n		%	
	152		88.4		20		11.6	
Religion	Islam				Christianity			
	n		%		n		%	
	171		99.4		1		0.6	
Nature of Work	Clinical				Non-Clinical			
	n		%		n		%	
	128		74.4		44		25.6	
Marital status	Single		Married		Divorced		Widowed	
	n	%	n	%	n	%	n	%
	108	62.8	58	33.7	3	1.7	3	1.7

Medical history

Subjects were asked if they were suffering from "Bronchial asthma", "Renal disease", "Diabetes mellitus" or "Cardiac disease" and the answers were as follows;

Twenty (11.6%) subjects were suffering from "Bronchial asthma", 15 (8.7%) reported "Diabetes mellitus", seven (4.1%) reported "Renal disease", five (2.9%) reported suffering from "Cardiac disease" with or without hypertension, while 127 (73.8%) subjects reported that they do not have any of these conditions.

Table (2) Medical History

Do you have any of the following medical conditions?		
	Frequency	Percent
Yes	45	26.2
No	127	73.8
Total	172	100.0
Bronchial Asthma		
	Frequency	Percent
Yes	20	11.6
No	152	88.4
Total	172	100.0
Diabetes Mellitus		
	Frequency	Percent
Yes	15	8.7
No	157	91.3
Total	172	100.0
Renal Disease		
	Frequency	Percent
Yes	7	4.1
No	165	95.9
Total	172	100.0
Cardiac Disease		
	Frequency	Percent
Yes	5	2.9
No	167	97.1
Total	172	100.0

Influenza and vaccination status

Regarding previous diagnoses with seasonal influenza infection, 76 (44.2%) subjects reported "Yes", 57 (33.1%) reported "No" while 39 (22.7%) reported that they were not sure if they ever have been diagnosed with seasonal influenza infection. The majority (108, 62.8%) reported that they have previously received the seasonal influenza vaccine, while 64 (37.2%) reported that they have not received the vaccine or at least they do not remember. Forty-six (26.7%) subjects reported receiving the seasonal influenza vaccine once, 26 (15.1%) received it twice, while 36 (20.9%) said that they have received it many times, but don't remember how many times.

Subjects were asked if they have received influenza vaccine for this season (2016-2017); only one third (58, 33.7%) of them answered "Yes". Fifty-four (31.4%) subjects said that they would receive influenza vaccine for the coming season, 58 (33.7%) said that they won't, while 60 (34.9%) said that they are not sure.

Table (3) Influenza and vaccination status

Have you ever been diagnosed with seasonal influenza infection?		
	Frequency	Percent
No	57	33.1
Yes	76	44.2
No sure	39	22.7
Total	172	100
Have you ever received the seasonal influenza vaccine?		
	Frequency	Percent
No/Do not remember	64	37.2
Yes	108	62.8
Total	172	100
If yes, how many times have you received an influenza vaccine?		
	Frequency	Percent
NA	64	37.2
Once	46	26.7
Twice	26	15.1
I have received it many times, but don't remember how many times	36	20.9
Total	172	100
Have you received the influenza vaccine of this season (2016-2017)?		
	Frequency	Percent
No/Do not remember	114	66.3
Yes	58	33.7
Total	172	100
Would you receive influenza vaccine for coming season?		
	Frequency	Percent
No	58	33.7
Yes	54	31.4
I am not sure	60	34.9
Total	172	100

Level of knowledge among healthcare workers

The knowledge score of subjects ranged from a minimum value of 12 to a maximum value of 56 (out of 60) with a mean (±SD) score of 39.43 ±5.32. Both significant and non-significant factors are detailed in the section below.

Factors affecting knowledge of healthcare worker regarding vaccination

Demographics and Medical History

Each of "age", "gender", "nationality", "religion" and "nature of work" were found to have no statistically significant correlation with the knowledge score. P values were (0.103), (0.978), (0.754), (0.545) and (0.792) respectively.

While "marital status" and "medical history" had a statistically significant correlation with the knowledge score. P values were (p=0.039) and (p=0.032) respectively.

Having "Bronchial asthma" (p=0.342), "Diabetes mellitus" (p=0.183), "Renal disease" (p=0.494) and "Cardiac disease" (p=0.862) had no statistically significant correlation with the knowledge score.

Status of influenza vaccination

There was no statistically significant correlation between the knowledge score and each of "diagnosis with the seasonal influenza" (p=0.936), "previous vaccination with the seasonal influenza vaccine" (p=0.439), "times of previous vaccinations" (p=0.233) and "receiving influenza vaccination for this season (2016-2017)" (p=0.191). However, there was a statistically significant correlation between the knowledge score and those intending to get vaccinated for the next season (p=0.006).

DISCUSSION

The aim for this cross-sectional study was to assess beliefs and awareness level about influenza vaccine among healthcare workers in Jeddah, Saudi Arabia. A total of 172 subjects from Jeddah, Saudi Arabia took part in this survey during the period from 6 January 2018 to 20 January 2018.

According to the Saudi Infection Prevention and Control Guidelines for Seasonal Influenza in Healthcare Setting, influenza infection can be brought into a healthcare facility by a patient, a

healthcare worker or even a visitor. Many reports of hospital influenza outbreaks can authenticate the associated health risks related to that nosocomial spread of influenza. Accordingly, healthcare workers can potentially transmit the infection to another patients which would increase the burden even more[7]. In 2017, a study was conducted in Saudi Arabia investigating knowledge and attitudes of Saudi populations regarding seasonal influenza vaccination revealed that despite the large number of participants who believed that influenza vaccinations are both safe and effective, around half of them did not receive any of them[8]**.** The same study reported that the majority of participants were males (57%) and married (72%) while in our study, the majority were females (59%) and single (63%)[8].

In our study, the majority of participants (63%) reported that they have previously received the seasonal influenza vaccine, while in two studies conducted in 2015 and 2016, it was reported that 57% and 44.5%, respectively, have previously received the seasonal influenza vaccine at least once[8,9]**.** Around one third (34%) of our population have received influenza vaccine for the current season (2016-2017). This low rate is consistent with another study conducted during the period of 20122013 that reported a vaccination rate of 38% among healthcare workers[10]**.**

Our data showed that the knowledge score of participants ranged from a minimum value of 12 to a maximum value of 56 (out of 60) with a mean (±SD) score of 39.43 ±5.32. This low level is undesirable because of the great significance of healthcare workers recommendation and public educational programs as keystones to enhancing influenza vaccination rates[11]**.**

Moreover, this is still far from the target standard of 90% coverage among healthcare workers[12]**.** In the current study, there was a statistically significant correlation between each of "marital status" (p=0.039), "medical history" (p=0.032), "those intending to get vaccinated for the next season" (p=0.006) and the knowledge score. The highest scores were reported among "single" subjects, subjects with no "medical history" and those who intending to get vaccinated for the next season.

CONCLUSION

It's very important to ensure a high level of knowledge and awareness among healthcare professionals, through tailored educational programs and awareness campaigns, about influenza vaccination in order to achieve better vaccination rates and decrease the risks associated with influenza infections in Saudi Arabia.

REFERENCES

1.European Centre for Disease Prevention and Control (2016): Fact sheet about seasonal influenza. available at : https://ecdc.europa.eu/en/seasonal-influenza/facts/factsheet >

2.Davenport FM(1962): Current knowledge of influenza vaccine. JAMA.,182(1) 1113.

3. Fiore AE, Uyeki TM, Broder K *et al*.(2010): Prevention and control of influenza with vaccines: recommendations of the Advisory Committee on Immunization Practices (ACIP), Recomm Rep.,59(2) 162.

4. Osterholm M., Kelley N., Sommer A. and Belongia E (2012): Efficacy and effectiveness of influenza vaccines: a systematic review and meta-analysis. The Lancet Infectious Diseases, 12(1)::36-44.

5. De Serres G, Skowronski D, Ward B, Gardam M, Lemieux C, Yassi A *et al*.(2017): Influenza Vaccination of Healthcare Workers: Critical Analysis of the Evidence for Patient Benefit Underpinning Policies of Enforcement. PLOS ONE,12(1):e0163586.

6. World Health Organization, reviewed January (2018): Influenza (Seasonal) Fact sheet, http://www.who.int/mediacentre/factsheets/fs211/en/

7. Saudi Ministry of Health(2017): Infection Prevention and Control Guidelines for Seasonal Influenza in Healthcare Setting . https://www.moh.gov.sa/en/CCC/StaffRegulations/Influenza/Documents/IPCGuidelines-for-Seasonal-Influenza.pdf

8. Alqahtani A, Althobaity H, Al Aboud D, Abdel-Moneim A(2017): Knowledge and attitudes of Saudi populations regarding seasonal influenza vaccination. Journal of Infection and Public Health,10(6):897-900.

9. Abalkhail M, Alzahrany M, Alghamdi K, Alsoliman M, Alzahrani M, Almosned B *et al*.(2017):Uptake of influenza vaccination, awareness and its associated barriers among medical students of a University Hospital in Central Saudi Arabia. Journal of Infection and Public Health,10(5):644-648.

10. Alshammari TM, AlFehaid LS, AlFraih JK, Aljadhey HS(2014): Health care professionals' awareness of, knowledge about and attitude to influenza vaccination. Vaccine,32(45):595761.

11. Mirza A, Subedar A, Fowler S, Murray D, Arnold S, Tristram D *et al*.(2008): Influenza Vaccine: Awareness and Barriers to Immunization in Families of Children with Chronic Medical Conditions Other than Asthma. Southern Medical Journal,101(11):1101-1105. **12. Conte A, Quattrin R, Filiputti E, Cocconi R, Arnoldo L, Tricarico P *et al*.(2016):** Promotion of flu vaccination among healthcare workers in an Italian academic hospital: An experience with tailored web tools. Human Vaccines & Immunotherapeutics,12(10):2628-2633.