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Assessment of the Knowledge and Attitudes Regarding of Seasonal Influenza and Influenza Vaccination among Diabetic Patients in Diabetic Care Center in Makkah Al-Mokarramah, 2021

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ABSTRACT

Background

Despite the significant role of seasonal influenza vaccination in preventing and minimizing the serious complications of influenza infection in type 2 diabetes mellitus (T2DM) patients, despite the significant role of seasonal influenza vaccination in preventing and minimizing the serious complications of influenza infection in type 2 diabetes mellitus (T2DM) patients, seasonal influenza vaccination 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. Immunization and vaccination are essential public health interventions constituting a cost-effective strategy to reduce morbidity and mortality. Despite successes recorded with such interventions, Vaccines preventable diseases (VPD) remain the most common causes of mortality globally.

Aim of the study: To assess the knowledge and attitudes of patients attending in Primary Health Care about the seasonal influenza Immunization at Makkah Al-Mokarramah 2021

Methods: A cross-sectional study was conducted using a validated questionnaire across selected. Conducted among 200 participants from health care centers in Makkah Al-Mokarramah city . Self-administered questionnaire was used and validated It includes questions on socio demographic variables, knowledge, attitude, and vaccine response. During the September to December 2021in Makkah Al-Mokarramah .

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Results: shows the relation between the Knowledge and attitude toward seasonal influenza majority of participant have average in the knowledge Negative attitude towards seasonal influenza vaccination were (50.41%) while Positive attitudes of participant were (44.63%) , shows the significant relation between Knowledge and attitude were P=0.001 while X^2 349.677 also age ranged between <35 and >50 years most of participants between(>50) were (42.0%), majority of participants were(63.0%) were females. About (43.0%)were married
Conclusion: We concluded that there is a low influenza vaccine uptake rate among our study population, considering that the barriers most commonly chosen by participants are solvable with health education and campaigns oriented towards delivering facts about the vaccine and dispelling misinformation; such measures are highly recommended and are postulated to carry a great benefit that should target common misconceptions.
Keywords: Assessment, knowledge, attitudes, seasonal Influenza, vaccination, diabetic Patients, Center .

Introduction

Seasonal influenza is an acute respiratory infection caused by influenza viruses that are highly contagious and circulate in all parts of the world. It gives rise to an estimated 3 to 5 million cases of severe illness and about 250,000 to 500,000 deaths globally each year[1]. Influenza tends to cause epidemics with serious illness and death among high-risk groups such as children aged 5 years and younger, pregnant women, elderly ≥65 years of age, and with chronic medical conditions. According to the Centers for Disease Prevention and Control (CDC), all people who are 6 months old and above are recommended to receive the seasonal influenza vaccine annually [2].

Influenza is a highly contagious viral illness 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.[3,4]

Greater complications afflict vulnerable and immune-compromised individuals.[5,6] The influenza vaccine is considered the most effective strategy for preventing severe illness and complications associated with influenza infection.[7,8] In Saudi Arabia, the vaccine is provided free of charge in all the PHCs.[9] Literature highlighted potential reasons of vaccine hesitancy misconceptions that vaccine causes influenza or vaccine is unsafe.[10,11] Similar misconceptions were prevalent among healthcare workers who were reluctant to receive vaccinations.[12] These reluctance was postulated to be attributed to low knowledge levels of vaccine.[13]. Despite the fact that influenza vaccine is readily available, and the severity of the disease is known to adversely affect the individual's quality of life and well-being, vaccination uptake rates are still low, contributing to the increased burden of the disease worldwide[14]

Health care workers (HCWs) are considered as a high-risk group for influenza [15]. They can contract influenza from patients, visitors, and even from other HCWs. It has been shown that influenza vaccination of HCWs can decrease clinical disease in healthy adults by 70 - 90 %, and can reduce all-cause mortality in long-term care patients by up to 29 % . In addition, vaccination of HCWs against influenza might have positive impact on hospitalized patients [16]. Indeed, annual influenza vaccination program for HCWs has been recommended by

different health authorities [17]. However, it has been estimated that in the last decade, seasonal influenza vaccine coverage for HCWs was relatively low in many countries [18]. According to a report by the International Nursing Association, 7% of the all COVID-19 cases recorded worldwide are among HCWs [19]; this is equivalent to over 900,000 by 14 July 2030. These figures emphasize the high risk of infection among HCWs, particularly when vaccines to control an outbreak are not available during pandemics[20].

Literature Review .

Study conducted in 2015 in Saudi Arabia a large portion of participants (61.2%) thought that the vaccine was unsafe, and 59.2% thought it did not provide benefit,[21]

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.[22]

In Qatar, a vaccination campaign was able to achieve 77% coverage among HCWs during the 2015–2016 season [23]. 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 [24]; 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 [25]

A study published in 2018 conducted on patients visiting primary health-care clinics showed that one-third of patients thought influenza is a simple disease and there was no need to prevent it or vaccinate against it, half of them thought their chances of getting the disease are low, and a third do not believe the vaccine is effective. Almost half of population believes in all three [26]. In Germany specifically, a study was conducted to evaluate the reason for low vaccine uptake in patients with comorbid illnesses. When patients were asked about their knowledge on influenza vaccine necessity for people with comorbidities, 21.2% felt that their chances of getting the disease were low [27].

Abdelatti et al 2017 Previous studies have identified parents' role in immunization as stakeholders who could choose to or not to vaccinate their children as the primary decision makers. Therefore, their knowledge and immunization practices are predictor factors for immunization uptake and timeliness in their children[28]

studies in Nigeria found four out of ten children in urban areas are more likely to be fully vaccinated than only 16% in rural areas[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'[30]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.

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previous study conducted in Riyadh city in which 149 out of 207 (72%) participants gave the regarding the barriers to influenza vaccine was that they want to avoid vaccinations (58.6%) [31]

Rational.

Saudi Arabia is one of the most important centers for international travel in the world. It received annually, millions of pilgrims and other visitors. Saudi ministry of health has implemented many policies to prevent the possible emerging or reemerging diseases associated with traveling. This includes vaccination for citizen and pilgrims with seasonal influenza vaccine. Data about seasonal influenza vaccination coverage, personal and clinical determinants of influenza vaccination in Saudi Arabia in general and southwestern region in particular are scarce. Identifying the and assess the knowledge and attitudes of patients attending in Primary Health Care about the seasonal influenza Immunization at Makkah Al-Mokarramah 2021 among T2DM patients may be beneficial in resources allocations and primary healthcare policies development that might improve care of T2DM individuals.

Aim of the study

To assess the knowledge and attitudes of patients attending in Primary Health Care about the seasonal influenza Immunization at Makkah Al-Mokarramah 2021

Objectives:

- To assessment the 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 the Primary Health Care 2019.

Methodology

Study Design

A Cross-sectional descriptive study

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 2 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 ".

Study Population

The study was conducted among patients attending Al-Kakyeea PHC in Makkah Al-Mokarramah, during the period of study August 2021 till 30th of September in 2021 .

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Selection criteria:

A- Inclusion criteria:

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

Exclusion criteria:

- Age <35

Sampling technique:

Systematic random sampling technique is adopted. After that, by using random number generator, then simple random sampling technique has been applied to select the participant. Also, convenience sampling technique has be utilized to select the participants in the study. By using systematic sampling random as dividing the total Adults by the required sample size; (200), 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.

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 socio demographic 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.

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.

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.

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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.

Ethical considerations:

The ethical approval for this study was obtained from the ethical committee for health research in Makah (2021). 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.

Budget: Self-funded

Result

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

	N	%
Age		
<35	46	31
35-50	88	27
>50	66	42
Gender		
Male	96	37
Female	104	63
Marital status		
Single	44	17
Married	110	43
Divorced	34	25
Widow	12	15
Level of education		
Less than secondary	68	28
Secondary	44	19
University	54	23
Postgraduate	34	30
Occupation		
Working	132	72

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Not working	66	28
Influenza vaccination		
Vaccinated	128	71
Non vaccinated	72	29

The study included 200 patients, table 1 show the remaining socio-demographic characteristics of the patients. Their age ranged between <35 and >50 years most of participants between(>50) were (42.0%), majority of participants were(63.0%) were females. About (43.0%)were married. More than one-third of the participants were Postgraduate Approximately half of them (72.0%) were working, while(71.0%) influenza vaccination.

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

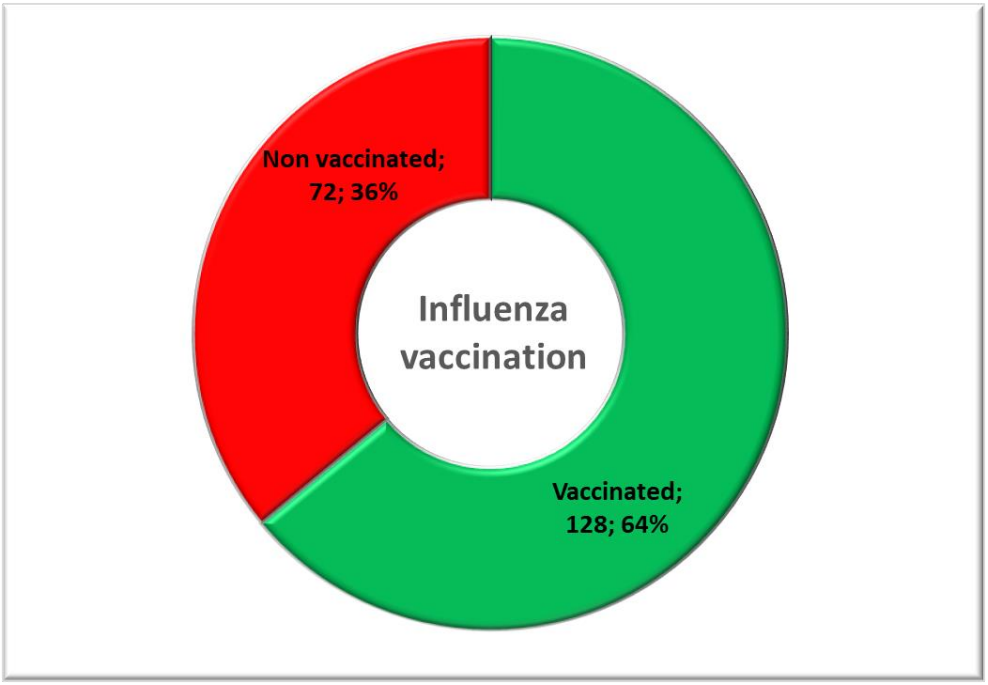

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Table 2: Distribution of Knowledge about the influenza vaccination adult patients

		Knowledge					% of agreement	One sample T-test (test value=2.5)	
		Strongly agree	Agree	Don't know	Disagree	Strongly disagree		t	P-value
Influenza vaccine is safe	**N**	125	65	35	57	18	74.80	16.136	0.000
	%	41.67	21.67	11.67	19.00	6.00			
Influenza vaccine prevents flu	**N**	110	37	66	57	30	69.33	11.933	0.000
	%	36.67	12.33	22.00	19.00	10.00			
Influenza vaccine has side effects	**N**	130	43	50	57	20	73.73	15.038	0.000
	%	43.33	14.33	16.67	19.00	6.67			
Influenza vaccine can protect for only one flu season	**N**	134	73	49	34	10	79.13	21.587	0.000
	%	44.67	24.33	16.33	11.33	3.33			
Influenza vaccine can prevent serious complications among chronic diseases	**N**	92	64	37	82	25	67.73	11.131	0.000
	%	30.67	21.33	12.33	27.33	8.33			
Influenza vaccine is important for diabetics and should be take yearly	**N**	148	92	21	12	27	81.47	22.009	0.000
	%	49.33	30.67	7.00	4.00	9.00			
Disagrees that influenza vaccine has serious side effects and should not be taken	**N**	111	65	52	48	24	72.73	14.768	0.000
	%	37.00	21.67	17.33	16.00	8.00			
Would take influenza vaccine to prevent if effective	**N**	72	22	50	95	61	56.60	3.906	0.000
	%	24.00	7.33	16.67	31.67	20.33			
Would recommend influenza vaccine to all diabetic patients	**N**	135	34	49	42	40	72.13	12.847	0.000
	%	45.00	11.33	16.33	14.00	13.33			

The results shown in table (2) represent the knowledge towards seasonal flu patients. The results showed that there was a significant relation were P-value=0.000 in the responses of the vaccinated regarding all item (Influenza vaccine prevents flu, Influenza vaccine has side effects, Influenza vaccine can protect for only one flu season, Influenza vaccine can prevent serious complications among chronic diseases, Influenza vaccine is important for diabetics and should be take yearly, Disagrees that influenza vaccine has serious side effects and should not be taken, Would take influenza vaccine to prevent if effective ,would and recommend influenza vaccine to all diabetic patients)the Knowledge of safety of the influenza vaccine, increased in the Strongly agree answers were respectively (41.67%, 36.67%, 43.33%, 44.67%, 30.67%,49.33%, 37.00%, 24.00% and 45.00%) while respectively

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T(16.136%, 11.933%,15.038%, 21.587%, 11.131%, 22.009%, 14.768%, 3.906% and12.847%)

Table 3: Distribution of the attitudes of the study participants towards seasonal flu vaccination

Items		Attitudes					% of agreement	One sample T-test (test value=2.5)	
		Strongly agree	Agree	Don't know	Disagree	Strongly disagree		t	P-value
Influenza vaccination is important and should be taken yearly	N	118	95	55	18	14	79.00	22.569	0.000
	%	39.33	31.67	18.33	6.00	4.67			
Influenza vaccine prevent serious complication	N	65	88	80	32	35	67.73	12.183	0.000
	%	21.67	29.33	26.67	10.67	11.67			
Influenza vaccine has serious side effect and therefore should not be taken	N	8	10	50	140	92	40.13	-9.271	0.000
	%	2.67	3.33	16.67	46.67	30.67			
Chronic diseases should receive influenza vaccine	N	95	116	49	22	18	76.53	20.250	0.000
	%	31.67	38.67	16.33	7.33	6.00			
don’t need the flu vaccine because I have life immunity against flu	N	27	32	80	56	105	48.00	6.044	0.000
	%	9.00	10.67	26.67	18.67	35.00			
If there is an effective vaccine to prevent flu, I will take it	N	120	128	25	20	7	82.27	28.665	0.000
	%	40.00	42.67	8.33	6.67	2.33			

The results shown in table (3) represent the Attitudes towards seasonal flu patients. The results showed that there was a significant relation were P-value=0.000 in the responses of the vaccinated regarding all item (Influenza vaccination is important and should be taken yearly, Influenza vaccine prevent serious complication , Influenza vaccine has serious side effect and therefore should not be taken, Chronic diseases should receive influenza vaccine, don’t need the flu vaccine because I have life immunity against flu and If there is an effective vaccine to prevent flu, I will take it) the Attitudes to the influenza vaccine, increased in the agree answers were respectively (31.67, 29.33, 3.33, 38.67, 10.67and 42.67) while respectively T(22.569, 12.183, -9.271, 20.250, 6.044 and 28.665),

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Table 4 Distribution of the Knowledge and Attitudes about the influenza vaccination adult patients

	Data		Chi-square	
	N	%	X^2	P-value
Knowledge				
Weak	96	32	30.66	<0.001*
Average	141	47		
High	63	21		
Attitudes				
Negative	123	41	9.363	0.0022
Positive	177	59		

This table shows the significant relation were P=0.001 between Knowledge and seasonal influenza majority of participant (47.0%) have average of the knowledge towards seasonal influenza vaccination followed by (32.0%) of participant weak while X^2 30.66. Regarding attitudes shows the a significant relation were P=0.001 between attitudes and seasonal influenza majority of participant (59.0%) have Positive of the attitude towards seasonal influenza vaccination followed by (41.0%) of participant Negative while X^2 9.363

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

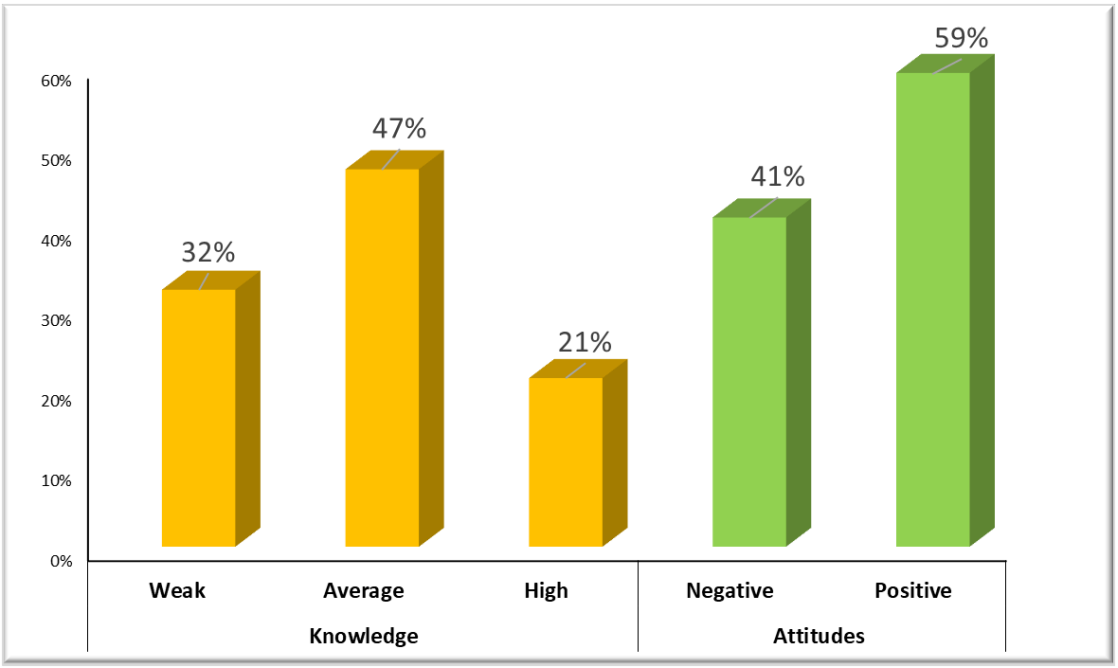

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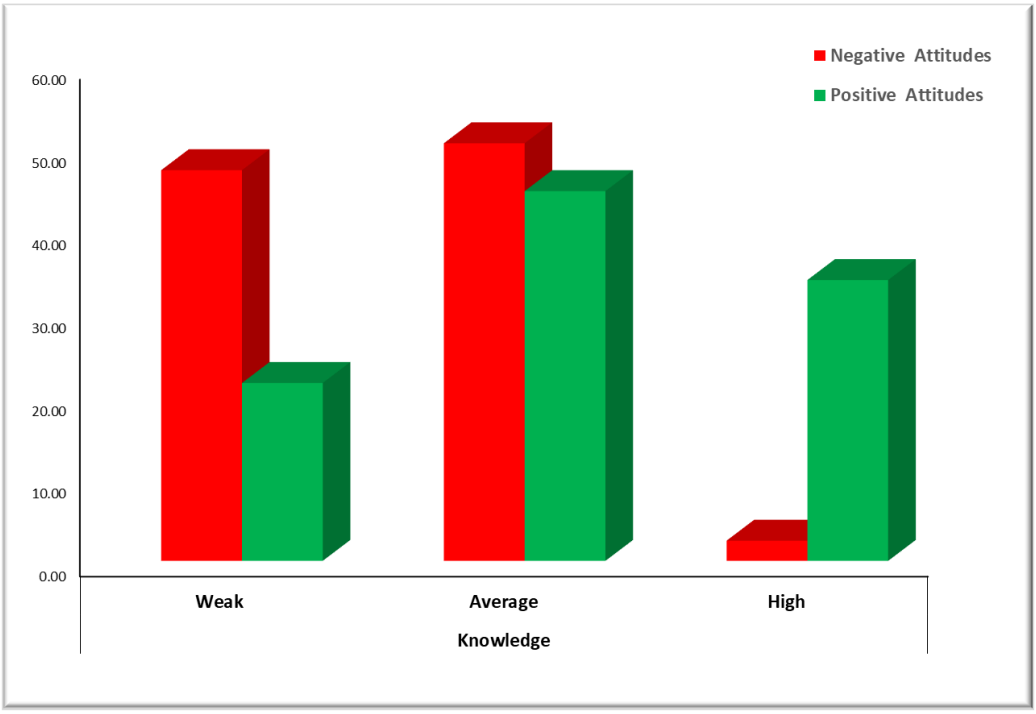
Table 5: Distribution of the relation of Knowledge and attitudes toward influenza vaccination adult patients

		Attitudes				Total	
		Negative (n=123)		Positive (n=177)			
		N	%	N	%	N	%
Knowledge	Weak	58	47.15	38	21.47	96	32%
	Average	62	50.41	79	44.63	141	47%
	High	3	2.44	60	33.90	63	21%
Total		123	100.00	177	100.00		
Chi-square	X^2	49.677					
	P-value	<0.001*					

This table shows the relation between of Knowledge and attitude toward seasonal influenza majority of participant have average in the knowledge Negative attitude towards seasonal influenza vaccination were (50.41%) while Positive attitudes of participant were (44.63%) , shows the significant relation between Knowledge and attitude were P=0.001 while X^2 349.677

Figure (3): Distribution of the relation of Knowledge and attitudes toward influenza vaccination adult patients



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Discussion

The present study aimed at to assess the knowledge and attitudes of patients attending in Primary Health Care about the seasonal influenza Immunization at Makkah Al-Mokarramah 2021.Our study included 200 participants with show the remaining socio-demographic characteristics of the patients. Their age ranged between <35 and >50 years most of participants between(>50) were (42.0%), majority of participants were(63.0%) were females. About (43.0%)were married. More than one-third of the participants were Postgraduate Approximately half of them (72.0%) were working, while(71.0%) influenza vaccination, which is far from what was found in another study conducted on participants with type 2 diabetes mellitus in the region where 61% of participants were vaccinated [32]. The outcome of this research showed that a high majority of the participating patients were average 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 and complications 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 [33] 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 attitude about 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 educate. 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 .

Conclusion

We have concluded that there is a low influenza vaccine uptake rate among the study population, considering that the barriers most commonly chosen by participants are solvable with health education and campaigns oriented towards delivering facts about vaccine and dispelling misinformation; these are highly recommended and postulated to carry a great benefit and should target common misconceptions, with innovative solutions to gain quick access for vaccination to address issues with lack of time for some individuals, also the study concluded that Saudi patients attending to the PHC have not adequate level of knowledge and positive attitudes towards seasonal influenza Immunization, patients chronic diseases are at higher risk of symptoms and complications exacerbation.

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