

## Knowledge, Attitudes, and Practices related to COVID-19 among People in Kurdistan Region of Iraq: A Cross-Sectional Survey

**Shalaw Faris Ahmed;** *Surgical Specialist Hospital-Cardiac Center, Ministry of Health, Erbil- Iraq*

**Dara Abdulla Al-Banna;** *Department of Nursing, Tishk International University and Hawler Medical University, Erbil, Iraq. (Correspondence: [dara.abdulla@tiu.edu.iq](mailto:dara.abdulla@tiu.edu.iq))*

**Jamal Kareem Shakor;** *Nursing Department, Darbandikhan Technical Institute, Sulaimani Polytechnic University, Sulaimani, Iraq*

**Sairan Khurshed Nariman;** *College of Dentistry, Hawler Medical University, Erbil, Iraq*

**Ari Ahmed Taha;** *Surgical Specialist Hospital-Cardiac Center, Ministry of Health, Erbil, Iraq*

### ABSTRACT

**Background and objective:** COVID-19 illness is a serious public health concern worldwide. The people in Iraqi Kurdistan have little knowledge about Coronaviruses. It was noticed that in the Kurdistan Region, the COVID-19 infection was not dealt with as required in terms of knowledge, attitudes, and practice. This study aimed to identify the level of knowledge and attitudes of Kurdish people in addition to their practices concerning COVID-19.

**Methods:** This study adopted an online cross-sectional survey design and was conducted from March 23 to April 2, 2020, to collect data from Iraqi Kurdistan Region citizens who were asked about their knowledge, attitudes, and practices related to COVID-19.

**Results:** The majority of the study participants were young and male (62.5%). Most responders (92.9%) were optimistic that the government could take necessary procedures to reduce the risks of COVID-19 infection. Less than half of the participants wore masks and gloves when they left home (41.4%, 45.1% males and females respectively). Most of the participants had good knowledge (74%), and good practice (64.6%), and the vast majority had a positive attitude (98.1%) concerning COVID-19.

**Conclusions:** Less than half of the participants who got engaged in this study wore masks and gloves whenever they went out. Hereby, the participants are to be provided with an extensive health education program so they can increase their awareness of COVID-19 infection.

**Keywords:** COVID-19; Knowledge; Attitude; Practice; Kurdistan Region

*Received: 16/02/2022*

*Accepted: 18/04/2022*

*Published: 30/05/2022*

### INTRODUCTION

COVID-19 emerged as a respiratory disease caused by a new type of coronavirus family. It was detected for the first time in Wuhan, China in December 2019 [1]. The disease was found to be highly infectious among humans, and the patients usually

presented with respiratory symptoms such as shortness of breath, dry cough, and constitutional symptoms such as fever, fatigue, and myalgia [2-3]. Among the participants, 18.5% of the ill cases are found to progress to a severe stage that

led to acute respiratory distress syndrome, septic shock, a severe form of metabolic acidosis, and coagulation dysfunction [1-4]. An active contagion that can be efficient via close contact with an infected person was identified as Coronavirus disease 2019 [5-6]. Empirical clinical data have shown that the overall mortality rate of the diseases was 8% in the world, which was lower than that of SARS (9.5%), MERS (34.4%), and H7N9 (39.0%) [1-7]. World Health Organization (WHO) reported that the COVID-19 pandemic spread was very fast, and by June 28, 2020, the virus was present in 216 countries, areas, or territories with documented positive lab results and significant human deaths [9]. Many aggressive measures were taken to control the spread of the disease to the whole world such as curfew and closing of many public places, with strict isolation of both confirmed and suspected cases of COVID-19 [9-10]. By evaluating public understanding and knowledge of COVID-19, it is possible to gain deeper insights into public knowledge and attitudes, and thus help to recognize characteristics that affect the public when implementing safe practices and sensitive activities [11]. Adherence to the control measures by people is very important and is significantly affected by their knowledge, attitudes, and practices (KAP) towards the disease according to the KAP hypothesis [12-13]. To make the management of the COVID-19 epidemic easier, there is an immediate need to understand the public's awareness of COVID-19. In this study, we investigated the knowledge, attitudes, and practices toward COVID-19 among the residents of the Kurdistan Region of Iraq.

## METHODS

This descriptive study was based on a cross-sectional survey conducted between March 23 to April 2, 2020. A sample size calculator (Raosoft software) was used to

measure the representative target sample size needed to achieve the study objectives and adequate statistical power [14]. The approximate sample size was calculated based on a 95% confidence level with a population = 2,000,000, an alpha-error of 0.05. Online data collection has long been one of the safest and most popular data collection techniques in this period. The pre-test online questionnaire survey was adopted and used in both English and Kurdish languages. To develop a COVID-19 knowledge questionnaire, the authors depended on the guidelines for controlled and community management of COVID-19 by the European Centre for Disease Prevention and Control (ECDC), the Centers for Disease Control and Prevention (CDC), and the World Health Organization (WHO) [15,16,17]. These questions were answered on a Yes/No basis with an additional "I don't know" option. The Cronbach's alpha coefficient of the knowledge questionnaire was 0.76 in our sample indicating acceptable internal consistency [18]. The questionnaire was divided into three sections. The total number of questions on the questionnaire was limited to twenty-nine questions, comprising twelve questions on knowledge, three questions on attitudes, five questions on practices, and nine questions on demographics and health information. Part One collected information about the socio-demographic background of the participants such as gender, age, marital status, family members, education levels, city, place of residence, and employment income. Individual characteristics were collected in Part Two, which involved information on the role of social media in COVID-19 and online meetings on the outbreak. The last section, Part Three, contained the details of the knowledge, attitudes, and practices related to COVID-19, and it also included clinical presentations, communication routes, and

prevention and control of COVID-19. An online questionnaire survey was posted/reposted to groups via telecommunication and social networking. The respondents who voluntarily participated were informed about the purpose of the study. Besides, the respondents were ensured that their answers would be kept confidential and would only be used for research purposes. The respondents completed the answers to the questions and submitted the questionnaires online. Furthermore, the emails were arranged and kept in a single folder. Data were analyzed by using the IBM Statistical Package of Social Sciences (SPSS) version 25. Initially, the data were analyzed descriptively using frequency, and percentage. The responses to the participant's knowledge items included three answers (0 = I don't know, 1= Incorrect, and 2= Correct). The calculation of overall participant's knowledge (12 items) was categorized into three groups Poor knowledge (0-8), Fair knowledge (9-16), and Good knowledge (17-24). The responses to the participant's practice items included three answers (0 = Not done, 1= Sometimes, and 2= Done). The calculation of overall participant's practice (3 items) was categorized into three groups Poor practice (0-2), Fair practice (3-4), and Good practice (5-6). The responses to the participant's attitude items included three answers (0 = I don't know, 1= Disagree, and 2= Agree). The calculation of the overall participant's attitude (5 items) was categorized into two groups Negative attitude (0-5) and Positive attitude (6-10).

## RESULTS

Table 1 shows that the participants were mostly young; and male, 667 (62.5%) were aged less than 35 years, and 677 (62.6%) were male. The responders were mostly from families having less than 5 members 678 (62.7%), diploma and bachelor's

degree educated level 777 (72.9%), being governmentally employed 434 (40.1%), the middle income of economic status 1000 (92.5%), lived in urban 927 (85.8%) and in Erbil 856 (79.2%). Table 2 demonstrates that the responders had relatively positive awareness of COVID-19 as 1038 responders (96%) believed in COVID-19. Almost 958 (88.6) % knew that the coronavirus virus spreads via respiratory droplets of infected individuals. Meanwhile, beliefs about wearing gloves, masks, and the possibility of the product being contaminated were less than 45%. Table 3 shows the participants' attitudes in terms of COVID-19. Most participants 1004 (92.9%) agreed with the governmental measures to reduce the transmission risk, and some responders 278 (25.7%) felt worried about the infection. Table 4 illustrates that for 956 (88.4%) of the respondents, the most frequent practice to protect from being infected was staying at home with all family members while less than 464 (43%) bought products from China and Iran. Table 5 shows that most participants (800, 74%) had good knowledge, positive attitude 1060 (98.1%), and good practice 694 (64.6%) concerning COVID-19.

**Table 1:** Socio demographic characteristics of the study population

Socio-demographic Characteristics (n=1081)		N	(%)
Age	15-24	358	(33.1)
	25-34	469	(43.4)
	35-44	197	(18.2)
	45-54	47	(4.3)
	≥ 55	10	(0.9)
Gender	Male	677	(62.6)
	Female	404	(37.4)
Marital status	Single	542	(50.1)
	Married	539	(49.9)
Family members	< 5	678	(62.7)
	6-10	376	(34.8)
	> 10	27	(2.5)
Education levels	Primary and Secondary	153	(14.2)
	Diploma and Bachelor	777	(71.9)
	Master's degree and PhD	151	(14)
Job	Student	280	(25.9)
	Government Employees	434	(40.1)
Income	Not working	118	(10.9)
	Private Employee	183	(16.9)
	Free Job	66	(6.1)
	Low	58	(5.4)
	Middle	1000	(92.5)
City	Upper middle	23	(2.1)
	Erbil	856	(79.2)
	Sulaymaniyah	185	(17.1)
	Duhok	32	(3)
Place of residence	Halabja	8	(0.7)
	Urban	927	(85.8)
	Rural	154	(14.2)

**Table 2:** Knowledge about COVID-19

Knowledge (n=1081)	Yes		No		I do not know	
	N	(%)	N	(%)	N	(%)
Do you believe in COVID19?	1038	(96)	43	(4)	0	(0)
Do you know much about coronavirus disease (COVID-19)?	647	(59.9)	414	(38.3)	20	(1.9)
Do you know the main medical symptoms of COVID-19 are fever, fatigue, dry cough, and myalgia?	751	(69.5)	123	(11.4)	207	(19.1)
Is coronavirus disease (COVID-19) the same as the flu?	688	(63.6)	153	(14.2)	240	(22.2)
Is the COVID-19 virus spread via respiratory droplets of infected individuals?	958	(88.6)	60	(5.6)	63	(5.8)
Am I at risk for COVID-19 from a package or products shipping from China or other countries?	450	(41.6)	338	(31.3)	293	(27.1)
Should I wear a mask to protect myself?	448	(41.4)	573	(53)	60	(5.6)
Should I wash my hands frequently using soap and water to protect myself?	684	(63.3)	397	(36.7)	0	(0)
Should I wear gloves when I go shopping?	492	(45.5)	589	(54.5)	0	(0)
Should I avoid touching my face, nose, and eyes?	528	(48.8)	553	(51.2)	0	(0)
Should I avoid close contact with anyone who has cold flu-like symptoms to protect myself?	665	(61.5)	411	(38)	5	(0.5)
Should I avoid going to crowded places such as masjids and avoid taking public places?	719	(66.5)	362	(33.5)	0	(0)

**Table 3:** Attitude according to COVID 19 protective measures

Attitude (n=1081)	Yes		No		I do not know	
	N	(%)	N	(%)	N	(%)
Do you agree that you are at risk from COVID-19 due to taking products from outside of the Kurdistan region?	450	(41.6)	337	(31.3)	293	(27.1)
Do you agree that government can win the conflict against the COVID-19 virus?	991	(91.7)	64	(5.9)	26	(2.4)
Do you agree with the procedures the Government achieved to decrease people's risk of being infected by/ with COVID 19?	1004	(92.9)	54	(5)	23	(2.1)
Do you agree to help Government to control this situation?	958	(88.6)	65	(6)	58	(5.4)
Do you agree with your worry feel about COVID-19?	278	(25.7)	502	(46.4)	301	(27.8)

**Table 4:** Practices to protect from COVID 19

Practice (n=1081)	Yes		No		I do not know	
	N	(%)	N	(%)	N	(%)
During this period, have you bought products from China, Iran, or other products that have been infected by COVID19?	464	(42.9)	365	(33.8)	252	(23.3)
During this quarantine, have you stayed at home?	843	(78)	238	(22)	0	(0)
During this quarantine, have all family members stayed at home?	956	(88.4)	66.0	(6.1)	59.0	(5.5)

**Table 5:** The Overall knowledge, attitude, and practice about COVID-19

Overall KAP (n=1081)	N	(%)
<b>Overall Knowledge (n=1081)</b>		
Good	800	(74)
Fair	281	(26)
Poor	0	(0)
<b>Overall Practice (n=1081)</b>		
Good	698	(64.6)
Fair	378	(35)
Poor	5	(0.5)
<b>Overall Attitude (n=1081)</b>		
Positive Attitude	1060	(98.1)
Negative Attitude	21	(1.9)
<b>Total</b>	<b>1081</b>	<b>(100)</b>

## DISCUSSION

To our knowledge, the present study is the first of its kind focusing on studying KAP among the general population of Iraqi Kurdistan regarding the COVID-19 outbreak. The regular number of local cases dropped substantially to nearly zero in areas since late April 2021. Nevertheless, the direct link of transmission started since the viral return because many people came back from outside of the Kurdistan Region, and positive cases were exponentially increasing since June 2020 [19]. Observing the instantaneous effective number of reproductions and real-time tuning of policy interventions to ensure a controllable second wave, the overriding public health priority remained close. The availability of data on population knowledge, attitudes, and practices about COVID-19 or other related viruses, particularly in the Kurdistan Region is limited. Along with its uncertainties, the novelty of this disease makes it essential for health authorities to plan appropriate strategies to prepare and manage the public. Therefore, it is important to study the knowledge, attitudes, and practices of the population to manage these efforts. Another study showed that those with low monthly income had the lowest knowledge scores [10-20]. This may indicate limited access to credible and timely information about the virus. The difference in the level of knowledge probably reflects the existing COVID-19 figures background in the area [10]. The majority of the participants demonstrated that they had relatively positive awareness of COVID-19. Almost 92.9% agreed about the governmental measures to reduce transmission, and 88.6% agreed with controlling the COVID-19 risks during the first wave. Likewise, research similar to the current study, in

China, Malaysia, and Saudi Arabia showed that the majority of the participants also held an optimistic attitude towards the epidemic: they believed that it would finally be successfully controlled, and they were confident that China, Malaysia, and Saudi Arabia could win the battle against the virus [1,10-20]. This study also evaluated KAP's characteristics in contradiction to COVID-19 and described some related demographic variables to KAP. Remarkably, the Kurdistan Region's population practices were incautious: 41.4% wore masks when leaving home during the outbreak's rapid rise period and 66.5% avoided crowded places. In Kurdish society, the use of facemasks is not common. It is rare for people in this area to wear a face mask during the disease period. In contrast to these findings, the Chinese residents' practices were very cautious: nearly (96.4%) avoided crowded places, and (98.0%) wore masks when leaving home during the COVID-19 outbreak [1].

## CONCLUSION

Based on the results, this study calls for providing the residents with an extensive health education program to increase their awareness of COVID-19. The limitation of the sample representation requires further studies to check the KAP to COVID-19 among people living in low socio-economic conditions in the Kurdistan Region of Iraq.

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