Prevalence, Awareness and Perception of Influenza Vaccine among Geriatrics in Abha region, Saudi Arabia

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Abstract

Background: Flu is an acute respiratory infection, caused by three types of, influenza virus. Flu symptoms occasionally worsen, leading to the onset of pneumonia. Flu epidemics cause three to five million cases of severe illness, while up to 500,000 persons die as a result. Surveys of older adults' knowledge relative to flu immunization have highlighted its relevance in the improvement of vaccination coverage. Many studies indicated that knowledge has a significant influence on attitudes and practices of flu immunization.

Aim: to assess prevalence of immunization against seasonal flu and to explore the knowledge related to influenza virus and flu immunization among elderly population in Abha sector.

Methodology: A descriptive cross-sectional approach was used targeting all accessible elderly population in Aseer region, Southern Saudi Arabia. Data were collected from participants using an electronic pre-structured questionnaire. The tool covered participants' socio-demographic data, Elderly medical and family history, and awareness and practice regarding seasonal influenza and vaccine.

Results: A total of 386 elderly aged 60-89 years old with mean age of 72.3 ± 5.8 years completed the study questionnaire. Males were 212 (54.9%). Exactly 82.3% of the elderly know about seasonal flu, 71.5% know that flu can spread from one person to another, and 60.4% reported that flu is the same as the common cold. Totally, 56.2% of the elderly had good awareness regarding seasonal influenza. About 91% of the participants had heard about it, 73.8% reported that it is safe, 60.9% know that influenza vaccine can prevent serious complications for elderly, and 50.8% know that influenza vaccine promotes immunity against the virus.

Conclusions: In conclusion, the study revealed that one third of the elderly received the seasonal influenza vaccine regularly during the last years and nearly two thirds of them received it last year. Higher coverage rate was higher among highly educated male elderly with sufficient income and at rural residences and those who were asthmatic and previously hospitalized due to flu.

Key words: Seasonal influenza, vaccine, flu, awareness, vaccination coverage, perception, elderly, barriers.

Introduction

Influenza which is also called "the flu", is a viral disease caused by an influenza virus (1). Symptoms range from mild to severe (2). Influenza mainly presents with high fever, runny nose, sore throat, muscle and joint pain, headache, coughing, and feeling tired (3, 4). The patient complaint symptoms mostly begin two days after exposure to the virus and most last less than a week (5). The cough, however, may last for more than two weeks (3). Complications of influenza may include viral pneumonia, secondary bacterial pneumonia, sinus infections, and worsening of previous health problems such as asthma or heart failure (6). Influenza (flu) can be serious for everyone but for those who are aged 65 years and older, the risk of flu-associated complications and morbidity is high (7). Immune systems decline with increased age. Older persons are at higher risk of severe flu and flu related complications including pneumonia and hospitalization (8). Also, flu increases the risk of heart attack by 3-5 times and stroke by 2-3 times in the first 2 weeks of infection for those 65 or above. The risk remains elevated for several months (9, 10). Mortality from flu and related complication also is higher by about 6 times if at the age of 65 years or older. Getting your flu vaccine lowers your risk of heart attack and stroke (11).

Annual influenza vaccination is recommended to minimize flu and flu-related complications. Certain vaccines are available to help boost immune response specifically in adults age 65 years and older (12). Research that has covered older adults' knowledge regarding flu immunization have proved its significance in the improvement of vaccination coverage (13, 14). Moreover, even though past flu vaccinations tend to be predictive of future vaccination, vaccine acceptance among older persons may vary across seasons (15). The current study aims to assess prevalence of immunization against seasonal flu and to explore the knowledge related to influenza virus and flu immunization among the elderly population in Abha sector.

Methodology

A descriptive cross-sectional approach was used targeting all accessible elderly population in Aseer region, Southern Saudi Arabia. All those with ages of 50 years or more living in Aseer region were invited to participate in the survey. A total of 480 individuals received the study survey. Exactly 386 respondents completed the study questionnaire with a response rate of 80.1%. After obtaining permission from Institutional ethics committee, data collection started. Data were collected from participants using electronic pre-structured questionnaire. The questionnaire was uploaded online using social media platforms by the researchers and their relatives during the period from 15th December 2020 till 30th of January 2021. All accessible and eligible elderly population in the study setting were invited to fill in the attached tool. The researchers constructed the survey tool after intensive literature review and expert's consultation. Tool was reviewed using a panel of 5 experts for content validity. Tool reliability was assessed using a pilot study of 30 participants with reliability coefficient (α-Cronbach's) of 0.78. The tool covered the following data: participants' socio-demographic data like age, gender, residence, education, income, and living condition. Participants' medical history and hospitalization was the second section of the questionnaire. Participants practice regarding receiving the seasonal influenza vaccine, causes of receiving and non-receiving the vaccine were included. Awareness regarding seasonal influenza, symptoms, and vaccine was assessed using 28 questions for the three domains.

Data analysis

After data were extracted, it was revised, coded, and fed to statistical software IBM SPSS version 22(SPSS, Inc. Chicago, IL). All statistical analysis was done using two tailed tests. P value less than 0.05 was statistically significant. For awareness items, each correct answer was scored one point and total summation of the discrete scores of the different items at each of the three domains (seasonal influenzas, symptoms, and vaccine) besides the overall score were calculated. A patient with score less than 60% of the total domain score and overall score was considered to have poor awareness while good awareness was considered if they had a score of 60% of the total score or more. Descriptive analysis based on frequency and percent distribution was done for all variables including demographic data, awareness items and elderly practice. Cross-tabluation was used to assess distribution of awareness and practice regarding seasonal influenza vaccine according to elderly bio-demographic and medical data. Relations were tested using Pearson chi-square test.

Results

A total of 386 elderly aged 60-89 years old with mean age of 72.3 ± 5.8 years completed the study questionnaire. Males were 212 (54.9%) and 240 (62.2%) were married. As for education, 289 (74.9%) had below secondary level of education while 2.8% were university graduated. Exactly 243 (63%) were from urban areas and 220 (57%) live with spouse (Table 1).

As for elderly medical history (Figure 1), DM was reported among 78% of the participants, followed by HTN (71%), cardiac disease (23%), and asthma (17%) while 19% had previously been admitted to hospital due to flu.

Table 2 shows awareness regarding seasonal flu and vaccine among the elderly. Exactly 82.3% of the elderly know about seasonal flu, 71.5% know that flu can spread from one person to other, and 60.4% reported that flu is the same as the common cold. Totally, 56.2% of the elderly had good awareness regarding seasonal influenza. As for flu symptoms awareness, runny nose was reported by 96.4% of the participants followed by cough (95.3%), sneezing and headache (92.7% for each), and fever (84.2%). Totally, 72.5% of the participants had good awareness level regarding symptoms. Regarding seasonal influenza vaccine awareness, 90.9% of the participants had heard about it, 73.8% reported that it is safe, 60.9% know that influenza vaccine can prevent serious complications for

elderly, and 50.8% know that influenza vaccine promotes immunity against the virus. Totally, 43.3% of the elderly had good awareness regarding the vaccine. In total, 221 (57.3%) of the elderly had good awareness regarding seasonal influenza and its vaccine.

Table 3 illustrates elderly practice and intake of seasonal influenza vaccine. Exactly 136 (35.2%) of the respondent elderly received the influenza vaccine regularly for the last five years and 66.6% received the influenza vaccine this year. Among those who had the vaccine, doctor advice was the main motive among 152 (59.1%) and 12.5% was their own decision. As for those who did not have the vaccine, believing that it is not necessary because flu is just a minor illness was the main barrier (34.1%) followed by thinking that people who had the vaccine still eventually had the flu (28.7%), have alternative protection (15.5%), and other reasons such as being unavailable, expensive, not safe were reported by 13.2% of the participants.

Table 4 demonstrates distribution of elderly awareness and practice regarding seasonal influenza vaccine by their bio-demographic data. Good awareness was detected among 71.2% of male participants compared to 40.2% of females (P=.001). Also, 83.3% of single participants had good awareness in comparison to 35.9% of the divorced group (P=.001). Exactly 90.9% of university graduated elderly had good awareness compared to 46.7% of those with basic level of education (P=.001). Also, good awareness was detected among 70% of those who live with spouse compared to 41.4% of those who live alone. Also, 78.6% of diabetic elderly had good awareness, 60.9% of those with asthma, 60.4% of those who had allergic rhinitis, and 73% of those who were admitted to hospital due to flu (P<0.05 for all). Regarding elderly practice, 41.5% of male elderly received the vaccine regularly compared to 27.6% of females (P=.004). Also, 60.5% of secondary educated elderly received the vaccine regularly in comparison to 27% of those with basic education (P=.001). Exactly 44.4% of those with high income received the vaccine regularly compared to 24.5% of those with low income (P=.006). Exactly 46.9% of elderly in rural areas received the vaccine regularly compared to 28.4% of those in urban areas (P=.001). Taking the vaccine regularly was reported by 23.4% of asthmatic elderly, 24.1% of elderly with allergic rhinitis, and 44.6% of those who were admitted to hospital due to flu.

Table 1. Bio-demographic characteristics of elderly, Aseer region, Saudi Arabia

Bio-demographic data	No	%
Age in years		
60-69	127	32.9%
70-79	196	50.8%
80-90	63	16.3%
Gender		
Male	212	54.9%
Female	174	45.1%
Marital status		
Single	18	4.7%
Married	240	62.2%
Divorced / widow	128	33.2%
Education		
Below secondary	289	74.9%
Secondary	86	22.3%
University/ above	11	2.8%
Monthly income		
Insufficient	94	24.4%
Just sufficient	150	38.9%
More than sufficient	142	36.8%
Residence		
Urban	243	63.0%
Rural	143	37.0%
Living with		
Alone	29	7.5%
Other	68	17.6%
Sibling	69	17.9%
Spouse	220	57.0%

Figure 1. Medical history of respondent elders, Aseer region, Saudi Arabia

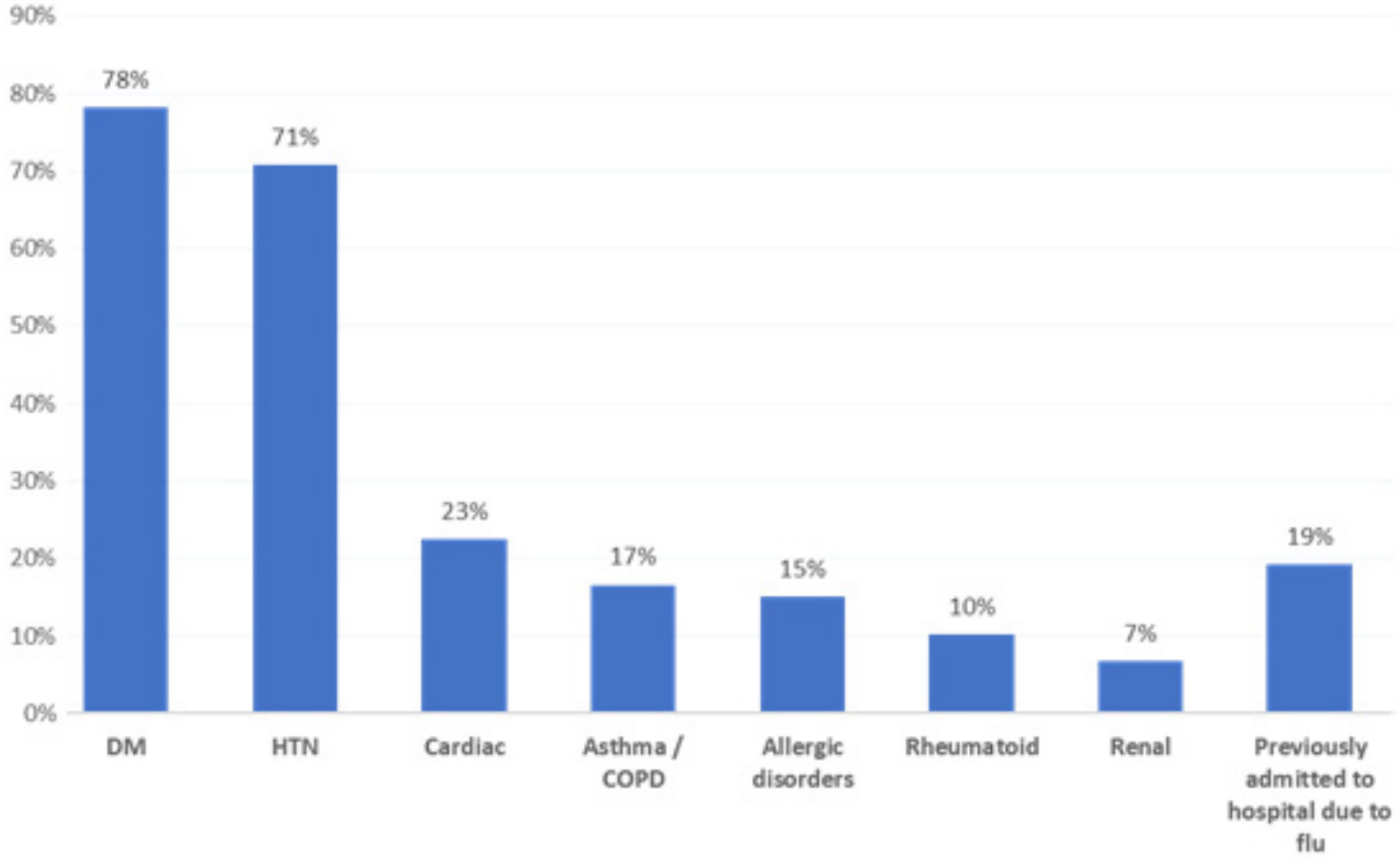

Table 2. Awareness regarding seasonal flu and vaccine among elderly, Aseer region, Saudi Arabia

Domain	Items	Yes		No		Don't know	
		No	%	No	%	No	%
Flue awareness	know about seasonal influenza	321	83.2%	42	10.9%	23	6.0%
	flu is caused by a virus	207	53.6%	40	10.4%	139	36.0%
	flu can spread from one person to another	276	71.5%	20	5.2%	90	23.3%
	flu has no vaccine	20	5.2%	247	64.0%	119	30.8%
	flu cannot be prevented	130	33.7%	85	22.0%	171	44.3%
	flu is the same as common cold	233	60.4%	64	16.6%	89	23.1%
	flu occurs at certain period of the year	222	57.5%	48	12.4%	116	30.1%
	flu symptoms are worse among disabled patients	211	54.7%	33	8.5%	142	36.8%
	flu can cause serious complications among elderly	231	59.8%	28	7.3%	127	32.9%
	Overall awareness level	Poor 169 (43.8%)			Good 217 (56.2%)		
Symptoms awareness	Runny nose	372	96.4%	2	.5%	12	3.1%
	Sneezing	358	92.7%	13	3.4%	15	3.9%
	Headache	358	92.7%	5	1.3%	23	6.0%
	Sore throat	337	87.3%	31	8.0%	18	4.7%
	Cough	368	95.3%	3	.8%	15	3.9%
	Vomiting	159	41.2%	105	27.2%	122	31.6%
	Fever	325	84.2%	18	4.7%	43	11.1%
	Muscle ache	245	63.5%	51	13.2%	90	23.3%
	Diarrhea	148	38.3%	113	29.3%	125	32.4%
	Abdominal pain	150	38.9%	111	28.8%	125	32.4%
	Overall awareness level	Poor 106 (27.5%)			Good 280 (72.5%)		
Vaccine awareness	Do you know about influenza vaccine	351	90.9%	14	3.6%	21	5.4%
	influenza vaccine is safe	285	73.8%	29	7.5%	72	18.7%
	influenza vaccine has side effects	89	23.1%	108	28.0%	189	49.0%
	influenza vaccine can prevent serious complications for elderly	235	60.9%	30	7.8%	121	31.3%
	influenza vaccine should be given in October each year	137	35.5%	28	7.3%	221	57.3%
	to have or not have the vaccine, no different	62	16.1%	142	36.8%	182	47.2%
	influenza vaccine promotes immunity against the virus	196	50.8%	29	7.5%	161	41.7%
	influenza vaccine should be given once and for ever	31	8.0%	179	46.4%	176	45.6%
	influenza vaccine does not work in some people	65	16.8%	51	13.2%	270	69.9%
	Overall awareness level	Poor 219 (56.7%)			Good 167 (43.3%)		
Overall flu and vaccine awareness level		Poor 165 (42.7%)			Good 221 (57.3%)		

Table 3. Elderly practice and intake of seasonal influenza vaccine, Aseer region, Saudi Arabia

Elderly intake of influenza vaccine	No	%
Received the influenza vaccine regularly for the last five years		
Yes	136	35.2%
No	250	64.8%
Received the influenza vaccine this year		
Yes	257	66.6%
No	129	33.4%
If yes who advised you to have the vaccine		
Doctor	152	59.1%
Friend \ family	36	14.0%
My self	32	12.5%
Social media	37	14.4%
If no, reasons for not having the vaccine		
I have alternative protection	20	15.5%
It has serious side effects	11	8.5%
It is not necessary because flu is just a minor illness	44	34.1%
People who had the vaccine still eventually had the flu	37	28.7%
Others	17	13.2%

Table 4. Distribution of elderly awareness and practice regarding seasonal influenza vaccine by their bio-demographic data

Factors		Good overall awareness level		P-value	Received the influenza vaccine regularly for the last five years		P-value
		No	%		No	%	
Age in years	60-69	73	57.5%		38	29.9%	
	70-79	118	60.2%	.213	69	35.2%	.091
	80-90	30	47.6%		29	46.0%	
Gender	Male	151	71.2%	.001*	88	41.5%	.004*
	Female	70	40.2%		48	27.6%	
Marital status	Single	15	83.3%		5	27.8%	
	Married	160	66.7%	.001*	98	40.8%	.013*
	Divorced / widow	46	35.9%		33	25.8%	
Education	Below secondary	135	46.7%		78	27.0%	
	Secondary	76	88.4%	.001*	52	60.5%	.001*
	University / above	10	90.9%		6	54.5%	
Monthly income	Insufficient	56	59.6%		23	24.5%	
	Just sufficient	79	52.7%	.344	50	33.3%	.006*
	More than sufficient	86	60.6%		63	44.4%	
Living with	Alone	12	41.4%		6	20.7%	
	Other	27	39.7%	.001*	18	26.5%	.016*
	Sibling	28	40.6%		20	29.0%	
	Spouse	154	70.0%		92	41.8%	
Residence	Urban	136	56.0%	.505	69	28.4%	.001*
	Rural	85	59.4%		67	46.9%	
DM	Yes	155	51.3%	.001*	100	33.1%	.098
	No	66	78.6%		36	42.9%	
HTN	Yes	157	57.5%	.875	104	38.1%	.067
	No	64	56.6%		32	28.3%	
Asthma / COPD	Yes	25	39.1%	.001*	15	23.4%	.031*
	No	196	60.9%		121	37.6%	
Allergic disorders	Yes	23	39.7%	.003*	14	24.1%	.055
	No	198	60.4%		122	37.2%	
Rheumatoid	Yes	22	56.4%	.911	9	23.1%	.094
	No	199	57.3%		127	36.6%	
Renal	Yes	15	57.7%	.963	13	50.0%	.103
	No	206	57.2%		123	34.2%	
Previously admitted to hospital due to flu	Yes	54	73.0%	.002*	33	44.6%	.049*
	No	167	53.5%		103	33.0%	

P: Pearson X2 test
* P < 0.05 (significant)

Discussion

The current study aimed to assess prevalence of immunization against seasonal flu and to explore the awareness and knowledge related to influenza virus and flu immunization among the elderly population in Abha sector. Also, to assess proportion of elderly annually vaccinated against seasonal influenza in Abha sector, and to list the main barriers against being vaccinated against seasonal influenza. Seasonal influenza results in substantial major global morbidity and mortality during winter months each year (16). In elderly with co-morbidities including asthma despite effective controllers, influenza infection can exacerbate asthma symptoms, which may result in asthma attacks requiring medical management and in many cases hospitalization.(17). Influenza infections precipitated about 80 % of asthma exacerbation (18). The World Health Organization (WHO) and national immunization programs recommend annual influenza vaccination in elderly patients as the main prophylactic measure against influenza (19). As influenza is highly infectious, the health effect of influenza active infection is not evenly dispersed. Many factors are modifying, including susceptibility to circulating virus, age, and associated co-morbidities. Among healthy adults, seasonal influenza usually does not progress to severe infection, but for the elderly, infection is a critical health concern. The incidence of influenza-associated mortality increases dramatically after 65 years of age (20-22). Elderly with high prevalence of co-morbidities had higher risk and severity of influenza in this age group. While infection is generally manageable among healthy adults under 50 years of age, influenza remains an essential cause of outpatient medical visits and lost productivity. In the elderly, complications are more reported, including inpatient hospitalizations (23).

The current study revealed that the majority of the respondents were males above 70 years old with low educational level. Also, diabetes and hypertension were the most reported co-morbidities among the elderly respondents.

As for elderly awareness regarding seasonal influenza and influenza vaccine, more than half of the respondents were knowledgeable regarding influenza, causes, method of transmission of influenza virus, and its effect on the elderly. Elderly also showed very high awareness level regarding seasonal influenza signs and symptoms (exceeding 70%). As for influenza vaccine awareness, less than half of the respondents had good awareness level. The highest awareness areas were for vaccine safety, efficacy in preventing serious complications, and importance to have the vaccine annually not just once and forever. In total, more than half of the elderly had a good awareness level (57%). Even though the high proportion of elderly, regardless of flu vaccination status, had a good level of seasonal influenza-related knowledge, certain disparities and fallacies were reported. For explanation, a high proportion of wrong / inappropriate answers in the current study were related to the side effects of the vaccine, misconception of having or not having the vaccine, no different, and lack of vaccine efficacy in all vaccinated persons.

These findings were consistent with what was reported by Gazibara T et al, (24) who found that about 62% of the sampled elderly showed good awareness regarding seasonal influenza and vaccination, whereas one third 29.8% demonstrated an excellent level of knowledge. In Saudi Arabia, Alotaibi FY et al, (25) estimated the level of awareness, sources of knowledge, and beliefs about the influenza vaccine in people ≥65 years. Authors found that unvaccinated individuals were significantly less likely to be aware of the Ministry of Health campaign against influenza, trust that influenza vaccine does not deteriorate the immune system, know that elderly people and people with chronic health problems should be regularly vaccinated against influenza. Also, they found that participants believe that the influenza vaccine was the best preventive measure for catching infection. Approximately 40% of the participants considered the influenza vaccine to be very effective and safe.

Regarding vaccination rate, the current study revealed that one third of the elderly received the seasonal influenza vaccine regularly and two thirds received the vaccine this year. This higher rate of receiving the vaccine this year is mostly attributed to the covid-19 pandemic where elderly as a high-risk group needed to avoid co-infection between seasonal influenza and covid. That coverage rate was lower than that reported by Gazibara T et al, (24) where 47.7% of included elderly were vaccinated regularly with the seasonal influenza vaccine and lower than 75% targeted by the World Health Organization (26). Also, higher coverage rates were reported in many studies in different countries including in Taiwan (43.7%,) (27) and in Spain (58.6%) (28). According to reports of Mereckiene et al, (29) the highest flu vaccination coverage in the European Union was observed in the Netherlands (82.1%) and in the UK (75%), reaching the proposed coverage threshold of 75% (30). In Saudi Arabia, Alotaibi FY et al, (25) reported that 47.8% of the elderly participants had been vaccinated against influenza which is higher than the current study estimated rate. On the other hand, the level of vaccine coverage was considerably similar (36.7%) in Riyadh City than elsewhere in the region (31). Also, influenza vaccine coverage research in Saudi Arabia conducted in 2017 found that 44.5% of the participants had been vaccinated (32). Other articles covering influenza vaccine coverage in the Middle East showed vaccination coverage rate of 27.5% (33) and Arabian Gulf countries (17%) had been vaccinated (34).

Conclusions and Recommendations

In conclusion, the study revealed that one third of the elderly received the seasonal influenza vaccine regularly during the last years and nearly two thirds of them received it last year. Higher coverage rate was higher among highly educated male elderly with sufficient income and at rural residences and those who were asthmatic and previously hospitalized due to flu. Nearly half of the elderly were knowledgeable regarding seasonal influenza and vaccine, especially vaccine safety and efficacy. These findings may help policy makers and health care planners to address gaps in healthcare. These results highlight the necessity for periodic health education and campaigns to improve the level of awareness of influenza vaccination.

Introduction

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