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ASSESSMENT OF KNOWLEDGE AND ATTITUDES OF PATIENTS ATTENDING IN PRIMARY HEALTH CARE ABOUT THE SEASONAL INFLUENZA IMMUNIZATION AT MAKKAH AL-MOKARRAMAH 2019

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ABSTRACT

Background

seasonal influenzavaccination is essential for population health. However, despite its strong recommendation, studies indicated a low rate of vaccine response. Influenza is a serious disease that can cause hospitalization, intubation, and death in high-risk groups. Influenza complications are due to changes in the immune, respiratory, and cardiovascular systems. Patients with an influenza infection are at increased risk of severe illness and complications and have a higher mortality and morbidity rate. Despite the significant role of seasonal influenza vaccination in preventing and minimizing the serious complications of influenza infection in patients, unsatisfactory compliance still exists for vaccination. Vaccination against influenza is the main way to reduce the substantial health burden that seasonal influenza causes, and is the primary tool to prevent influenza infection. The Advisory Committee on Immunization Practices at the US Centers for Disease Control and Prevention (CDC) recommended that all people above age 6 months receive the influenza vaccination annually unless contraindicated

. **Aim of the study**:To explore knowledge and attitudes of patients attending in Primary Health Care about the seasonal influenza Immunization at Makkah Al-Mokarramah 2019.

Methods: This cross-sectional study was conducted among 200 participants from health care centers in Makkah Al-Mokarramah city. A validated self-administered questionnaire was used. It includes questions on sociodemographic variables, knowledge, attitude, and vaccine response. during the September to December 2019.

Results:the majority of participant (50.5%) have average of the knowledge towards seasonal influenza vaccination followed by (29.0%) of participant high while Range(3-9) and Mean ±SD(6.390±1.781), $\mathbf{X^2}$25 P=0.001also shows the majority of participant (50.5%) have average of the knowledge towards seasonal influenza vaccination followed by (29.0%) of participant high while Range(3-9) and Mean ±SD(6.390±1.781), $\mathbf{X^2}$25 P=0.001

Conclusion: The study showed poor knowledge and attitude toward seasonal influenza Immunization among patients and general population but a relatively accepted rate of vaccine response. Vaccination response was associated with knowledge, marital status, education, and age. This study recommends implementation of the health educational programs to increase the knowledge to the patients and general population.

Keywords: Assessment, Knowledge, attitudes, Patients, PHC, seasonal influenza, Immunization,Saudi Arabia.

1.Introduction

Influenza is a highly contagious respiratory viral illness that occurs in certain seasons of the year. The 2 main types of human influenza viruses are influenza virus A and influenza virus B, both of which are easily spread between people, and are responsible for seasonal influenza epidemics each year, with a significant disease burden and significant morbidity and mortality. [1,2]

Influenza is a highly contagious respiratory illness that is caused by influenza virus.[3] Periodic and seasonal outbreaks cause about one million deaths worldwide.[4,5] Greater complications afflict vulnerable and immune-compromised individuals.[6,7,8] The influenza vaccine is considered the most effective strategy for preventing

severe illness and complications associated with influenza infection.[9,10] In Saudi Arabia, the vaccine is provided free of charge in all the PHCs.[11] Literature highlighted potential reasons of vaccine hesitancy misconceptions that vaccine causes influenza or vaccine is unsafe.[12,13] Similar misconceptions were prevalent among healthcare workers who were reluctant to receive vaccinations.[14,15] These reluctance was postulated to be attributed to low knowledge levels of vaccine.[16,17]

Vaccination against influenza is the main way to reduce the substantial health burden that seasonal influenza causes, and is the primary tool to prevent influenza infection.[3] The Advisory Committee on Immunization Practices at the US Centers for Disease Control and Prevention (CDC) recommended that all people above age 6 months receive the influenza vaccination annually unless contraindicated.[18] There are marked differences in seasonal influenza vaccination rates between different countries, and between different times of the year.[19,10]. The Ministry of Health in the Kingdom of Saudi Arabia launched a seasonal influenza vaccine to prevent influenza complications in high-risk groups, during influenza season.6 This action was also based on the 2004 recommendation of The Advisory Committee on Immunization Practices in the United States. [10]

Healthcare workers (HCWs) may have an increased occupational risk of influenza infection compared with the general population [20–21]. Infected HCWs may cause nosocomial outbreaks of influenza, leading to complications and death in high-risk patients [11]. Influenza infection among HCWs may also lead to absenteeism and disruption of medical services [12]. According to a report by the International Nursing Association, 7% of the all COVID-19 cases recorded worldwide are among HCWs [20]; this is equivalent to over 900,000 by 14 July 2020. These figures emphasize the high risk of infection among HCWs, particularly when vaccines to control an outbreak are not available. Establishing universal seasonal influenza vaccination programs among HCWs contributes to influenza pandemic preparedness by facilitating vaccine distribution and implementation mechanisms necessary to efficiently and quickly administer vaccines to this group and maintain an able population of front-line HCWs during pandemics [22]. Moreover, vaccinated HCWs are more likely to recommend the vaccine to their patients, which is critical for vaccine deployment during a pandemic [23].

1.1 Literature Review

A study carried out in Lebanon in 2015, the overall vaccination rate was 27.6%. In Arab countries, the vaccination rates are variable. [15]

while in Jordan, [25] studies reported a low vaccination rate between 9.9 and 20% of adults.[26] Locally, a study carried out in Makkah, western Saudi Arabia, found a low seasonal flu vaccination rate, with only 18.5% of people receiving the vaccine.[27] Another study of military personnel in central Saudi Arabia revealed an influenza vaccine coverage rate of 17.8%.12 A person's decision to receive the seasonal influenza vaccine depends on several factors, including beliefs and attitudes about influenza and the influenza vaccine.[28] In Slovenia, unvaccinated people cited 2 main reasons for not getting the seasonal influenza vaccine: the perception that they were in good health and therefore did not need the vaccine, and a fear of side effects. Many of those who did get the vaccine said they felt it was important to be vaccinated by their family physicians since they had confidence in them.10 In a German study in 2010, 'fear of side effects' and the opinion that 'vaccination was not necessary' were the major reasons cited for receiving a pandemic vaccination.[29]In the study carried out in Lebanon in 2015, the only factor that was found associated significantly with the abstinence form annual vaccination is 'thinking that the vaccine was not needed'[19]while in the study carried out in Jordan, the most reported critical barrier to vaccination was the concern about the safety and efficacy of the vaccine.9 Studies exploring the factors associated with public acceptance and refusal of the seasonal influenza vaccine remain lacking in Saudi Arabia.

In Qatar, a vaccination campaign was able to achieve 77% coverage among HCWs during the 2015–2016 season [30]. Therefore, free-of-charge vaccination alone is not enough to attain optimal vaccination coverage among HCWs. Consistent with our findings, a systematic literature review found that males were more likely to intend to receive vaccine [31]; however, this did not correlate with higher vaccination uptake in our study. HCWs with >10 years of service were significantly more likely to recommend influenza vaccination to their patients; however, no association was found between years of service and vaccine uptake or willingness to receive vaccine. Similar findings were observed in a hospital in Singapore, where length of service did not correlate with greater compliance with vaccination [28].

Abou Gharbieh et al report , only 60% of the HCWs surveyed in the South Al Batinah governorate were vaccinated for the 2018–2019 season, despite the availability of free vaccine to all HCWs at their workplaces. While vaccine coverage remains sub-optimal in Oman, it has improved since a 2009 estimate (46.4%) . [32] and is higher than rates observed in some neighboring countries with free HCW vaccination programs, including an estimated 53.4% coverage reported in the Dubai Health Authority (UAE) for the 2016–2017 season [33]. In Iran, a recent survey reported vaccination coverageof 57.7% in the capital, Tehran, in the 2015–2016 season [25].

1.2 Rational.

Influenza is associated with high mortality and morbidity; it is a common preventable infectious disease. The most cost-effective measure to prevent influenza is Vaccination, but still the vaccine uptake is lowPneumonia is

the most common complication of influenza that occurs. When the lungs become infected by bacteria then secondary bacterial pneumonia may occur .Other rarer complications may occur, such as spread of the virus to cause disease in the heart, muscles or brain. Influenza is one of the most common respiratory illnesses affecting people of all age groups worldwide. Those patients with chronic diseases patients are at a higher risk for influenza and influenza-associated complications when compared with healthy individuals. Makkah Al-Mokarramah was chosen because pilgrims come to Makkah from all over the world every year to perform Hajj, which may lead to an increase in the prevalence of influenza.

2. Aim of the study

To explore knowledge and attitudes of patients attending in Primary Health Care about the seasonal influenza Immunization at Makkah Al-Mokarramah 2019

2.1 Objectives:

- To explore knowledge and attitudes of patients attending in Primary Health Care about the seasonal influenza Immunization at Makkah Al-Mokarramah 2019
- To assessment of the factors associated with the success rate of influenza vaccination among patients attending thePrimary Health Care2019.

3. Methodology

3.1 Study Design

A Cross-sectional descriptive study

3.2 Study area

The study was carried out in the city of Makkah Al-Mokarramah (the Holy capital of Saudi Arabia) which is located at the center of the Western Region of Saudi Arabia, contains a population around 1.578 million. It has a holy value for all Muslims worldwide who travel to it annually to perform Hajj and to visit the Holy Masjid and Kaaba towards which Muslims turn in prayers. The city has seven sectors of PHC divided into three inners and four outers (Al-Zahir, Al-Adel, Al-Kakyeea, Al-Sharaee, Al-Jamom, Al-Kamel, and Kolese). Each sector consists of a group of Primary Health Care Centers. The researcher is concerned with one of the inner PHC of Al-kakyeea sector called "Al-Jamom ".

3.3 Study Population

The study was conducted among patients attending Al-Jamom PHC in Makkah Al-Mokarramah, during the period of study in 2019 .

Selection criteria:

3.4 A- Inclusion criteria:

- All adult patients.
- Both males and females.
- All nationalities.

3.5 Exclusion criteria:

- Age <25

3.6 Sampling technique:

The researcher used Multi-stage random sampling technique, giving each sector code number from one to seven (1- Al-zahir, 2- Al-adel, 3- Al-kakyeea, 4- Al-sharaee, 5- Al-jamom,6- Al-kamel, 7- Al- Kolese). After that, by using random number generator, the minimum number was one, and the maximum was seven, the generation number was three which is Al-kakyeea sector. Then simple random sampling technique was applied to select the PHCC from Al-Kakyeea sector (1- Al-Kakyeea, 2- Al-Khaldya, 3- Al-Hejra,4- Al-Eskan,5- Al-Masflah, 6-Al-Nakash, 7-Alhilal Alahmer, 8-Al-Heglah, 9- Al-Hndaweeah, 10- Um-Alrakah, 11- Al-Khadhra) the given number was 4 " Al-Eskan PHCC". Also, convenience sampling technique was utilized to select the participants in the study.

3.7 Data collection tool:

A self-administered validated questionnaire was used. The questionnaire was translated to Arabic by forward-backward technique and then was piloted among 20 participants. after permission was taken through email from the researcher, with some modification and preamble letter was issued to explain the aim of the study, request to participate, and appreciation for a response. Then, the questionnaire was validated by three consultants.After that, the first part included questions on sociodemographic characteristics such as age, sex, marital status, educational level and history of chronic disease. The second part included questions on influenza vaccination knowledge, attitudes and questions about vaccination status.

Reliability:

The researcher tested the reliability by retesting 10% of participants to compare the answers. An average coefficient of correlation of 0.89 has been achieved which is accepted.

3.9 Data collection technique:

After the arrival of the patient to the PHCC, they should go to the reception first to register and ensure the presence of the center's card. Then, the receptionist gives a number to every patient who waits until called by the

nurse to detect the vital signs. During that period of waiting the researcher will select patient conveniently until the target number achieves and gives the questionnaire for answering after taking the consent.

3.10 Study variables:

3.10 a- Dependent variable: Influenza immunization status

3.10 b-Independent variables: Age, gender, marital status, educational level, occupation, home/living, reasons for accepting flu vaccination, or reasons for refusing.

3.11 Data entry and analysis:

The Statistical Package for Social Sciences (SPSS) software version 24.0 was used for data entry and analysis. Descriptive statistics (e.g., number, percentage) and analytic statistics using Chi-Square tests (χ^2) to test for the association and the difference between two categorical variables were applied. A p-value ≤ 0.05 was considered statistically significant.

3.12 Pilot study:

Was piloted among 20 participants, after permission was taken through from the researcher, with some modification and preamble letter was issued to explain the aim of the study, request to participate, and appreciation for a response. Then, the questionnaire was validated by three consultants. A pilot study was conducted in one PHC in the same sector due to the similarity to the target group using the same questionnaire to test the methodology of the study. As a feedback, the questionnaire was clear and no defect was detected in the methodology.

3.13 Ethical considerations:

The ethical approval for this study was obtained from the ethical committee for health research in Makah (2019). The objectives of the study were explained to the participants and confidentiality was assured. Participation was voluntary. A written consent was obtained from the participants. Permission from the Makah joint program of family medicine was obtained; permission from the Directorate of Health Affairs of the Holy Capital Primary Health Care was obtained.

3.14 Relevance:

- This study was carried out To explore knowledge and attitudes of patients attending in Primary Health Care about the seasonal influenza Immunization at Makkah Al-Mokarramah 2019.
- At the end of this study we are able to identify some factors associated with the success rate of influenza vaccination among patients PHC.

3.15 Budget: Self-funded

4. Result

Table 1: Distribution of socio-demographic characteristics of patients in primary health care center, Makkah Al-Mokarramah(n-200)

	N	**%**
Age		
<25	46	23
25-45	88	44
>45	66	33
Range	21-62	
Mean±SD	42.871±7.183	
Gender		
Male	96	48
Female	104	52
Marital status		
Single	44	22
Married	110	55
Divorced	34	17
Widow	12	6
Level of education		

Less than secondary	68	34
Secondary	44	22
University	54	27
Postgraduate	34	17
Occupation		
Working	132	66
Not working	66	33
Influenzavaccination		
Vaccinated	128	64
Non vaccinated	72	36

The study included 200 patients, table 1 show the remaining socio-demographic characteristics of the patients. Their age ranged between <25 and >45 years most of participants between (25-45) were (44.0%) with Mean±SD(42.871±7.183) and Range (21-62) years, majority of participants were (52.0%) were females. About (55.0%)were married. More than one-third of the participants were either less than secondary (34.0%) or university educated (27.0%). Approximately half of them (66.0%) were working, while (64.0%) influenzavaccination

Table 2: Distribution of Knowledge about the influenza vaccination adult patients

	No		**Yes**		**Chi-square**	
	N	**%**	**N**	**%**	**X^2**	**P-value**
Influenza vaccine is safe	70	35	130	65	18.000	<0.001*
Influenza vaccine prevents flu	80	40	120	60	8.000	0.005*
Influenza vaccine has side effects	58	29	142	71	35.280	<0.001*
Influenza vaccine can protect for only one flu season	40	20	160	80	72.000	<0.001*
Influenza vaccine can prevent serious complications among chronic diseases	92	46	108	54	1.280	0.258
Influenza vaccine is important for diabetics and should be take yearly	18	9	182	91	134.480	<0.001*
Disagrees that influenza vaccine has serious side effects and should not be taken	74	37	126	63	13.520	<0.001*
Would take influenza vaccine to prevent if effective	110	55	90	45	2.000	0.157
Would recommend influenza vaccine to all diabetic patients	50	25	150	75	50.000	<0.001*

The results shown in table (2) represent the knowledge towards seasonal flu patients. The results showed that there was significant difference in the responses of the vaccinated regarding the safety of the influenza vaccine, increased in the yes answers were(65.0%) $\mathbf{X^2}$ 18.00 and P=0.001, its capability of preventing flu, its side effects,

its protection for only one flu season, its serious side effects, Influenza vaccine is important for diabetics and should be take yearly, disagrees that influenza vaccine has serious side effects and should not be taken and would recommend influenza vaccine to all diabetic patients. The results presented in tables 2 results showed that there was significant difference in the responses of the vaccinated regarding all items, increased in the yes answers were respectively $\mathbf{X^2}$ 8.000, 35.280, 72.000, 134.480,13.520,50.000 and P=0.001 .

Other factors Influenza vaccine can prevent serious complications among chronic diseases and would take influenza vaccine to prevent if effective vaccination who had not significantly while and 1.280, 2.000 and P=value 0.258 and 0.157.

Table 3: Distribution of the Knowledge about the influenza vaccination adult patients

knowledge			
		N	**%**
Weak		42	21
Average		100	50
High		58	29
Total		200	100
Score	**Range**	3-9.	
	Mean+SD	6.390±1.781	
Chi-square	$\mathbf{X^2}$	25	
	P-value	<0.001*	

This table shows the majority of participant (50.5%) have average of the knowledge towards seasonal influenza vaccination followed by (29.0%) of participant high while Range (3-9) and Mean ±SD (6.390±1.781), $\mathbf{X^2}$ 25 P=0.001

Figure (1):Distribution of the Knowledge about the influenza vaccination adult patients

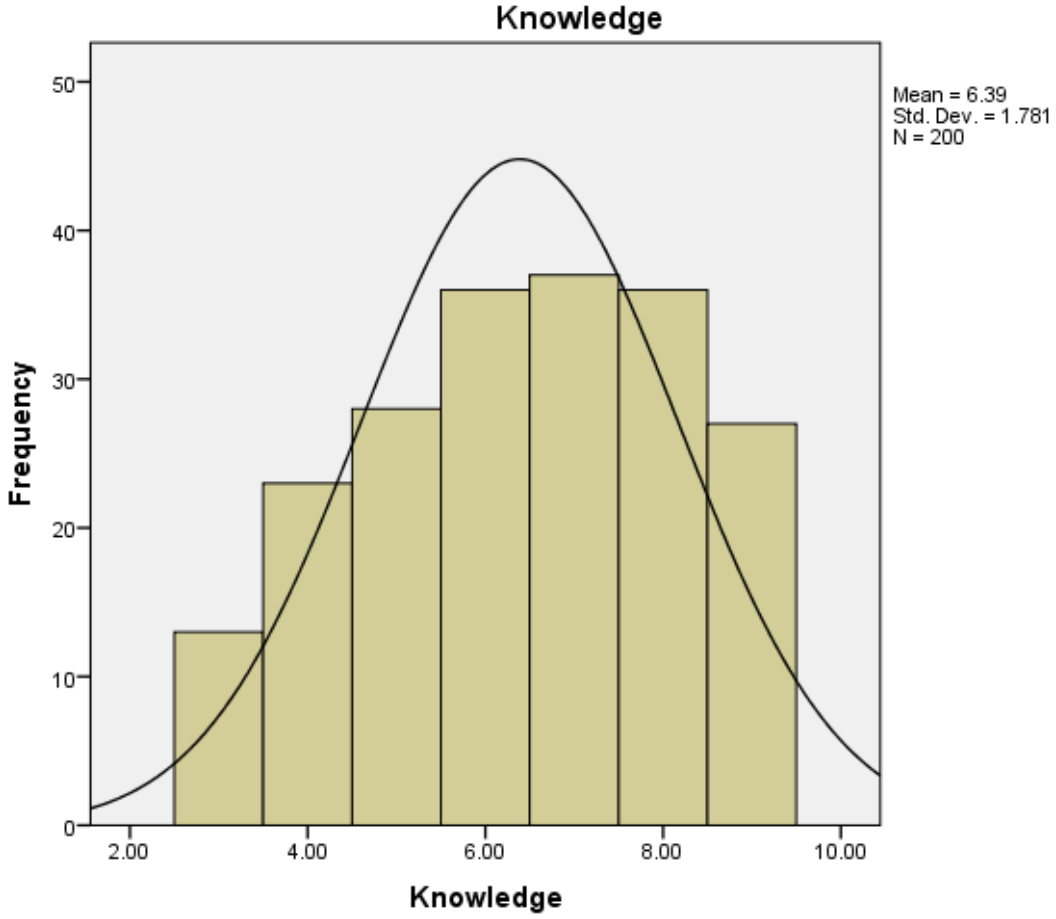

Table 4: Distribution of the attitudes of the study participants towards seasonal flu vaccination

Items		Attitudes			% of agreement	Chi-square	
		Agree	Don't know	Disagree		X^2	P-value
Influenza vaccination is important and should be taken yearly	**N**	116	60	24	82.00	64.480	<0.001*
	%	58.0	30.0	12.0			
Influenza vaccine prevent serious complication	**N**	88	80	32	76.00	27.520	<0.001*
	%	44.0	40.0	16.0			
Influenza vaccine has serious side effect and therefore should not be taken	**N**	10	50	140	45.00	133.000	<0.001*
	%	5.0	25.0	70.0			
Chronic diseases should receive influenza vaccine	**N**	116	44	40	79.33	54.880	<0.001*
	%	58.0	22.0	20.0			
don't need the flu vaccine because I have life immunity against flu	**N**	64	80	56	68.00	4.480	0.106
	%	32.0	40.0	28.0			
If there is an effective vaccine to prevent flu, I will take it	**N**	170	10	20	91.67	241.000	<0.001*
	%	85.0	5.0	10.0			

The results presented in table (4) showed that was a significant difference in the majority of items were P=0.001 also showed that (58.0%) of the patients agree that influenza vaccination is important and should be taken annually, whereas only 44.0% agreed that influenza vaccine prevent serious complications among diabetic

patients, and only 5.0% agreed that influenza vaccine has serious side effects and therefore must not be taken. Moreover, about 58.0% of the study participants agreed that Chronic diseases should receive influenza vaccine, and about 85.0% showed If there is an effective vaccine to prevent flu, I will take it, wererespectively $\mathbf{X^2}$ (64.480, 27.520, 133.000 ,4.480, 241.000)

On other hand about 32% and not significantly difference were $\mathbf{X^2}$ 54.880 P= 0,106 reported that they don't need the seasonal flu vaccine because they have life immunity against flu,

Table 5: Distribution of the Attitudes about the influenza vaccination adult patients

Attitudes			
		N	**%**
Weak		59	21
Average		79	44
High		52	35
Total		200	100
Score	**Range**	8-18.	
	Mean+SD	14.50±2.755	
Chi-square	$\mathbf{X^2}$	6.20	
	P-value	0.045*	

This table shows the majority of participant (44.0%) have average of the attitudes towards seasonal influenza vaccination followed by (35.0%) of participant high while Range (8-18) and Mean ±SD (14.50±2.755), $\mathbf{X^2}$ 6.20 P=0.045

Figure (2): : Distribution of the Attitudes about the influenza vaccination adult patients

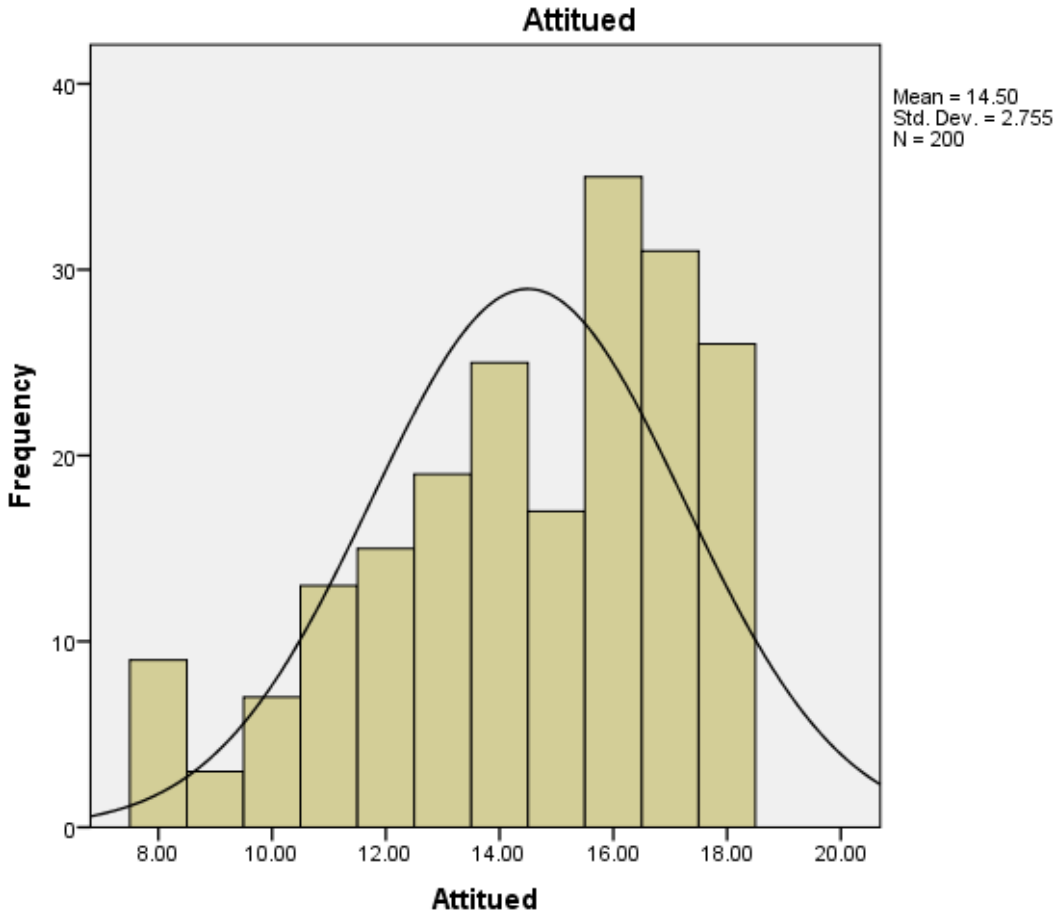

Figure (3): Correlation between attitudes and knowledge .

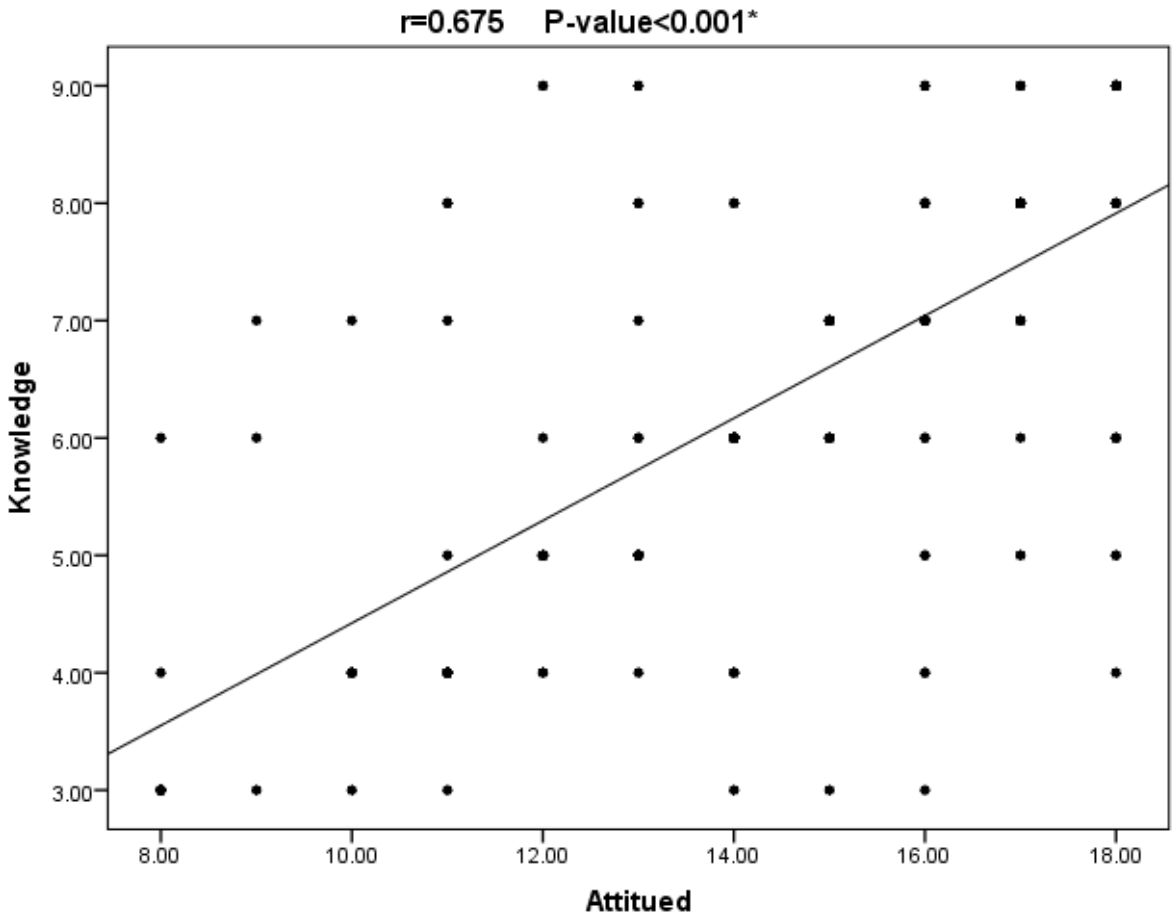

Figure (3) show that is a significant positive correlation between knowledge and attituedwere r= 0.675 and p-value =0.001

Table 6 : Distribution of the associated of the knowledge and attitude of patients about the influenza vaccination adult patients

Demographic data		Knowledge			P-value	Attitude			P-value
		Mean	±	SD		Mean	±	SD	
Age	<25	7.000	±	1.619	<0.001*	14.652	±	2.718	<0.001*
	25-45	5.648	±	2.085		13.727	±	3.254	
	>45	6.939	±	0.875		15.409	±	1.509	
Gender	Male	6.990	±	1.147	<0.001*	15.177	±	2.067	<0.001*
	Female	5.827	±	2.064		13.865	±	3.144	
Marital status	Single	7.167	±	0.910	<0.001*	15.028	±	2.501	<0.001*
	Married	6.327	±	1.792		14.536	±	2.611	
	Divorced	6.882	±	1.452		15.353	±	1.998	
	Widow	4.450	±	2.012		11.850	±	3.558	
Level of education	Less than secondary	4.691	±	1.438	<0.001*	12.588	±	2.897	<0.001*
	Secondary	5.977	±	0.849		14.341	±	1.879	
	University	7.444	±	0.634		16.000	±	1.748	
	Postgraduate	8.618	±	0.493		16.118	±	2.293	
Occupation	Working	6.701	±	2.004	<0.001*	14.545	±	2.952	0.717
	Not working	5.742	±	0.933		14.394	±	2.320	
Influenza vaccination	Vaccinated	7.203	±	1.186	<0.001*	15.297	±	2.171	<0.001*
	Non vaccinated	4.931	±	1.739		13.069	±	3.101	

Table5 shows regarding The age, gender, marital status, level of education,Influenza vaccination about the influenza vaccination adult patients who had a significantly were P-value= 0.000,in knowledge and attitude

On other hand Occupation significantly were P-value= 0.000 in knowledge but not significantly in attitude were P-value= 0.717

5. DISCUSSION

The present study aimed at To explore knowledge and attitudes of patients attending in Primary Health Care about the seasonal influenza Immunization at Makkah Al-Mokarramah 2019. The outcome of this research showed that a high majority of the participating patients were not aware of the details about this infection as the majority of them reported that it is a viral infection, which could be transmitted from one person to another and could be prevented only In addition, a great majority of the participating patients showed average knowledge and attitudes regarding the difference in severity of seasonal flu between individuals, which is evidenced by reporting that seasonal flu symptoms andcomplications might be more serious among patients.

Moreover, the outcome of this research showed that the great majority of the participating patients were not able to identify the symptoms and complications of seasonal flu, such as poor control and increased risk of hospitalization chronic diseases. These results are consistent with the findings of [34] who found that South African chronic diseases patients were able to identify the symptoms and complications of seasonal flu. Investigating the participants' perceptions towards seasonal flu vaccination showed significant differences between vaccinated and non-vaccinated diabetic patients' perceptions regarding the safety, effectiveness and side effects of the seasonal flu vaccine. Previously vaccinated diabetic patients had more positive perceptions towards seasonal flu vaccination compared to non-vaccinated vaccines.The results of the present study are similar to the findings of Abu-Rish et al., (2016) who found that Jordanian adults have a good level of knowledge and attitudes about seasonal flu and vaccination. However, the context of the two studies is different as our study focused on adult patients. On the other hand, the results of the present study are inconsistent with the findings reported. [34] who found that South African diabetic patients had low level of knowledge regarding the seasonal flu and seasonal influenza vaccination. This result could be referred to the different means used in spreading the knowledge and attitudeabout seasonal flu and vaccination efficacy among the public, as the MOH in Saudi Arabia uses paper-based means such as brochures and flyers, social media platforms, word of mouth by healthcare providers and many other means to increase the public awareness regarding seasonal flu vaccination. Another explanation for the high level of knowledge and positive attitudes towards seasonal flu vaccination among the patients is that a high majority of the study participants are holding Postgraduate degree, which indicates that they are educated.

On the other hand, those who were not vaccinated justified that by having alternative protection or considering flu as a mild illness or considering that the vaccine is not effective and not safe. This results highlights that there is still a need to increase the public awareness and knowledge about seasonal flu. In addition, this result might be attributed to the absence of national tracking strategy to the seasonal flu vaccination process among the patients. Moreover, it was found that both attitudes and knowledge are significantly associated with increased likelihood of taking the seasonal vaccine, which could be referred to patients' realizing of the benefits of the seasonal flu vaccine and its effect in reducing the complications that might happen among patients.A major strength of this study is the scarcity of the local studies in Saudi Arabia that examine the knowledge, attitudes and practices towards seasonal flu and vaccination among patients.

6. CONCLUSION

The study concluded that Saudi patients attending to the PHC have not adequate level of knowledge and positive attitudes towards seasonal influenza Immunization, patient's chronic diseases are at higher risk of symptoms and complications exacerbation. Also health care providers are considered a significant source of information related to seasonal flu and vaccination against seasonal influenza. The significance of activating the role of the healthcare providers and public health agencies in increasing the knowledge and awareness regarding the seasonal flu vaccination effectiveness

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