Factors Affecting Attitudes Toward the COVID-19 Vaccine: Empirical Evidence From the United Arab Emirates

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Abstract

Despite the importance of vaccinations to combat COVID-19, some people are still wary. This study examines factors affecting attitudes toward COVID-19 vaccination in the United Arab Emirates (UAE). Data were collected using an online survey to determine the factors that affect people's attitudes reluctant to have the COVID-19 vaccine. In total, 958 respondents participated in this study. The main factors affecting people's attitudes toward the COVID-19 vaccine in the UAE are medical concerns, religious concerns, misinformation about vaccines on social media, the rapid speed of vaccine development, and the risks of side effects associated with the vaccine. There was no difference in gender, but the older respondents (55 and above), those less educated, unemployed, and those who work in the private sector have more fears and hesitancy toward taking the vaccine.

Keywords

Attitudes; Coronavirus; COVID-19; factors; vaccination; vaccine

Introduction

The COVID-19 pandemic can only be controlled safely and effectively in the long term using preventative vaccines (Chou & Budenz, 2020). However, a worrying proportion of the population is reluctant to take the vaccine despite vaccines being a critical measure in reducing COVID-19 outbreaks. This attitude is concerning, given that herd immunity is vital to slow the spread of COVID-19 (Chou & Budenz, 2020). The reluctance to vaccinate against COVID-19 can also be understood given the novelty of the virus, the short time in which vaccines were developed (Funk et al., 2020; Tyson et al., 2020), and the concerns of some regarding the politicization of the vaccine as well as its safety and effectiveness (Tyson et al., 2020).

The success of a vaccination program depends on public acceptance of the vaccine. Thus, aside from developing and supplying vaccines, there must be enough people willing to be vaccinated. Furthermore, to effectively address vaccine hesitancy, it is critical to understand their motivations and the factors that shape their attitudes toward vaccines. Recent studies indicate that the most people would accept a COVID-19 vaccine (Detoc et al., 2020; Faasse & Newby, 2020; Freeman et al., 2020; Neumann-Böhme et al., 2020), with only 6–25% refusing to be vaccinated (Detoc et al., 2020; Faasse & Newby, 2020). However, a worldwide review by Sallam et al. (2022) reported 59.8% vaccine acceptance in Kuwait, 56.8% in Oman, 42.7% in Qatar, 46.9% in Saudi Arabia, and 60.1% in the United Arab Emirates (UAE). In another study by Sallam (2021), the lowest COVID-19 vaccine acceptance rates were in Kuwait (23.6%) and Jordan (28.1%). According to Salam (2021), the Middle East, along with other regions such as East Europe, Central Asia, Middle East, and South America, reported low rates of COVID-19 vaccination acceptance and recommended examining the extent of hesitancy surrounding COVID-19 vaccination in these regions.

According to Betsch et al. (2018), Schmid et al. (2017), and Thomson et al. (2016), those who are least likely to receive a vaccine are those who perceive a low risk of contracting a disease for which a vaccine exists, believe that disease symptoms are mild, and believe that vaccination will not affect them. After examining several risk variables, it was observed that people who view COVID-19 as a greater danger engage in preventative behaviors (e.g., social distance, handwashing) (Dryhurst et al., 2020; Faasse & Newby, 2020).

Individuals' opinions of vaccination safety also affect vaccine decision-making, as those who thought vaccines were safe were more inclined to receive them (Betsch et al., 2018; Thomson et al., 2016). Wismans et al. (2021) used the 5C model (confidence, complacency, constraints, calculation, and collective responsibility) to investigate students' vaccination intention. They found that confidence and collective responsibility were strongly related to vaccination intention. In addition, the study suggested the mediating role of confidence between perceived risk and effectiveness of vaccination and trust in government and health authorities. Suliman et al. (2021) found that a better strategy was to foster community trust through enhanced transparency about COVID-19 cases, deaths, and vaccination rates rather than pushing people who are hesitant or resistant to getting vaccinated.

There is little evidence on the safety of COVID-19 vaccines since the vaccines are still under development. However, when individuals lack knowledge regarding the safety of a new vaccination, their perceptions are impacted by their attitudes toward current vaccines.

In the UAE, five COVID-19 vaccines from Sinopharm CNBG, Pfizer-BioNTech, Moderna, Sputnik V, and Oxford AstraZeneca were approved for use (Lurie et al., 2020; Suliman et al., 2021), with the Sinopharm and Pfizer-BioNTech vaccines used for population vaccination (Suliman et al., 2021). The Sinopharm CNBG vaccination is safe to administer to children as young as 5 years old (Ministry of Health and Prevention, 2021), even to nursing mothers and pregnant women. The UAE's National Vaccination Programme has been a success due to the collaborative efforts of the UAE government and health authority and public engagement. According to Ritchie et al. (2020), the UAE ranked number one in its vaccination rate, with at least 48.7% of the world's population being vaccinated against COVID-19 as of 19 October 2021. Moreover, in the UAE, 86% of the population is fully immunized, and 96% received at least one dose. As of 20 June 2021, the UAE health authorities provided over 14.6 million vaccine doses, with more than one-third of the population being unvaccinated despite the authorities' vaccination measures (Ministry of Health and Prevention, 2021); hence, this study aims to understand why some people in the UAE are reluctant to take the vaccine.

This study attempts to understand why some individuals in the UAE are still hesitant to receive the vaccination. To ensure that health authorities in the UAE can effectively promote vaccination acceptance and control the development of COVID-19, it is vital to understand why certain individuals are reluctant to acquire the vaccine. Betsch et al. (2018) reported that vaccination acceptability is a complicated process that is impacted by a variety of circumstances (e.g., Brewer et al., 2017).

Literature review

Acceptance of the COVID-19 vaccine has been the subject of extensive investigation in a variety of nations. According to Karlsson et al. (2021), perceived risk (i.e., health-related anxiety, illness severity, and infection risks) and vaccination safety are predictors of readiness to adopt a COVID-19 vaccine in Finland. Being vaccinated against COVID-19 was most significantly connected with faith regarding vaccine safety, with those who felt COVID-19 was a serious sickness were somewhat more likely to acquire it. Education regarding vaccine safety should be a priority for health officials attempting to raise vaccination rates.

According to Bendau et al. (2021), 64.5% of respondents in Germany were willing to take the vaccination, 13.8% were indecisive, 10.4% were undecided, 5.2% opted not to take the vaccine, and 6% said they would not take it. There was a positive association between vaccination uptake and concern over the COVID-19 infection and its repercussions, with social and economic anxieties substantially connected with the readiness to receive the vaccination. Accordingly, health worries and anxiety linked to COVID-19 were associated with increased vaccination acceptability, but poor economic and social circumstances were associated with decreased vaccine acceptance. Thus, it is vital to distinguish between various forms of worry and fear and to forecast their impact on vaccination uptake.

Glöckner et al. (2020) found that individuals who judged their likelihood of contracting COVID-19 infection and the severity of the condition were more likely to want to be vaccinated. Vaccination confidence and vaccine reluctance may be addressed via evidence-based communication initiatives. Additionally, one might investigate the effect of emotion on communication.

Through addressing negative emotions such as anxiety and fear, educating people about how anti-vaccine disinformation emotionally manipulates them, and inspiring positive emotions

such as hope and altruism through vaccine education, a study conducted in the United States by Chou and Budenz (2020) highlighted several positive and negative emotions such as anxiety, fear, and hope. Malik et al. (2020) found that respondents with a higher risk perception score (composed of many risk characteristics) were more eager to be vaccinated and observed than those fearful about contracting COVID-19 were more receptive to the vaccination.

According to Gagneux-Brunon et al. (2021), the acceptance of the COVID-19 vaccine was linked with older age, fear of COVID-19, perceived risk of COVID-19, and recent flu vaccination. Nurses and assistant nurses were less likely to be vaccinated against COVID-19 than doctors. Many COVID-19 vaccinations have been met with resistance owing to vaccination apprehension. Meanwhile, a study undertaken in the early phases of the pandemic by Australian researchers Faasse and Newby (2020) found that perceptions of infection risk and illness severity did not predict vaccination intent against COVID-19. Due to the growing worry about COVID-19 outbreaks in Australia, respondents expressed a stronger desire to be vaccinated.

Howard (2021) explored the reasons for vaccine hesitation among skilled care facility personnel in America. The authors reported that some nursing staff was hesitant to get the COVID-19 vaccination due to worries about the vaccine's rapid development, personal concerns about pre-existing medical issues, and a general mistrust of the government. Medical personnel said that observing other healthcare professionals get the vaccination was more comforting than watching prominent personalities being vaccinated.

A cross-sectional online survey was conducted in Slovenia to ascertain the population's sentiments about COVID-19 immunization and to examine the factors that impact such attitudes (Petravić et al., 2021). Men, older respondents, physicians, and medical students, respondents who had received the influenza vaccination knew someone who had been hospitalized or died from COVID-19. Therefore, they had a higher level of trust in experts, institutions, and vaccines, and all expressed a greater intention to get vaccinated. Nurses and technologists had lower vaccination rates. Skeptics were divided into two groups in response to an open-ended question: those who mistrusted the vaccine's quality due to its rapid development and those who have experienced adverse reactions to previous immunizations. According to Gagneux-Brunon et al. (2021), hypothetical acceptance of the COVID-19 vaccine was associated with male gender, older age, fear of COVID-19, individual risk perception, and flu vaccination from a previous season. Nurses and assistant nurses were less likely to take COVID-19 vaccinations than doctors. Acceptance of COVID-19 immunization declined as a consequence of vaccine hesitancy. In the early phases of the pandemic, Faasse and Newby (2020) found no connection between perceived infection risk, perceived illness severity, and vaccination intentions for COVID-19. Rather respondents' plans to obtain the COVID-19 vaccination rose in response to rising anxiety about COVID-19 outbreaks in Australia.

While sentiments toward immunization vary across countries, the research findings are similar. Although vaccine reluctance varies between countries (Albahri et al., 2021; Sallam et al., 2022; Suliman et al., 2021), the most frequently cited reasons in the Middle East include the vaccine's rapid development, the side effects associated with vaccination, and the inconsistent information communicated via social media regarding the vaccine's effectiveness and safety and the belief that people should develop immunity naturally (Albahri et al., 2021). Additionally, Sallam et al. (2021) found a lack of acceptance of the COVID-19 vaccine in the Middle East was associated with conspiracy beliefs. Even though most of this country-based

research may have limitations in terms of generalizability, similar results suggest their reliability.

In summary, the factors that deterred people from taking the vaccine were the lack of confidence in vaccines due to their fast production, social media, mistrust in governments, or fear of the medical risks involved. Using a descriptive analytical approach, this study attempted to identify factors that influence the attitudes of those who did not take the COVID-19 vaccine in the UAE and how these factors are related to gender, age, education, and employment status. These findings may be useful to the UAE health authorities and contribute to our understanding of factors affecting attitudes toward the COVID-19 vaccine.

Research questions

The current study is intended to investigate factors affecting people's attitudes toward COVID-19 vaccines. The paper attempts to provide answers to the following research questions:

1. What are the factors affecting attitudes toward COVID-19 vaccination in UAE?
2. Are there any significant differences between socio-demographic factors, including sex, age groups, educational levels, and employment status, with the attitudes toward COVID-19 vaccination among residents in UAE?

Methods

Study population

A descriptive analytical approach was followed to identify the factors affecting societal fear of receiving the COVID-19 vaccination. At the time of data collection via an online survey, the UAS health authorities estimated that 86% of the population was fully vaccinated, and 96% had received at least one dose of the vaccine (Ministry of Health and Prevention, 2021). The target population was those not vaccinated, equating to approximately 4% of the population.

The online survey

Google Forms was used to design the online survey based on previous studies (Bendau et al., 2021; Chou & Budenz, 2020; Faasse & Newby; 2020) and the authors' observations and conversations with people who refused to take the vaccine. Since Arabic and English are the official languages in the UAE, the survey was bilingual. It included five demographic questions and twelve statements scored using a five-point Likert scale to denote the level of agreement or disagreement. Each statement represented a factor that shapes people's attitudes toward not taking the vaccine, with six out of twelve factors related to medical concerns (Bendau et al., 2021; Faasse & Newby, 2020), three to misinformation (Chou & Budenz, 2020), two to society and social media (Othman et al., 2022), and one to religion (Table 1). The last section posed an open-ended question for respondents to add any other reason not mentioned in the questionnaire.

Data collection

A link to the online survey was posted on various social media platforms for data collection, including Facebook, LinkedIn, and WhatsApp. The data collection, resulting in 970 responses, was conducted from 28 April until 30 May 2021. The researchers excluded twelve responses from the statistical analysis due to the incompleteness of the required data. Thus the final study sample consisted of 958 respondents.

Data analysis

The collected data were analyzed using the Statistical Package for the Social Sciences (SPSS). Descriptive Statistics are used to determine the level of the responses, and standard deviations were calculated to identify the extent of the dispersion in the responses. Pearson correlation was used to determine the factors affecting people's attitudes against COVID-19 vaccination. The correlation coefficient and Cronbach's Alpha were used to determine the instrument's reliability, validity, and stability. Independent sample tests and ANOVA tests were used to determine the demographic differences among respondents.

Ethics approval

The study obtained ethical approval from the Ethical Review Committee of Al Ain University (AAU) (No. 2021-03-07). The study adhered to the national and international guidelines for human research.

The reliability and validity of the instrument

The questionnaire was piloted to test its validity and reliability, involving peers with expertise in this particular area to assess the language and the compatibility of the statement to ensure that the categories and the statements measured what they meant. The questionnaire was amended accordingly and piloted with 51 respondents. The internal consistency of the questionnaire was confirmed using a pilot sample of 25 responses, as shown in Table 1. The Cronbach Alpha coefficient of 0.914 confirmed the reliability of the questionnaire.

Table 1: Online Survey Reliability and Validity

Related Area	No	Factor	*r*	*p* value
Medical	1	Experience of people	.65**	.00
	2	Age concerns	.56**	.00
	3	Mistrust	.55**	.00
	4	General medical concerns	.44**	.00
	5	Useless	.38**	.00
	6	Side effects	.37**	.00
Misinformation	7	Health authorities	.58**	.00
	8	Mixed views	.51**	.00
	9	Denial	.44**	.00
Society & Social Media	10	Social media	.60**	.00
	11	Family and friends	.58**	.00
Religion	12	Religious concerns	.43**	.00

*Note: ** Statistically significant at .01 level; r = correlation coefficient*

Results

Demographics

In total, the responses of 958 participants who had not been vaccinated were analyzed electronically, and their demographic characteristics are provided in Table 2. More than half of the respondents were female (54.8%), had a bachelor's degree (51.25%), and were relatively young (50.73% below 36), while 20.25% were 55 or older and were employed (73.07%).

Table 2: Demographic Characteristics of the Participants

Demographic Characteristic		Frequency	Percentage [%]
Gender	Male	433	45.2
	Female	525	54.8
	Total	958	100
Age	18–25	231	24.11
	25–35	255	26.62
	36–45	158	16.49
	46–55	120	12.53
	55–65	118	12.32
	Above 65	76	7.93
	Total	958	100
Marital Status	Single	432	45.09
	Married with children	457	47.7
	Married without children	44	4.59
	Others	25	2.61
	Total	958	100
Education	High School or less	109	11.38
	Diploma	174	18.16
	Bachelor's degree	491	51.25
	Postgraduate degree	184	19.21
	Total	958	100
Employment Status	Unemployed	258	26.93
	Employed in the public sector	223	23.28
	Employed in the private sector	278	29.02
	Own business	199	20.77
	Total	958	100

Factors affecting attitudes toward the COVID-19 vaccine

Table 3 presents the mean, standard deviation, and order of agreement with the statements from the respondents. The aggregate level of the study responses was moderate, indicating that the main factors shaping people's attitudes toward taking the vaccines in the UAE are (1) medical and (2) religious concerns, (3) misinformation about vaccines on the social media, (4) the fast speed of vaccine development, and (5) the risks (side effects) associated with the vaccine.

Table 3: Factors Affecting Attitudes Toward the COVID-19 Vaccine

No	Factor	Mean	SD	level	*r*	*p* value
1	General medical concerns	3.97	0.93	High	.44**	.00
2	Religious concerns	3.96	0.90	High	.43**	.00
3	Social Media	3.90	0.91	High	.60**	.00
4	Mistrust	3.85	1.02	High	.55**	.00
5	Side effects	3.73	1.05	High	.37**	.00
6	Experience of people	3.67	0.95	Moderate	.65**	.00
7	Age concerns	3.57	1.10	Moderate	.56**	.00
8	Family and friends	3.28	1.21	Moderate	.58**	.00
9	Denial	3.20	1.02	Moderate	.44**	.00
10	Useless	2.66	1.06	Moderate	.39**	.00
11	Mixed views	2.41	1.19	Moderate	.51**	.00
12	Health authorities	2.24	1.15	low	.58**	.00
All factors		3.37	0.56		Moderate	

*Note: **Significant at the .01 level; r = correlation coefficient*

Demographic differences

Statistical analyses were performed to determine how the factors identified related to gender, age, education, and employment status of the study population as follows:

Gender differences

The independent t-test (see Table 4) indicated no statistically significant difference between male and female respondents toward factors affecting attitudes toward COVID-19 vaccination.

Table 4: Gender Differences

Gender	N	*M*	*SD*	*df*	*t* value	*p* value
Male	433	3.35	0.62	956	-1.35	.17
Female	525	3.40	0.52			

Age differences

Table 5 shows differences between age groups with the perceived factors affecting attitudes toward COVID-19 vaccination in the UAE. The analysis of variance ($F = 6.71$, $p < .05$) was statistically significant. In addition, Table 6 presents the results of Scheffé's test for post-comparisons for testing the sources of differences among the average responses on factors affecting their attitude toward receiving the COVID-19 vaccine by age, indicating significant differences between respondents aged between 36–45 years and respondents aged above 55 years, and those aged between 25-35 years and respondents aged between 55-65 years.

Table 5: Age Differences

Age Group	F	*M*	*SD*	*F* value	*p* value
18–25	231	3.40	0.58	6.71	.00*
25–35	255	3.30	0.57		
36–45	158	3.27	0.61		
46–55	120	3.56	0.43		
55–65	118	3.64	0.38		
Above 65	76	3.60	0.22		

*Note: *Significant at the .05 level*

Table 6: Scheffé's Test Results for Age Differences

Age Group	*M*	a	b	c	d	e	f
a. 18–25	3.40	-	0.101	0.135	-0.153	-0.236	-0.198
b. 25–35	3.30	-	-	0.034	-0.254	-0.337*	-0.299
c. 36–45	3.27	-	-	-	-0.288	-0.371*	-0.333*
d. 46–55	3.56	-	-	-	-	-0.083	-0.045
e. 55–65	3.64	-	-	-	-	-	0.038
f. Above 65	3.60	-	-	-	-	-	-

*Note: *Significant at the .05 level*

Differences in educational level

As seen in Table 7, there were statistically significant differences in educational level with the perceived factors affecting attitudes toward COVID-19 vaccination in UAE ($F = 7.53$, $p < .05$), with significant differences between respondents with high school or less educational levels and respondents with a postgraduate degree (Table 8).

Table 7: Differences in Educational Level

Educational Degree	F	*M*	*SD*	*F* value	*p* value
1. High School or less	109	3.59	0.49	7.53	.00*
2. Diploma	174	3.47	0.53		
3. Bachelor's degree	491	3.25	0.60		
4. Postgraduate degree	184	3.20	0.55		

*Note: *Significant at the .05 level*

Table 8: Scheffé's Test Results for Differences in Educational Level

Educational Degree	*M*	1	2	3	4
1. High School or less	3.59	-	0.125	0.247	0.391*
2. Diploma	3.47	-	-	0.122	0.266
3. Bachelor's degree	3.25	-	-	-	0.144
4. Postgraduate degree	3.20	-	-	-	-

*Note: *Significant at the 0.05 level*

Differences in employment status

There were significant differences in employment status, as seen in Table 9 ($F = 6.06$, $p < .05$) regarding the COVID-19 vaccine. Scheffé's test analysis indicated that the differences among mean values in the attitudes were between respondents with own business and unemployed respondents (Table 10). Unemployed respondents were more likely to reject vaccination than the respondents with their businesses.

Table 9: Differences in Employment Status

Employment status	N	*M*	*SD*	*F* value	*p* value
1. Unemployed	258	3.45	.64	6.06	.00*
2. Employed in the public sector	223	3.31	.59		
3. Employed in the private sector	278	3.31	.43		
4. Own business	199	3.19	.55		

*Note: * Significant at the 0.05 level*

Table 10: Scheffé's Test Results for Differences in Employment Status

Employment Status	Mean	1	2	3	4
1. Unemployed	3.45	-	0.145	0.138	0.263*
2. Employed in the public sector	3.31	-	-	-0.007	0.118
3. Employed in the private sector	3.31	-	-	-	0.125
4. Own business	3.19	-	-	-	-

*Note: * Significant at the 0.05 level*

Discussion

The current study investigated the factors influencing the attitudes toward COVID-19 vaccination in the UAE, finding that the respondents were concerned about the safety and effectiveness of the vaccine. Prior studies have suggested that vaccines may cause side effects for people with chronic diseases, such as high blood pressure, diabetes, heart diseases, and people with lung diseases like smokers and others (Albahri et al., 2021; Sallam et al., 2022; Suliman et al., 2021). This finding is in line with the studies of Betsch et al. (2018) and Thomson et al. (2016). They found that a critical determinant in the decision about whether to accept the vaccine was the association of risk with a relevant disease. Also, risk perceptions are considered to include an emotional aspect, including worry and fear (Slovic, 2004). Harrison et al. (2021) reported that vaccine safety concerns might outweigh the perceived risks of getting ill with coronavirus in an individual's decision to be vaccinated.

These vaccine-related fears were attributed to the speed of vaccine development and concerns about the long-term adverse effects of the vaccine, as many people are afraid of the vaccine outcome. In addition, the respondents were also concerned about the lack of knowledge regarding the side effects of being vaccinated and how long immunity protection from the vaccine would last. The medical consequences are unknown since there has been insufficient time to monitor the vaccine's side effects.

Regarding religion, this could be interpreted as a conspiracy belief and agrees with Sallam et al. (2021). According to the participants, vaccines were developed to eliminate a portion of the global population or a certain sect for the benefit of another. They also believe that coronavirus and the vaccines were created as a ploy by a superpower to control the world. Furthermore, the high rate of respondents who chose the factor related to conflicting rumors about the vaccine may be due to the widespread use of the Internet and social media during the home quarantine imposed to limit the spread of the virus. People paid attention to rumors circulating about the vaccines rather than basing their opinion on reliable sources, further spreading rumors about vaccine safety.

Distrust in the health authorities ranked the lowest contributing factor among the participants, possibly because of the advanced health services in the UAE and the trust in the national health authorities. The UAE government conducted clinical trials of the Chinese vaccine (Sinopharm), and many people trust the vaccine because UAE rulers received the vaccine publicly through the media before everyone else. The UAE society trusts the government and its decisions. These findings are quite similar to those of other studies, except that people in the UAE are more trusting of their government and that religious factors played a role in framing attitudes toward vaccination.

There were no significant gender differences among the participants because males and females have a similar attitude toward vaccination. They are both exposed to the same sources of information, thus forming similar perspectives on vaccination. This finding contrasts with the findings of Gagneux-Brunon et al. (2021), who reported that males were more fearful of vaccines, while Petravić et al. (2021) found that males have a greater desire to receive vaccines than females.

The low participation rate of respondents aged 65 and older is perhaps because older adults do not engage as often with social media platforms such as Facebook, WhatsApp, and LinkedIn. There were only significant differences among the mean scores of the respondents aged 25–45 years and respondents aged above 55 years, possibly because older adults usually suffer from chronic diseases, so their fear of vaccine side effects on their health increases their reluctance to take the vaccine compared to the young and middle-aged adult population. The finding is consistent with the findings of Gagneux-Brunon et al. (2021), who reported that older people are more fearful of vaccination than other age groups. However, the current findings differ from a previous study (Petravić et al., 2021) which found that older adults have a greater desire to receive the vaccine than other age groups.

There were differences among the mean value in the views of the individuals on the factors affecting their attitude toward receiving the COVID-19 vaccine in the UAE according to the educational level between the respondents with a high school certificate or less and the respondents with a postgraduate degree. This result may be because respondents with high school certificates or less have limited knowledge about vaccines and their importance compared to the respondents with a postgraduate degree. Certainly, those who do not have sufficient knowledge about vaccination and scientific facts will know little about the importance of vaccines in the fight against the pandemic.

Employment status also had an effect, with unemployed respondents more reluctant to accept the vaccine than business owners, which is in line with Bendau et al. (2021), which revealed that social and economic reasons explain the hesitation toward vaccines in Germany. Social and economic anxieties are substantially connected with the readiness to receive the vaccination. In addition, health worries and anxiety linked to COVID-19 were associated with

increased vaccination acceptability, while poor economic and social circumstances were linked to decreased vaccine acceptance. It is the same for the people without employment, whereby they are independent and feel able to express their fears about receiving the vaccine and hesitation in taking it. By contrast, business owners have better social and economic status and are more likely to take the vaccine to protect themselves and their families. Nevertheless, this finding differs from Howard (2021). They revealed a reluctance to vaccinate among the staff of skilled nursing facilities in the United States due to their concern about fast vaccine development and personal concerns about pre-existing medical conditions, and distrust of the government.

The current study has some limitations. The data collection was conducted using social media platforms which may affect the number of respondents over 65 years old as they may not use Facebook, WhatsApp, or LinkedIn as much as younger people. Since this age group has higher medical risks associated with taking vaccines that affect their tendencies to take the vaccines, the results may have been affected. Future research is recommended on this specific, most at-risk population group using data collection methods that are more appropriate such as interviews.

Conclusion

The main factors affecting people's attitudes toward COVID-19 vaccination in the UAE are medical and religious concerns, misinformation on social media, the rapid speed of vaccine development, and the risks (side effects) associated with the vaccine. A lack of trust was associated with and compounded by the receptiveness to misinformation about the vaccine. Nonetheless, people in the UAE trust their government and prefer to see public figures and more community members vaccinated to improve their confidence about its safety and effectiveness over time.

There was no difference in the attitudes of males and females. Rather, the older persons aged 55 and over, those less educated, and unemployed participants have more fears and hesitancy than other population groups toward taking the vaccine. Concerns about the lack of long-term research on people living with medical conditions also influenced people's decisions to delay vaccination.

Based on these findings, it is recommended that public health authorities increase awareness of the importance and safety of the vaccine via multiple social media platforms, specifically targeting those groups that are reluctant to be vaccinated. Information about the safety of vaccines from reliable clinical sources is crucial, as is the role of a wide range of civil society institutions (the mosque, the church, etc.) in promoting awareness of the importance of being vaccinated as part of people's social responsibility.

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