

## BELIEFS AND BARRIERS ASSOCIATED WITH COVID – 19 VACCINATION AMONG PEOPLE ATTENDING HEALTH INSTITUTIONS IN MOSUL CITY

\*<sup>1</sup>Madyan Mohammed Fawzi, <sup>2</sup>Nagham Faris Khalil, <sup>3</sup>Redhaa Ghanim Rashid and <sup>4</sup>Firas Husam Ali

<sup>1</sup>Ibn Alather Hospital, <sup>2</sup>Alkhansa Teaching Hospital, <sup>3</sup>Alquds Family Medicine Training Center, <sup>4</sup>Alquds Family Medicine Training Center.

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\*Corresponding Author: Madyan Mohammed Fawzi

Ibn Alather Hospital, Medicine Training Center.

### INTRODUCTION

Interest, attitude and self-efficacy featured as important drivers for many risk behaviours. People's perceived risk of a practice (e.g. risk of side-effects from vaccination, losing income as a result of quarantine) weighed against the potential gains (not getting sick, not being stigmatised) and contributed to their level of interest in carrying out the practice. People's values (such as a desire to "do the right thing"), alongside their emotions (e.g. fear of getting sick, disgust at having dirty hands) were also important influencers. In terms of their self-efficacy, people's emotional wellbeing and 'decision autonomy' contributed to their likelihood or ability to decide to take a particular action (e.g. people who relied on family members to make decisions were prevented from accessing healthcare). Awareness and knowledge were underlying drivers to all of these factors. Lower knowledge levels around COVID-19 were generally associated with lower rates of compliance. Differing understandings of disease aetiologies or lack of knowledge about infectious disease influenced behaviours around treatment and prevention for infectious diseases. Human behaviours can be hindered or enabled by multiple drivers: personal characteristics or psychology of the individual; social influences, norms and pressures in society; and features of the broader environment or context of which an individual is a part. People were driven by social norms and social pressure to practise measures such as handwashing. Role models (whether positive or negative) were strong influencers, as were stigma and discrimination. For example, children washed their hands to avoid being stigmatised by other children<sup>[1]</sup>. Corona Virus Disease -19 (COVID 19) vaccines provide strong protection against serious illness, hospitalization and death. There is also some evidence that being vaccinated will make it less likely that you will pass the virus on to others, which means your decision to get the vaccine also protects those around you. Even after getting vaccinated, keep taking precautions to protect yourself, family, friends and anyone else you may come into contact with. COVID-19 vaccines are highly effective, but some people will still get ill from COVID-19 after vaccination. There is also still a chance that you could also pass the virus on to others who are not vaccinated. Stay at least 1 metre away from other people, wear a properly fitted mask over your nose and mouth when you can't keep this distance, avoid poorly ventilated places and settings, clean your hands frequently, stay home if unwell and get tested, and stay informed about how much virus is circulating in the areas where you travel, live and work.<sup>[2]</sup> Vaccine hesitancy can limit the benefits of available vaccines in halting the spread of COVID-19 pandemic.<sup>[3]</sup> Vaccination is one of the most effective methods for halting the pandemic and preventing complications. Vaccine hesitancy is a possible threat to global public health. Understanding the key determinants that influence the community's preferences and demands for a future vaccine may aid in the development of strategies to improve the global vaccination program.<sup>[4]</sup>

Several studies have shown different factors associated with vaccine acceptance. These include the effectiveness and safety of the vaccine, suspicion in the health system, side effects of the vaccine, poor community information about vaccine-preventable diseases, and misconceptions about vaccine necessity in addition to social or psychological barriers which also play a role.<sup>[5]</sup>

### Aim of the study

To determine beliefs and barriers that make a people hesitated to take a COVID 19 vaccine in Mosul city by take a sample of them that visit family medicine and primary health care centers and hospitals about any type of consultation.

### Subjects and Methods

A cross-sectional study design has been adopted for this study. The study was conducted from December 2021 to July 2022 in Mosul city in Alquds and Alarabi and Alqadysia family medicine centers and Alqahera primary health care center that belong to left primary health care district in Mosul and Almansour and Tamooz family medicine centers and Bab aljadeed primary health care center in right primary health care center district and Ibn Sena teaching hospital in the left side of mosul city which divided by the river Tigris into left and right ranks, other hospital is Almosul general hospital in the right side of Mosul city and include any adults visit a family medicine or primary health care centers or hospitals for any consultation. A specially designed questionnaire was filled by the individual himself directly after securing the protective measures to prevent the transmission of Covid 19. Those who have the following criteria will be included in this study.

1. Adult person ( $\geq 18$  years old.)
2. Mentally healthy individuals and able to apprehend and fill the content of the questionnaire.
3. Accept to participate in this study.

The following criteria were excluded

1. Those who have any physical or mental illness or other reasons make them unable to fill the questionnaire.
2. Those who refused to contribute in research.

The questionnaire was prepared in Arabic, which is the main language in Iraq, and it covered the socio-demographic informations, beliefs about corona virus disease 19 (Covid 19) vaccine and obstacles to getting the Covid 19 vaccine.<sup>[6]</sup> In Iraq there were 3 types of Covid 19 vaccine adopted which include.

A. Pfizer-BioNTech COVID-19 vaccines are mRNA vaccines which is use mRNA created in a laboratory to teach our cells how to make a protein (or even just a piece of protein ) that triggers immune response inside human bodies.<sup>[7]</sup>

B. Oxford / Astrazenca which is manufactured by (AstraZeneca and the University of Oxford ) which is Vector vaccine, in this type of vaccine, genetic material from the COVID-19 virus is placed in a modified version of a different virus (viral vector).<sup>[8]</sup>

C. Sinopharm COVID-19 vaccine, is one of two whole inactivated virus COVID-19 vaccines developed by Sinopharm's Beijing Institute of Biological Products (sometimes written as Beijing Bio-Institute of Biological Products, resulting in the two different acronyms BBIBP and BIBP for the same vaccine).<sup>[9]</sup>

The sample size was 600 participants and randomly selected from each center and hospital by taking every other visitor to these institutions who compatible with inclusion criteria of the study and ethical agreement has been taken from each participant and official permission from all health institutions participate in this study has been obtained).

### RESULTS

**Table 1** showed that 172 (28.7%) of the participants their age was  $> 40$  years, 360 (60%) of them was male, 284 (47.3%) had university and high education while 204 (34%) had secondary school education.

On the other hand 388 (64.7%) was married, 540 (90%) live in urban area, 372 (62%) was employed and 375 (62.5%) was smoker.

Regarding history of COVID 19 infection 202 (33.7%) had past infection and 398 (66.3%) does not have a history of infection.

**Table 1: sociodemographic characteristics of the study population N=600.**

Age	No.	%
<20 years	56	9.3
20 – 30 years	198	33
30 – 40 years	174	29
>40 years	172	28.7
Gender	No.	%
Male	360	60
Female	240	40
Educational level	No.	%
Illiterate	34	5.7
Primary school	78	13
Secondary school	204	34
University and high education	284	47.3
Marital status	No.	%
Married	388	64.7
Single	188	31.3
Widowed	16	2.7
Divorced	8	1.3
Residence	No.	%
Rural	60	10
Urban	540	90
Employment state	No.	%
Employed	372	62
Unemployed	18	3
Private job	210	35
Smoking state	No.	%
Yes	225	37.5
No	375	62.5
Past Covid 19 infection	No.	%
Yes	202	33.7
No	398	66.3

Concerning beliefs of the study population about COVID 19 **table 2** revealed that 318 (53%) of them thought that COVID 19 vaccine was safe, 308 (51.3%) considered that COVID 19 vaccine was effective.

On the other hand 206 (34.3%), 310 (51.7%), 280 (46.7%), 374 (62.3%) believed that COVID 19 vaccine prevent infection, COVID 19 vaccine was the best way to prevent complications, doesn't forced to take a

vaccine, thought that every one should take the vaccine respectively.

**Table 2: Beliefs of the study population regarding COVID 19 vaccine N=600.**

Beliefs items	Yes		No		Don't know	
	No.	%	No.	%	No.	%
Do you think the covid 19 vaccine is safe?	318	53*	50	8.3	232	38.7
Do you think the covid 19 vaccine is effective?	308	51.3*	82	13.7	210	35
Do you think that the vaccine prevents infection with the Corona virus?	206	34.3*	216	36	178	29.6
Do you think that the vaccine is the best way to prevent complications from Covid 19?	310	51.7*	122	20.3	168	28
Are you forced to take the vaccine ?	208	34.7	280	46.7*	112	18.6
Do you think everyone should take the vaccine?	374	62.3*	122	20	104	17.3

• **Correct answer (belief rate = 49.88%)**  
 Regarding the barriers of the vaccine **table 3** demonstrated that 288 (48%), 232 (38.7%), 176 (29.3%), 132 (23%) and 142 (23.7%) of the study population refuse to take a vaccine because worried about the side

effect of the vaccine, they adherent to the correct preventive methods, they have a good health, afraid from needle injection and they thought that the COVID 19 infection was conspiracy respectively.

**Table 3: Barriers of the study population regarding COVID 19 vaccine.**

Barriers item	Yes		No		Don't know	
	No.	%	No.	%	No.	%
I am worried about the side effects of the vaccine.	288	48	220	36.7	92	15.3
I did not get the vaccine because I adhere to the correct preventive methods??	232	38.7	206	34.3	162	27
I do not need the vaccine because I am in good health??	176	29.3	310	51.7	114	19
I did not get the vaccine because I am afraid of needle injection.	132	23	370	61.7	92	15.3
Is the covid 19 vaccine a conspiracy?	142	23.7	286	47.7	172	28.7

On the other hand **table 4** present the variables may promote the participant to take COVID 19 vaccine which clarified that 310 (51.6%), 338 (57%), 232 (38.7%), 212 (35.3%), 292 (48.7%) and 198 (33%) and of the participant will take the vaccine if my doctor told me to take it, if many studies show that it is effective and safe, if the government forced the vaccine, if their manager forced them to take the vaccine, if their family and

freinds take the vaccine, if the vaccine taken by other way than injection respectively.

By asking the study population about the type of COVID 19 vaccine would prefer to take 414 (69%) want to take Pfizer-BioNTech vaccine, 94 (15.7%) favoured to take Oxford / Astrazenca and 56 (9.3%) preferred to take Sinopharm vaccine.

**Table 4: Promotion variables of the study population to take COVID 19 vaccine.**

variables Promotion	Yes		No		Don't know	
	No.	%	No.	%	No.	%
If my doctor told me to take it??	310	51.6	130	21.7	160	26.7
If many studies show that it is effective and safe??	338	57	76	12.6	186	31
If I was forced to take it by the state	232	38.7	194	32.3	174	29
If I was forced to take it by my boss	212	35.3	265	42.7	132	22
If my family or friends are vaccinated	292	48.7	170	28.3	138	23
Is there another way to get the vaccine other than injections??	198	33	258	43	144	24
If you receive a specific type of vaccine, which of the following would you prefer						
1. Pfizer Vaccine (US)	414	69				

2. AstraZeneca (British) vaccine	94	15.7	0	0	36	6
3 .Sinopharma (Chinese) Vaccine	56	9.3				

## DISCUSSION

It's been over 2 years since the pandemic started as a result of the coronavirus. There are striking data showing the incidence, mortality, and recoveries as a result of the viral infection. With several preventive measures established by public health policy, the roll-out of COVID-19 vaccines has been one of the best measures to curtail the menace of the COVID-19. However, there are certain impediments enhancing the hesitancy in the uptake of the vaccine in Africa.<sup>[10]</sup>

Lots of studies have demonstrated that when a new vaccination is launched, a variety of factors contribute to vaccine social acceptance. These concerns include the new vaccine safety and effectiveness, negative health impacts, misunderstandings about the importance of vaccination, a lack of faith in the health system, and a lack of community information about vaccine-preventable illnesses. When the vaccine was introduced during a prior pandemic, such as the H1N1 influenza A, the acceptancy rate fluctuated between 8% and 67%, as stated in a systematic review by Larson et al., in 2018.<sup>[11]</sup>

There are also individual and group influences that arise from the personal perception of the vaccine, beliefs, or attitudes toward vaccination, such as perceived efficacy or benefits of vaccines, safety concerns or side effects, and social/peer environment. Besides, specific issues directly related to the vaccine or vaccination like the introduction of a new vaccine or formulation or a new recommendation for a current vaccine, method of administration, development of the vaccination program, reliability and/or source of supply, schedule, cost, the strength of recommendations, knowledge base and/or attitude. Numerous COVID- 19 vaccination studies have documented an association between some of these factors and the acceptance of the COVID- 19 vaccine.<sup>[12]</sup>

This study found that 57.7 % of the participants their age was 30 years and more, 60% of them was male, 47.3 % of the study sample have university and higher education, 64.7 % was married, 90% live in urban area, 37. 5 % was smoker and only 33.7 was previously infected with Covid 19 which is similar to other study done in Saudi Arabia which founf thatThe study population ranging from 18 to 80 years with a mean age of 35.08 years ( $\pm$  10.13 years). Of the 782 respondents, 276 (35.3%) were women, and 506 (64.7%) were men. Three-fourth of the participants, 549 (70.9%), were married, followed by one-third of the responders were unmarried 228 (29.1%), and the remaining 5 (0.6%) were either widows or separated. More than half of the respondents, 444 (56.7%), completed their graduation, one-quarter of the respondents were postgraduates and above 202 (25.8%), and the remaining studied up to High school or less 136 (17.4%). Many of the responders lived in urban areas 683 (87.3%), and the remaining were rural

99 (12.7%).<sup>[13]</sup> And resemble to some extent other study done in Iraq which showed that A total of 1221 eligible participants (aged 18 and over) from various country regions actively participated in the short web-based questionnaire. The study population was mainly concentrated in urban areas (71.2% live in urban areas). Furthermore, a larger portion of responders within the age range of 18–29 years represented 40% of the study participants, and the ratio of male to female participants was 0.94:1, where the female percentage was 51.5%. A total of 719 (58.9%) were married. Most study participants held an academic degree (677, 55.4%) and 574 (47.0%) participants had been positive for COVID-19 in the past.<sup>[11]</sup>

Regarding beliefs of Covid 19 vaccine this study revealed that beliefs rate among the participants was 49.88% which is consistent with other study done in Iraq on 1221 eligible participants from various regions in Iraq actively participated in the short web-based questionnaire. The overall acceptance rate of the COVID-19 vaccine was 56.2%<sup>[11]</sup> and in agreement with other study accomplished in north of Iraq, the general population with both genders with different educational levels and sociodemographic characteristics from the Duhok governorate was eligible to participate in this cross-sectional study in 2021. Therefore, an online Google form was sent to main pages and social groups through two main social media platforms. To obtain a representative sample of individuals with different educational levels, the author visited the main shopping center in Duhok city to collect the information from illiterate and low-level education individuals. The study found that 51.4% (n = 476) did not intend to receive the COVID-19 vaccine which mean that 48.6 % belief that covid 19 vaccine is important to take.<sup>[14]</sup>

On the other hand, this study clarified that 48% of the participants was worried about the side effects of the vaccine, 38.7% didn't want to take the vaccine because they thought themselves adhered to correct preventive measures, 29.3 of them refuse to take the vaccine because they have a good health, 23% was afraid from needle injection and 23.7% still thought that the Covid 19 vaccine is a conspiracy which in agreement with other study done in KSA (on Taif university students) which showed that the most common reasons for those who were not planning to get the vaccine, their concerns regarding the vaccine's side effects (72.2%), they did not need the vaccine because they do all the right things like washing hands (40.7%) and they did not believe that the vaccine will stop the infection (12.9%). Most of the students who were not planning to get the vaccine reported that they would not take it in any situation (53.7%).<sup>[4]</sup>



This study also search for some promotion variables which help the participant to take Covid 19 vaccine which demonstrated that 51.6% of the participant will take the vaccine if their doctors promte them, 57% of the will take it if the studies showed that it is effective, 38.7%, 35.3% of them will recieve it if they forced by the state or by their boss respectively, 48.7% will take it if their family or freinds will take it and 33% will recieve the vaccine if there is another rout of adminstration other than injection which is similar to other study done in KSA which showed that the most common scenarios that can make the participants more likely to get the vaccine if it was compulsory by the government (MOH) (51.8%) and if it was mandatory by my job (35.1%).<sup>[4]</sup> and similar to other study done in India which showed that the most common reasons cited for their willingness (in decreasing order of frequency) were: trust in government vaccination campaigns (39.46%), fear of contracting the disease (29.11%), advice from healthcare professionals (27.96%), occupation related risks (22.60%), mandatory instructions from employers (11.87%), advice from relatives and friends (8.81%), and travel-related reasons (4.59%). In a study conducted among students of a university in China, perceived severity of COVID-19 was positively associated with motivation to have COVID-19 vaccination. Receiving information concerning COVID-19 vaccination from medical personnel was associated with greater self-efficacy, response efficacy, and knowledge.<sup>[15]</sup>

This study ask about preferable type of vaccine used in Iraq which revealed that 69% preferred Pfizer-BioNTech vaccine followed by 15.7% which want to take Oxford/AstraZeneca vaccine and only 9.3% of them preferred Sinopharm vaccine and this result similar to other study also done in Iraq which demonstrated that The Pfizer-BioNTech vaccine received 39.6% preference and participants confidence, followed by the Oxford/AstraZeneca vaccine at 18.1% and the Sinopharm vaccine at 14.6%.<sup>[11]</sup>

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