

COVID-19 Infection and Prevention Knowledge, Attitude, and Practice Among Arabs in the Arab World and Abroad

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Abstract

Humanity is currently living in one of its worst pandemics due to Coronavirus disease-19 (COVID-19). Measures to control this pandemic are affected by the people's misinformation. This study aims to evaluate the global knowledge, attitudes, and practices (KAP) of the Arab population regarding COVID-19. Establish any connections between demographic information and the KAP of individuals. A descriptive cross-sectional survey was conducted for a period of 4 months from September to December 2021. A 24-question survey was randomly distributed in 16 different countries. Most of the participants (45.1%) were unsure whether the COVID-19 virus was man-made and released for political purposes. Only 39.6% of the participants believed the vaccine was safe (38.5% responded unsure, and 21.9% responded no). Reassuringly, most of the participants displayed a positive attitude towards the precautionary measures. Most of the study participants had high academic qualifications. Although most of the participants utilized reliable knowledge sources-certified governmental sources (41%) and the WHO and international scientific institutions (23.1%)-, there seems to be a sense of mistrust and uncertainty regarding the origin of the COVID-19 virus. This study identified major gaps in the knowledge of the Arabs which has negatively affected their attitude and practices when it comes to vaccination. More is to be done by authorities to reach the public to assure a proper source of knowledge.

Keywords: COVID-19, Vaccine, Knowledge, Prevention, cross sectional study

1. Introduction

The World Health Organization announced COVID-19 as a global pandemic in March 2020. COVID was initially recognized in Wuhan, China, in December 2019, and then spread dramatically around the world (Huang et al., 2020). As of August 2022, around 690 million cases were confirmed and around 6.4 million patients had died from COVID-19 (*World Health Organization*, n.d.).

COVID-19 mainly affects the respiratory system with a range of symptoms that vary from asymptomatic, mild symptoms to severe respiratory distress syndrome (Guan et al., 2020)(Bhatraju et al., 2020). The disease mostly affected patients with chronic comorbidities such as hypertension, obesity, diabetes, and kidney disease (Grasselli et al., 2020)(Chan et al., 2020). The disease is rapidly transmitted through the nasal route and is often caused by close contact with an infected person (Riou & Althaus, 2020).

The important World Health Organization (WHO) precautionary guidelines for COVID-19 include wearing a facial mask, social distancing, and avoiding crowded and poorly ventilated places. Many countries strictly implemented these measures. Adherence to these precautionary practices largely depends on the behavior and social responsibility of the public (Chirwa, 2020). Previous studies indicated that the public's knowledge and attitude toward a

pandemic differ from one region to another (Chirwa et al., 2019).

One of the critical means of controlling the pandemic is the availability of an effective vaccine that can stop the spread of the virus. Vaccination is one of the most important public health measures developed in the history of medicine that has facilitated the prevention of serious infectious diseases (De Gregorio & Rappuoli, 2014).

In many countries, vaccine hesitancy and misinformation present significant obstacles to achieving coverage and herd immunity (Larson et al., 2014)(Lane et al., 2018)(Cornwall, 2020). Anti-vaccination promoters are already campaigning in many countries against the need for a vaccine, with some denying the existence of COVID-19 (Enserink, M. & Cohen, n.d.). The accelerated pace of vaccine development has increased public concern and could compromise acceptance (Fadda et al., 2020). Trust in vaccines as well as the institutions that run them is major determinants of the success of any vaccination campaign (de Figueiredo et al., 2020). Decaying public confidence in vaccines due to rumors and conspiracy theories presents a major challenge to public health experts and policymakers (Kumar et al., 2016). Hesitation, spreading rumors, and fake news can influence public mentality and vaccine decisions.

Understanding the motivations for accepting the COVID-19 vaccine is a global concern because delays in vaccination in any country may lead to the emergence and spread of new variants that can overcome immunity conferred by vaccines and previous disease (Hay et al., 2021) (Karim & Karim, 2021).

The Arab population constitutes about 5% of the world population (Division, 2017). Although they share the same language and values, they seem to be very diverse in their socioeconomic backgrounds, educational levels, and trustable information sources. Our research aims to study whether those differences have an impact on the Arab population's knowledge, attitude, and practices toward the current COVID-19 pandemic and the measures taken to control it.

2. Method

A descriptive cross-sectional survey was conducted for a period of 4 months from September to December 2021. A 24-question survey was randomly distributed in 16 different countries.

2.1 Study Population and Sample

A total of 10834 questionnaires were collected from Arab population residing in the following countries: Jordan, Syria, Palestine, Lebanon, Iraq, Saudi Arabia, Bahrain, UAE, Qatar, Egypt, Sudan, Algeria, Turkey, Georgia, Canada, and the USA. The researchers from different countries distributed a questionnaire to the participants who were selected randomly.

The Inclusion and Exclusion criteria were:

Inclusion criteria: Any Arabic-speaking person 18 years old or older living in an Arabic country or any other country with a significant Arabic community.

Exclusion criteria: less than 18 years old and uncompleted surveys were eliminated.

2.2 The Questionnaire and Data Collection

To achieve the aim of our study, we used a structured 24-item questionnaire assessing knowledge and attitude toward COVID-19 and its vaccination consisting of four main parts.

- (1) Demographic information: country of residence, age, sex, marital status, number of children, education level, employment field, and COVID-19 infection.
- (2) General knowledge about COVID-19 (four questions).
- (3) General knowledge about the COVID-19 vaccine (six questions).
- (4) Attitude and practice toward COVID-19 (six questions).

2.3 Statistical Methods

The Statistical Package for Social Sciences (SPSS) was used to analyze the collected data. Frequencies of distribution and statistical graphs were used to describe the demographic characteristics of the study sample.

The crosstabs methods (chi-square) and ANOVA test were used to test the study hypothesis as all the study variables were non-continuous. In the case of a significant p-value in the chi-square test or ANOVA test ($p \leq 0.05$), the alternative hypothesis was accepted otherwise the null hypothesis was accepted (Babbie et al., 2018).

3. Results

3.1 Demographics

Most of the participants were from Arab countries (82.5%). The rest were from other countries with significant Arab communities (17.5%). Most of the participants in the study were within the age group 18-25 years old (58.1%), and were single (62.8%). The number of females was slightly higher than males (56.6%). 75.5% of our participants had a bachelor's degree or higher.

Table (1). Distribution frequencies of social demographic information

Social demographic information	Frequency	Percent
Country of Residency		
Arabic countries	8943	82.5%
Abroad	1891	17.5%
Total	10834	100.0%
Age group		
18-25	6299	58.1%
26-35	1898	17.5%
36-45	1110	10.2%
46-55	958	8.8%
56 and older	569	5.3%
Total	10834	100.0%
Gender		
Male	4702	43.4%
Female	6132	56.6%
Total	10834	100.0%
Marital status		

Single	6802	62.8%
Married	3550	32.8%
Divorced	295	2.7%
Widows	187	1.7%
Total	10834	100.0%
Number of children		
None	7193	66.4%
1	647	6.0%
2	853	7.9%
3	800	7.4%
4 and more	1341	12.4%
Total	10834	100.0%
Educational level		
Did not complete high school	1027	9.5%
High school	1627	15.0%
Bachelor's degree	7007	64.7%
Master's degree	884	8.2%
Ph.D.	289	2.7%
Total	10834	100.0%
Employment field		
Health field	3358	31.0%
Teaching field	1330	12.3%
Banking and financial field	333	3.1%
Technical field	1033	9.5%
Commercial field	639	5.9%
Literary field	156	1.4%
Art field	114	1.1%
Professional crafts	300	2.8%
Housewife	916	8.5%
Other fields	1060	9.8%
Unemployed	1595	14.7%
Total	10834	100.0%
Infected (Have you or any of your family members got COVID-19?)		
Yes	7714	71.2%
No	3120	28.8%
Total	10834	100.0%

3.2 Descriptive Analysis of the COVID-19 Information

This section shows the descriptive analysis of the study variables related to the sources of obtaining general knowledge about COVID-19 and its vaccine, in addition to the attitude and practice towards dealing with COVID-19.

As shown in table 2, certified government sources were the main source of information for 41% of our participants.

Table (2). Source of COVID-19 information

COVID-19 information source	Frequency	Percent
Certified government sources	4439	41.0%
WHO and international scientific institutions	2501	23.1%
Social media	2874	26.5%
Personal search on the internet	1020	9.4%
Total	10834	100.0%

Table 3 reflects some major gaps in knowledge about COVID-19. Less than one-third of the participants believed that the virus was not man-made (29.7%), and a similar number believed that the virus would not disappear (29%). Furthermore, only 39.7% believed they could recognize the symptoms of COVID-19 without the need for laboratory testing.

Table (3). Knowledge of COVID-19 virus

COVID-19 virus	Yes	Maybe	No
The COVID-19 virus is man-made and released from the laboratory for political purposes.	25.2%	45.1%	29.7%
COVID-19 virus will disappear soon.	30.1%	40.9%	29.0%
I can distinguish the symptoms of infection with COVID-19 without the need for laboratory tests.	39.7%	22.4%	37.9%

Table 4 revealed that a significant percentage of the participants were skeptical about COVID-19 vaccines. Only (39.6%) responded that the currently available vaccines are highly safe and (38.2%) responded that the currently available vaccines are highly effective. Despite that, a large percentage (62%) believed that the use of the vaccine will significantly reduce the severity of infection and complications.

Table (4). Knowledge of COVID-19 vaccine

COVID-19 vaccine	Yes	Maybe	No
Immunity acquired from a natural infection is better and more sustainable than immunity acquired from a vaccine.	48.5%	27.4%	24.0%
Currently available COVID-19 vaccines are highly safe.	39.6%	38.5%	21.9%
Currently available COVID-19 vaccines are highly effective.	38.2%	40.2%	21.7%
The use of the vaccine will significantly reduce the spread of the virus.	56.8%	29.8%	13.4%
The use of the vaccine will significantly reduce the severity of infection and complications.	62.2%	27.4%	10.4%
Vaccination will greatly reduce the risk of death.	53.8%	30.6%	15.6%

Table 5 summarizes the questions related to participants' practices. Most of the participants believed that a commitment to physical distancing and the use of masks was one of the most important ways to stop the pandemic (74.2% and 71.5% respectively). However, 37.6% believed that using nutritional supplements (such as vitamins and omega oils) is one way to strengthen the immune system.

Table (5). Attitude and practices toward COVID-19 virus

Attitude and Practice	Yes	Maybe	No
Commitment to physical distancing is one of the most important ways to stop the pandemic.	74.2%	15.2%	10.5%
Wearing a mask in public places is one of the most important ways to stop the pandemic.	71.5%	17.0%	11.5%
I am committed to all the precautionary measures decided by the concerned authorities.	66.2%	15.9%	17.8%
I have taken the vaccine or will take it as soon as possible.	72.8%	9.2%	18.0%
I use nutritional supplements (such as vitamins and omega oils) on a regular basis to strengthen my immunity.	37.6%	9.0%	53.4%
I usually isolate myself - or my family members in case I have any respiratory symptoms such as cough and cold.	64.0%	14.1%	21.9%

4. Discussion

This cross-sectional study aims to assess knowledge, attitudes, and practices toward COVID-19 infection among Arabs in the Arab world and abroad. A questionnaire was offered and filled out by 10834 Arabs from 16 different countries to achieve this. Our cohort was mostly young and well educated, with a significant percentage of them working or studying in the medical field. Although, most of them identified government sources and WHO as their main sources of information, our study revealed significant gaps in knowledge which subsequently affected the participant's attitudes and practices regarding the disease and its vaccine.

Only 29.7% of participants believed that the virus had spread naturally and only 29% believed the virus would not disappear. This represents a poor understanding of the virus and its epidemiology. Luckily, the vast majority believed in the importance of social distancing and the use of masks (74.2% and 71.5% respectively). Additionally, 66.2% of them declared that they are committed to all the precautionary measures decided by the concerned authorities and 72.8% of them have taken the vaccine or will take it as soon as possible. However, it seems that significant percentages of the participants seem to have a poor understanding of vaccine efficacy and value. Only 39.6% believed the vaccine is highly safe, and that its use will significantly reduce the spread of the virus (56.8%), the severity of infection & complications (62.2%), and the risk of death (53.8%). On the other hand, they erroneously appraised the vaccine-induced immune response where they (48.5%) answered that immunity acquired from a natural infection is better and more sustainable than immunity acquired from a vaccine.

Several cross-sectional studies regarding physicians and general population knowledge, attitude, and practice toward COVID-19 infection and vaccinations were conducted in different parts of the world. In 2020, a similar study was conducted in Saudi Arabia to assess the KAP of the general population toward COVID-19. The study results showed that men had less knowledge, less optimistic attitudes, and less good practice toward COVID-19 than women (Al-Hanawi et al., 2020). In 2021, another similar study was conducted in Libya. They found that the vaccine acceptance rate was positively associated with younger age and having a family member or friend infected with COVID-19 but it was negatively associated with having a relative or friend who died due to COVID-19 infection (Elhadi et al., 2021). Both studies suggested that implementing health education programs specifically targeted to the vulnerable population is of paramount importance to decrease public hesitation and increase trust in vaccines and thus, take a step further in controlling the pandemic.

Finally, authors sincerely hope that the same study could be conducted on a much bigger scale since there was some discrepancy in the number of participants between the participating countries. Overcoming this limitation would provide a much better understanding of Arab populations' knowledge, attitudes, and practices.

5. Conclusions

This is one of the leading studies to look at the knowledge, attitudes, and practices of Arabs toward COVID-19 diseases and protective measures, as this study is considered one of the largest studies conducted as it included a large number of participants from various Arab and non-Arab countries. The authors' study identified several gaps in knowledge that should be addressed by the governments of the region to improve COVID-19 control measures and improve public health.

Data Availability

The datasets collected and analyzed during the current study are not publicly available but are available from the corresponding author at reasonable request.

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