Original Article

Knowledge, Attitude, and Practice toward COVID-19 among the Public in Kashan, Iran: A Cross-sectional Study

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Abstract

Aims: The goal of this study is the rapid assessment of knowledge, attitude, and practice (KAP) of Kashan's residents toward COVID-19. **Materials and Methods:** The study was a cross-sectional study and conducted among Kashan's residents (a city in Isfahan, Iran) in 2020. The sample size was estimated to be 380. A four-part questionnaire including demographic data (7 questions), participants' knowledge (3 multiple-choice questions), attitudes (6 multiple-choice questions and five-point Likert scale), and practices (2 multiple-choice questions) was used to collect the data. The data were analyzed with descriptive statistics, Kendall and Cramer's V by SPSS software. **Results:** Six hundred and fifteen participated in the study. Findings showed that more than 80% knew about symptoms and more than 85% had proper information about ways of preventing. Regarding the attitude toward prevention, 96.2% of the residents considered themselves responsible for caring. Government and municipal officials (64.5%) and health authorities (53.9%) were in the next ranks. About practice, 90% of the respondents mentioned using disinfectants, staying at home, observing hand hygiene, and avoiding being in crowded places as preventive measures. Majority of people agreed with prohibition of all public gatherings in the city. **Conclusion:** This study can be a step toward planning and effective interventions by policymakers in infectious diseases such as COVID-19.

Keywords: Attitude, COVID-19, Kashan, knowledge, practice, survey

INTRODUCTION

On December 30, 2019, the first step was taken to identify a new disease in a patient with pneumonia with an unknown etiology in Wuhan.[1,2] The disease was caused by a member of the family of coronaviruses, called COVID-19, spread quickly outside of China,[3] and on March 11, 2020, the WHO declared it as a pandemic.[3,4]

The world population has experienced several epidemics since 20 years ago such as SARS-CoV and H1N1 influenza.[5,6] SARS-CoV showed that people's knowledge and attitudes toward this kind of epidemics would affect attempts to prevent

the spread of the infectious disease,[7] especially when the specialists recognized that the human-to-human transmission and contact with contaminated objects and surfaces were the most common ways of spreading.[8] Therefore, KAP studies were conducted in different populations during a short time in every epidemic. Different KAP studies were published from the first days of pandemic. For example, Salman *et al.* investigated

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Access this article online

Quick Response Code:

Website:
http://iahs.kaums.ac.ir

DOI:
10.4103/iahs.iahs_194_21

KAP toward COVID-19 in two universities in Pakistan.[9] Abdelhafiz *et al.* surveyed KAP of Egyptians.[3] Paul investigated Bangladeshi people's KAP for mitigation measures,[10] and Srichan *et al.*[11,12] and Srichan *et al.* studied bordered population of Northern Thailand in the early period of the outbreak and reported findings of their survey to respond to COVID-19.[11] In addition, other studies from Khader *et al.*,[12] Giao *et al.*,[13] Kumar *et al.*,[14] and Roy *et al.*[15] showed population's KAP in infectious disease epidemic in different communities.

In Iran, the first cases were reported on February 19, 2020, in Qom, and after 20 days of epidemics, 7161 cases of COVID-19 were identified.[16] Within few days, some new cases were reported in Kashan, a city from Isfahan Province, and continued with a rapid increase and a high number of cases in this city.

The rapid assessment of KAP in the outbreaks of infectious diseases is very important if the findings are to be informative to the public health response[17] and experiences from different places can be useful if results are reported as soon as possible. Online survey methodology is one of the most important mythologies to apply rapid online surveying.

This study aimed to assess the knowledge, attitude, and practice (KAP) of COVID-19 among public residents in Kashan with a rapid online survey methodology. This study was in response to the needs of policymakers in Kashan because they needed to know KAP of residents for more appropriate intervention.

Materials and Methods

The study was a cross-sectional study and conducted among Kashan's residents. Because of social distancing and lockdowns, data were collected via an online researcher-made questionnaire (that was made according to some scientific evidence, exciting COVID-19 protocols and articles),[18-21] using Porsline (https://porsline.ir/) from 28 April to 1 March 2020, and were sent through WhatsApp and Instagram. In addition, managers in Kashan University of Medical Sciences distributed it via urban and rural health network. According to the latest population of Kashan (460,168 people), the sample size was estimated to be at least 380 based on Cochran formula; as far as researchers are concerned, they aimed to attract as many participants as possible; therefore, they used the convenience sampling and finally 615 people completed the questionnaire. The only criterion for entering the samples into the study was that they were residents of Kashan.

The questionnaire consisted of four sections including demographic data (7 questions), participants' knowledge (3 multiple-choice questions), participants' attitudes (6 multiple-choice questions and five-point Likert scale), and respondents' practices (2 multiple-choice questions). In the multiple-choice questions of the knowledge section, choosing the correct option (according to the protocol) and the wrong option (noncompliance with the protocol) had a score of 1 and 0, respectively. In questions with a Likert scale of attitudes, the options "to some extent " and "high" were considered positive attitudes and the options "low" and "they have no effect" were considered negative attitudes. People's answers to other multiple-choice questions in the attitudes and behaviors also depended entirely on their personal views and actions.

To determine face and content validity as well as reliability of the questionnaire, 14 specialists from different areas were employed consisting of two epidemiologists, one infectious disease specialist, one physician, three nurses, two clinical psychologists, two medical educators (Ph.D.), two environmental health engineers, and one sociologist.

In order to determine the validity of the experts and the respondents' views, the questionnaire was examined in terms of CVR (necessity) and CVI (relevance). Finally, one item was revised and no items were removed. The coefficient of the Cronbach's alpha for the whole questionnaire was 0.78 that showed a standard reliability.

The data were analyzed by using SPSS Statistics for Windows, version 16. 0 (SPSS Inc., Chicago, Ill., USA). Kendall (suitable for sequential variables) and Cramer's V (suitable for nominal variables) statistical tests were used. Only meaningful tests (with 95% confidence) are listed here.

The study was designed and conducted in accordance with the ethical principles in Kashan University of Medical Sciences (Ethical Code No.: IR.KAUMS.REC.1398.052). Informed consent of participants was obtained from the respondents by submitting the consent statement included in the online survey.

Results

A population of 615 people from Kashan participated in this online study. Table 1 shows the sociodemographic characteristics of participants. The majority of the participants (70.9%) were aged 26–48 years, about three-quarters (72.5%) of whom were women. More than half of the participants had associate's or bachelor's degrees and 29.3% were homemakers. Most of the respondents (96.2%) were city dwellers. Around two-third of the respondents (64.5%) had at least a vulnerable person at home.

Table 2 shows that majority of whom know about the symptoms of COVID-19 such as fever, dry cough, breathing difficulty, and losing sense of smelling and taste. More than 85% of the participants had proper information about ways of preventing COVID-19. In addition, 88.4% of people know about risk of COVID-19 in patients with comorbidity. Participants' attitudes toward prevention, treatment, and information resources are shown in Table 3.

Table 3 shows that more than half of the participants were very concerned about themselves or their family members catching COVID-19. Regarding the attitude toward prevention, the majority of the respondents (96.2%) considered themselves responsible for caring for COVID-19.

Table 1: Sociodemographic characteristics of participants		
Variables	Group	n (%)
Age	15-25	66 (10.8)
	26-36	241 (39.4)
	37-48	193 (31.5)
	60-70	19 (3.1)
	70 years and over	4 (0.7)
Sex	Man	168 (27.5)
	Female	443 (72.5)
Education	High school	22 (3.6)
	Diploma	114 (18.8)
	Associate or bachelor degree	315 (51.9)
	Masters and PhD	156 (25.7)
Occupation	Homemaker	172 (29.3)
	Civil servants	157 (26.7)
	Teacher/university professor	67 (11.4)
	Student	71 (11.4)
	Self-employed	67 (11.4)
	Doctor and nurse	32 (5.4)
Residence	City	589 (96.2)
	Village	23 (3.8)
Income (million Rial)	Under 10	179 (29.2)
	10-30	278 (54.4)
	30-50	97 (15.8)
	50-70	33 (5.4)
	70-100	18 (2.9)
	>100	7 (1.1)
Vulnerable person in the family	Yes	395 (64.5)
	No	217 (35.5)

Table 2: Participants' knowledge about the symptoms of the disease, ways of prevention, and risks	
Options	Frequency (%)
What are the symptoms of COVID-19?	
Runny nose	108 (17.6)
Fever	530* (86.6)
Sore throat	293* (47.9)
Dry cough	526* (85.9)
Shortness of breath	533* (87.1)
Headache	298 (48.7)
Losing sense of smelling and taste	486* (79.4)
Sputum cough	46 (7.5)
Body aches	399* (65.2)
Sneezing	112 (18.3)
Vomiting	140 (22.9)
What ways do you know to prevent COVID-19?	
Disinfecting objects and the environment	583* (95.3)
Do not touch the eyes, nose, and mouth	577* (94.3)
Wash your hands	597* (97.5)
Stay away from sick people	557* (91)
Eating garlic, ginger, and lemon	229 (37.4)
Wearing mask and gloves	542* (88.6)
Gargling with a salt water solution	324* (52.9)
Using violet or sesame oil	29 (4.7)
Taking antibiotics	26 (4.2)
Steam inhalation	134 (21.9)
Social distancing	522* (85.3)
What happens if an elderly person or a patient with comorbidity (heart, respiratory, diabetes, and kidney disease) gets COVID-19 disease?	
Hospitalizing in ICU	541* (88.4)
Death	307* (50.2)
A severe illness without the need for hospitalization	56 (9.2)
A simple cold	12 (2)
Hospitalizing in the normal ward of the hospital	98 (16)

*Correct answer. COVID-19: Coronavirus disease 2019, ICU: Intensive care unit

Based on findings, the number of proponents of chemical drugs was significantly higher than the number of proponents of traditional drugs. The majority of the respondents believed that the authorities should ban all gatherings and consider welfare assistance for people to stay at home and restrict traffic in the city as well. People's practice in prevention is shown in Table 4.

Results show that 90% of the respondents mentioned using disinfectants, staying at home, observing hand hygiene, and avoiding being in crowded places as preventive measures. In addition, the majority of them consider protocols with wearing masks and gloves.

Table 5 shows the relationship between background variables and preventive measures. It is clear from the table that the more people are concerned about themselves or their family catching COVID-19, the more preventive measures they take (Cramer's V = 0.14). However, there is an inverse relationship between the level of anxiety about getting infected and trying to stay home. In occupational groups, homemakers, teachers, university professors, and students are more likely to stay home than other occupations because of the possibility of teleworking policies and the closure of educational and financing centers. In respect to wearing mask, doctors, nurses, and staff wore masks more than other occupations. In terms of education, people with higher education are more likely to stay at home and wear masks more.

DISCUSSION

The goal of this study is the rapid assessment of KAP of Kashan's residents toward COVID-19.

In our study, participants showed an adequate knowledge toward symptoms, ways of preventing, and risk of catching COVID-19 in the elderly and patients with comorbidities. Abdelhafiz *et al.*'s findings showed almost the same results about Egyptians[3] while Indian population had a moderate level of knowledge about symptoms and an adequate knowledge about preventive measures.[15] Another study in Iran showed a low level of knowledge among participants about the symptoms of the disease (more than 80% chose incompletely correct about common symptoms). While majority of South Korean people knew about correct symptoms of COVID-19.[22] Knowledge of North-Central Nigerian people who knew about symptoms such as high fever and dry cough (89%) was high. In addition, they had adequate knowledge about ways of killing virus such as alcohol-based sanitizers and soap/detergents. Almost all

Table 3: Participants' attitudes toward prevention, treatment, and information resources

Options	Frequency (%)
I'm worried about myself and my family getting COVID-19	
High	350 (57.2)
To some extent	191 (31.2)
Low	43 (11.6)
Who is responsible for protecting you/your family/country against COVID-19?*	
Own person	585 (96.2)
Head of household	168 (27.6)
Religious trustees	58 (9.5)
Government and municipal officials	392 (64.5)
Health authorities	328 (53.9)
International organizations	142 (23.4)
Divine destiny	91 (15)
I believe that chemical drugs are effective in treating COVID-19	
High	84 (13.7)
To some extent	344 (56.2)
Low	140 (23)
They have no effect	44 (7.2)
I believe that traditional medicine is effective in treating COVID-19	
High	70 (11.4)
To some extent	228 (37.3)
Low	115 (35)
They have no effect	99 (16.2)
Which of the following gives you reliable information about COVID-19?*	
Family	152 (24.8)
Friends and acquaintances	77 (12.6)
Local mosque	7 (1.1)
City officials	50 (8.2)
Doctors and health workers	401 (65.5)
Announcements of the ministry of health	368 (60.1)
Announcements from WHO	356 (58.2)
Radio and TV	248 (40.5)
Satellite networks	53 (8.7)
Social networks	163 (26.6)
Google search	59 (9.6)
What do you think the authorities should do now to prevent the spread of the virus in Kashan?*	
Serious quarantine follow-up	348 (56.9
Apply city traffic restrictions	433 (70.8)
Continue banning all gatherings	485 (79.2)
Closure of all factories and administrative centers	201 (32.8)
Continued closure of guilds and markets	256 (41.8)
Complete quarantine of the city	204 (33.3)
Welfare assistance to people to stay at home	492 (80.4)

*Participants could chose>1 answer. COVID-19: Coronavirus disease 2019

respondents believed that washing hands is very important.[23] In addition, an Iranian cross sectional online survey showed that more than 90% of the participants knew handwashing and using disinfectants could prevent COVID 19. Items "difficulty

Table 4: People's practice in prevention

Options	Frequency (%)
What steps have you taken to prevent yourself or your family from getting COVID-19?	
Use of disinfectants	559 (91.3)
Stay at home	572 (93.5)
Wearing gloves	463 (75.7)
Eating garlic and ginger or other herbs	200 (32.7)
Observing hand hygiene	578 (94.4)
Wearing mask	502 (82)
Avoid being in crowded places	560 (91.5)
What have been the most important challenges or difficulties in carrying out these actions?	
Unavailability of masks, gloves, and disinfectants	320 (52.3)
Tired of staying home	396 (64.7)
Mocking by others	44 (7.2)
Economical pressure	363 (59.3)
Expensive hygiene items and food	370 (60.5)

COVID-19: Coronavirus disease 2019

breathing," "fever," and "cough" were chosen by majority of people as COVID-19 symptoms.[24] The results of a study in China (Anhui Province) showed that people had a higher awareness rate of symptoms but lower awareness of symptoms such as body aches or fatigue.[25] It was shown that a large number of health workers who participated in a survey in Oyo State (Nigeria) chose correct symptoms of COVID-19.[26] General information about symptoms, in Malaysia, was adequate and 86.7% of the people chose correct answer.[27]

About two-third of participants worried about catching COVID-19 (themselves or their family). About Indians, researchers reported high anxiety levels and more than 80% of the people were preoccupied with the thoughts of COVID-19[15] while one-quarter and one-third of Iranians were afraid of getting COVID-19 very high and high, in turn, while about 60% of them feared catching COVID-19 by their family very high and high. They thought that only 27.2% of their family members were very concerned about getting COVID-19.[28] More than half of health workers in Oyo State (Nigeria) thought that people are anxious about COVID-19 outbreak.[26]

Almost all participants confirmed that they considered themselves responsible for caring about the virus and then held government officials accountable.

About effectiveness of traditional and chemical drugs, participants in Kashan believed that these drugs are effective, to some extent. While the opinion of Egyptians was different and they believed that antibiotics have no effect on COVID-19. What is more, eating garlic among Egyptians and bathing with onion water among health workers in Nigeria was a preventive way form getting COVID-19.[26] In India, 63% believed that eating citrus fruits and gargling with salt water can be helpful.[29]

This study revealed that physicians and health workers were the most important resources of the participants' information

Table 5: Relationship between background variables and preventive measures

Independent variables	Preventive measures					
	Staying at home	Valid number	Intensity and significance of the relationship	Wearing Masks	Valid number	Intensity and significance
Worry about infecting yourself or your family						
Low	93	66	Cramer's V=0.14**	70	50	Cramer's V=0.11*
To some extent	98.4	188		82.2	157	
High	90.9	318		84.3	295	
Occupation						
Homemaker	98.3	169	Cramer's V=0.20**	75	129	Cramer's V=0.20**
City servants	88.5	139		89.2	140	
Teacher/University professor	98.5	66		80.6	54	
Student	97.2	69		88.7	63	
Self-employed	89.6	60		73.1	49	
Doctor/nurse	84.4	27		96.6	31	
Worker	87.5	14		75	12	
Education						
High school	95.5	21	Cramer's V=0.03	63.6	14	Cramer's V=0.15**
Diploma	93.9	107		75.4	86	
Postdiploma and bachelor's degree	92.7	292		82.5	260	
Master and PhD	94.2	147		88.5	138	

*Significant at the 99% level, **Significant at the 95% level

about COVID-19. Perhaps, the reason was the broadcast of a program called "Every House, a Health Base" in a provincial network, in which the latest news was presented to the public by health experts and policymakers. However, other studies have different findings. Honarvar's study showed that the first news resource of Iranian participants was the national TV/radio and social networks, and foreign satellite channels were in the next ranks.[28] In North-Central Nigeria, social media (55.7%) and TV (27.5%) were the major sources of information.[23] An investigation in Anhui Province cleared that social networks such as WeChat and QQ were the main sources for more than 98% of the people.[25] In Italy, school students believed that the TV was the most frequently reported source of knowledge.

CONCLUSION

In times of crisis, the most effective way to reduce the damage caused by it is the behavior of the people involved in the crisis. This study was able to provide evidence on the knowledge, attitude, and practice of the people of Kashan in the early days of the COVID-19 pandemic so that decision-makers could use this evidence to better manage the crisis.

Conflicts of interest
There are no conflicts of interest.

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