

Educational Needs Assessment Among Adults During the COVID-19 Pandemic

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Research

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Abstract

Background: Coronavirus disease (COVID-19) has become a global disease. Educational needs assessment (knowledge, attitudes, and practices) plays a significant role in managing the COVID-19 situations. The objective of the present study was to assess the educational needs among adults during the COVID-19 pandemic.

Methods: This cross-sectional descriptive-correlational study was performed among 384 adults through stratified-cluster sampling in Ardabil city in November 2020. The data gathering tool was a self-reported questionnaire designed by the researchers consisting of 23 questions. Descriptive statistics, chi-square test, correlation coefficient, and regression analysis were performed to analyze the quantitative data.

Results: From the 384 respondents of 5 regions of Ardabil in Iran, the accurate response rate for this study revealed that 73.17% of participants (n=281) had sufficient knowledge, 61.19% (n=235) had positive attitudes, and 69.53% (n=267) had adequate Practicing behavior. However, knowledge was associated with gender ($p<0.001$), occupation ($p<0.001$), and place of residence ($p<0.001$). Attitude was associated with age ($p<0.001$), marital status ($p<0.001$) and level of education ($p<0.001$) and place of residence ($t=4.242$, $p<0.001$). The practice was associated with age ($p<0.001$), gender ($p<0.001$) marital status ($p<0.001$). The results of linear regression analysis showed that knowledge and attitude affect behavior ($p<0.001$).

Conclusions: The Chinese public exhibited a good level of knowledge of COVID-19, a positive attitude, and high adherence to good practices. COVID-19-related knowledge, attitudes, and practices were affected by age, marital status, education level, occupation, and place of residence to varying degrees. In addition, practices were affected by knowledge and attitudes.

Background

COVID-19 disease is a new species of the coronavirus family that was first identified in Wuhan city, Hubei province, China, and from there it spread to other countries[1, 2]. The new coronavirus pandemic in 2020 posed a global health concern[3]. On January 30, 2020, the Director-General of the World Health Organization (WHO) declared the outbreak of coronavirus as a public health emergency and international concern[4]. The virus spreads through small droplets from coughing, sneezing, and talking[5]. Adults may also become infected by touching a contaminated surface and then touching their face (eye, nose, and mouth). The transmission also occurs through aerosols that can stay suspended in the air for longer periods[6].

Statistics showed that the majority of deaths and cases of COVID-19 occurred in people over the age of 50. In people with the underlying disease, there is a risk of infection in the whole population, and the importance of the prevention increases about asymptomatic carriers. Asymptomatic people can transmit the disease to a great extent and thus increase mortality[6-8]. So people's health and safety norms in society play an important role in the transmission and control of this disease. Preventive behaviors that

can eliminate the cycle of the disease can include washing hands with soap and water or disinfectant solution, not touching, not rubbing, disinfecting purchased items, car, and home environment, social distancing, and home quarantine[4, 9]. A survey showed that health education programs aimed at improving COVID-19 knowledge were helpful for Chinese residents to hold optimistic attitudes and maintain appropriate practices. During the SARS epidemic in 2003, a study evaluated the level of awareness about the disease among older adults. Then the researchers provided them health education by telephone and assessed the change[10]. In Mya KS study, 45% of participations washed their hands regularly, 34% avoided travel or trip, 58% avoided crowded areas to prevent COVID-19, about 47% always cover the mouth and nose during coughing and sneezin[11]. A study showed that 22% of the general population's preventive behaviors were acceptable. In another study conducted on 240 medical students in Iran, only 8 5.5% of the participants scored low on the observance of preventive behaviors, and the study researchers cited the level of literacy and greater awareness of this group as one of the reasons for this [12, 13]. One of the main measures in this situation is protective and health behaviors by all members of society. People need to be aware of preventative behaviors to achieve optimal outbreak control. Therefore, the present study was conducted to evaluate the educational need for COVID-19 among adults in Ardabil.

Methods

Participants and setting

A cross-sectional study was carried out from November 21 to December 25, 2020, with 384 adults (20 to 80 years) in Ardabil (Ardabil is an ancient city in northwestern Iran and the capital of Ardabil Province) to assess the educational needs among adults in COVID-19 pandemic through a web-based survey (because it was not feasible to do a community-based national sampling survey during this government-imposed lockdown). The sample size was determined based on inclusion criteria, 95% confidence level, and 80% test power. Eligibility criteria to participate in this survey were to be adults (20 to 80 years), being a resident of Ardabil, being a social media user and having a smartphone, and willing to participate in the study.

Data collection procedure

Data were collected via a questionnaire designed with the Google survey tool. The link of the survey form was shared randomly as an invitation of participation through social media groups, people's volunteers. The researchers also shared the link to their contact list. The questionnaire included questions in 2 parts. Part one (socio-demographic information): age, gender, education level, occupation, marital status, monthly family income, and part two (educational need assessment): knowledge, attitude, and practices towards the COVID-19 pandemic. The researchers received a total of 454 eligible participant's feedback, but of those responses, 384 completed questionnaires were selected for the study.

Data management and analysis

Fully completed questionnaires were extracted from Google forms and exported to the Microsoft Excel 2010 software for coding. Then, data were exported to Statistical Package for Social Science (SPSS) version 23 software. Data analysis consisted of descriptive and analytical statistics.

Measures

Socio-demographic information was obtained through close-ended and open-ended questions. The questions were related to their age, gender, education level, occupation, marital status, monthly family income (this variable was divided into a low socio-economic class family income <30 million Rial, moderate socio-economic class family income 30-10 million Rial, and high socio-economic class family income >10 million Rial). For need assessment, participant's knowledge about COVID-19 was assessed using 6 questions, which were adapted from previous researches with "true," "false" or "not sure". Each correct response to a knowledge item has been assigned 1 point, 0 points have been assigned to each incorrect/not sure response. For knowledge items, the total score ranged from 0-6. The higher score indicated the adequacy of knowledge about COVID-19. Bloom's cut-off of 80% (≥ 4.8) was used to define adequate knowledge.

The attitude section included 5 questions, and the responses were assessed using a 3-point Likert scale: "Disagree", "Not sure" and "Agree"; each weighing 5 to 15 respectively, and ≥ 12 was set as a cut-off value for positive attitudes towards COVID-19.

The practice section consisted of 4 questions that were adapted from the WHO recommendations for the prevention of COVID-19 transmission. The responses of each item were assessed with a 2-point Likert scale: "Never" and "Always"; each weighing 0 to 4 respectively and a cut-off value of ≥ 3.2 was set for good practices. Besides, two questions about the main source of information, favorite educational resource, and use of public transportation were also included.

The validity of the questionnaire was determined by two methods of face validity and content validity, which were confirmed by experts of health education, psychology, reproductive health. The total content validity index (CVI) in the "relevancy", "simplicity", and "clarity" were equals to 83.6, 92.9, and 91.7. The reliability of the questionnaire was further evaluated through internal consistency ($\alpha=0.83$) and test-retest ($r=0.82$).

Results

A total of 384 participants completed the survey questionnaire and participated in this study with a mean age of 42.47 ± 12.07 years. The majority of the participants were female ($n=213$, 55.4%), married ($n=332$, 86.4%), and had a college degree ($n=163$, 42.4%), the rest of the participants had an education level diploma or below. Among the respondents, 89 (23.17%) were students, and 129 (33.59%) were employed either with the government /a private company. Most of the participants were from urban area ($n=231$, 60.1%) and rural area ($n=153$, 39.8%). A detail of the socio-demographic characteristics of the participants is shown in Table 1. Social media such as WhatsApp and Instagram was the main source of

information about COVID-19 among participants 34.1% of participants relied on TV and radio, 43% followed cyberspace, and 22.9% on friends and family to get information about COVID-19. This study revealed that 73.17% of participants (n=281) had sufficient knowledge, 61.19% (n=235) had positive attitudes, and 69.53% (n=267) had adequate practicing behavior.

Knowledge of COVID-19

The mean COVID-19 knowledge score for participants was 4.37 ± 1.41 (range: 0–6). A higher proportion of the participants (n=243, 62.2%) was identified with at least 3 common symptoms of COVID-19 (fever, fatigue, and dry cough). 71.3% (n=274) of the participants knew how the disease spread, 72.3% (n=278) perceives the common ways to prevent the infection and more than half of the participants had adequate information on how to use, replace the facial mask and home care (quarantine). But only 33.9% knew when to go for a PCR test, 74.7% participants identified individuals at risk for Coved-19 (elderly, pregnant women, people with chronic diseases). Participant's knowledge significantly differed across genders, occupations, and residence places and income ($p < 0.05$, Table 2).

Attitude of COVID-19

The mean attitude score was 8.08 ± 1.86 . About 67.4% (259) of the participants agreed that they were susceptible to COVID-19 disease, and 30.4% (117) of the participants believed that COVID-19 was a deadly disease when they were asked about the severity of the disease. But 42.1% (162) of the participants would not have told anyone about their illness if they had COVID-19, and 52.9% (n=203) were afraid of caring for the patient at home, 71.4% (n=274) accepted quarantine and closure by the government. The researchers found a statistically significant association between attitude and socio-demographic variables such as age- groups, gender, marital status ($p < 0.05$, Table 2).

Practices of COVID-19

In terms of practices towards COVID-19, 65.1% (n=250) of the participants always washed hands with soap or hand sanitizer. 71.8% (n=276) always wore a facial mask when going outside. Even though 56.7% (n=218) maintained safe distancing with people and 34.9% (n=134) did not maintain social distancing due to the use of facial masks.

70.8% (n=272) of participants visited crowded places over the past week, 71.6% (n=275) used public transportation at least once in the past week. Participant's practice score was significantly different in terms of age-groups, gender, and marital status ($p < 0.05$, Table 2).

In this study, 23% of participants thought that antibiotics could be a cure for COVID-19 disease. One-third of participants considered local treatments, such as gargling with hot water, drinking honey and lemon mixture could cure COVID-19. 39.1% of participants considered education, 38.8% law, and 22.4% vaccine to be the most significant factor in controlling this disease. The results of linear regression analysis showed that attitude and knowledge had a correlation with practice ($P = 0.001$) (Table 3).

Discussion

The COVID-19 disease is a global threat due to the lack of vaccines and definitive treatment. In this regard, health education and incubation is the most important strategy for disease management[13, 14]. In this present study, we evaluated educational needs (knowledge, attitudes, and practices) towards COVID-19 among adults in Ardabil of Iran.

In the Mya KS study, results showed that participants were very aware of the transmission of the disease, but 14% of them did not have any knowledge about the symptoms of COVID-19 disease[10]. Our results showed that the participants had the best knowledge about the symptoms and prevention of the disease. Conversely, the lowest level of knowledge was related to the diagnostic tests and incubation time. In a study, results revealed that the lowest level of knowledge among nurses was about COVID-19 and ways of prevention, disease symptoms, and the incubation period[15]. Differences in outcomes between the studies may be due to the difference in timing and the diverse composition of participants[16]. It is important for health systems to examine the needs and temporal and spatial conditions of the participants before the educational interventions [17].

The results of our study presented that the level of COVID-19 knowledge differed by sociodemographic factors, which could make them more vulnerable to the epidemic. This result coincides with those of other similar studies performed among public and healthcare professionals in China and abroad[18-23].

In the present study, participants showed extremely positive attitudes towards COVID-19. A total of 67.4% of participants considered themselves vulnerable. Moreover, 58.9% of the participants considered it as a dangerous disease, 52.9% expressed fear of infection for themselves and their families, 45.3% would not tell anyone if they would have infected. The role of the government in controlling the disease was considered important, which was similar to the results obtained from Gao's study. Evidence of the SARS epidemic showed that the high level of trust in the government could be successfully controlled the disease[24], and a recent KAP study on COVID-19 also found a positive attitude among 90.8% of Chinese people[25].

The majority of the public adhered to good practices concerning COVID-19 infection, potentially because they had good COVID-19 knowledge and a positive attitude, which ultimately translated into good practice.

However, the least common practices among participants were hand washing, social distancing, and not avoiding family gatherings. Perhaps the shortage of protective equipment, such as medical alcohol, contradictory information during the outbreak triggered the pandemic[22, 25, 26].

This study explored that age was a factor that influenced the public's knowledge about COVID-19. The younger people had less knowledge than their counterparts, which was potentially attributed to the increases in social experience and knowledge reserved with age. Marital status, education, occupation,

and place of residence all had impacts on KAP. Married people had a better grasp of knowledge, more protective attitudes, and higher adherence.

Conclusion

In conclusion, the findings of this research evaluated the knowledge, attitude, and practice of adults in the COVID-19 pandemic. This study also showed that a considerable number of adults were adequately knowledgeable about this pandemic and discovered a positive attitude but were insensitive to appropriate preventive measures, which could be alarming. Therefore, effective health education is required to identify the gaps and initiate planning accordingly.

Abbreviations

KAP: Knowledge, attitude and practice; COVID-19: Coronavirus disease 2019

Declarations

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Authors' contributions

NN and AZ conceptualized the study, designed survey and interpreted data; NN and AM drafted the manuscript; NN and AM performed literature review and data analysis; AY and RT performed the survey; AM critically reviewed and improved the manuscript; NN and AZ improved data interpretation and revised the manuscript. All authors substantially contributed to the study and approved its submission.

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Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Ethics approval and consent to participate

This study was drawn from a research project (No. IR.AUMS.REC. 1399.064) sponsored by the Deputy of Research and Technology at AUMS.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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Tables

Table 1 Socio-demographic characteristics of the participants (n=384)

Variable	Frequency (n)	Percentage (%)
Age(years)		
20-30	65	16.9
30-40	112	29.2
40-50	121	31.5
>50	86	22.4
Gender		
Male	52	13.5
Female	332	86.6
Marital status		
Unmarried	52	13.5
Married	332	86.5
Occupation		
Student	89	23.17
Govt./Private job	129	33.59
Business	119	30.98
Unemployed	47	12.39
Place of resident		
Urban	231	60.2
Rural	153	39.8
Educational level		
Diploma-under diploma	163	42.4
Collage	221	57.6

Table 2 Relation between socio-demographic characteristics and mean KAP score

Variable	B	SE	Beta	T	<i>p</i> -value
Knowledge	0.12	0.47	0.12	8.6	0.001
Attitude	0.31	0.36	0.40	9.55	0.001

Table 3 Prediction of COVID-19 related behaviors

Variable	Knowledge		Attitude		Practice	
	Mean±SD	<i>p</i> -value	Mean±SD	<i>p</i> -value	Mean±SD	<i>p</i> -value
Age						
20-30	4.44±1.39	0.54	7.80±1.59	0.001	5.03±1.17	0.0001
30-50	4.29±1.40		8.98±1.91		6.13±1.77	
>50	4.26±1.52		7.94±1.52		5.25±1.33	
Gender						
Male	3.23±1.06	0.001	7.90±1.80	0.17	5.21±1.42	0.03
Female	5.29±0.92		8.21±1.92		5.52±1.41	
Marital status						
Married	4.53±1.16	0.06	10.44±0.95	0.001	7.96±0.27	0.001
Unmarried	4.35±1.45		7.71±1.69		4.94±1.05	
Education level						
Under diploma-diploma	4.26±1.52	0.80	7.94±1.87	0.001	5.25±1.44	0.12
College	4.44±1.12		8.98±1.91		5.48±1.41	
Occupation						
Student	4.36±1.40		7.87±1.74		5.29±1.30	
Govt./Private job	5.17±1.08	0.001	8.56±1.87	0.04	5.47±1.23	0.79
Business	4.45±1.18		8.05±1.85		5.36±1.57	
Unemployed	3.88±1.67		7.86±2.05		5.26±1.67	
Place of resident						
urban	4.60±1.51	0.001	8.11±1.83	0.36	5.46±1.38	0.22
Rural	4.03±1.18		8.06±1.88		5.28±1.47	
Socio-economic class						
High	4.50±1.41	0.09	8.18±1.71	0.79	5.34±1.42	0.79
Moderate	4.32±1.35		8.11±2.14		5.32±1.37	
Low	4.13±1.46		8.03±1.81		5.45±1.58	