Original Article

Knowledge, attitude, and practice towards COVID-19 among Syrian people resident in Turkey

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Abstract

Background: Measuring knowledge, attitude, and practice towards COVID-19 helps policymakers observe knowledge gaps and provide key messages to people to act better against the pandemic. This study aims to assess the knowledge, attitude, and practice towards COVID-19 among Syrian people resident in Turkey.

Methods: A cross-sectional study designed to assess the knowledge, attitude, and practice towards COVID-19 among the Syrian people resident in Turkey. The data were collected via a web-based and self-administered questionnaire of 313 participants from 17-31 July 2020. SPSS version 16.0 was recruited to analyze the data using univariate and multivariable regression data analyses.

Results: Our finding as the first study among Syrian people resident in Turkey found a high rate of good knowledge, attitude, and practice towards COVID-19 accordingly with 83.0%, 72.0%, 84.0%. Regression analysis showed that age-group of 45 years and more years, marital status of being married, female gender, living in urban area were significantly associated with upper knowledge score. Age-group of 45 years and more significantly associated with positive attitude score but inversely being married and unemployed statues significantly associated with a negative attitude. Regarding practice score, married and female people had better practice, but poor-rated health status was significantly associated with the weak practice.

Conclusion: Although our finding showed a good rate for knowledge, attitude, and practice towards COVID-19, but it needs to improve cause of many barriers on Syrian people resident in Turkey, such as living in a crowded place, distant from health care services, losing whole or part of their income due to COVID-19 as an economic crisis, different language barriers. Some groups like men, people living in a rural area, and those unemployed or lost their job should be exposed by timely and accurate knowledge.

Keywords: COVID-19, Knowledge, Attitude, Practice, Displaced, Refugees, Resident, Syrian people, Turkey

Background

Almost one year passed when Coronavirus disease 2019 (COVID-19) was first discovered in December 2019, in Wuhan city, China [1]. COVID-19 has spread widely and rapidly to other parts of the world. On March 11, 2020, the World Health Organization (WHO) declared that COVID-19 is a pandemic disease with no successful anti-viral treatment or vaccine yet [2]. However, the world appeared flustered and unprepared to face a global crisis collectively [3]. In this regard, many countries have decided to control the pandemic by implementing social distancing, quarantine, closing malls,

shops, masjids, schools, universities, and jointly teaching medical care to people how to behave to prevent the adverse effects of coronavirus. Nevertheless, lessons learned from the severe acute respiratory syndrome (SARS coronavirus) or (SARS-CoV) and the influenza A virus subtype (N1H1) outbreaks suggested the precautionary behavior of the population depends on how people perceive risks and what actions they take [4]. People's reaction is different in terms of socioeconomic status, cultural differences, access to media [5], and the level of panic emotion [6]. Knowledge and behavior of the general public will determine the rate of spread in any country. The necessity of knowing about the level of knowledge towards COVID-19 for policymakers pushed countries to measure knowledge, attitude, and practice (KAP) measures

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towards COVID-19 in recent months. The results are not the same among the different groups of the population. For example, studies from China [7] and Saudi Arabia [8] showed an adequate level of knowledge towards COVID-19, but another country like Ethiopia [9] showed poor knowledge, so it is urgent to measure KAP to observe knowledge gaps to help people act better against the pandemic. On the other hand, some groups of population such as displaced, refugees, or migrants are at higher risk of weak behavior because of lack of information, limited financial means, and language barriers. Almost "79.5 million refugees and forcibly displaced people" in the world that more than three-quarters of them live in developing countries face problems with COVID-19 and humanitarian crises [10]. This study focuses on Syrians residing in Turkey, whose number of refugees and displaced persons exceeds 3.6 million, which is the largest number of registered Syrian refugees globally, and nearly half of them are children [11]. According to Cuevas et al. [12] report, 45.0% of the Syrian refugees live in poverty, and 14.0% live in extreme poverty. These figures show the need for urgent planning and implementation of policies for this part of the population because better tackling with pandemic needs an adequate level of knowledge and accurate attitude and practice levels towards the coronavirus. This paper investigates knowledge, attitude, and practice towards COVID-19 among the Syrian people resident in Turkey.

Methods
Study Design and Sample
A cross-sectional study designed to assess the knowledge, attitude, and practice towards COVID-19 among the Syrian people resident in Turkey. The data were collected via a web-based and self-administered questionnaire from 17-31 July 2020. The Google Docs Forms were recruited to create a link to the survey. The Google link was sent to Syrian people via Twitter and WhatsApp groups. This study is part of a large project with researchers' participation from Anbar and Diyala Universities in Iraq, Bezmialem Vakif University in Turkey, the Misrata University in Libya, and the World Health Organization. Briefly, the sampling technique and data collection process have been reported in detail previously [13].

Inclusion and exclusion criteria
All Syrian people living in Turkey (migrants, displaced, and refugees), 18 years of age or over, understand the questionnaire's content and agree to participate in the study. However, the study excluded the Syrian from outside Turkey, the non-Syrian displaced and refugees, and those aged < 18.

Sample size
According to the Directorate General of Migration Management in Turkey, the total number of Syrian people inside and outside temporary accommodation centers estimated to be 3,610,022 [14]. The sample size calculator arrived at 385 participants, using a margin of error of ±5%, a confidence level of 95%, a 50% response distribution, and 3,610,022 people [15].

Study tool
A semi-structured questionnaire was developed and tried by the authors earlier [13]. Considering adherence to the Centers for Disease Control and Prevention (CDC) guidelines [16], The questionnaire was written in the English language, and then it was translated into the Arabic language. Twenty respondents (not included in the study) were recruited to test pilot the study tool. Content validation was performed with a content validity rate [17, 18]. "The first page of the online questionnaire contained an assurance of the freedom to participate or withdraw and that all information and opinions submitted would be anonymous and confidential". The questionnaire contains four main sections. The first section contained information about the participants' social and demographic characteristics, including age, gender, marital status, education, employment, place of residence, income level, and self-rated health status. The second section of the questionnaire was designed to assess participants' knowledge of COVID-19. This section contained 20 items focusing on the ways of transmission of the Coronavirus, the clinical symptoms that appear on the infected person, the treatment protocol, and the groups most vulnerable to infection, in addition to information on isolation and prevention strategies, and control of the epidemic. In the third section of the questionnaire, there were 11 items to evaluate participants 'attitudes towards COVID-19, using a five-point Likert scale to determine the level of participants' agreement ranging from "1" 'Strongly disagree' to "5" 'Strongly agree'. The fourth section of the questionnaire has six questions recruited to evaluate respondents' practices and behaviors toward COVID-19.

Independent variables
For sociodemographic variables, gender was coded as one for females and zero for males. The age variable was reported in six groups: "18-24", "25–34", "35-44", "45-54", "55-64", and ">64" years old. Moreover, the age was categorized into two categorize codded zero for less than 45 years and coded one for 45 years and above. Marital status was captured as binary, and a value of one was used for married and zero for otherwise. Education was categorized and coded into zero (high academic) for college/university degree, postgraduate degree, and one (low educated) for high school or below. Work status categorized and the value of zero given to employed and value of one given to unemployed. Place of residency coded as zero for rural and one for urban. Monthly income (Turkish Lira, t 1 = USD 0.27) was divided into four categories: <USD 200, USD 200 to <400, USD 400 to1000, and more than USD1000. The self-rated health status was reported in a scale ranged from "very bad" to "very good" in a scale ranged from "1" to "5". Moreover, the self-rated health status was categorized into poor health (very bad, bad, moderate) and good health (good and very good).

Dependent variables
Respondents were asked to respond to knowledge items as either true or false, with an additional "do not know" option. Incorrect or uncertain (do not know) responses were given a score of zero, and correct answers were assigned a score. The total score for knowledge ranged from zero to 20, with high scores indicating better knowledge of COVID-19. Items were evaluated for internal reliability, using Cronbach's alpha. Cronbach's alpha coefficient was 0.70, indicating internal reliability. In the section on attitudes, scores were calculated based on the respondents' answers to each attitudinal statement,

1 = strongly disagree, 2=disagree, 3=undecided, 4=agree, and 5=strongly agree. Scores were calculated by averaging respondents' answers to the eleven statements. Total scores ranged from eleven to 55, with high scores indicating positive attitudes. The Likert scales were assessed for internal reliability, using Cronbach's alpha. Cronbach's alpha coefficient was 0.81, indicating internal reliability. In the section on practices, respondents were asked to respond "yes" or "no" to the items. A score of one was given for answers that reflected good practice, and a score of zero was given for answers that reflected bad practice. The total score ranged from zero to six, with high scores indicating better practices.

Statistical analysis

Univariate analysis was recruited to tabulate the frequency of social and demographic statistics. An independent sample t-test and one-way analysis of variance (ANOVA) were used to assess differences in mean values for KAP scores. The overall mean differences were estimated using a Bartlett test [19]. A multivariable linear regression analysis was performed to identify factors related to knowledge, attitudes, and practice. All analyses were conducted using SPSS version 16.

Results

Demographic information

A total of 327 participants completed the questionnaire. After excluding 14 respondents who reported age less than 18, the final sample consisted of 313 participants. As shown in table 1, of the total sample, 157 (50.2%) were women. Most of the sample, 217 respondents (69.3%), were in the age group less than 45 years old. Of the participants, 253 were married (80.8%), and 60 (19.2%) were unmarried (single, widow, divorce). More than half of the sample, 161 (51.4%), had a low education level compared to 152 (48.6%) had a college or university degree. Respondents were grouped according to monthly income, with 139 (44.4%) in the US$200-399 group, 66 (21.1%) in the US$400-1000 group and 60 (19.2%) in the <US$200 group, and 48 (15.3%) in the >US$1000 group. In terms of work status, 147 (47.0%) were employed, 166 (53.0%) were unemployed. Most of the respondents were urban residents (262, 83.7%). Most of the respondents perceived their health good (130, 41.5%) and very good (95, 30.4%), respectively.

KAP scores by social and demographic characteristics

As shown in Table 2, the mean COVID-19 knowledge score was 16.53 (SD = 2.21, range: 9–20), and the overall accuracy rate for the knowledge test was 82.65% (16.53 /20 * 100). The mean attitude score for COVID-19 was 39.09 (SD = 3.36, range: 11-55), indicating positive attitudes. The mean score for practices for COVID-19 was 5.04 (SD = 1.18, range: 0–6), indicating acceptable practices. Table 3 presents the mean of KAP scores towards COVID-19 by different social and demographic characteristics in Syria. Knowledge scores significantly differed across age-groups, categories of marital status, residence places, education level, income status, and health status. Age group and residency area are shown as an influential factor in Attitude scores. Marital status is the only influential factor in Practice scores (P<0.05).

Regression analysis showed that age-group of 45 years and more years (P =0.027), marital status of being married (P =0.000), female gender (P =0.026), living in an urban area (P =0.000) were significantly associated with upper knowledge score. Age-group of 35 years and more years significantly associated with positive attitude score but inversely being married and unemployed statues significantly associated with a negative attitude. Regarding practice score, married and female people had better practice, but poor-rated health statues significantly associated with weak practice (Table 4).

Table 1 Social and demographic characteristics of the study participants (n=313).

Variables	Category	Number (%)
Gender	Female	157 (50.2)
	Male	156 (49.8)
Age group	45 years and more	96 (30.7)
	< 45 years	217 (69.3)
Marital status	Married	253 (80.8)
	Single	60 (19.2)
Education	Low education	161 (51.4)
	High education	152 (48.6)
Area Residence	Urban	262 (83.7)
	Rural	51 (16.3)
Employment statues	Unemployed	166 (53.0)
	Employed	147 (47.0)
Level of income	<US $200	60 (19.2)
	US$200-399	139 (44.4)
	US$400-1000	66 (21.1)
	>US$1000	48 (15.3)
Self-rated health status	Very bad	9 (2.9)
	Bad	32 (10.2)
	Moderate	47 (15.0)
	Good	130 (41.5)
	Very good	95 (30.4)

As presented in table 5, more than 90.0% of the total sample had accurate knowledge related to "washing hands, wearing medical masks, avoiding touching their eyes, nose, and mouth with the unwashed hand ", "clinical symptoms and its importance", "spreads through cough and sneeze by infected people", "elderly people, people with chronic diseases in higher risk" and "the importance of healthy food and drinking water and isolation". However, 38.0% of them have insufficient knowledge about antibiotics' effectiveness, and 26.0% do not have accurate knowledge about children affected by COVID-19. More than 90.0% of respondents "Maintaining a reasonable distance" and "washing hands" protect individuals and society from coronavirus. 82.0% reported that they do not believe in staying at home as an effective preventive measure. 20.0% of respondents thought that coronavirus would not be controlled, and 42.0% feel that it was too late for the implication of lockdown at the beginning of the epidemic. Just 70.0% of them thought the Turkey government's strict measures were enough to win the battle against coronavirus. Also, 82.0% of participants thought complying with the instructions of the National Safety Committee of the Ministry of Health will prevent coronavirus spread. 19.0% thought that the announced number related to infected and dead persons due to coronavirus

are exaggerated (Table 6). In terms of practice towards COVID-19 that are presented in Table 7, 17.0% of participants had attended a social event involving many people, 31.0% were in a crowded place, 83.0% did not avoid social behavior such as shake hands or kiss people, 11.0% did not think seriously about social distancing, 7.7% were not interested about washing hands after going to a public place, or after blowing their nose, coughing, or sneezing, 13.4% were not interested about washing things from outside the home.

Table 2 Number of questions, range, scores, and levels of knowledge, attitude, and practice (n=313)

Variables	Number of questions	Range of score	Total scores (mean ± SD)	Accuracy rate (%)
Knowledge	20	9-20	16.53 ± 2.21	82.65
Attitude	11	11-55	39.09 ± 3.36	71.07
Practice	6	0-6	5.04 ± 1.18	84.00

Table 3 Comparison of social and demographic characteristics and mean KAP score (n=313).

Variables		Total		Knowledge			Attitude			Practice		
		n	%	Mean	SD	P	Mean	SD	P	Mean	SD	P
Gender	Female	157	50.2	17.0	2.0	0.000	39.5	3.7	0.040	5.2	1.1	0.028
	Male	156	49.8	16.0	2.3		38.7	3.6		4.9	1.2	
Age group	≥45 years	96	30.7	16.7	2.6	0.298	39.3	4.3	0.510	5.1	1.1	0.513
	< 45 years	217	69.3	16.4	2.0		39.0	3.3		5.0	1.2	
Marital status	Married	253	80.8	17.0	2.1	0.000	38.9	3.5	0.031	5.1	1.1	0.000
	Single	60	19.2	14.7	1.8		40.0	4.1		4.5	1.5	
Education level	Low education	161	51.4	16.3	2.4	0.024	39.2	4.0	0.495	5.1	1.1	0.715
	High education	152	48.6	16.8	2.0		38.9	3.3		5.0	1.2	
Residency	Urban	262	83.8	17.1	1.7	0.000	39.1	3.6	0.854	5.1	1.1	0.198
	Rural	51	16.3	13.5	1.8		39.0	3.8		4.8	1.4	
Employment	Unemployed	166	53.0	16.2	2.4	0.008	38.6	3.8	0.019	5.0	1.2	0.481
	Employed	147	47.0	16.9	2.0		39.6	3.5		5.1	1.1	
Level of income	< the US $200	60	19.2	15.6	2.5	0.001	38.6	3.8	0.420	5.1	1.3	0.076
	US$200-399	139	44.4	16.6	2.1		39.4	4.0		5.1	1.1	
	US$400-1000	66	21.1	16.6	2.2		39.3	3.1		4.7	1.3	
	>US$1000	48	15.3	17.5	1.7		38.6	3.2		5.2	0.9	
Self-rated health status	Very bad	9	2.9	18.7	1.9	0.001	37.9	3.9	0.367	5.1	0.9	0.180
	Bad	32	10.2	16.3	2.8		38.6	4.2		5.5	0.9	
	Moderate	47	15.0	16.0	2.1		39.7	4.3		5.2	0.9	
	Good	130	41.5	16.3	2.1		39.3	3.4		5.0	1.2	
	Very good	95	30.4	17.0	2.0		38.7	3.5		5.0	1.4	

Table 4 Regression results of KAP-related factors for COVID-19 (n=313)

Variable	B	SE	Beta	t	P-value	95% CI lower-Upper	Tolerance	VIF
Knowledge (Durbin-Watson= 1.678)								
45 years and more (vs <45 years)	0.455	0.205	0.095	2.220	0.027	(0.052,0.859)	0.993	1.007
Married (VS single)	1.351	0.252	0.241	5.356	0.000	(0.855,1.848)	0.902	1.109
Female (VS Male)	0.435	0.194	0.099	2.240	0.026	(0.053,0.817)	0.943	1.061
Urban (VS Rural)	3.060	0.276	0.512	11.071	0.000	(2.516,3.602)	0.853	1.172
Attitude (Durbin-Watson= 1.743)								
Married (VS single)	-1.219	0.519	-0.131	-2.350	0.019	(-2.240,0.198)	0.995	1.005
Unemployed (VS Employed)	-1.031	0.409	-0.141	-2.520	0.012	(-1.837,0.226)	0.959	1.105
Practice (Durbin-Watson= 1.748)								
Married (VS single)	0.599	0.165	0.200	3.639	0*.000	(0.275,0.923)	0.995	1.005
Female (VS Male)	0.299	0.131	0.127	2.289	0.023	(0.042,0.556)	0.981	1.020
Poor-rated health (vs Good -rated health)	-0.332	0.144	-0.127	-2.298	0.022	(-0.616,0.048)	0.998	1.015

Discussion

Like other KAP studies in recent months, our study has several implications for public health policy and research. The findings of this study provide important and timely insights into how Syrian people resident in Turkey understand information towards COVID-19 and how to practice. Our finding as first KAP study among Syrian people resident in Turkey found a higher rate (83.0%) of good knowledge towards COVID-19 when comparing with studies from Iraq [13], Egypt and Nigeria (61.6%) [20], and Bangladesh (48.3%) [21], however, the rates are similar to results reported in China (90.0%) [22], Cameroon (84.19%) [23], Saudi Arabi (81.64%) [24], Malaysia (80.5%) [25]. This higher rate of knowledge towards COVID-19 can be because of high exposure to Turkey's information for the general population, including the international residents. Another reason could be that 84.0% of the participants live in an urban area, and 49.0% of them held an academic degree. Although more than 90.0% of respondents had accurate knowledge related to "washing hands, wearing medical masks, isolation and so on", however, 38.0% of them have poor knowledge about the effectiveness of antibiotics for treatment against COVID-19, and 26.0% of them did not have accurate knowledge about children being affected by COVID-19 as shown in other countries like Saudi Arabia [24] and Jourdan [26]. Our findings suggest that Syrian people living in urban areas in Turkey are more than 45 years old, married, and have good knowledge of COVID-19. Results of this study showed a high attitude score towards COVID-19 among the Syrian people resident in Turkey. Based on the questionnaire results, just 70.0% of respondents thought the Turkish government's strict measures were sufficient to win the battle against COVID-19, and 42.0% of them feel that it was too late for the implication of lockdown at the beginning of the epidemic. Since 82.0% reported that they do not believe in staying at home as effective preventive measure, further government encouragement is required. Syrian people in Turkey who are older than 45 have positive attitude, but married and unemployed people have negative attitude.

Although most of the participants took precautions to avoid contamination by COVID-19, our study showed that 31.0% of participants went to a crowded place, and 16.6% attended a social event (such as a wedding party, funeral parlor, etc.) recently. It shows an urgent plan for implementing control measures by local governments and limit commuting at the time of the outbreak. Taking limitation measures are necessary to prevent the spread of coronavirus from interrupting transmission. A better practice is associated with being married and female gender, but people with poor health conditions did not have good practice compared to healthier people. Based on our findings, some certain demographic groups such as men, young people, and those living in rural areas need to receive medical care information more than others. Our findings are similar to the results from other countries. For example, most Chinese [22] residents of a relatively high socioeconomic status, particularly women, are knowledgeable about COVID-19, hold optimistic attitudes, and have appropriate practices towards COVID-19. In Iraq [13], the higher educated, urban residents, employed, and those having an income level of US$ 400 or more were significantly associated with upper knowledge score. Another study from Saudi Arabia [24] showed that most of the study participants were knowledgeable about COVID-19, which indicated a high level of knowledge, optimistic attitudes, and acceptable practices. Men have less knowledge, less optimistic attitudes, and less good practice towards COVID-19 than women. They also found that older adults are likely to have better knowledge and practices than younger people. Unlike findings from Iraq [13], where the respondents with good incomes have negative attitudes about coronavirus pandemic; however, our results showed that unemployment variable was significantly associated with lower attitude score. It can be related to having a low-income level due to being unemployed and also, a large share of migrants works under informal arrangements without social security coverage. Moreover, a report published by the International Red Cross and Red Crescent Movement showed that about 70.0% of refugees surveyed in Turkey reported having lost their jobs since the start of the coronavirus pandemic [27]. On the other hand, having low level of income can lead to insufficient knowledge. It can be a result of people who are in the wealthier situation are eager to collect information more than others, and economic status can push people for better and timely action to prevent COVID-19, and inversely poor people have many other issues to deal with them such as food insecurity, new problems cause of losing jobs due to COVID-19. So COVID-19 control measures should not come at the cost of access to urgently needed healthcare, and governments must ensure restrictions in camp, detention, or reception settings and do not block people from accessing healthcare. Another problem is the challenge of misinformation and misunderstanding caused by limited competence in the Turkish language and other foreign language barriers. Although Turkey made some progress in improving knowledge toward COVID-19, such as services advisor, sending a message through WhatsApp, and sharing information in Facebook in Arabic [28], improving suitable communication platforms is needed urban and rural for conveying information about COVID-19. In this context, strengthening communication and awareness of acceptable practices are vital in limiting transmission of the new coronavirus among the Syrian and other refugee and migrated community in Turkey. Similar to other studies from Iraq [13], China [22], and Saudi Arabia [24], there is a positive correlation between the level of education and knowledge regarding COVID-19. People with a low level of education cannot communicate with others easily, and also, there is some difficulty for them to use social media for tracking news. Hence, it is urgent to inform this part of the population in other ways.

This study complaint of some limitations. The survey is conducted as a web-based survey using Twitter and WhatsApp. Therefore, there is a probability that a part of the population was not included in the survey, such as people without smartphones, having no internet access, illiterate people, or people with disabilities in reading and collecting information in the current survey. This may overestimate the overall results because respondents may be more knowledgeable and have better practices towards general pandemics. Although this study is devoted to Syrians residing in Turkey, this study's results may not be generalizable to the rest of immigrants and refugees from other countries due to the different cultural and socio and economic factors.

Conclusion

The level of knowledge, attitude, and practice of the Syrian people resident in Turkey towards COVID-19 were good compared to some neighboring countries. Several socio-demographic and economic variables such as gender, education, employment, residency, and income appeared as KAP determinants towards COVID-19. Researchers expect that this study's results will help health authorities in Turkey formulate appropriate measures to confront the spread of COVID-19 among immigrants and residents of other nationalities.

Table 5 Correct responses to knowledge statements regarding COVID-19 (n=313)

No.	Statement	N (%)
1	Corona is a viral disease that spreads from person to person at a distance of up to two meters (6 feet)	229(73.2)
2	Corona spreads through respiratory droplets that occur when infected people cough and sneeze.	307(98.1)
3	Corona infection may occur by touching or kissing the contaminated surfaces or objects and then touching the mouth, nose, or possibly the eyes.	300(85.8)
4	Eating or touching wild animals can lead to infection with the Coronavirus.	124(39.6)
5	People infected with COVID-19 cannot transmit the virus to others when a fever is not present.	218(69.6)
6	The main clinical symptoms of COVID-19 are fever, fatigue, dry cough, myalgia, and shortness of breath.	301(96.2)
7	Unlike the common cold, congestion, runny nose, and sneezing are less common in people infected with COVID-19.	224(71.6)
8	Antibiotics are effective in treating COVID-19.	196(62.2)
9	Currently, there is no effective cure for COVID-19, but early symptomatic and supportive treatment can help most patients recover from the diseases.	286(91.4)
10	The elderly and people who suffer from serious chronic diseases such as heart or lung disease and diabetes have a doubled risk of developing serious complications from developing a COVID-19.	304(97.1)
11	Pregnant women are more susceptible to infections than non-pregnant women.	108(34.5)
12	Children are less likely to be infected with COVID- 19 than adults.	232(74.1)
13	Children or young people do not need to take protective measures against COVID-19 transmission.	277(88.5)
14	people must wash their hands with soap and water or use a hand sanitizer containing at least 60% alcohol for at least 20 seconds. After being in a public place, after nose-blowing, coughing, or sneezing,	301(96.2)
15	As a precaution, people should avoid touching their eyes, nose, and mouth with unwashed hands.	308(98.4)
16	Wearing medical masks is very important to prevent corona infection.	294(93.9)
17	People should only wear a mask if they are infected with the virus or care for someone with suspected COVID-19 infection.	216(69.0)
18	Healthy food and drinking water strengthen the body's immunity and resistance against COVID-19.	296(94.6)
19	Isolation and treatment of people infected with the COVID-19 are effective ways to reduce the virus's spread.	308(98.4)
20	People being in contact with someone infected with COVID-19 should be immediately quarantined, in an appropriate location, for a general observation period of 14 days.	306(97.8)

Table 6 Responses to attitudinal statements regarding COVID-19 (n=313)

No.	Statements	Strongly agree	Agree	Do not know	Disagree	Strongly disagree
1	Maintaining a reasonable distance from others is very important to avoid the spread of coronavirus.	151(48.2)	151(48.2)	7(2.2)	0 (0)	4(1.3)
2	Hand washing is necessary to protect individuals and society from the coronavirus.	166(53.0)	138(44.1)	5(1.6)	0 (0)	4(1.3)
3	Staying at home is an effective preventive measure to protect individuals and society from coronavirus exposure.	88(28.1)	168(53.7)	16(5.1)	37(11.8)	4(1.3)
4	I think the Corona epidemic can be successfully controlled.	32(10.2)	125(39.9)	92(29.4)	52(16.6)	12(3.8)
5	The strict measures taken by Turkey government are sufficient to win the battle against coronavirus.	45(14.4)	175(55.9)	58(18.5)	27(8.6)	8(2.6)
6	Complying with the National Safety Committee of the Ministry of Health instructions will prevent the spread of corona.	72(23.3)	185(59.1)	41(13.1)	14(4.5)	1(0.3)
7	The complete lockdown was an effective measure to prevent the spread of coronavirus, but it negatively affected the family's economic situation.	126(40.3)	156(49.8)	11(3.5)	19(6.1)	1(0.3)
8	I think the figures that announced the number of infected people and the number of deaths due to coronavirus are exaggerated.	16(5.1)	44(14.1)	112(35.8)	99(31.6)	42(13.4)
9	I still think that Corona Virus is a hoax, and there is no need to take precautions.	3(1.0)	4(1.3)	31(9.9)	120(38.3)	155(49.5)
10	I have a growing concern about the second peak of coronavirus cases	35(11.2)	141(45.0)	85(27.2)	46(14.6)	6(1.9)
11	When the lockdown introduced at the beginning of the epidemic, I felt it was implemented too late	33(10.5)	100(31.9)	61(19.5)	110(35.1)	9(2.9)

Table 7 Responses to practice statements regarding COVID-19 (n=313)

No.	Statement	Yes	No
1	Have you recently attended a social event (such as a wedding party, funeral parlor, etc.) involving many people?	52(16.6)	261(83.4)
2	Have you recently been in a crowded place?	96(30.8)	217(69.3)
3	Have you recently avoided shaking hands or kissing or any social behavior that calls for meeting and closeness?	53(16.9)	260(83.1)
4	Have you seriously thought about practicing social distancing and leaving a distance when talking to people?	279 (89.1)	34(10.9)
5	Recently, have you become more interested in washing your hands with soap and water frequently, for at least 20 seconds, especially after going to a public place or after blowing your nose, coughing, or sneezing?	289(92.3)	24(7.7)
6	Recently, have you become more interested in washing things that you bring from outside the home, including fruits and vegetables?	271(86.6)	42(13.4)

Abbreviation

COVID-19: Coronavirus; N1H1: Influenza A Virus Subtype; SARS coronavirus) or (SARS-CoV: Severe Acute Respiratory Syndrome; CDC: Centers for Disease Control and Prevention; KAP: Knowledge, Attitude, Practice; TL Turkish Lira; USD: United State Dollar; ANOVA: One-Way Analysis of Variance

Declaration
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Availability of data and materials

Data will be available by emailing drsaadalezzi@gmail.com

Authors' contributions

Saad Ahmed Ali Jadoo (SAAJ) is the principal investigator of this manuscript (Original manuscript) who designed the study and coordinated all aspects of the research including the study design, analysis, and interpretation of data, drafting the work, writing the manuscript, and reviewed and approved the manuscript. SAAJ, ID, MAMA, SMY, AA contributed to the study concept, design, writing, reviewing, editing, and approving the manuscript in its final form. HH, and MA contributed to data collection. OMD contributed to drafting the manuscript. All authors have read and approved the final manuscript.

Ethics approval and consent to participate

We conducted the research following the Declaration of Helsinki, and the protocol was approved by the Ethics Committee of the Scientific Issues and Postgraduate Studies Unit (PSU), College of Medicine, University of Anbar (Ref: SR/368 at 19-July-2020); the Ethics Committee of the College of Medicine, Diyala University (Ref: 1250 at 15-July-2020); National Cancer Institute, Misrata, Libya (Ref: 0000 at 91-August-2020). Moreover, web-based informed consent obtained from each participant after explanation of the study objectives and the guarantee of secrecy.

Consent for publication

Not applicable

Competing interest

The author declares that he has no competing interests.

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