

Beliefs and Barriers Associated with COVID-19 Vaccination among Students

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Abstract

Background: The spread of COVID-19 is considered as a challenge all over the world since it was declared as a pandemic by World Health Organization (WHO) on March 11, 2020. In addition to protective measures, early diagnosis, and medical managements, there is urgent need for safe, effective prophylactic vaccine to control the pandemic, several vaccines have been developed and approved for emergency immunization in many countries for examples Pfizer BioNTech and Moderna vaccines. **Objective:** is to explore the beliefs, barriers, and motivators associated with COVID-19 vaccination among students in Iraqi University, and to assess the association between the sociodemographic factors and the acceptance of vaccination among students. **Method:** A cross-sectional study was conducted in July 2021. The questionnaire distributed for 441 students in four colleges in a private University in Iraq. The questionnaire form consisted of 15 questions that classified into four sections (section 1 concerns sociodemographic data, section 2 deals with respondent's beliefs, section 3 consists of the barriers to take the vaccine, and section 4 include the respondent's motivators to accept the vaccination.). **Results:** (60.3%) believe that the COVID-19 vaccination is important, the most reported barriers of COVID-19 vaccination were its safety and adverse effects (64.2%) and (48.3%) had concerns for the acquisition of COVID-19 from the vaccine itself. Participant's concern regarding their family infection with COVID-19 correlate significantly with vaccination acceptance with $p < 0.05$.

Conclusion: The study concluded that the majority of students perceived the importance of the COVID-19 vaccine, but about half of them had vaccination hesitancy. Most of the students had concerns regarding the vaccine's adverse effects and effectiveness. Having family members being infected was one of the motivators to accept vaccination. Most of students did not know the differences between the vaccines available, the students who had information about the vaccines preferred Pfizer BioNTech vaccine.

Keywords: COVID-19, Beliefs, Barriers, Motivators

1. Introduction

The spread of COVID-19 is considered as a challenge all over the world since it was declared as a pandemic by World Health Organization (WHO) on March 11, 2020. To limit the spread of infection, preventive measures have implemented in all the countries, such as social distancing, wearing face masks, and partial or comprehensive lock downs. These measures, in addition to early diagnosis and medical managements that led by WHO have helped in flattening the epidemic curve [1]. Hence there is urgent need for safe, effective prophylactic vaccine to control the pandemic that has bad impacts on health, economic, education and social fields all over the world [2].

Since discovering the genome sequence of SARS-Cov-2 virus, scientific community did efforts to develop vaccines. To date, several vaccines have been developed and approved for emergency immunization in many countries for examples Pfizer BioNTech and Moderna vaccines [3]. The aim of vaccination is to limit spread of the infection through herd immunity, the threshold for SARS-CoV-2 herd immunity is estimated to range between 59% and 67% [4].

Effectiveness of vaccination depend on the acceptance of population for vaccination, immunization programs are only depending on successful when there is a high acceptance rate of vaccination [5].

Hesitancy or negligence among population is considered one of the barriers to achieve such a goal [6]. Vaccine hesitancy was defined by the WHO as (delay in acceptance or refusal of vaccination despite availability of vaccination services) [7]. Factors that affect acceptability include the confidence, convenience, complacency, and sociodemographic contexts [8].

Studies in different countries registered the acceptance rate and the determinant of vaccination among populations. Studies conducted in Saudi Arabia reported a higher acceptance level of COVID-19 vaccine [9], while a low level was recorded among population in [10]. The global level of acceptance ranges from 54.8% from Russia to as high as 88.6% from [11].

In Iraq, the vaccination for COVID-19 started on May 10, 2021. A study conducted among general population found that 77.6% of the participants intend to take the vaccine when available [12]. Another study conducted among general public in Kurdistan revealed a high hesitancy that associated with education level and fears of possible side effects [13]. To the best of our knowledge there was no

study regarding the acceptance for COVID-19 vaccination among students in Iraq.

Aim of study

The aim of our study is to explore the beliefs, barriers, and motivators associated with COVID-19 vaccination among students in Iraqi University. The study also aimed to determine the association between the sociodemographic factors and the acceptance of vaccination among students.

2. Method

A descriptive study was conducted in July 2021. The questionnaire form was the research tool which designed after reviewing several articles and formulated in Arabic to be easier for students and distributed for 441 students in four colleges in a private University in Iraq. Th questionnaire form consisted of 15 questions that classified into four sections (section 1 concerns sociodemographic data, section 2 deals with respondent’s beliefs, section 3 consists of the barriers to take the vaccine, and section 4 include the respondent’s motivators to accept the vaccination.). The collected data were analyzed using SPSS version 24, the frequencies and percentages were computed for variables and written in the form of tables and graphs. Moreover, the relation between the sociodemographic factors and the willingness to accept the vaccine was also measured by using T-test. The P value less than 0.05 was considered as statistically significant.

3. Results

The study included 441 participants from three different colleges in Al-Bayan private University in Baghdad, 53.3% of them was female and 46.7% was male (Table 1).

Variable	N	%
Gender		
Female	235	53.3
Male	206	46.7
College		
Pharmacy	245	55.5
Nursing	104	23.6
Dentist	92	20.9

Most participants (60.3%) believe that the COVID-19 vaccination is important, 44.4% of them answered that the best preventive measure is getting vaccinated, and Only 33.8% believe that vaccination should be obligatory for the general population. About half of them (57.4%) believe that the vaccine is safe when it is approved (Table 1).

Statement	Agree	Disagree
COVID-19 vaccine is important	60.3%	39.7%
Vaccination of COVID-19 should always be compulsory once it is available	33.8%	66.2%
The best preventive measure for COVID_19 is getting vaccinated	44.4%	55.6%

Approval of the vaccine guarantee its safety	57.4%	42.6%
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The most recorded barriers of COVID-19 vaccination among students (64.2%) were its safety and adverse effects and about half of them (48.3%) had concerns for the acquisition of COVID-19 from the vaccine itself. Most students (81.6%) were not against vaccination in general and (77.3%) had no prior experience with any vaccine or their adverse effects. More than half students (61.2%) fear of having long-term genetic effects resulting from vaccination and (44.9%) of them fear of nanochips implantation via vaccine (Table 3).

Statement	Agree	Disagree
I have concerns regarding the effectiveness of vaccination	64.2%	35.8%
I have concerns regarding the adverse effects of vaccine	64.2%	35.8%
I have prior bad experience with any vaccine and their adverse effects	18.4%	81.6%
I am against vaccination in general	22.7%	77.3%
I concern for the acquisition of COVID-19 from the vaccine	48.3%	51.7%
I perceive myself not at elevated risk to acquire COVID-19	40.1%	59.9%
I have fear of (nanochips)implantation via the vaccine	44.9%	55.1%

Regarding motivators, the most reported was the fear of infecting their family (47.4%),Other motivators were fear from being infected themselves (40.8%), and (38.5%) of respondents accept the vaccination due to their belief in effectiveness and safety of vaccine. Most of the students (77.1%) do not care for the vaccine cost (Table4).

Factors	Agree	Disagree
Willing to receive the vaccine	49%	51%
Fear of being infected with COVID-19	40.8%	59.2%
Fear of infecting may family with COVID-19 especially my parents	47.4%	52.6%
Belief in effectiveness and safety of the vaccine	38.5%	61.5%
Availability of free vaccine	22.9%	77.1%

Regarding the relation between the sociodemographic characters and COVID-19 vaccination acceptance, there was no significant differences between male and female students regarding acceptance and there was no relation between the education level and the willingness to vaccinate against COVID-19. Students that have one of family members have got COVID-19 infection were more likely to accept the vaccine comparing with students that have not got COVID infection among their family members, the results showed significant difference with p value equal to (0.03) (Table 5).

Variable	Agree to vaccine		P-value
	Yes	No	
Gender			0.717
Female	117 (49.8)	118 (50.2)	
Male	99 (48.0)	107 (52.0)	

College Pharmacy	123 (50.2)	122 (49.8)	0.263
Nursing	44 (42.3)	60 (57.7)	
Dentist	49 (53.3)	43 (46.7)	
Did you get COVID-19 infection?			0.412
Yes	83 (51.5)	78 (48.5)	
No	133 (47.5)	147 (52.5)	
Did one of your family members get COVID-19 infection?			0.03*
Yes	143 (53.0)	127 (47.0)	
No	73 (42.7)	98 (57.3)	
*P<0.05 significant difference			

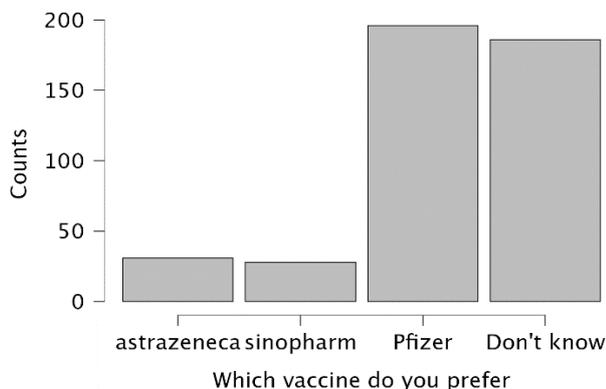


Figure 1: Type of available COVID-19 vaccine preference among students

Figure 1 shows that 44.4% of students preferred Pfizer-BionNtech vaccine, 7% preferred Astrazenica vaccine, and 6.3% preferred Sinofarm, while 42.2% had no idea about the difference between types of available COVID-19 vaccines.

4. Discussion

The population’s willingness to be vaccinated is important factor in vaccination effectiveness; immunization programs will be successful when there is a high rate of acceptance among populations [14]. According to WHO, vaccine hesitancy and resistance is one of the top ten health risks for 2019 [15].

Previous studies in different countries have recorded many factors that influence the acceptance of the COVID-19 vaccine, these include vaccine safety and efficacy, past vaccination history, vaccination costs, and sociodemographic characteristics [16].

In this study most of students satisfied that COVID-19 vaccination is important, and that it should be compulsory when it is available. In addition, the majority of participants believed that vaccination is the best measures to limit spread of COVID-19 (table 2). These findings are similar to results registered among students in Egypt and population in Jordan [10, 17].

Current study reported concerns among students regarding vaccine effectiveness and possible adverse effects (table 3). This finding is similar to results reported among public in different regions [10, 18]. These results conclude that although the students perceive the importance of the COVID-19 vaccine and agree to make the vaccine compulsory, they still have hesitancy due to

the concerns about the vaccine’s safety and potential adverse effects, this could be due to false and fabricated information on social media regarding vaccination and the speed of vaccine development and registration in less than one year. Lack of certainty among population regarding vaccination required awareness campaigns by ministry of health and health workers to raise the awareness and increase public confidence in vaccination. In the present study the possibility of genetic effects of the vaccine, and nanochips transplantation during vaccination were other barriers among participants to take the vaccine, these findings supported by results recorded among Egyptian students [17]. The world is fighting against new type of epidemic in which the fake news, and false scientific claims spread rapidly among public as warned by World Health Organization (WHO) which called infodemic [19].

About half of participants (48.5%) demonstrated acceptance to receive COVID-19 vaccines. This level of acceptance among our study participants was lower than that among population in Arabic countries such as Kuwait (53.1%) (21) and Saudi Arabia (64.7%) [19] and higher than acceptance level among Jordanian population (37.4) (12). The main motivators among participants to accept vaccination were fear of being infected or infecting family (40.8% and 48.5% respectively). These findings are similar to results reported among Egyptian students (19) and among health workers in Saudi Arabia [19].

One of the factors that associated with acceptance of the vaccine was the previous infection of one of family members with COVID-19, the study showed that there was a significant difference between the acceptance of vaccination among the students that have one of family members have got the infection and the students that have not experienced the infection among their family members, this finding supported by results recorded by previous study conducted in Iraq [12] however a study conducted among Saudi health workers showed that there was no relation between willingness for COVID-19 vaccination and infecting family members.

Most participants preferred Pfizer-BioNTech vaccine (44.4%), this is may be due to the transparency of information about the vaccine announced via media, this is also reported by previous studies in which the participants were more satisfied by vaccines made in the USA and Europe, however 42.2% of participants had no idea about the difference between the available vaccines. This observation is similar to findings of study conducted among medical students in Egypt.

The availability of the vaccine has no effect on the willingness to accept vaccination in the current study as the results demonstrated that only 22.9% of the participants consider that availability is one of the motivators to vaccination.

5. Conclusion

This is the first study of vaccine acceptance, barriers, and motivators among university medical students in Iraq. The study concluded that the majority of students perceived the importance of the COVID-19 vaccine, but about half of them had vaccination hesitancy. Most of the students had

concerns regarding the vaccine's adverse effects and effectiveness. Having family members being infected was one of the motivators to accept vaccination. Most of students did not know the differences between the vaccines available, the students who had information about the vaccines preferred Pfizer BioNTech vaccine. It is important to improve knowledge and awareness towards COVID-19 vaccination among population through Iraqi health authorities to achieve herd immunity and control the pandemic.

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