

Covid-19 vaccination acceptance among visitors of Erbil primary health care centers

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Abstract

Background: Vaccination is probably the most effective approach to prevent and control COVID-19. Studies assessing acceptance towards vaccination showed huge regional variations.

Objective: To find out the rate of acceptance of Covid 19 vaccine and its associated factors as well as to explore out both the most frequent reasons behind acceptance or refusal of this vaccine and the most received and preferred type.

Patients and Methods: In this cross-sectional study, a convenience sample of 1000 visitors to primary health care centers (PHCCs) in Erbil/Iraq, aged 18 years and older, were collected from December 2021 to December 2022. A structured questionnaire was used for data collection through a direct interview.

Results: The study showed that 43.9% of the participants accepted the vaccine. The main reason behind refusal (53.8%) was not trusting its development, while the main reasons for receiving were to protect themselves (44.2%), majority of those vaccinated (76.5%) received Pfizer, which was the most preferred type (67.4%), 10.3% of them were not completing the recommended dose and the most common reasons behind this were neglect and shortage of time (31%), and afraid from side effects (31%). A significant association found between vaccination practice with gender, education, occupation, family income and socioeconomic status. Vaccinated persons were less likely to be infected with COVID19 (20.7%) than nonvaccinated ones (62.7%).

Conclusion: Less than half of the participants were accepted the vaccine and the acceptance rate significantly associated with male gender, education, occupation, family income, and socioeconomic status.

Keywords: COVID-19 vaccination acceptance, vaccine, primary health care centers .

Introduction

The outbreak of coronavirus disease 2019 (COVID-19) caused by a novel coronavirus, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has rapidly evolved into a pandemic that poses a major threat to public health worldwide [1]. Global efforts to mitigate the impact of the pandemic

and reduce health and socioeconomic impacts rely heavily on prevention efforts [2,3]. Enormous efforts by the scientific community and the pharmaceutical industry, supported by government, have been directed toward the development of effective and safe vaccines against SARS-CoV-2 [4]. Currently,

various SARS-CoV-2 vaccines with different properties are developed, such as inactivated vaccine, subunit vaccine, DNA vaccine, and mRNA vaccine, and other vaccines are under development at various stages [5].

Factors that influence attitudes toward receiving vaccinations include complacency, convenience, and self-confidence. Complacency indicates a low perception of disease risk; therefore, vaccination was considered unnecessary. Trust refers to confidence in the safety, effectiveness of vaccination, in addition to the competence of health care systems. Convenience means availability, affordability and delivery of vaccines. Based on the Strategic Advisory Group of Immunization Experts (SAGE), vaccine hesitancy is a term used to describe a delay in accepting or refusing vaccination despite the availability of vaccination services [6].

The complex nature of the motivations behind vaccine hesitancy can be analyzed using the epidemiologic triad of environmental, agent, and host factors [7]. Environmental factors include public health policies, social factors, and media messages [8]. Agent factors (vaccines and disease) include perceptions of vaccine safety and efficacy in addition to perceived susceptibility to disease [9]. Host factors depend on knowledge, previous experience, education and level of income [10].

In many countries, vaccine hesitancy and misinformation are major barriers to achieving community coverage and immunity [11]. Anti-vaccination activists are already campaigning against the need for a vaccine in many countries, with some completely denying the existence of COVID-

19 [12]. Multi-channel misinformation could have a significant impact on the acceptance of a COVID-19 vaccine [13]. The accelerated pace of vaccine development has further increased public concern and could jeopardize adoption [14]. Adoption of COVID-19 vaccine was a critical and challenging issue in defeating Covid-19 virus pandemic worldwide including our country.

Patients and Methods

A cross sectional study was conducted in Erbil city/Iraq for the period from December 1/ 2021 to December 31 2022. A convenient sample of 1000 visitors of six PHCCs were recruited. The centers were selected from different districts in Erbil city which cover all the geographical distribution of population of this governorate. Attendees of PHCCs for any reason whether patients or their companion aged 18 years and older and were willing to participate in the study were included while those with severe illness were excluded.

Data Collection

Data were collected through direct interview with all participants using a structured questionnaire that prepared by the researcher after a thorough review of already available and updated data and published researches. The researcher used Arabic and Kurdish language during the interviews The questionnaire covered the sociodemographic data of the participants including: age, sex, marital status, residence, educational level, occupation, family income, and socioeconomic status according to the socioeconomic index for health research in Iraq,¹⁵ as well as the related health status of the participants was assessed including previous infection with covid-19 and whether

they were infected before or after vaccination. Vaccine acceptance rates and reasons for acceptance or refusal and data regarding number of doses, type of vaccine received and the preferred type were all enquired.

Statistical Analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 23. Chi-square test or Fisher exact tests were used and a P value that was equal to or less than 0.05 was the level of statistical significance in this study.

Results

A total of 1000 people were included in the study. Their mean age was 39.36 (13.36±SD). Table 1 showed that females were more (56.1%) than males, the majority of the participants were married (79.5%), and from urban area (89.5%). Higher proportion of the study sample (42.2%) were of higher education and near half (46.9%) of them were not working while those working in governmental sector were (28.2%). On the other hand, majority of the study sample (78.2%) had enough family income and more than half (51.2%) were of low SES.

Table (1): Sociodemographic characteristics of the participants

	No.	%
Age		
<30	247	24.7
30-39	272	27.2
40-49	241	24.1
50-59	151	15.1
≥ 60	89	8.9
Gender		
Male	439	43.9
Female	561	56.1
Marital status		
Married	795	79.5
Unmarried	169	16.9
Widowed	33	3.3
Divorced	3	3.0
Residency		
Urban	895	89.5
Rural	105	10.5
Educational level		
Illiterate	141	14.1
Read and write	29	2.9
Primary	167	16.7
Intermediate	109	10.9
Secondary	132	13.2
Higher education	422	42.2
Occupation		
Governmental	282	28.2
Non-governmental	87	8.7

Free work	162	16.2
Not working	469	46.9
Family income		
Not enough	166	16.6
Enough	782	78.2
Exceeds needs	52	5.2
Socio-economic status		
Low	512	51.2
Medium	404	40.4
High	84	8.4
Total	1000	100%
*Chi-square **Fisher's exact test		

Figure (1) showed that 43.9% of the participants were accepted the vaccine and vaccinated. While (46.1%) of them refused the vaccine, and (10%) of them were hesitant.

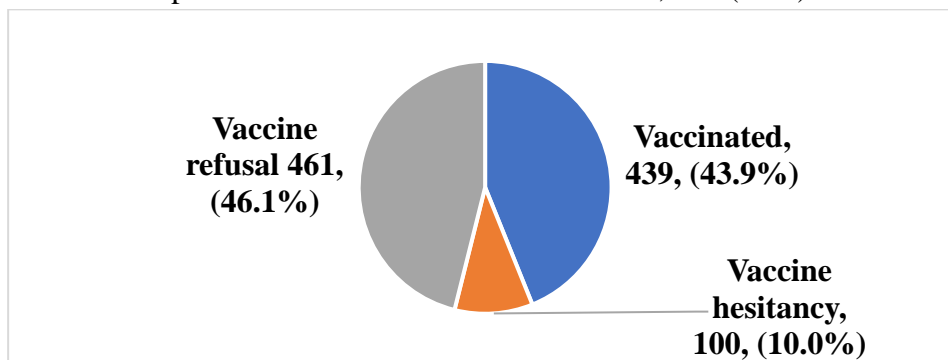


Figure (1): Vaccination status of the studied sample

Regarding the vaccination details Table (2), majority of the participants (82.7%) were taking two doses, and (10.3%) were taking only one dose. On the other hand, majority of those vaccinated (76.5%) were received Pfizer BioNTech (Pzf) vaccine, which was in turn the most preferred type by the receivers (67.4%).

Table (2): Vaccine details in the studied group

	No.	%
Number of doses		
One dose	45	10.3
Two doses	363	82.7
More than two doses	31	7.1
Type of the received vaccine		
Pfizer	336	76.5
AstraZeneca	54	12.3
Sinopharm	21	4.8
Unknown	9	2.1
More than one type	19	4.3
Type of the preferred vaccine		
Pfizer	296	67.4

AstraZeneca	21	4.8
Sinopharm	5	1.1
Unknown	117	26.7
Total	439	100%

The main reason for receiving COVID-19 vaccination Table (3) was their protection (44.2%), followed by government duty (32.8%). On the other hand, more than half (53.8%) of the participants refused to take the vaccine because they do not trust its development and approval. Of the total (439)

vaccine recipients, (10.3%) received only one dose and the main reasons were neglect and lack of time (31.1%), and fear of side effects (31.1%). While (7.1%) of them took more than two doses and the main reason for this was as a booster (71%).

Table (3): Reasons for taking or refusing the vaccine in the studied group

	No.	%
Reasons for receiving the vaccine (n = 439)		
Protect myself	194	44.2
Protect my family	10	2.3
Protect myself and family	27	6.2
Obligated by government	144	32.8
Obligated by company	10	2.3
To get vaccination card	54	12.3
Reason for refusing the vaccine (n = 561)		
Afraid from vaccine and side effects	62	11.1
Don't trust its development and approval	302	53.8
Don't believe that COVID is a serious pandemic	6	1.1
Not necessary	134	23.9
Neglect and no time for vaccination	40	7.1
Afraid from needles and injection	7	1.2
Because of my disease or pregnancy	10	1.8
Reasons for not completing the two doses (n=45)		
No longer necessary	12	26.7
Afraid from infection	5	11.1
Neglect and no time	14	31.1
Afraid from side effects	14	31.1
Reasons for taking more than two doses (n = 31)		
No trust in Sinopharm	6	19.4
No trust in AstraZeneca	2	6.5
As a booster	22	71.0
Instead of other (daughter)	1	3.2

Table (4) showed that there were no significant differences in the vaccination practices in relation to their age groups, marital status, and residency, while a significant association was found in relation

to their gender, occupation, education, family income, and socioeconomic status, in which males more accepted the vaccine and less hesitant for taking it (56.5% and 5.9% respectively), while females more rejected

and more hesitant to receive the vaccine among participants of higher family income, (52.8% and 13.2% respectively). At the same higher education and higher SES. time vaccine acceptance found to be more

Table (4): COVID-19 vaccination practices in relation to different variables

Variables	Vaccination status			P-value
	No.	Yes, I get it (Acceptance)	No, but probably will get it (Hesitation)	
Age				0.466*
<30	247	97 (39.3)	32 (13.0)	118 (47.8)
30-39	272	125 (46.0)	24 (8.8)	123 (45.2)
40-49	241	108 (44.8)	25 (10.4)	108 (44.8)
50-59	151	74 (49.0)	11 (7.3)	66 (43.7)
≥ 60	89	35 (39.3)	8 (9.0)	46 (51.7)
Gender				< 0.001*
Male	439	248 (56.5)	26 (5.9)	165 (37.6)
Female	561	191 (34.0)	74 (13.2)	296 (52.8)
Marital status				0.310**
Married	795	351 (44.2)	73 (9.2)	371 (46.7)
Unmarried	169	76 (45.0)	21 (12.4)	72 (42.6)
Widowed	33	10 (30.3)	6 (18.2)	17 (51.5)
Divorced	3	2 (66.7)	0 (0.0)	1 (33.3)
Residency				0.069*
Urban	895	404 (45.1)	88 (9.8)	403 (45.0)
Rural	105	35 (33.3)	12 (11.4)	58 (55.2)
Educational level				< 0.001*
Illiterate	141	33 (23.4)	18 (12.8)	90 (63.8)
Read and write	29	8 (27.6)	7 (24.1)	14 (48.3)
Primary	167	44 (26.3)	23 (13.8)	100 (59.9)
Intermediate	109	40 (36.7)	9 (8.3)	60 (55.0)
Secondary	132	55 (41.7)	13 (9.8)	64 (48.5)
Higher education	422	259 (61.4)	30 (7.1)	133 (31.5)
Occupation				< 0.001*
Governmental	282	216 (76.6)	11 (3.9)	55 (19.5)
Non-governmental	87	57 (65.5)	8 (9.2)	22 (25.3)
Free work	162	59 (36.4)	13 (8.0)	90 (55.6)
Not working	469	107 (22.8)	68 (14.5)	294 (62.7)
Family income				< 0.001*
Not enough	166	43 (25.9)	26 (15.7)	97 (58.4)
Enough	782	359 (45.9)	72 (9.2)	351 (44.9)
Exceeds the need	52	37 (71.2)	2 (3.8)	13 (25.0)
SES				< 0.001*
Low	512	137 (26.8)	70 (13.7)	305 (59.6)
Medium	404	233 (57.7)	27 (6.7)	144 (35.6)
High	84	69 (82.1)	3 (3.6)	12 (14.3)
Total	1000	439 (43.9)	100 (10.0)	416 (46.1)

*Chi-square **Fisher's exact test

A significant association was found Table (5) between COVID infection and vaccination status, in which (79.3%) were not infected and only (20.7%) were infected after

being vaccinated. while just one third of non-vaccinated person were found to be not infected and the rest were infected.

Table (5): Infection with COVID-19 by vaccination status among studied group

Vaccination status	Infected No. (%)	Not infected No. (%)	Total No. (%)	P-value
Not vaccinated*	453 (62.7)	270 (37.3)	723 (100)	< 0.001
Vaccinated **	76 (20.7)	291(79.3)	367 (100)	

Discussion

COVID-19 disease was first detected in December 2019 and declared a pandemic by the World Health Organization (WHO) in March 2020 [16,17]. Governments around the world have made intensive efforts to control the spread of the disease [18]. In December 2020, two approved vaccines were found to be highly effective and safe for the vast majority of people [19].

In the current study nearly half of the participants (46.1%) refuse to vaccinate with Covid-19 vaccine (i.e., definitely decided not to vaccinate) while (43.9%) accepted to be vaccinated and around (10%) of them were still hesitant (i.e., not received and not decided to receive the vaccine in the future). A similar study was conducted online in 2021 among the Kurdish population in Iraq by [21] which revealed that only 32.9% of their participants accepted to be vaccinated, 34.8% rejected to be vaccinated and 32.1% were hesitant, accordingly the level of acceptance in this region seems to be increased while hesitancy is decreased remarkably due to the fact that our study is conducted later on when the majority of the population were more informed about the benefits of the vaccination. It is also worth noting the study conducted in Baghdad by

[20]. that the majority of participants showed a remarkable agreement with the vaccination against Covid-19. Compared to other regions, our acceptance rate is higher than another study that was conducted in the middle east in which the majority of its participants were from Amman by.[22] in 2021 who reported that 36% of the participants accepted the Covid-19 vaccination but equally (36%) refused to take the vaccination and around 26% were not sure whether to receive the vaccine or not. On the other hand, the acceptance rate of our participants is lower than that found by Hennis et al in a study conducted in Lebanon in 2022, [23] which revealed that 63.4% of Lebanese population had accepted Covid-19 vaccination. Meanwhile our findings were also a much lower than earlier studies conducted in Saudi Arabia, United Kingdom, USA, Japan and China which reported an acceptance rate of (64.7%),[24] (71.7%),[25] (69%),[26] (65.7%),[27] (88.6%),[28] respectively.

In the current study, the majority of respondents used Pfz (76.5%), followed by AstraZeneca (12.3%) and Sinopharm (4.8%). This high percentage of Pfizer receiver may be related to its availability which was mostly abundant at the time of conducting the study. This finding goes hand in hand with the study

by.[20] in which 46% of their respondents had received Pfz, followed by Sinopharm (35.8%) and AstraZeneca (18.2%). We also agree with the attribution of their findings to the fact that Pfz is believed to have a competent mode of action and a high efficacy level, reaching up to 95% [29]. Research in Egypt found that the mRNA-based vaccine was the most reliable [30].

It is also worth mentioning that the majority (82.7%) of our vaccinated population had received the full initial protocol (two doses) while only 10.3% were partly vaccinated (did not complete the recommended two-dose schedule). This result is nearly similar to data from Uruguay which revealed that (85%) of the participants received the full initial protocol and only a minority of them (3%) have been partly vaccinated. While our result is higher to the data from India in which (67%) of them received the complete initial protocol and (5.3%) had only been partly vaccinated.³¹

In the current study the most common reason for receiving the vaccine was self-protection which was the same as in a study conducted by.[32]. In contrast, Tahir et al.'s study [21] found that losing a family member due to COVID-19 was significantly associated with intention to get vaccinated. While the study by [20] reported that 72.8% of participants reported that transmission of Covid-19 to family members was the main concern for accepting the vaccine. Meanwhile in a study conducted in Scotland, concluded that there was a higher intention to receive the COVID-19 vaccine when the participant had underlying medical conditions [33]. Regarding the reason for refusal of COVID-19 vaccination, most of

our participants (53.8%) stated that their reason was that they do not trust the development and approval of the vaccines while about 11% were concerned about the adverse effects of the COVID-19 vaccine. While in a study by Tahira *et al.* [21] it was mentioned that the most common reason for vaccine refusal was the potential adverse effects of the vaccine. In another study that was conducted in Jordan by [34] reported that the reason for refusal of the vaccine was that people preferred a more natural way to gain immunity from the COVID-19 vaccine. Furthermore, another study conducted in England, published by Bell *et al.*, showed that people's concern regarding the COVID-19 vaccine was the second most common reason for their refusal of the vaccine [35].

The gender of participants implies a significant difference on vaccination practices in this study, since the rate of acceptance was significantly (P-value <0.001) higher among men (56.5%) than women (34%). While in Tahir *et al.*'s²¹ study only 34% of men had accepted the COVID-19 vaccination yet nearly similar rates found among females. In contrast to the findings of Albasry *et al.*²⁰, where they reported that the acceptance rate was significantly (P-value <0.001) higher in women (84.9%). Also, study [22] showed that female participants were much more likely to accept being vaccinated than men. Hesitancy towards receiving vaccination in our study was higher among women (13.2%) than men (5.9%). Which was go hand in hand with Al-Qerem *et al.* study [22]. While [21] stated that the percentage of hesitancy was close between men (31.8%) and women (32.4%).

Another statistically significant finding in our study (P-value <0.001) is the educational level of the participants, in which the rate of vaccine acceptance tends to increase with increasing level of education, which was evident since (61.4%) of participants with higher educational levels had accepted to be vaccinated followed by secondary (41.7%), and intermediate (36.7%) school education. A similar finding was reported by Tahir et al. [21] who also found that (40.7%) of the participants who had Master/PhD accepted COVID-19 vaccination when compared to participants with a middle school degree. [20] also reported that a substantially higher rate of university students accepted to be vaccinated compared to lower degrees of education. In contrast to study, [22] which found that in reference to participants whose educational level was postgrad, the lower degrees of education were less likely to refuse the vaccine.

In regard to the occupation of the participants (P-value <0.001), government employees found to have the highest rate of acceptance (76.6%), whereas people who are not working (62.7%) had the highest rate of refusal. This can partly be explained by the mandatory regulations implied by the government in the work place to control the spread of the virus. Tahir et al. [21] compared healthcare workers vs. non-healthcare workers, and found that the rate of acceptance was higher among healthcare workers (41%) and the rate of refusal was higher among non-healthcare workers.

Family income found to be an associated factor to acceptance or refusal of COVID19 vaccine in the current study since highest rate of acceptance was among those whose

monthly income was exceeded their needs (71.2%) meanwhile, highest rate of refusal and hesitancy was among those whose monthly income was not enough (58.4% and 15.7% respectively). Such findings were also reported by, [22] and concluded that participants of lower income were less likely to get vaccinated although this finding is not statistically significant in their study.

Moreover, the current study revealed that vaccinated persons were less likely to be infected (20%) with COVID19 than non-vaccinated (62.7%). This result was consistent with a study conducted by Moghadas et al., and concluded that there is a 50% reduction of getting infection with COVID-19 after getting the vaccine [29] Also, a study conducted by ALKhafaji et al. in Saudi Arabia, reported that the majority of unvaccinated individuals (82.2%) had a higher risk of a critical course of the disease [36].

Conclusions

Rates of acceptance and refusal of the COVID-19 vaccination were almost equal, each involving less than half of the study participants, while the hesitancy rate was just 10%. Males, highly educated, high income, high socioeconomic status, and working participants were mostly accepted to receive the vaccine.

Recommendations

Further measures could be taken by health facilities, governmental, and nongovernmental agencies to further motivate the vast majority of people in our community to receive the vaccine so as to reach the optimum results in preventing the morbidity and mortality of this serious fatal disease.

Source of funding: The current study was funded by our charges with no any other funding sources elsewhere.

Ethical clearance: The study proposal was submitted to the ethics committee of Hawler Medical College/ Hawler Medical University. All participants were informed about the purpose of the study and verbal consent was obtained before participation. All information collected was confidential and was not used for purposes other than this research.

Conflict of interest: Nil

References

[1] Wang C.; Horby PW; Hayden FG.; Gao GF. A novel coronavirus outbreak of global health concern. *Lancet* 2020; 395: 470–473. doi: 10.1016/S0140-6736(20)30185-9.

[2] Nicola M.; Alsafi Z.; Sohrabi C.; Kerwan A.; Al-Jabir A.; Iosifidis C.; et al. The socio-economic implications of the coronavirus pandemic (COVID-19): A review. *Int J Surg* 2020; 78: 185–193, doi:10.1016/j.ijssu.2020.04.018.

[3] Calina D, Docea AO.; Petrakis D.; Egorov AM.; Ishmukhametov AA.; Gabibov AG.; et al. Towards effective COVID19 vaccines: Updates, perspectives and challenges (Review). *Int J Mol Med* 2020; 46: 3–16, doi:10.3892/ijmm.2020.4596.

[4] Conte, C.; Sogni, F.; Affanni, P.; Veronesi, L.; Argentiero, A.; Esposito, S. Vaccines against Coronaviruses: The State of the Art. *Vaccines (Basel)* 2020; 8(2): 309. doi:10.3390/vaccines8020309.

[5] Wu, S.C. Progress and Concept for COVID-19 Vaccine Development. *Biotechnol. J.* 2020; 15, e2000147. doi: 10.1002/biot.202000147.

[6] MacDonald, N.E., Sage Working Group on Vaccine Hesitancy. Vaccine hesitancy: Definition, scope and determinants. *Vaccine* 2015; 33: 4161–4164, doi:10.1016/j.vaccine.2015.04.036.

[7] Gowda, C.; Dempsey, AF. The rise (and fall?) of parental vaccine hesitancy. *Hum Vaccin Immunother* 2013; 9: 1755–1762, doi:10.4161/hv.25085.

[8] Daley, MF.; Narwaney, KJ.; Shoup, JA.; Wagner, NM.; Glanz, JM. Addressing Parents’ Vaccine Concerns: A Randomized Trial of a Social Media Intervention. *Am J Prev Med* 2018; 55(1): 44–54, doi:10.1016/j.amepre.2018.04.010.

[9] Dube, E.; Vivion, M.; MacDonald, N.E. Vaccine hesitancy, vaccine refusal and the anti-vaccine movement: influence, impact and implications. *Expert Rev Vaccines* 2015; 14(1): 99–117, doi:10.1586/14760584.2015.964212.

[10] Olson, O.; Berry, C.; Kumar, N. Addressing Parental Vaccine Hesitancy towards Childhood Vaccines in the United States: A Systematic Literature Review of Communication Interventions and Strategies. *Vaccines (Basel)* 2020, 8;8(4):590, doi:10.3390/vaccines8040590.

[11] Lane S, MacDonald NE, Marti M, Dumolard L. Vaccine hesitancy around the globe: analysis of three years of WHO/UNICEF Joint Reporting Form data—2015–2017. *Vaccine.* 2018; 36(26):3861–3867. doi:10.1016/j.vaccine.2018.03.063.

[12] Enserink, M. & Cohen, J. Fact-checking Judy Mikovits, the controversial virologist attacking Anthony Fauci in a viral conspiracy video. doi: 10.12691/ajphr-9-3-1

[13] Cornwall W. Officials gird for a war on vaccine misinformation. *Science.* 2020;

- 369(6499):14–15. doi: [10.1126/science.369.6499.14](https://doi.org/10.1126/science.369.6499.14).
- [14] Fadda M, Albanese E, Suggs LS. When a COVID-19 vaccine is ready, will we all be ready for it? *Int. J. Public Health*. 2020; 65(6):711–712. doi: [10.1007/s00038-020-01404-4](https://doi.org/10.1007/s00038-020-01404-4).
- [15] Omer W, Al Hadithi T. Developing a socioeconomic index for health research in Iraq. *East Med Health J*. 2017; 23 (10): 670-677. doi: [10.26719/2017.23.10.670](https://doi.org/10.26719/2017.23.10.670).
- [16] Chowdhury SD, Oommen A. Epidemiology of COVID-19. *J Dig Endosc*. 2020; 11(1): 03–07. doi:[10.1055/s-0040-1712187](https://doi.org/10.1055/s-0040-1712187)
- [17] Office WHO EMR. Updated Clinical Management Guidelines for COVID-19. Vol. 13. *Weekly Epidemiology Monitor*; 2020
- [18] Khandia R, Singhal S, Alqahtani T, Kamal MA, El-shall NA, Nainu F., et al. Emergence of SARS-CoV-2 Omicron (B.1.1.529) variant, salient features, high global health concerns and strategies to counter it amid ongoing COVID-19 pandemic. *Environ Res*. 2022; 209:112816. doi:[10.1016/j.envres.2022.112816](https://doi.org/10.1016/j.envres.2022.112816)
- [19] Baden LR, El-Sahly HM, Essink B, Kotloff K, Frey S, Novak R., et al. Efficacy and safety of the mRNA-1273 SARS-CoV-2 vaccine. *N Engl J Med*. 2021; 384(5): 403–16. doi: [10.1056/NEJMoa2035389](https://doi.org/10.1056/NEJMoa2035389).
- [20] Albasry Z, Al-Taie A. Assessment of acceptance, concerns and side effects towards COVID-19 vaccination among the community: A cross-sectional study from Baghdad, Iraq. *Clin Epidemiol Glob Health*. 2023; 20:101217. doi:[10.1016/j.cegh.2023.101217](https://doi.org/10.1016/j.cegh.2023.101217)
- [21] Tahir AI, Ramadhan DS, Piro SS, Abdullah RY, Taha AA, Radha RH. COVID-19 vaccine acceptance, hesitancy and refusal among Iraqi Kurdish population. *Int J Health Sci (Qassim)*. 2022; 16(1):10-16.
- [22] Al-Qerem WA, Jarab AS. COVID-19 Vaccination Acceptance and Its Associated Factors Among a Middle Eastern Population. *Front Public Health*. 2021; 9:632914. Published 2021 Feb 10. doi:[10.3389/fpubh.2021.632914](https://doi.org/10.3389/fpubh.2021.632914)
- [23] Hanna P, Issa A, Noujeim Z, Hleyhel M, Saleh N. Assessment of COVID-19 vaccines acceptance in the Lebanese population: a national cross-sectional study. *J Pharm Policy Pract*. 2022; 15(1):5. doi:[10.1186/s40545-021-00403-x](https://doi.org/10.1186/s40545-021-00403-x)
- [24] Al-Mohaithef M, Padhi BK. Determinants of COVID-19 Vaccine Acceptance in Saudi Arabia: A Web-Based National Survey. *J Multidiscip Healthc*. 2020; 13:1657-1663. doi.org/[10.2147/JMDH.S27677](https://doi.org/10.2147/JMDH.S27677)
- [25] Sherman SM, Smith LE, Sim J, Amlôt A, Cutts M, Dasch H. COVID-19 vaccination intention in the UK: results from the COVID-19 vaccination acceptability study (CoVAccS), a nationally representative cross-sectional survey. 2021; 17(6): 1612-1621, doi: [10.1080/21645515.2020.1846397](https://doi.org/10.1080/21645515.2020.1846397)
- [26] Reiter PL, Pennell ML, Katz ML. Acceptability of a COVID-19 vaccine among adults in the United States: How many people would get vaccinated? *Vaccine*. 2020; 38(42): 6500-6507. doi:[10.1016/j.vaccine.2020.08.043](https://doi.org/10.1016/j.vaccine.2020.08.043)
- [27] Yoda T, Katsuyama H. Willingness to Receive COVID-19 Vaccination in Japan. *Vaccines (Basel)*. 2021; 9(1):48. doi:[10.3390/vaccines9010048](https://doi.org/10.3390/vaccines9010048)
- [28] Lazarus JV, Ratzan SC, Palayew A, Gostin LO, Larson HJ, Rabin K., et al. A

- global survey of potential acceptance of a COVID-19 vaccine. *Nat Med.* 2021;27(2):225-228. doi:10.1038/s41591-020-1124-9
- [29] Moghadas SM, Vilches TN, Zhang K, Wells CR, Shoukat A, Singer BH., et al. The impact of vaccination on COVID-19 outbreaks in the United States. *medRxiv.* 2021;2020: 20240051. doi:10.1101/2020.11.27.20240051
- [30] Mohamed-Hussein AA, Galal I, Makhoulf NA, Makhoulf HA, Abd El-Aal HK, Kholief KMS., et al. A national survey of potential acceptance of COVID-19 vaccines in healthcare workers in Egypt. *MedRxiv.* 2021. doi.org/10.1101/2021.01.11.2124932
- [31] Mathieu E, Ritchie H, Rodés-Guirao L, Appel C, Gavrilov D, Giattino C., et al. (2020) - "Coronavirus Pandemic (COVID-19)". Published online at [OurWorldInData.org](https://ourworldindata.org). Retrieved from: 'https://ourworldindata.org/coronavirus' [Online Resource]
- [32] El-Elimat T, AbuAlSamen MM, Almomani BA, Al-Sawalha NA, Alali FQ. Acceptance and attitudes toward COVID-19 vaccines: A cross-sectional study from Jordan. *PLoS One.* 2021; 16(4): e0250555. doi:10.1371/journal.pone.0250555
- [33] Williams L, Flowers P, McLeod J, Young D, Rollins L. Social patterning and stability of intention to accept a COVID-19 vaccine in Scotland: Will those most at risk accept a vaccine? *Vaccines.* 2021; 9(1):17. doi: 10.3390/vaccines9010017
- [34] Abu Farha RK, Alzoubi KH, Khabour OF, Alfaqih MA. Exploring perception and hesitancy toward COVID-19 vaccine: A study from Jordan. *Hum Vaccin Immunother.* 2021;17(8):2415-2420. doi:10.1080/21645515.2021.1888633
- [35] Bell S, Clarke R, Mounier-Jack S, Walker JL, Paterson P. Parents' and guardians' views on the acceptability of a future COVID-19 vaccine: A multi-methods study in England. *Vaccine.* 2020; 38(49):7789–98. doi: 10.1016/j.vaccine.2020.10.027.
- [36] AlKhafaji DM, Al Argan RJ, AlBahrani S, Alwaheed AJ, Alqatari SG, Alelq AH., et al. The Impact of Vaccination Against SARS-CoV-2 Virus on the Outcome of COVID-19 Disease. *Infect Drug Resist.* 2022; 15:3477-3489. doi:10.2147/IDR.S365179

قبول التلقيح ضد فيروس كورونا (كوفيد-١٩) بين زوار مراكز الرعاية الصحية الأولية في أربيل

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الملخص

خلفية الدراسة: ربما يكون التلقيح هو النهج الأكثر فعالية للوقاية من مرض كوفيد-١٩ ومكافحته. أظهرت الدراسات التي قيّمت قبول التلقيح وجود اختلافات إقليمية كبيرة.

اهداف الدراسة: لمعرفة معدل قبول لقاح كوفيد-١٩ والعوامل المرتبطة به وكذلك لاستكشاف الأسباب الأكثر شيوعاً وراء قبول أو رفض هذا اللقاح والنوع الأكثر تلقياً وتفضيلاً.

المرضى والطرائق: في هذه الدراسة المقطعية، تم جمع عينة ملائمة مكونة من ١٠٠٠ زائر لمراكز الرعاية الصحية الأولية في أربيل/العراق، والذين تتراوح أعمارهم بين ١٨ عاماً فما فوق، في الفترة من كانون الأول ٢٠٢١ إلى كانون الأول ٢٠٢٢. وتم استخدام استبيان منظم لجمع البيانات من خلال المقابلة المباشرة.

النتائج: أظهرت الدراسة أن ٤٣,٩٪ من المشاركين قبلوا اللقاح. السبب الرئيسي وراء الرفض (٨,٥٣٪) هو عدم الثقة في تطويره، بينما كانت الأسباب الرئيسية لتلقيه هي حماية أنفسهم (٤٤,٢٪)، وأغلبية الذين تم تطعيمهم (٧٦,٥٪) تلقوا لقاح فايزر، وهو النوع الأكثر تفضيلاً (٦٧,٤٪)، ٣,١٠٪ منهم لم يكملوا الجرعة الموصى بها، وكانت الأسباب الأكثر شيوعاً وراء ذلك هي الإهمال وضيق الوقت (٣١٪)، والخوف من الآثار الجانبية (٣١٪). تم العثور على ارتباط كبير بين ممارسة التلقيح مع الجنس والتعليم والمهنة ودخل الأسرة والحالة الاجتماعية والاقتصادية. كان الأشخاص الملقحون أقل عرضة للإصابة بكوفيد-١٩ (٢٠,٧٪) مقارنة بغير الملقحين (٦٢,٧٪).

الاستنتاجات: تم قبول اللقاح لدى أقل من نصف المشاركين، وكان معدل القبول مرتبطاً بشكل كبير بجنس الذكر والتعليم والمهنة ودخل الأسرة والوضع الاجتماعي والاقتصادي.

الكلمات المفتاحية: قبول لقاح كوفيد-١٩، اللقاح، مراكز الرعاية الصحية الأولية

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تاريخ قبول البحث: ١٤ تشرين الثاني ٢٠٢٣

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