Knowledge, skill, and preventive behaviors regarding COVID-19 among the public in Shahrekord of Iran

Elahe Tavassoli, Fatemeh Baghernezhad Hesary[1]

Abstract:

BACKGROUND: COVID-19 is a serious and costly problem for communities. Observing health issues and performing preventive behaviors is influenced by their knowledge and skills of people toward COVID-19. Hence, this study investigated the knowledge, skill, and practice of the public of Shahrekord toward COVID-19.

MATERIALS AND METHOD: The present study was performed as a cross sectional. Data were collected using an online questionnaire from 540 Shahrekord residents who were selected via convenience sampling in 2020. Knowledge, skill, and practice toward COVID-19 were assessed using a prevalidated questionnaire. Collected data were analyzed by SPSS-21 software (one-way analysis of variance, Pearson test, and regression test).

RESULTS: In this study, 39.1% were male, and 60.9% were female and 46.3% were 20–25 years. The mean score of knowledge, skill, and preventive behaviors was 75.69 ± 17.85, 53.87 ± 27.40, and 59.97 ± 23.79, respectively. There was a significant direct relationship between knowledge and skill ($P = 0.05$ and $r = 081$) so that public with more knowledge had a better skill as well. There was a significant association between age ($P = 0.036$), education level ($P = 0.019$) , and job ($P = 0.014$) with knowledge. In addition, a significant association between job ($P = 0.027$) and marital status ($P = 0.014$) with skill was observed. Knowledge, skill, and demographic variables predict 37.6% preventive behavior.

CONCLUSION: The majority of the participants had good knowledge, moderate skill, and relatively enough practice. Government and policymakers must consider these knowledge levels, skill, and practices to implement productive interventions for preventing the COVID-19.

Keywords:

Behavior, COVID-19, knowledge, skill

Department of Public Health, School of Health, Shahrekord University of Medical Sciences, Shahrekord, Iran, [1]Social Determinants of Health Research Center, Birjand University of Medical Sciences, Birjand, Iran

Address for correspondence:
Dr. Fatemeh Baghernezhad Hesary, Social Determinants of Health Research Center, Birjand University of Medical Sciences, Birjand, Iran.
E-mail: ftbagher@gmail.com

Introduction

In December 31, 2019, cases of pneumonia of unknown cause were reported in Wuhan, China, by the World Health Organization (WHO).[1] The COVID 19 mortality rate is rising between 2% and 4%.[2] At the time of writing (Dec 10, 2020), COVID-19 is affecting 220 countries and territories, The total number of confirmed cases is 67, 780, 361.[3] Coronavirus disease-2019 (COVID-19) is an acute viral illness caused by the severe acute respiratory syndrome coronavirus 2. It has caused a global pandemic,[4] the coronavirus disease 2019 has converted a universal problem.[5]

Observing health issues and performing preventive behaviors is influenced by their knowledge and skills of people toward COVID-19.[6] COVID-19 is considered by fast transmission and can happen by close contact with an infected individual.[7-10]

The virus can be spread through air droplets through near and undefended interaction between diseased individuals and healthy persons.[11,12] COVID-19 is spread from

person to person through near interaction, from a diseased COVID-19 via respiratory droplets through coughing or sneezing or when touching a surface or an object that is contaminated with the virus.[13]

Furthermore, assessment of awareness, skills, and behavior is a good way to review and evaluate existing actions and programs and identify effective strategies to change people's behavior;[1] in other words, initial knowledge of the public is important and vital during pandemic. Adequate and good knowledge throughout pandemics, people may recognize themselves at risk of pollution which may, in turn, lead them to involve in preventive and protective performances.[14-16] Furthermore, having adequate knowledge of the various aspects of COVID-19 disease and ways to prevent it provides a partnership cooperation among public health practitioners, clinicians, and policymakers to direct disease control and prevention efforts.[17]

Now, there is limited information about the level of knowledge and skill of people in Iran. As such, this study aimed to identify the existing status of knowledge, skill, and preventive behaviors regarding COVID-19 among people in Shahrekord.

Materials and Methods

A descriptive, web-based cross-sectional study was conducted among people of Shahrekord city, Iran. The survey was conducted from May 26, 2020, to June 10, 2020. Individuals were selected via convenience sampling. The link of form was sent using several social media platforms such as WhatsApp Group and e-mail address of the people. Participants in the study on the first page of the questionnaire were introduced to the objectives of the study and how to complete the online questionnaire. Everyone was assured that all information would remain confidential and that the information would be used for the purposes of the study, it was ensured that they could leave the study at any time and not answer the rest of the questions, and the questionnaires were anonymous. The ethics committee of Shahrekord University of Medical Sciences with the code of IR.SKUMS.REC.1399.071 approved the current study.

The questionnaire was completed by 540 people. People living in Shahrekord aged 18 years or older, understand the contents of the form, and agree to contribute to the study were instructed to complete the online questionnaire.

A questionnaire was organized, according to the instructions for the community of COVID-19, by the Centers for Disease Control and Prevention and WHO.[18,19]

The questionnaire consisted of four sections. The first section collected information on respondents' sociodemographic characteristics, including age, gender, marital status, job status, and education level and health status (completed self-report based on individuals' opinions).

The second section measured contributors' knowledge of COVID-19. This section included 11 items on modes of transmission, clinical symptoms, at-risk groups, separation and isolation, and prevention and control of COVID-19 and each question was answered "yes," "no," or "I don't know." Correct answers scored 1 and incorrect answers or I don't know scored 0.

The third section evaluated contributors' skill toward COVID-19, using a Likert scale.

For questions, participants responded using a 5-point Likert scale (1. "Always," 2. "Most of the time," 3. "Sometimes," 4. "Rarely," or 5. "Never").

The final section of the questionnaire evaluated the respondents' practices. This section consisted of 19 questions related to preventive behaviors, including regular use of mask, going to social events with large number of people, going to crowded places, avoiding cultural behaviors, such as shaking hands, practicing social distancing, avoid unnecessary travel or outing during the outbreak, washing hands after sneezing, coughing, nose blowing, and recently, being in a public place. Participants responded using a 5-point Likert scale (1. "Always," 2. "Most of the time," 3. "Sometimes," 4. "Rarely," or 5. "Never").

The validity and reliability of the questionnaire were examined as follows: the face validity of the questionnaire was provided to a group of 35 people using a complete list of questions. These people were not included in the main study and their comments on the questionnaire questions were received.

In order to examine the content validity, the questionnaire was presented to five health education specialists, Quantitative content validity was assessed by the content validity ratio (CVR) and content validity index (CVI).

CVR, developed by Lawshe, considers the decision of each member of the expert panel, around every single item, using the three options of "The item is essential," "The item is useful but not essential," and "The item is not essential."

CVR was calculated after collecting the experts' opinions. According to Lawshe table, the items with CVR values higher than 0.59 were maintained.[20]

CVI was assessed using the Walts-Basel method. This index was used to ensure that research tool items were correctly planned for assessing the knowledge, skill, and practice. Hence, three criteria of simplicity, clarity, and relevancy with a 4-point Likert scale were used. CVI was measured 0.74, 0.81, and 0.82 for knowledge, skill, and practice, respectively. Internal consistency of the questionnaire was evaluated by Cronbach's alpha coefficient, which was found as 0.85 for knowledge questions, 0.81 for skill, and 0.72 for practice.

Data analyses

After collecting data from the participants, the data were analyzed in the Statistical software package IBM SPSS version 21 (IBM, USA) (S tatistical package for social science), using the Chi-square test, one-way analysis of variance, Pearson test , Kolmogorov–Smirnov test, and regression test were used.

Kolmogorov–Smirnov test was used to test the normality of data distribution. To investigate the skill, knowledge, and practice in various groups according to the education level, age, and job, one-way analysis of variances was used. Chi-square test was used to assess the association between levels of knowledge and skill. Pearson test was used to investigate the association between knowledge, skill, and preventive behaviors. In addition, regression test was used to investigate the correlation between public knowledge, skill, and preventive behavior. The significance level in this study was determined to be <5%.

Results

The frequency and percentage of demographic characteristics are represented in Table 1. The results showed that 39.1% were male and 60.9% were female and 46.3% were 20–25 years. The mean age of people was 27.25 ± 7.93 years old. About 75.6% of the participants had the education level of academic. There was a significant association between age ($P = 0.036$), education level ($P = 0.019$), and job ($P = 0.014$) with knowledge. In addition, a significant association between job ($P = 0.027$) and marital status ($P = 0.014$) with skill was observed.

Therefore, people who were housewife and married had a higher skill, also people whose age was 40–45 years had a better knowledge about COVID-19. In addition, people whose self-employed and education levels were higher had a better knowledge about COVID-19 [Table 1].

The mean score of knowledge, skill, and preventive behaviors was 75.69 ± 17.85, 53.87 ± 27.40, and 59.97 ± 23.79, respectively [Table 2].

Findings of this study indicate that the number of participants who have chosen the answer of "Most of the times "to the all questions of "Have you ever prepared a mask to prevent corona at home?," "Have you ever prepared an Appropriate sanitizer?", "Have you ever disposed gloves and masks healthy?", "Have you ever disinfected food purchased at home" , 38.1%, 37.8%, 38.3% and 38%, respectively [Table 3].

There was a significant direct relationship between knowledge and skill ($P = 0.05$ and $r = 081$) so that public with more knowledge had a better skill as well [Table 4].

The results of linear regression demonstrated that knowledge, skill, and demographic variables predict 37.6% preventive behavior. The results of regression analysis also showed that knowledge and skill are the main predictors of preventive behavior regarding COVID-19 [Table 5].

Discussion

COVID-19 is an emerging disease that converted to an important threat to public health. Given the serious threats imposed by COVID-19 and the nonappearance of a COVID-19 vaccine, preventive actions play a vital role in decreasing infection rates and controlling the range of COVID-19. This shows the requirement of public adherence to preventive and control actions, which is affected by their knowledge, attitudes, and practices. Hence, the current study aimed to assess knowledge, skill, and practice regarding COVID-19 among the public in Shahrekord of Iran.

In this study, the majority of peoples have good knowledge toward COVID-19. The mean participant's knowledge score was 75.69 which were consistent with the studies by Saqlain et al.,[1] Maheshwari et al.,[6] Zhong et al.,[21] and Azlan et al.[22] People whose age was 40–45 years had a better knowledge about COVID-19, possibly due to a higher risk perception of contraction and problems from the disease.[22] In this study, the high rate of right answers to knowledge-related questions among contributors was not amazing. This might be due to the characteristics of the sample, as 75.6% had a college or university degree. In this time, people may have gained knowledge of the COVID-19 and its spread, via television, radio, website, news, and social media, to protect themselves and their families and prevention of disease.

The current study showed that a large majority of contributors held medium skill toward overcoming COVID-19.

Approximately 38.1% expressed that they could prepare a face mask to prevent corona at home, 37.8% said that they could prepare an appropriate sanitizer at home,

Table 1: The association between knowledge and demographic characteristics of the study participants

Variables	Sub-groups	Knowledge	P, F	Skill	P, F
Gender	Female	76.01±17.60	0.878, 0.024	53.83±26.63	0.235, 0.054
	Male	75.20±18.25		53.93±28.62	
Age	≤20	70.48±19.12	0.036, 2.163	55.61±29.02	0.098, 1.736
	20-25	64.99±19.65		53.31±27.17	
	25-30	73.77±19.34		59.99±27.74	
	30-35	76.59±17.11		52.07±27.11	
	35-40	79.17±13.79		53.87±26.47	
	40-45	80.19±17.96		41.34±26.24	
	45-50	76.77±17.58		37.75±24.50	
	≥50	72.16±11.78		61.50±23.33	
Marital status	Single	75.04±18.14	0.432, 0.842	55.42±26.91	0.014, 4.321
	Married	77.19±17.25		75.00±15.82	
	Dead wife/divorced	74.63±16.40		49.75±28.18	
Education	Primary school	70.01±17.64	0.019, 3.352	51.87±27.40	0.698, 0.478
	Secondary education	70.34±18.52		51.76±31.52	
	Diploma	73.79±17.77		51.09±28.80	
	Academic	76.79±17.85		54.67±26.52	
Job status	Employee	69.51±18.34	0.014, 2.538	55.46±24.58	0.027, 2.281
	House wife	71.60±18.60		59.13±24.29	
	Worker	74.02±17.38		52.03±25.79	
	Self-employed	78.70±16.80		53.02±29.41	
	Retiree	76.92±14.19		75.00±0.001	
	School student	73.18±16.28		49.07±32.80	
	University student	77.80±17.78		56.80±26.96	
	Unemployed	72.73±0.00		44.01±27.30	
Health status	Very good	73.52±17.74	0.747, 0.485	57.65±28.72	0.289, 1.249
	Good	75.81±18.13		52.14±27.23	
	Medium	75.78±17.68		55.53±26.67	
	Bad	75.46±18.09		50.87±33.02	
	Very bad	76.91±17.86		52.00±35.36	

Table 2: Mean and standard deviation of the knowledge, skill, and preventive behaviors in respondents

Variable	Mean±SD
Knowledge	75.69±17.85
Skill	53.87±27.40
Preventive behaviors	59.97±23.79

SD=Standard deviation

38.3% said that they could dispose gloves and masks healthy and safe, and 38% said that they could disinfect food purchased at home.

Knowledge of the COVID-19 is considered the most important step to health education and health promotion actions that is implemented. Knowing the reasons and spread sources of a COVID-19 increases the probability that persons will become more aware of the spread of communicable diseases and of the protective actions to slow transmission of COVID-19.

In the current study, approximately half of the contributors reported relatively enough practice; most contributors reported taking protections such as avoiding crowded places, proper ventilation of home air and correct hand hygiene, social distancing, and don't go on a trip and do not shake hands with others was implemented. Al-Hanawi et al.[23] and Saqlain et al.[1] results showed that the contributors had good practices; in Zhong et al.[21] study, approximately all avoided crowded places and wore face masks after exit the home.

There was a significant direct relationship between knowledge and skill so that public with more knowledge had a better skill as well. In confirmation of these results, it might be said that if we expect somebody to do a behavior properly and completely, they must know what that performance is at first and then they must know how to do that.

The results of regression analysis also showed that knowledge and skill are the main predictors of preventive behavior regarding COVID-19.

Knowledge is a very significant subject. Before we request somebody to do something properly, they must know what is that performance and obtain information round that specific performance. The first stage in health

Table 3: Responses to skill questions regarding COVID-19

Questions	Never	Rarely	Sometimes	Most of the times	Always
1. Have you ever prepared a face mask to prevent corona at home?	65 (12)	91 (16.9)	121 (22.4)	206 (38.1)	57 (10.6)
2. Have you ever prepared an appropriate sanitizer at home?	64 (11.9)	92 (17)	122 (22.6)	204 (37.8)	58 (10.7)
3. Have you ever disposed gloves and masks healthy and safe?	63 (11.7)	91 (16.9)	121 (22.4)	207 (38.3)	58 (10.7)
4. Have you ever disinfected food purchased at home?	64 (11.9)	94 (17.4)	120 (22.2)	205 (38)	57 (10.6)

Table 4: The association between knowledge, skill, and preventive behaviors regarding COVID-19

Variables	Knowledge	Skill	Preventive behaviors
Knowledge	1		
Skill	P=0.05, r=0.081	1	
Preventive behaviors	P=0.0.89, r=0.061	P=0.544, r=0.026	1

Table 5: Regression analysis of predictors of preventive behaviors regarding COVID-19

Variables	Line slope (β)	t	Significance level	Coefficient of determination (R^2)
Knowledge	0.287	2.850	0.001	0. 376
Skill	0.379	3.433	0.006	
Age	0.123	2.651	0.057	
Gender	0.014	1.756	0.432	
Marital status	−0.043	1.918	0.132	
Education	0.012	2.508	0.138	
Job status	−0.134	2.431	0.421	
Health status	0.049	0.781	0.054	

education is to inform persons around what they should know about a healthy life. Hence, knowledge is very important and may lead to the maintenance of healthy performance.[24]

There was a significant association between age, education level, and job with knowledge. In addition, a significant association between job and marital status with skill, also between behavior and knowledge with age, was observed. Therefore, people who were housewife and married had a higher skill. In addition, people whose self-employed and education levels were higher had a better knowledge about COVID-19. Perhaps, it is due to the ability of the family to availability of necessary materials, there is a possibility for family to acquire the skill. Since wearing face masks, covering mouth and nose when coughing and sneezing, and not touching the nose, mouth and eyes, washing hands regularly with soap and water, social distancing and good ventilation are the only ways to prevent the spread of COVID-19, so participants must practice and acquire the skill.

This study is one of the first studies to examine the skills of individuals in performing COVID-19 preventive behaviors. Some limitations should be considered in this study, such as inadequate access to Internet and existence of self-reported questionnaires, the other limitation

of this study is the insufficient evaluation of skill and performs toward COVID among participants, which should be established through interview, focus group conversation, and constructed as multi-dimensional actions.

Conclusion

These results propose that participants have good knowledge, medium skill, and relatively enough practice toward COVID-19, suggesting that health promotion and health education programs aimed at improving COVID-19 knowledge are helpful for increasing a better skill and preserving good performs; in other words, implementing preventive actions and policies to control the status among public is suggested. Furthermore, administrations such as the WHO and the Ministry of Health and Population in Shahrekord necessity continue to provide updated evidence concerning COVID-19 to assurance better control about COVID-19. Hoping that under the mutual efforts of authorities and all Iran people, Iran confidently will success the fight in contradiction of COVID-19 in the near future.

Conflicts of interest
There are no conflicts of interest.

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