

# Perception Towards COVID-19 Vaccination-A Cross-Sectional Study in Iraq

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## ABSTRACT

**INTRODUCTION:** The current COVID-19 pandemic has urged the scientific community globally to find answers in terms of therapeutics including vaccination to control the disease. Various COVID-19 vaccines have been distributed in many countries, including Iraq. Vaccination program will only be successful when there are high rates of acceptance and coverage. Thus, to accomplish this program, it is critical to understand the perceptions of the COVID-19 vaccine and its acceptance. Therefore, our study was performed to investigate community perceptions towards COVID-19 vaccinations in Iraq. **METHODS:** A cross-sectional study was conducted in Iraq from March 2021 to June 2021. We enrolled a total of 9,620 participants (3,160 men and 6,460 women). The participants responded to an online survey on COVID-19 vaccination which consisted of three sections of questionnaires. The first section (Section A) was on demographic characteristics of respondents including age, gender, occupation, level of education, and residency whereas the second section (Section B) was on the respondent's perception toward COVID-19 vaccine, with nine inquiries about reasons for fearing COVID-19 vaccine. The final section (Section C) was questions on the type of vaccine they prefer to receive, once it is made available. **RESULTS:** Of the total respondents, 70.68% were not keen for a COVID-19 vaccination. Some of the respondents' concerns were that the vaccines are not safe and may cause infection with COVID-19, infertility, congenital infection, and fetal anomalies. Majority of respondents who accepted to be vaccinated trusted the Pfizer vaccine followed by Sinopharm vaccine. **CONCLUSION:** Hesitancy for COVID-19 vaccination among participants were mainly due to lack of trust in the safety and efficacy of the vaccine and also feared of being infected and death. Thus, the healthcare providers and community leaders should come out with strategies to decrease the hesitancy and increase the acceptability of the vaccines.

### Keywords

Health care, pandemic, perception, vaccine

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## INTRODUCTION

COVID-19 which was first emerged in Wuhan city of China was a distinct clade from the beta coronaviruses related to human severe acute respiratory syndrome (SARS).<sup>1,2</sup> Covid-19 has more powerful pathogenicity and transmissibility than SARS.<sup>3,4</sup> The main transmission methods were droplets and contact which can be confirmed within a very short exposure time in the absence of personal protective equipment (PPE) like masks.<sup>4,5,6</sup> The World Health Organization (WHO) recognized COVID-19 outbreak as a Public Health Emergency of International Concern (PHEIC) that endangers international public health with cases ranging from individuals who are asymptomatic to those who experience severe respiratory distress, pneumonia, and death.<sup>7,8,9</sup> The global efforts to lessen the effects of the pandemic, and to reduce its health and socio-economic impact rely to a large extent on the preventive efforts.<sup>10,11,12</sup> Many efforts have been directed toward the development of the vaccines against COVID-19 and several prophylactic vaccines against COVID-19 are currently in development phase researchers across the

globe raced to develop safe and effective vaccines. According to WHO: “vaccine must provide a highly favorable benefit-risk contour; with high efficacy, only mild or transient adverse effects and no serious ailments.” The vaccine must be suitable for all ages, pregnant and lactating women, and should provide a rapid onset of protection with a single dose and confer safety for at least up to one year of administration.<sup>13</sup> The fight against COVID-19 has seen vaccine development move at record speed, compared to traditional vaccines.

Many people understand the complexity of vaccine development and concerned that the vaccine was rushed. Therefore, it is natural to have some vaccine hesitancy and apprehension over the effectiveness and safety of the vaccine. Starting from March 2021, Iraqi people have the opportunity to receive the vaccine (Sinopharm, AstraZeneca, Pfizer). Therefore, this study aimed to investigate community perceptions towards COVID-19 vaccinations in Iraq and to explore factors associated with the hesitation in the receiving of the vaccine.

## MATERIALS AND METHODS

A cross-sectional study was conducted in Iraq from March 2021 to June 2021, enrolling 9,620 participants of which 3,160 men and 6,460 women adults aged 18 years-old or older living in Iraq during the period of study conduct. The participants responded to an online survey on COVID-19 vaccination uploaded via the web-based Survey Monkey platform distributed all over the Iraqi governorates. A link to an online survey was sent via social media platforms (WhatsApp, Facebook). The questionnaire was administered in Arabic, and non-citizens who do not understand the Arabic language showed no response. The questionnaire was pretested in a pilot study involving 50 participants. The questionnaire consisted of three sections, section A on demographic characteristics of respondents included age, gender, occupation, level of education, and residency, section B on the respondent's perception toward COVID-19 vaccine, with nine inquiries (the vaccine is not effective, doesn't provide long-term immunity, not safe, at risk of COVID-19 after vaccination, cause death, may cause infertility, can alter genes, may cause congenital infection and anomalies, women at

reproductive age should postpone pregnancy after vaccination). A “yes’ and ‘no’ questions to assess the participants’ perception towards COVID-19 vaccine. In section C, participants were asked about the type of vaccine they prefer to receive, once it's available. The analysis of data was performed using SPSS Statistic 22.0. Data were expressed in numbers and percentages; Chi-square was used and a p-value of <0.05 was considered significant. Ethical approval was obtained from the Scientific Committee at Al-Zahraa Medical College, University of Basrah.

## RESULTS

A total of 9,620 Iraqi adults had responded to the survey. Majority of the respondents were female (67.16%), aged between 18 to 30 years-old (59.66%), graduated from college or above (88.97%), government employees (42.80%), and lived at Southern governorates (83.78%). Table 1 displayed the demographic characteristics of respondents.

**Table 1:** Demographic characteristics of respondents (n=9,620)

Variable	Number	Percent
Age:		
18-30	5740	59.66
31-45	2360	24.5
46-65	1300	12.5
>65	220	2.3
Gender:		
Male	3160	32.84
Female	6460	67.16
Education:		
Never been to school	140	1.45
Primary	40	0.41
Secondary	880	9.17
College and above	8560	88.97
Occupation:		
Student	2980	31
Government employee	4120	42.8
Private employee	1080	11.2
Health care professional	1440	15
Residency:		
Northern governorate	260	2.7
Middle governorate	1300	13.51
Southern governorate	8060	83.78

Out of 9,620 respondents, 70.68% (6,800 respondents) were not keen for COVID-19 vaccination. Table 2 presented the demographic characteristics of respondents who were not willing to get the covid-19 vaccination. Out of 3,160 male respondents and 6,460 female respondents, 2,180 male respondents (68.98%) and 4,620 female respondents (71.51%) were not keen for covid-19

vaccination. Thus, there was no statistically significance in different gender for covid-19 vaccination receptiveness (P-value=0.608). Out of 1,440 healthcare worker respondents and 8,180 public respondents, 820 of healthcare (56.94%) and 5980 of public respondents (73.1%) not keen for vaccination. Thus, the result shown that the unwillingness for covid-19 vaccination was high in both healthcare workers group and public group. However, it was statistically different ( $p$ -value <0.05).

**Table 2:** Demographic characteristics of respondents who were not willing to receive the vaccine (n=6800)

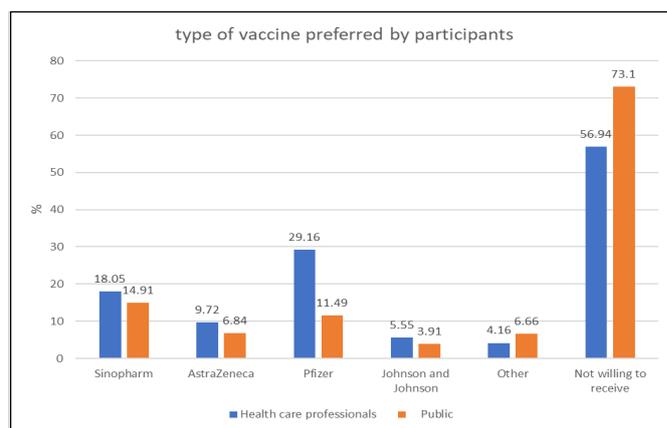
Variable	Number of Respondents (n=9,620)	Number of Respondents Not Keen For Covid-19 Vaccination (n=6,800)	Percent (%)
Age:			
18-30	5740	4060	70.73
31-45	2360	1520	64.40
46-65	1300	1080	83.07
>65	220	140	63.63
Gender:			
Male	3160	2180	68.98
Female	6460	4620	71.51
Education:			
Never been to school	140	120	85.71
Primary	40	20	50.00
Secondary	880	720	81.81
College and above	8560	5940	69.39
Occupation :			
Student	2980	2340	78.52
Government employee	4120	2940	71.53
Private employee	1080	700	64.81
Health care professional	1440	820	56.94
Residency:			
Northern governorate	260	120	46.15
Middle governorate	1300	880	67.69
Southern governorate	8060	5800	71.96

A comparison of perception towards COVID-19 vaccine between healthcare workers and the general public is presented in Table 3. Majority of healthcare workers and general public perceived that covid-19 vaccination is ineffective (55.55% vs 69.43%), has no long-term immunity (75.00% vs 80.68%), and not safe (59.72 % vs 74.59 %) respectively. Majority of healthcare workers and general public also considered themselves at risk to get diseases after vaccination (70.83% vs 66.92%) and feared death (34.72% vs 64.05%) respectively. The healthcare workers and the general public believed that the covid-19 vaccine may cause infertility (16.66% vs 38.38%), alter genes (5.55% vs 12.95%), and result in congenital infection and anomalies (29.16% vs 25.42%). The healthcare workers and the general public also believed that women at reproductive age should postpone pregnancy after vaccination (47.22% vs 17.23%).

**Table 3:** Perception Towards COVID 19 Vaccine Among Healthcare Workers and Public

Item	Health care workers		General Public	
	N	%	N	%
The vaccine is not effective	780	55.55	5680	69.43
Doesn't provide long-term	1080	75	6600	80.68
Not safe	860	59.72	6102	74.59
at risk of covid 19 after	1020	70.83	5480	66.92
Fear from death	500	34.72	5240	64.05
May cause infertility	240	16.66	3140	38.38
Can alter genes	80	5.55	1060	12.95
Cause congenital infection and anomalies	420	29.16	2080	25.42
Women at reproductive age should postpone pregnancy after vaccination	680	47.22	1410	17.23

The survey also shown that the healthcare workers who keen for covid-19 vaccination preferred and trusted Pfizer vaccine than Sinopharm and AstraZeneca (29.16% vs 18.05% vs 9.72 %) respectively, whereas the public trusted Sinopharm than Pfizer and Astra Zeneca (14.91% vs 11.49% vs 6.84%). The results are displayed in Figure 1.



**Figure 1:** Type of vaccine preferred by participants once available

## DISCUSSION

The emergence of covid-19 vaccination gives hope to the world in mitigating the covid-19 pandemic, However, many people were hesitant and had no intentions to be vaccinated. Our online survey observed that nearly three-quarters of the respondents had no willingness to be vaccinated and only 29.32% were keen for vaccination. There were several studies conducted to determine the intention of the public for COVID-19 vaccination had demonstrated high acceptance rates compared to our study.<sup>14,15,16</sup> The high acceptance rates in those studies were associated with better knowledge regarding the

severity of COVID-19 and high trust in the vaccines by the respondents. In our study, majority of the respondents were women (67.16%) which is similar to a study conducted in Malaysia (65.9%) but slightly higher than those conducted in United States by Paul *et al* (56%) and Malik *et al* (57%).<sup>9,15,16</sup> In our study, majority of our respondents were aged between 18 to 30 years (59.66 %). A similar result was shown in a study by Hassan *et al* where more than 75% of respondents were in the age group of 18–29.<sup>17</sup> Healthcare workers accounted for 15% of our study respondents.

Our study result demonstrated that 56.94% of the healthcare workers were not willing for vaccination in which the result was higher than reported result of a study conducted in Egypt (21%) and in Turkey (20.7%).<sup>16,18</sup> Our study result also demonstrated that majority of healthcare workers and public were not convinced that the vaccine is effective to prevent the covid-19 infection (55.55% vs 69.43%), provide long-term immunity (75.00% vs 80.68%), or safe (59.72% vs 74.59) respectively. In comparison to our finding, a study by Sandooja *et al* showed that 75% of the participants believed in the vaccine's efficacy, 75% thought people can be protected from COVID-19 by vaccination and 87.9% considered the COVID-19 vaccine to be safe.<sup>19</sup> In our study, 70.83% of healthcare workers and 66.92% of public were worried of being infected with covid-19.

Our study results were consistent with a study conducted by Parikh PA. *et al* in which 80% of healthcare professional and 82% of the general public worried of being infected with the covid-19 post vaccination.<sup>20</sup> In our study also, 34.72% of healthcare workers and 64.05% of public were feared of death. Our study shown that 16.66% of healthcare workers and 38.38% of the public believed that the vaccine may cause infertility. In a study in Germany, 21.9% of participants concerned about impact of vaccines on own fertility.<sup>21</sup> Our results showed 5.55% of healthcare workers and 12.95% of public believed that it could alter their genes. A similar study conducted in Nigeria demonstrated that 15% of their respondents worried that the vaccine could alter their genes or genetic makeup.<sup>22</sup> Our study revealed that the healthcare workers and the general public believed that the covid-19 vaccine

may cause congenital infection and anomalies (29.16% vs 25). A study in Poland demonstrated 20% of participants believed that the vaccine causes defects in the fetus.<sup>23</sup> Our study also revealed that the healthcare workers and the general public believed that women at reproductive age should postpone pregnancy after vaccination (47.22% vs 17.23 %). Our study demonstrated that the healthcare workers trusted Pfizer vaccine than Sinopharm and AstraZeneca (29.16% vs 18.05% vs 9.72 %) respectively whereas the public trusted Sinopharm over Pfizer and Astra Zeneca (14.91% vs 11.49% vs 6.84 %). A previous study in Iraqi Kurdistan region reported that AstraZeneca and Pfizer vaccines frightened the most people (39.9% and 34.01%, respectively).<sup>24</sup>

WHO and the Ministry of Health in Iraq raised the challenge to vaccinate the maximum number of people possible to control the COVID19 Pandemic as soon as possible. Iraq prioritizes the high-risk populations through a multi-phase roll-out plan and it is mandatory for all government employees to receive at least two doses of the vaccine. One study limitation was the use of social media in collecting the information, the sample was not generalized, may not represent the population, as this might affect people who have limited access to the internet made them unable to take part in this study. Other limitation is that the questionnaire was in google forms and using Arabic language, non-citizens who do not understand the Arabic language showed no response. These limitations could be addressed in future research.

## CONCLUSION AND RECOMMENDATION

Hesitancy for vaccination is a major threat to vaccination success. A rapid development of a new vaccine contributes to the hesitancy, fear, and doubt of COVID-19 vaccine. An increase numbers of people being vaccinated should increase the belief that the vaccines are safe and decrease the fear and hesitancy among the general population. The Ministry of Health needs to address this public health challenge and ensure public confidence in COVID-19 vaccines. Various strategies are recommended to overcome vaccine hesitancy. The healthcare providers and community leaders should play a key role in increasing awareness and knowledge by

providing an effective education on the vaccine and clear communication approaches to address vaccine hesitancy.

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## DECLARATION OF COMPETING INTEREST

There are no conflicts of interest.

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