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Vaccine Hesitancy: A Multifaceted Examination Of Factors Influencing Decision-Making Among Adult Jeddah Residents, Saudi Arabia

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Abstract

Background: Vaccine hesitancy is often considered a significant barrier to achieve optimal rates of vaccination**.** Attitudes as well as cultural values and norms can impact the perceived health information, resulting in different levels of acceptance or reluctance towards vaccines.

Objectives: Exploring the multifaceted factors affecting decision-making regarding vaccines among adult population.
Subjects and methods: An online population-based cross-sectional study was conducted among adult Saudi population aged over 18 years currently living in Jeddah city, Saudi Arabia. An electronic Arabic/English questionnaire was utilized for collecting data.
Results: The study included 389 adults. More than half (54.2%) were males and 42.7% aged between 35 and 44 years. Awareness of the importance of the seasonal influenza vaccine was reported by majority (81.7%) of the participants The most frequently reported source of information was healthcare providers other than family physicians (41.7%), followed by compaings of Ministry of Health (39.3%). Overall, almost two-thirds of the participants (69.2%) expressed positive attitude towards seasonal influenza vaccine.Participants working in healthcare were more likely than othrs to express positive attitude towards seasonal influenza vaccine (78.8% vs. 56.3%), p<0.001. Participants with highest monthly income (>20,000 Saudi Riyals "SR"/month) were more likely to express postitive attitude towards seasonal influenza vaccine than thos with an incme of <5000 SR/month (84.2% vs. 46.2%), p<0.001. The most fequentlyreported motivators to have the vaccine were preventing diseases and reducing complications of seasonal influenza (74.8%) and protection during Umrah and Hajj (53%). Fear of side effects of the vaccine (70.7%), and perception of low risk of influenza (47.6%) were the most frequently barriers to have the vaccine.
Conclusion: Favourable attitude towards seasonal influenza vaccine has been observed among general adult population; particulalrly among people working in healthcare field and those with high income. Some important reasons for vaccine

hesitancy were identidies. Thus, Health outhorities should pay more attention to encourage prople to have the vaccine

Keywords: Vaccine hesitancy, Seasonal influenza vaccine, Motivators, Barriers, General population.

Introduction

On global level, vaccine hesitancy is often considered a significant barrier to achieve optimal rates of vaccination, and this issue became more observed during public health disasters, like what happened with COVID-19 pandemic.[1] Vaccine hesitancy is defined as the refusal or reluctance to accept vaccinations despite their availability.[2] It can result in outbreak of diseases and disturbed herd immunity and both together can affect adversely the community and healthcare system.[3]

Attitudes toward vaccines within the community is generally affected by many factors including sociocultural background of the individuals, mistrust in healthcare systems, misinformation, and personal beliefs.[4] Additionally, cultural values and norms can impact the perceived health information, resulting in different levels of acceptance or reluctance towards vaccines.[5] Some individuals may prefer alternative medicine practices over other practices including vaccinations.[6] Moreover, misinformation can create fear and confusion that complicate the precess of decision-making regarding vaccination.[7]

Furthermore, widespread mistrust in healthcare systems, historical injustices, perceived inequities in achieving appropriate healthcare, and previous negative experiences, can prevent persons from seeking vaccinations.[8]

Recognizing the specific barriers for vaccination faced by different sociodemographic groups of the general public can lead to more favourable communication strategies that interact with the values and beliefs of the community.[9]

In Jeddah, a culturally diverse and densely populated city in Saudi Arabia, understanding the determinants of vaccine hesitancy is particularly critical. This city, known for its rich tapestry of cultures, languages, and beliefs, presents a unique context where various factors converge to influence health behaviors, making it a microcosm of the broader challenges faced globally in efforts to promote vaccination. The aim of this work was exploring the multifaceted factors affecting decision-making regarding vaccines among residents of Jeddah, highlighting the importance of interdisciplinary research that incorporates insights from sociology, psychology, anthropological studies, and public health.

Subjects and methods

An online population-based cross-sectional study was conducted among adult Saudi population aged over 18 years currently living in Jeddah city, which is the second largest city located in the Western Region of Saudi Arabia on the Red sea coast. It has a population of 3,751,722 persons, according to 2022 estimated census.[10] Adults not currently living in Jeddah Saudi Arabia, aged below 18 years and those with no an internet access wre excluded.

The minimum required sample size was estimated using the following sample size equation:

$$n = p(1-p)\left(\frac{Z}{E}\right)^2$$

Where:-

Z is the value from the standard normal distribution reflecting the confidence level that was used (eZ = 1.96 for 95%)

E is the desired margin of error (0.05).

P is the proportion of influenza vaccine hesitancy in the population. (p=0.377 i.e.37.7% was used) according to a recent Saudi study.[11]

Accordingly, the estimated sample size was 361 adults. The non-responses or incomplete response rate was considered as10%, so the total sample size was increased to ~400 adults.

A convenience non-probability sample was chosen from the eligible population till the required sample size has been achieved. The developed questionnaire was distributed through Google forms on different social media tools such as WhatsApp, Twitter and Instgram.

An electronic Arabic/English questionnaire was utilized for collecting data. It has been adopted from two studies previously conducted in Saudi Arabia.[11, 12] Permission to use the questionnaire was requested from the corresponding authors. The questionnaire included four main sections: Socio-demographic, habitual and medical characteristics of the participants: Age, gender, marital status, number of children, nationality, educatinal level, employment status, monthly income, duratin of being a resident of Jeddah, weight in Kg, height in cm, smoking history, working in healthcare, history of chronic diseases, and history of practicing regular exercise, awareness about the importance of seasonal influenza vaccine and source of information about that, attitude towards seasonal influenza vaccine, which was assessed through 14 statements with 5-likert scale and finally motivators and barriers of uptaking seasonal influenza vaccine, which were assessed through two questions with multiplee responses (Not mutually exclusive).

Responses of the participants to attitude towards flu vaccination statements were scored in the way that the higher the score, the likely positive the attitude. Total score was estimated and its percentage was determined and then categorized into two categories; <60% for negative attitude, and ≥60% for positive attitude.[13]

Data entry and analysis were done by using the Statistical Package for the Social Sciences software, version 28 (SPSS. version 28.0.1.1, IBM, Armonk, NY). Date was described using frequency and percentages since all variables were categorical. Chi-square test was used to test for the association between categorical variables. P-value of less than 0.05 was considered as a level for significance throughout the study.

Before conduction of the study, approval of the local Research and Ethics Committee at the Directorate of Health Affairs in Jeddah City was obtainred (A02235; dated 25/6/2025). In addition online informed consent was a prerequisite for data collection.

Results

-Sociodemgraphic and medical chracteristics

The study included 389 adults. Their socio-demographic and medical characteristics are summarized in Table 1. Majority of them (89.7%) live for more than 10 years in Jeddah city. More than half (54.2%) were males and 42.7% aged 35-44 years. Overweight and obesity were reported among 38.8% and 28.4% of the participants, respectively. Majority of the participants (95.6%) were Saudi. Most of them were married (75.3%) and off them (76.9%) had children. More than half of them (56%) were university graduated while 34.2% were postgraduates. Majority of the participants (81.5%) were full-time employees. More than half of the participants (57.1%) were healthcare workers and 30.9% of them had an incom of over 20000 Saudi Riyals/month. Prevalence of smoking was 37% whereas that of practicing regular physical exercise was 28.8%. Chronic health problems were reported among 37% of the participants.

-Awareness

History of awareness of the importance of the seasonal influenza vaccine was reported by majority (81.7%) of the participants as seen in Figure 1. Among them, the most frequently reported source of information was healthcare providers other than family physicians (41.7%), followed by compaings of Ministry of Health (39.3%), social media (31.1%) and family physicians (21.3%). Figure 2

-Attitude towards seasonal influenza vaccine

Access to flu vaccination services was easy according to most of the participants (85.4%). More than half (56.9%) of the participants were more likely to recommend the flu vaccine to others. Slightly more than half (52.1%) of the participants were mostly or completely trust the information provided by healthcare providers about the flu vaccine. Majority of the participants (81.8%) reported moderat to complete control they feel having over getting the flu vaccine. Slightly less than half of the participants (48.1%) disagreed with the statement that the flu vaccine is inconvenient to get. Most of the participants (61.9%) perceived contracting the flu as a not or slightly serious event while more than half of the participants (59.7%) were not or slightly concerned about the potential side effects of the flu vaccine and 54.2% of them described their overall attitude toward the flu vaccine as a positive one. Table 2

Overall, almost two-thirds of the participants (69.2%) expressed positive attitude towards seasonal influenza vaccine as illustrated in Figure 3.

Participants working in healthcare were more likely than others to express positive attitude towards seasonal influenza vaccine (78.8% vs. 56.3%), $p<0.001$. Participants with highest monthly income (>20,000 Saudi Riyals "SR"/month) were more likely to express postitive attitude towards seasonal influenza vaccine than those with an income of <5000 SR/month (84.2% vs. 46.2%), $p<0.001$. Table 3

As displayed in Figure 4, the most frequentlyreported motivators to have the seasonal influenza vaccine were preventing diseases and reducing complications of seasonal influenza (74.8%), protection during Umrah and Hajj (53%), work requirements (40.1%), social responsibility and herd immunity (29.8%) and positive past experience with the vaccine (28.8%). Figure 4

Figure 5 show that fear of side effects of the vaccine (70.7%), perception of low risk of influenza (47.6%), misinformation or myths (39.6%), past negative experience with the vaccine (35.5%), and distrust in healthcare system or pharmaceuticals (27.2%) were the most frequently barriers to have the vaccine.

Discussion

Despite existence of few studies that has been conducted to investigate seasonal influenza vaccine hesitancy among general adult population on both local and international levels;[14, 15] in addition to absence of specific World health organization`s advice for uptaking of this vaccine by general adult population,[16] the importance of equity in seasonal influenza vaccination programs has been documnted.[17-19] Thus, understanding reasons of hesutancy concerning the uptake the seasonal influenza vaccine among general adult popuation in our region could be of significance for health authorities for promoting uptake of the vaccine.

Healthcare providers and compaings of Ministry of Health were the main source of information about the significance of seasonal influenza vaccine in the present study. The same has been reported in a similar recent study conductd in Riyadh, Saudi Arabia (2024).[20] While in Taif (Saudi Arabia; 2017), scial media and family members were the main sources of information about seasonal influenza vaccine.[21] This highlights th role played by healthcare providers in this regard in Saudi Arabia particulalrly after COVID-19 disaster.

Overall attitude of the participants towards seasonal influenza vaccine in this study was encouraging as almost two thirds of them expressed positive attitude. This is presented in finding that a considerable proportion of them described access to the vaccination services as an easy task, will recommend the vaccine to others, not or slightly concerned about the potential side effects of the seasonal influenza vaccine and being mostly or completely trust the information provided by healthcare providers about the vaccine. Additionally, less than half of them disagreed with the statement that the vaccine is inconvenient to get. However, most of the participants perceived contracting the flu as a not or slightly serious event. In a recent Saudi study (2024), almost half of general adult population had neutral attitude towards seasonal influenza vaccination while only 34.1% had positive attitude and 16.9% expressed negative attitude towards the vaccine.[20] Another previous Saudi study reported that having positive attitude was a significant determinant for uptaking the vaccine.[11]

Although patients with history of chronic illness need more attention from healthcare providers in Saudi Arabia to encourage them to uptake the seasonal influenza vaccine, their attitude towards the vaccine was similar to those without chronic health problems despite the fact that 44% of them have got the seasonal influenza in 2017[21] and over 90% of them reported irregular uptake of seasonal influenza vaccine in another study.[11] Therefore, more attention has to be paid to this category of people.

As quite expected, participants working in healthcare field were more likely than others to express positive attitude towards seasonal influenza vaccine in the present study and this could be attributed to their more knowledge about the vaccine. Also, participants with higher income were more likely to express postitive attitude towards seasonal influenza vaccine than those with lower income. Similarly, this can be explained by their more awarness of the vaccine benefits.

As regards motivating factors for uptaking of seasonal influenza vaccine, the commonly reported were preventing diseases and reducing complications of seasonal influenza, protection during Umrah and Hajj, work requirements, social responsibility and herd immunity as well as positive past experience with the vaccine. In another recent Saudi study conducted among general ppulation in Riyadh, th same factors were observed.[20] Welch et al (2023) found that trust in healthcare services was the main motivator for vaccine uptake.[9] Quinn et al (2019) reported that higher vaccine hesitancy was the main barrier while greater confidence and trust in healthcare system was the main motivator for uptake of the vaccine.[22]

In the current population-based online survey, the commonest reported barriers of not uptaking the seasonal influenza were fear of side effects, perception of low risk of influenza, misinformation or myths, past negative experience with the vaccine, and distrust in healthcare system or pharmaceuticals. In Riyadh; Saudi Arabia (2024), the most frequently reported reasons for not uptaking the seasonal influenza vaccine were fear of side effects, misinformation or myths, past negative experience with the vaccine, perceived natural immunity and lack of knowledge about the vaccine.[20] Other previou Saudi studies reported that unawareness about the vaccine, prefering of natural immunity, and safety concern in pregnancy were the common barriers to uptake the sasonal influenza vaccine.[10, 23, 24] A recent rapid review (2023) documented that not trusting healthcare services was the main barrier to vaccine uptake while the most frequently reported motivator to uptake the vaccine was trust in healthcare services.[9] Schmid et al (2017) reported that lack of confidence regarding health authoritie and inconvenience were the main reported barries for uptaking of seasonal influenza vaccine uptake.[14] In United States (2021), the main obstacles for uptaking the seasonal influenza vaccine were perceived ineffectiveness, fear of side effects of the vaccin, and absence of medical insurance.[25] Also, in United Kingdom (2021), the most frequently reported barriers for seasonal influenza vaccine uptake were high concern regarding vaccination risk, and preference for natural immunity.[26] Kumar et al published a systematic rview in (2022) and documented that lack of trust in efficacy, concerns over safety of the vaccine as well as cultural concerns wer the main barriers for uptaking the vaccine.[27]

Study strenghs and limitations

This a population-based study that culd have a public health significance for healthcare authorities in Saudi Arabia to recognize reasons hor heitancy concerning the uptakeof seasonal influenza vaccine and find olutions to increase the uptake rate of the vaccine. However, the study also had some important limitations that should be mentioned. Possibility of bias could be high as a result of using self-administered tool. Selection bias also could be high due to using an online approach in data collection. Ability to generalize the findings of the study over other areas in Saudi Arabia could be a limitation as the study focused only on people living in Jeddah city. Finally, we did not estimate the rate of vaccine uptake to correlate it with participants` attitude and causes of hesitancy.

CONCLUSIN AND RECOMMENDATIONS

Favourable attitude towards seasonal influenza vaccine has been observed among general adult population in Jeddah, Saudi Arabia; particulalrly among people working in healthcare field and those with high income.

The most frequently reported motivators to have the seasonal influenza vaccine were preventing diseases and reducing complications of seasonal influenza, protection during Umrah and Hajj, work requirements, social responsibility and herd immunity as well as positive past experience with the vaccine while fear of side effects of the vaccine, perception of low risk of influenza, misinformation or myths, past negative experience with the vaccine, and distrust in healthcare system or pharmaceuticals were the most frequently barriers to have the vaccine.

Based on the study findings, the following are recmmended

1. Health outhorities and healthcare providers should pay more attention to encourage prople, particulalry elderly peple and those with chronic health problem to have the vaccine.
2. Mass media and social media platforms sould play an active role in educating and enguarging people and correct their misconcepts and myths about the seasonal influenza vaccine.
3. Mass vaccination should be mandatory at social gathering and workplaces in order to achieve a population-based herd immunity
4. Further, nationwide multicenteric study with adequate large sample size is warranted to understand more accurately the rate and reasons of seasonal influenza vaccine uptake hesitency.

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Table 1: Sociodemgraphic and medical chracteristics of the participants (n=389)

Variables	Frequency	Percentage
Duration of living in Jeddah city (Years)		
≤10	40	10.3
>10	349	89.7
Gender		
Male	211	54.2
Female	178	45.8
Age (Years)		
18-34	86	22.1
35-44	166	42.7
45-54	117	30.1
≥55	20	5.1
Body mass index (n=384)		
Underweight	9	2.3
Normal	117	30.5
Overweight	149	38.8
Obese	109	28.4
Natinality		

Saudi	372	95.6
Non-Saudi	17	4.4
Marital status		
Single	57	14.7
Married	293	75.3
Divorced	34	8.7
Widowed	5	1.3
Having children		
No	90	23.1
Yes	299	76.9
Highest level of education		
Below secondary chool	3	0.8
Secondary school	35	9.0
Univerity degree	218	56.0
Postgraduate degree	133	34.2
Employment status		
Unemployed	26	6.7
Employed full-time	317	81.5
Employed part-time	8	2.1
Student	4	1.0
Retired	32	8.2
Free business	2	0.5
Working in helthcare		
No	167	42.9
Yes	222	57.1
Monthly income (Saudi Riyals)		
Less than 5,000	26	6.7
5,000 - 10,000	69	17.7
10,001 - 15,000	81	20.8
15,001 - 20,000	93	23.9
More than 20,000	120	30.9
Smoking history		
No	209	53.7
Yes	144	37.0
Ex-smoker	36	9.3
Practicing regular exercise		
No	277	71.2
Yes	112	28.8
History of chronic health problems		
No	259	71.7
Yes	102	28.3

Table 2: Attitude of the participants towards seasonal influenza (flu) vaccine

Statements and questions	Frequency	Percent
The flu vaccine is inconvenient to get		
Strongly disagree	108	27.8
Disagree	79	20.3
Neutral	95	24.4
Agree	74	19.0
Strongly Agree	33	8.5
How likely do you think you are to contact the flu this year?		
Very unlikely	10	2.6
Unlikely	29	7.5
Neutral	70	18.0
Likely	209	53.6
Very likely	71	18.3
How serious do you believe contracting the flu would be for your health?		
Not serious at all	97	24.9
Slightly serious	144	37.0
Moderately serious	108	27.8
Very serious	29	7.5
Extremely serious	11	2.8
How much control do you feel you have over getting the flu vaccine?		
No control at all		
Slight control	20	5.1
Moderate control	51	13.1
Quite a bit of control	69	17.7
Complete control	80	20.6
	169	43.5
How easy or difficult do you find it to access flu vaccination services?		
Very difficult		
Somewhat difficult	2	0.5
Neutral	11	2.8
Somewhat easy	44	11.3
Very easy	94	24.2
	238	61.2
How positive or negative is your overall attitude toward the flu vaccine?		
Very negative	24	6.2
Somewhat negative	40	10.3
Neutral	114	29.3
Somewhat positive	87	22.4
Very positive	124	31.8
How likely are you to recommend the flu vaccine to others?		
Very unlikely	27	6.9
Unlikely	57	14.7
Neutral	84	21.6
Likely	97	24.9
Very likely	124	31.9
To what extent do you feel that people important to you think you should get the flu vaccine?		

Strongly disagree	22	5.7
Disagree	44	11.3
Neutral	138	35.5
Agree	109	28.0
Strongly Agree	76	19.5
How much pressure do you feel from your social circles to get the flu vaccine?		
No pressure at all	220	56.5
Slight pressure	61	15.7
Moderate pressure	68	17.5
Significant pressure	26	6.7
Extreme pressure	14	3.6
How concerned are you about the potential side effects of the flu vaccine?		
Not concerned at all	122	31.4
Slightly concerned	110	28.3
Moderately concerned	83	21.3
Very concerned	43	11.1
Extremely concerned	31	8.0
How much do you trust the information provided by healthcare providers about the flu vaccine?		
Do not trust at all	22	5.7
Slightly trust	61	15.7
Moderately trust	103	26.5
Mostly trust	99	25.4
Completely trust	104	26.7
How often do you encounter misinformation about the flu vaccine?		
Never		
Rarely	88	22.6
Sometimes	109	28.0
Often	134	34.5
Always	44	11.3
	14	3.6

Table 3: Factors associated with attitude of the general population in Riyadh towards seasonal influenza vaccine

	Attitude towards seasonal influenza vaccine			p-value*
	Negative N=61 N (%)	Neutral N=177 N (%)	Positive N=123 N (%)	
Age (Years)				
18-24 (n=40)	3 (7.5)	27 (67.5)	10 (25.0)	
25-34 (n=130)	26 (20.0)	71 (54.6)	33 (25.4)	
35-44 (n=64)	14 (21.9)	40 (62.5)	10 (15.6)	
45-54 (n=56)	12 (21.4)	26 (46.4)	18 (32.1)	
55-64 (n=36)	3 (8.3)	11 (30.6)	22 (61.1)	
≥65 (n=35)	3 (8.6)	2 (5.7)	30 (86.7)	<0.001
Gender				
Male (n=198)	26 (13.1)	90 (45.5)	82 (41.4)	

Female (n=163)	35 (21.5)	87 (53.4)	41 (25.2)	0.003
Marital status				
Single (n=98)	16 (16.3)	61 (62.2)	21 (21.4)	
Married (n=241)	39 (16.2)	107 (44.4)	95 (39.4)	
Divorced (n=15)	5 (33.3)	6 (40.0)	4 (26.7)	
Widowed (n=7)	1 (14.2)	3 (42.9)	3 (42.9)	0.026
Having children (n=263)				
No (n=44)	8 (18.2)	25 (56.8)	11 (25.0)	
Yes (n=219)	37 (16.9)	91 (41.6)	91 (41.6)	0.102
Natinality				
Saudi (n=352)	61 (17.3)	172 (48.9)	119 (33.8)	
Non-Saudi (n=9)	0 (0.0)	5 (55.6)	4 (44.4)	0.381
Highest level of education				
No formal education (n=13)	0 (0.0)	3 (23.1)	10 (76.9)	
Primary–intermediate school (n=12)	5 (41.7)	3 (25.0)	4 (33.3)	
Secondary school (n=89)	15 (16.9)	43 (48.3)	31 (34.8)	
Bachelor's degree (n=178)	31 (17.4)	99 (55.6)	48 (27.0)	
Postgraduate degree (n=69)	10 (14.5)	29 (42.0)	30 (43.5)	0.003
Employment status				
Unemployed (n=83)	18 (21.7)	43 (51.8)	22 (26.5)	
Employed full-time (n=187)	37 (19.8)	94 (50.3)	56 (29.9)	
Employed part-time (n==11)	1 (9.0)	5 (45.5)	5 (45.5)	
Student (n=35)	3 (9.6)	25 (71.4)	7 (20.0)	
Retired (n=45)	2 (4.4)	10 (22.2)	33 (73.4)	<0.001
Working in helthcare				
No (n=266)	45 (16.9)	130 (48.9)	91 (34.2)	
Yes (n=95)	16 (16.8)	47 (49.5)	32 (33.7)	0.994
Monthly income (Saudi Riyals)				
Less than 5,000 (n=96)	19 (19.8)	57 (59.4)	20 (20.8)	
5,000 - 10,000 (n=61)	14 (23.0)	27 (44.3)	20 (32.8)	
10,001 - 15,000 (n=60)	14 (23.3)	34 (56.7)	12 (20.0)	
15,001 - 20,000 (n=61)	11 (18.0)	28 (45.9)	22 (36.1)	
More than 20,000 (n=83)	3 (3.6)	31 (37.3)	49 (59.0)	<0.001
Duration of living in Riyadh city (Years)				
Less than 1 (n=24)				
1-3 (n=13)	6 (25.0)	15 (62.5)	3 (12.5)	
4-6 (n=15)	3 (23.1)	6 (46.2)	4 (30.8)	
7-10 (n=22)	0 (0.0)	8 (53.3)	7 (46.7)	
More than 10 (n=287)	2 (9.1)	10 (45.5)	10 (45.5)	
	50 (17.4)	138 (48.1)	99 (34.5)	0.229
Body mass index				
Underweight (n=8)	1 (12.5)	5 (62.5)	2 (25.0)	
Normal (n=93)	12 (12.9)	59 (63.4)	22 (23.7)	
Overweight (n=128)	30 (23.4)	49 (38.3)	49 (38.3)	
Obese (n=132)	18 (13.6)	64 (48.5)	50 (37.9)	0.011
Practicing regular exercise				
No (n=221)	45 (20.4)	119 (53.8)	57 (25.8)	
Yes (n=140)	16 (11.4)	58 (41.4)	66 (47.1)	<0.001
History of chrnic health problems				
No (n=259)	50 (19.3)	149 (57.5)	60 (23.2)	

Yes (n=102)	11 (10.8)	28 (27.5)	63 (61.8)	<0.001
Smoking history				
No (n=262)	45 (17.2)	135 (51.5)	82 (31.3)	
Yes (n=73)	10 (13.7)	34 (46.6)	29 (39.7)	
Ex-smoker (n=26)	6 (23.1)	8 (30.8)	12 (46.1)	0.229
Being informed about the importance of the flu vaccine				
No (n=66)	26 (39.4)	38 (57.6)	2 (3.0)	
Yes (n=295)	35 (11.9)	139 (47.1)	121 (41.0)	<0.001

*Pearson`s Chi-square test

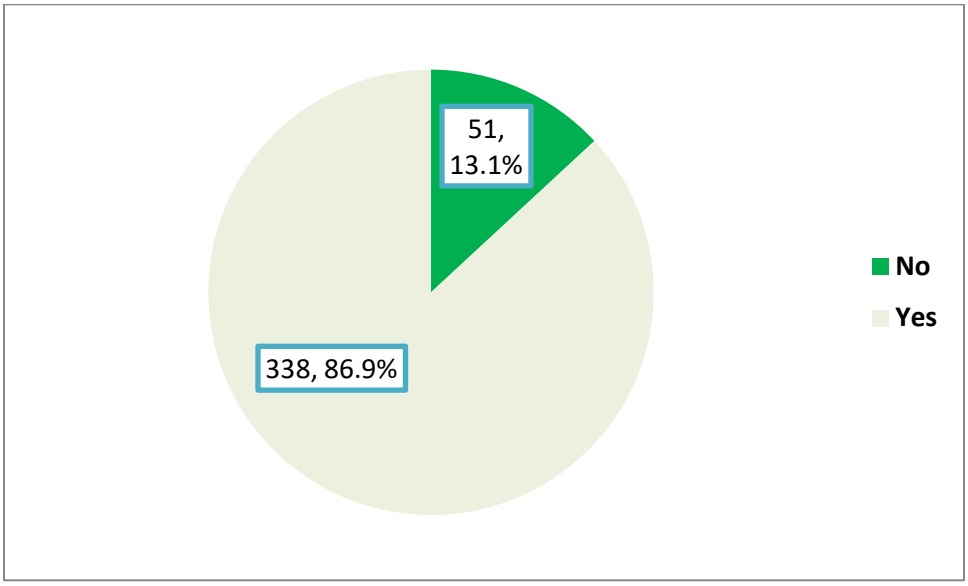

Figure 1: History of awareness about the importance of the seasonal influenza vaccination among the participants

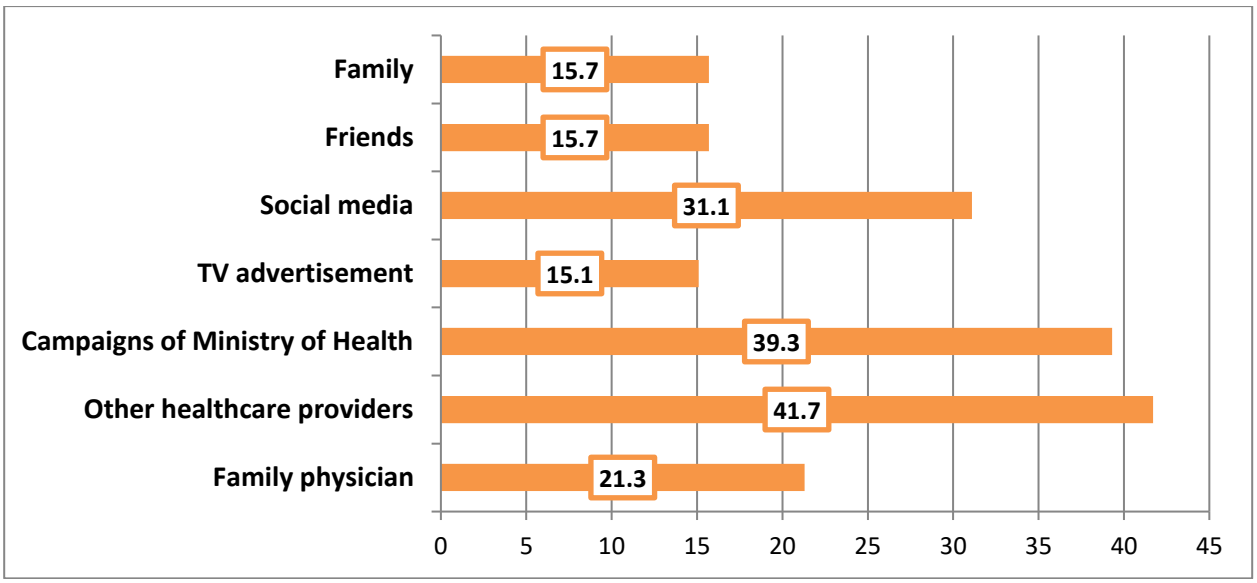

Figure 2: Source of information about seasona influenza vaccination among the participants (n=338)

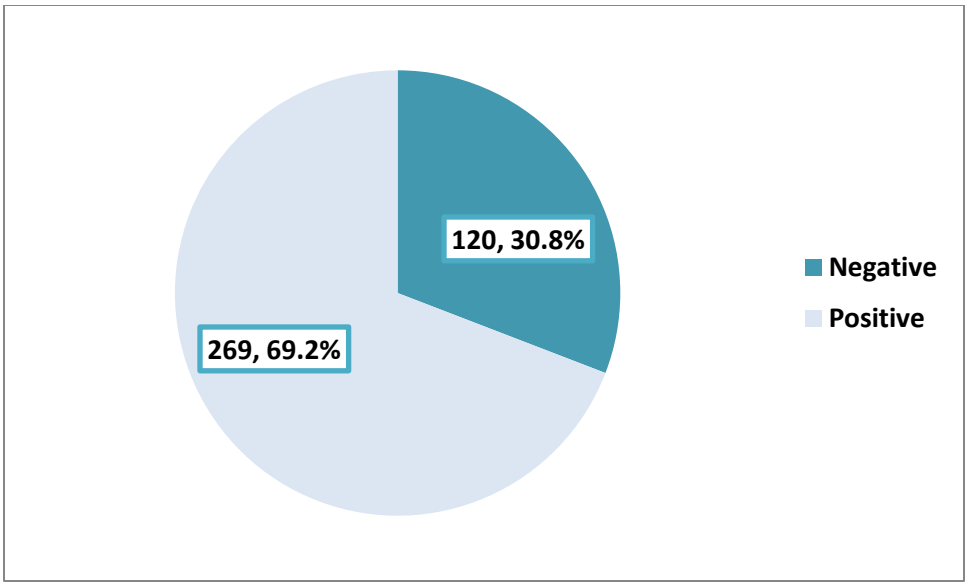

Figure 3: Attitude of the participant towards seasonal influenza vaccine

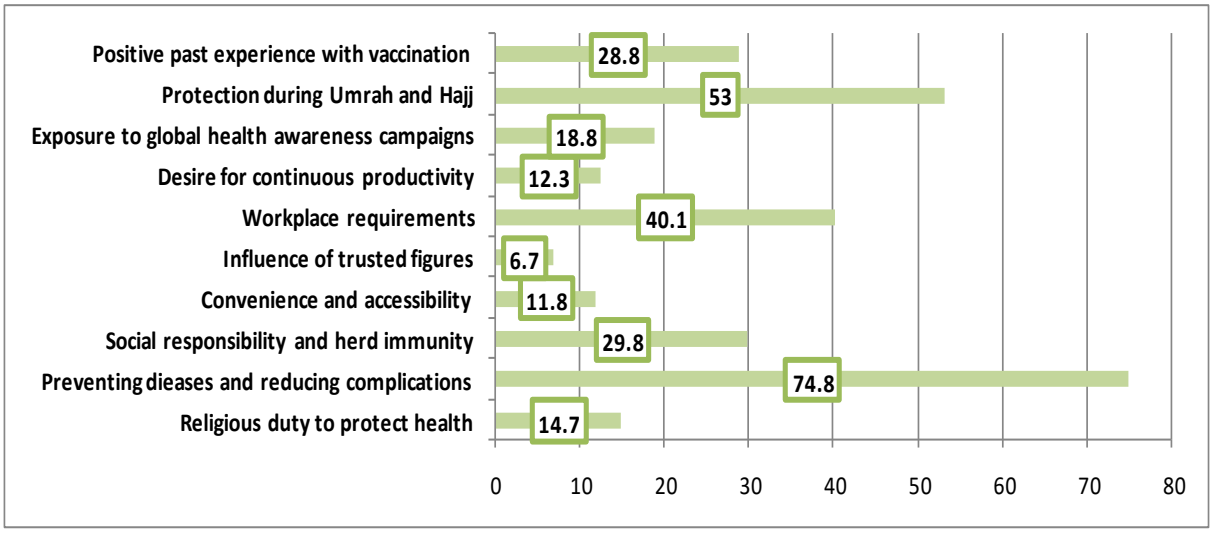

Figure 4: Motivators to uptake the seasonal influenza vaccine among the participants

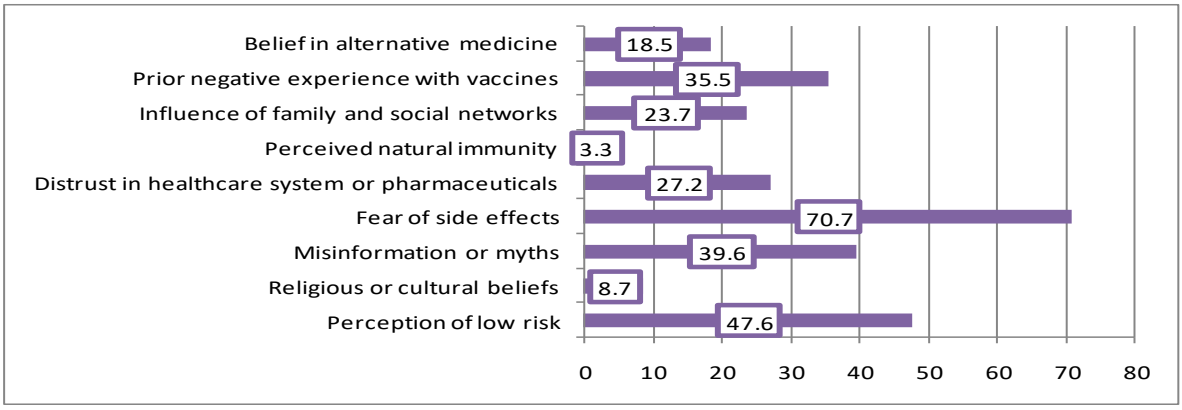

Figure 5: Barriersto not uptake the seasonal influenza vaccine among the participants