

Investigating Iranians' Attitude, Practices, and Perceived Self-Efficacy towards Coronavirus Preventive Behaviors

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Abstract

Background and aim: Currently, one of the new health crises that has affected the world is the emergence of the novel coronavirus disease (n cov-2019). Today, most health challenges and problems are mainly due to behavioral factors and identifying these factors can play an important role in promoting public health. Therefore, this study was designed and conducted to determine Iranians' attitude, practice, and perceived self-efficacy towards coronavirus preventive behaviors.

Methods: This descriptive-analytical study was conducted online among 387 social media users (Telegram-WhatsApp). A researcher-made questionnaire was sent to the participants after confirmation of validity and reliability by the convenience sampling method. Kolmogorov-Smirnov, Mann-Whitney, analysis of variance, Pearson correlation and linear regression tests were used to analyze the collected data

Results: The results of the Pearson test showed that there was a direct and significant correlation between the subjects' attitude with practice ($r = 0.23$, $p < 0.001$) and perceived self-efficacy ($r = 0.21$, $p < 0.001$) regarding coronavirus preventive behaviors. There was also a direct and significant relationship between self-efficacy and practice ($r = 0.46$, $p < 0.001$). The results of univariate regression test also showed that occupation ($p = 0.002$, $\beta = -0.16$), marital status ($p = 0.003$, $\beta = -0.15$), attitude ($p < 0.001$, $b = 0.23$), and self-efficacy ($p < 0.001$, $\beta = 0.45$) are predictive and influential variables on the subjects' practice towards coronavirus preventive behaviors.

Conclusion: Given the importance of positive attitude and promoting self-efficacy in improving people's practice regarding coronavirus preventive behaviors, it is suggested that various educational interventions be designed and implemented to reduce the incidence and mortality of this disease.

1. Introduction

Currently, one of the new global health crises is the emergence of the novel coronavirus disease (n cov-2019) or acute respiratory syndrome. It is an infectious disease caused by a new, genetically modified virus of the coronavirus family(1). It is an emerging respiratory disease identified in Wuhan, China, in late 2019 and spread rapidly to most countries in the world and was considered a pandemic disease by the World Health Organization (WHO)(2-4). Due to the pathogenicity of the virus as well as its rate of spread and mortality, people's physical and mental health status is at risk(5, 6). The disease symptoms include pneumonia, fever, and muscle aches, and so far no vaccine or antiviral drug has been confirmed to treat it. The only way to prevent and control the infection is to follow hygiene principles by the public.

The number of Covid-19 patients worldwide was 19,266,069 people on August 7, 717,787 of whom died from the disease. Iran ranks 10th in the world in terms of cases with 320,117 patients and the number of deaths from this disease was 17,976(7). Iran ranks 10th in the world in terms of Covid-19 patients (320,117 cases) and the number of deaths from this disease was reported 17,976(7).

Due to the lack of vaccines to promote people's safety, the most effective way to prevent the transmission of the disease is preventive behaviors(8). The most important preventive measures to break the disease transmission chain include isolating cases, identifying and following up patients, disinfecting the environment, and using personal protective equipment(9).

Health problems and dangers are mainly due to behavioral factors and the identification of these factors can play an important role in promoting community health and helping educational interventions to change behavior(10). Attitude is defined as a behavior degree of desirability or undesirability from an individual's point of view and is an individual's positive and negative impact reflection of the behavior. Usually, the more favorable the attitude towards the behavior, the stronger his/her intention to perform the behavior(11). Improper attitude and practice increase the risk of people getting diseases(11); therefore, identifying and modifying individuals' attitudes is an important step in preventing diseases. Self-efficacy is also considered as the most effective motivational factor and the strongest predictor of behavioral intention so that an individual who does not believe in himself or his ability to perform the behavior will fail to adopt, initiate, and maintain that behavior. People with higher self-efficacy are more likely to perceive success, anticipate potential outcomes from a variety of strategies, and are more likely to initiate new behaviors.

Due to the rapid spread of coronavirus disease and the increasing and significant number of patients in Iran, it is required to conduct various studies to identify the factors affecting preventive behaviors of the disease to design and perform interventions to change behavior. Therefore, this study aimed to determine Iranians' attitude, practice, and perceived self-efficacy towards coronavirus preventive behaviors.

2. Method

2.1. Study design, participants, and settings

This cross-sectional study was conducted from April to June 2020. The participants were selected through convenience sampling (n = 387). Due to the widespread prevalence of coronavirus disease and its epidemic nature, the study population included cyberspace users sampled by convenience methods and invited through social media (Telegram, WhatsApp). Before beginning the study the consent for approved by the ethics committee of Sabzevar University of Medical Sciences (code : IR.MEDSAB.REC.1399.007) was signed by are participants.

2.2. Study instrument

The study tool was a researcher-made questionnaire (Supplementary File-Questionnaire) designed based on a review of texts in three parts.

Part 1: The participants' demographic information, which included eight questions (age, gender, education, marital status, place of residence, occupation, history of being infected with coronavirus or a family member).

Part 2: To determine the individuals' attitudes towards coronavirus preventive behaviors, 11 questions with a 5-point Likert scale (score zero: Strongly disagree to score 4: Strongly agree) with a score range of 0–44 were designed. Examples of these questions include "A person who once was infected with coronavirus, no longer needs to follow preventive measures" and "Addicted people are protected against coronavirus (Strongly disagree = 4 and Strongly agree = 0)".

Part 3: To measure the individuals' practice towards coronavirus preventive behaviors, nine questions were designed with a scale of Always = 3 to Never = 0 with a score range of 0–27. Examples of these questions include, "How much have you recently worn masks when going out?" and "How much have you recently shaken your friends and relatives' hands?"

Part 4: To measure the Iranians' perceived self-efficacy towards coronavirus preventive behaviors, eight questions with a 5-point Likert scale (score zero: Strongly disagree to score 4: Strongly agree) with a score range of 0–32 were designed. Examples of these questions include "I can avoid crowded places" and "I can prepare and use masks and protective equipment."

Validity and reliability of the questionnaire:

In order to determine the content validity ratio (CVR) and content validity index (CVI), the opinions of 5 health education and promotion experts and one educational psychologist were used and the questions were approved after applying the experts' opinions (2 questions were deleted and five questions were modified). Cronbach's alpha method was used to determine the reliability, confirmed by a coefficient of $\alpha = 0.892$.

2.3. Data analysis

The collected data were analyzed using SPSS 17 statistical software package (SPSS Inc., Chicago, IL, USA). and descriptive statistics and Kolmogorov-Smirnov, Mann-Whitney, analysis of variance, Pearson correlation and linear regression tests. The significant level was considered less than 0.05 for all analyses.

3. Results

This online study aimed to identify attitude, practice, and perceived self-efficacy towards coronavirus preventive behaviors and was conducted on 385 subjects at the beginning of the corona epidemic in Iran. The mean age of the participants was 28.62 ± 9.67 . Most participants were female (68.2%). Most of them had university education (75.5%) and lived in the city (84.9%), and also had no history of corona disease (88.8%) and in their relatives (78.1%).

The mean score of the subjects' attitudes towards coronavirus preventive behaviors was 27.85 ± 4.33 , the mean score of practice was 22.86 ± 3.98 , and the mean score of perceived self-efficacy was 24.45 ± 4.53 , which is at a good level.

In response to attitude questions, 64.5% of the research units completely agreed that everyone should wear a mask when leaving the house. Moreover, 50.7% disagreed that people who once were infected with coronavirus, no longer need to follow preventive measures. The frequency of the participants' responses to the attitude questions is given in Table 1.

Table 1

Frequency of the subjects' responses to the attitude questions about coronavirus preventive behaviors

| Questions | Completely disagree Number (%) | Disagree Number (%) | No comment Number (%) | Agree Number (%) | Completely agree Number (%) |
|--|-----------------------------------|------------------------|--------------------------|---------------------|--------------------------------|
| 1 Everyone should wear a mask when going out. | 4 (1.0) | 43 (11.2) | 27 (7.0) | 123 (32.1) | 178 (64.5) |
| 2 A person who once was infected with coronavirus, no longer needs to follow preventive measures. | 194 (50.7) | 132 (34.5) | 26 (6.8) | 10 (2.6) | 9 (2.3) |
| 3 I may be infected with coronavirus at present but have no symptoms. | 44 (11.5) | 57 (14.9) | 95 (24.48) | 90 (23.5) | 87 (22.7) |
| 4 I feel I will be infected with corona virus despite taking preventative measures. | 37 (9.7) | 129 (33.7) | 65 (17.0) | 99 (25.8) | 36 (9.4) |
| 5 I feel I am more prone to be infected with corona virus than others due to my working condition. | 57 (14.9) | 115 (39.0) | 65 (17.0) | 73 (19.1) | 59 (15.4) |
| 6 Often, the elderly and people with medical conditions are infected with corona virus. | 47 (12.3) | 105 (27.4) | 39 (10.2) | 147 (38.4) | 35 (9.1) |
| 7 Addicted people are protected against coronavirus. | 169 (44.1) | 107 (27.9) | 77 (20.1) | 12 (3.1) | 7 (1.8) |
| 8 Alcohol consumption helps in preventing coronavirus. | 212 (55.4) | 103 (26.9) | 49 (12.8) | 5 (1.3) | 6 (1.6) |
| 9 Being infected with coronavirus keeps others away from me. | 16 (4.2) | 40 (10.4) | 50 (13.1) | 171 (44.6) | 98 (22.6) |
| 10 Washing hands regularly during the day is time consuming and tiresome. | 93 (24.3) | 168 (43.9) | 30 (7.8) | 66 (17.2) | 19 (5.0) |
| 11 Providing protective equipment, such as masks and disinfectants is expensive. | 15 (3.9) | 57 (14.9) | 45 (11.7) | 191 (49.9) | 68 (17.8) |

The results of studying the subjects' perceived self-efficacy showed that 46.2% of the subjects agreed that they could stay at home. Also, 49.9% of the subjects agreed that they could prevent corona disease by taking preventive measures and 51.4% agreed that they could avoid crowded places (Table 2).

Table 2
Frequency of the subjects' responses to perceived self-efficacy questions about coronavirus preventive behaviors

| | Questions | Completely disagree | Disagree | No comment | Agree | Completely agree |
|---|--|----------------------------|-----------------|-------------------|--------------|-------------------------|
| 1 | I can stay home despite my busy schedule and not having much fun. | 11 (2.9) | 59 (15.4) | 29 (7.6) | 177 (46.2) | 100 (26.1) |
| 2 | I can prevent corona disease by taking preventative measures. | 1 (0.3) | 15 (3.9) | 16 (4.2) | 191 (49.9) | 153 (39.9) |
| 3 | I can avoid crowded places. | 2 (0.5) | 13 (3.4) | 17 (4.4) | 197 (51.4) | 148 (38.6) |
| 4 | I can prevent corona disease by taking preventative measures. | 1 (0.3) | 15 (3.9) | 16 (4.2) | 191 (49.9) | 153 (39.9) |
| 5 | I can avoid shaking my family members and friends' hands and kissing them. | 0 | 10 (2.6) | 8 (2.1) | 149 (38.9) | 210 (54.8) |
| 6 | I can make surface disinfectant solution at home. | 9 (2.3) | 47 (12.3) | 43 (11.2) | 190 (49.6) | 86 (22.5) |
| 7 | I can disinfect home surfaces daily. | 2 (0.5) | 40 (10.4) | 45 (11.7) | 183 (47.8) | 105 (27.4) |
| 8 | I can keep the necessary distance from others at work and outside. | 4 (1.0) | 40 (10.4) | 23 (6.0) | 200 (52.2) | 110 (28.7) |

The results of studying the subjects' practice showed that 46.5% of the subjects wore a mask outside. Moreover, 67.4% of the subjects never shook their relatives or friends' hands, 60.6% always disinfected their daily purchases, and 58% washed their hands regularly for about 30 seconds (Table 3).

Table 3
Frequency of the subjects' responses to the questions of practice regarding coronavirus preventive behaviors

| Questions | Never | Rarely | Some times | Always |
|--|---------------|---------------|---------------|---------------|
| 1 How much have you recently gone to crowded places? | 74 (19.3) | 187 (48.7) | 102 (26.6) | 13 (3.4) |
| 2 How much have you recently worn masks when going out? | 36 (9.4) | 49 (12.8) | 114 (29.8) | 178 (46.5) |
| 3 How much have you recently been out of the house? | 22 (5.7) | 178 (46.5) | 115 (30.0) | 61 (15.9) |
| 4 How much have you recently used public transportation? | 282 (73.6) | 61 (15.9) | 23 (6.0) | 11 (2.9) |
| 5 How much have you recently been in contact with people with suspected COVID-19? | 221 (51.7) | 103 (26.9) | 45 (11.7) | 7 (1.8) |
| 6 How much have you recently shaken your friends and relatives' hands | 258 (68.4) | 82 (21.4) | 33 (9.6) | 5 (1.3) |
| 7 How much have you recently disinfected your daily purchases? | 19 (5.0) | 43 (11.2) | 81 (21.1) | 232 (60.6) |
| 8 How much have you recently used a tissue or your elbow when coughing and sneezing? | 13 (3.4) | 25 (6.5) | 85 (22.2) | 253 (66.1) |
| 9 Do you wash your hands regularly for about 30 seconds? | 3 (0.8) | 33 (8.6) | 118 (30.8) | 222 (58.0) |
| 10 How many times have you recently been to a party? | 192 (50.1) | 125 (32.6) | 52 (13.6) | 5 (1.3) |

The results of the Pearson test showed that there was a statistically significant and direct relationship between the subjects' age and practice regarding coronavirus preventive behaviors ($r = 0.12$, $p = 0.02$), so that older subjects performed better towards coronavirus preventive behaviors. The results of the analysis of variance indicated that there was a statistically significant relationship between occupation and perceived self-efficacy score regarding coronavirus preventive behaviors ($p < 0.001$), so that employees had higher perceived self-efficacy than self-employed subjects ($p = 0.003$). There was no statistically significant difference between the self-efficacy scores of employed subjects and housewives. There was also a statistically significant relationship between occupation and practice towards coronavirus preventive behaviors ($p < 0.001$), so that employees performed better than self-employed subjects ($p < 0.001$). There was a direct and significant relationship between gender and self-efficacy and practice, so that females had higher self-efficacy and practice compared to males ($p < 0.001$). There was a statistically significant relationship between attitude score ($p = 0.04$), practice ($p = 0.003$), and perceived self-efficacy ($p = 0.02$) towards coronavirus preventive behaviors and marital status. So that married subjects had higher attitude, practice, and perceived self-efficacy than single subjects (Table 4).

Table 4

The relationship of demographic characteristics with attitude, practice, and perceived self-efficacy scores of research units regarding coronavirus preventive behaviors

| Variable | | Attitude | Practice | Self-efficacy |
|---------------------------|------------------------|---------------|--------------------|--------------------|
| | | Number (%) | Significance level | Significance level |
| Gender | Male | (31.3) 120 | 0.55 | < 0.001 |
| | Female | (67.1) 257 | | |
| Education | Academic | (75.5) 289 | 0.32 | 0.31 |
| | Non-academic | (14.1) 54 | | |
| Occupation | Employee | (29.5) 113 | 0.09 | < 0.001 |
| | Self-employed | (9.7) 37 | | |
| | Housewife/househusband | (12.8) 49 | | |
| | Other | (37.9) 145 | | |
| Marital status | Married | (47.5) 182 | 0.03 | 0.007 |
| | Single | (48.6) 186 | | |
| Place of residence | City | (84.9) 325 | 0.21 | 0.94 |
| | Village | (11.2) 43 | | |

| Variable | | | Attitude | Practice | Self-efficacy |
|--|---------------|--------|----------|----------|---------------|
| History of the disease in the individual | Yes | (6.5) | 0.28 | 0.22 | 0.96 |
| | No | 25 | | | |
| | | (88.8) | | | |
| | | 340 | | | |
| History of the disease in relatives | Yes | (10.7) | 0.76 | 0.71 | 0.16 |
| | No | 41 | | | |
| | I do not know | (78.1) | | | |
| | | 299 | | | |
| | | (8.1) | | | |
| | | 31 | | | |

Table 5
Processed linear regression model to investigate the factors related to the subjects' practice towards coronavirus preventive behaviors

| Variable | B** | β^* | p-value | R ² |
|--|------|-----------|---------|----------------|
| Self-efficacy | 0.41 | 0.46 | 0.000 | 0.26 |
| Attitude | 0.10 | 0.11 | 0.02 | |
| Marital status | 0.85 | -0.10 | 0.003 | |
| * Standardized regression coefficient | | | | |
| ** Unstandardized regression coefficient | | | | |

The results of Pearson test showed a statistically direct and significant relationship of the subjects' attitude with practice ($r = 0.23$, $p < 0.001$) and perceived self-efficacy ($r = 0.21$, $p < 0.001$) towards coronavirus preventive behaviors. There was a direct and significant relationship between self-efficacy and practice ($r = 0.46$, $p < 0.001$), so that by increasing the level of attitude and self-efficacy, the subjects' practice towards coronavirus preventive behaviors improved.

The linear regression model was used to investigate the factors related to attitude, practice, and perceived self-efficacy towards coronavirus preventive behaviors. The results of the multivariate regression test showed that self-efficacy, attitude, and marital status are the most important predictors of practice and in total these variables predicted 26% of the variance of the individuals' practice ($R^2 = 0.26$). The results of univariate regression test also indicated that occupation ($p = 0.002$, $\beta = -0.16$), marital status ($p = 0.003$, $\beta = -0.15$), attitude ($p < 0.001$, $\beta = 0.11$), and self-efficacy ($p < 0.001$, $\beta = 0.46$) are predictive and influential variables on individuals' practice towards coronavirus preventive behaviors.

4. Discussion

This online study aimed to investigate the attitude, practice, and perceived self-efficacy towards coronavirus preventive behaviors. The results indicated the subjects' positive attitude and self-efficacy and proper practice towards coronavirus preventive behaviors, which is consistent with the results of Shahnazi's (2020) study(12). Having a positive attitude and self-efficacy and proper practice towards this disease can probably play an important role in controlling, preventing its spread and reducing its prevalence. A study in Indonesia was conducted to examine individuals' knowledge, attitude, and practice towards social distance as a solution to prevent coronavirus, the results of which showed that most people had a positive attitude and proper practice towards coronavirus preventive behaviors(13). The results of Khasawneh's (2020) study in Jordan showed that medical students had an appropriate level of knowledge, attitude, and practice towards coronavirus prevention(14). The results of a study in Ethiopia also showed that most of the subjects had high knowledge and self-efficacy regarding coronavirus prevention(15), which is consistent with the present study. Goni et al. (2019) in their study in Malaysia entitled "Assessing the knowledge, attitude, and practice of Hajj pilgrims towards prevention of respiratory infections", reported that although the subjects had high knowledge about respiratory infections, their attitude and practice was not appropriate, which is not in line with the results of the present study(16). The difference between this study and the present study can be due to different study population and tools. Moreover, they measured the pilgrims' knowledge, attitude, and practice about all respiratory infections and was performed prior to COVID-19 outbreak.

In the present study, a direct and significant relationship was observed between gender with perceived self-efficacy and practice, so that females had better self-efficacy and practice in coronavirus preventive behaviors than males. This result is consistent with the results of Goni (2019) and Kebede (2020)(15, 16). The results of a study conducted in Iran to evaluate COVID-19 preventive behaviors based on the Health Belief Model showed that the mean score of COVID-19 preventive behaviors in females was higher than males(12). In another study by Love et al. on the H1N1 pandemic in men and women in Hong Kong, women performed better than men in preventing the disease(17), which is consistent with the results of the above study. A study in Sudan also reported that women took more preventive measures than men in protecting themselves and others against coronavirus(18). This result may be due to women's role in the family as a wife or mother, who are more motivated to protect themselves than men; therefore, they showed better self-efficacy and practice in preventing coronavirus than men.

The results of the present study showed that occupation is one of the predictors and influential variables on the individuals' practice towards coronavirus preventive behaviors. The results also showed that employees had higher perceived self-efficacy regarding coronavirus preventive behaviors than self-employed subjects. Yanti (2020) reported that government employees had a better attitude and behavior towards coronavirus prevention than other occupations(13). Kebede's (2020) study also reported that employees had more preventive behaviors against coronavirus than self-employed subjects and occupation was a positive predictor of coronavirus preventive behaviors, which is consistent with the results of the present study(15).

In the current study, there was no significant relationship between the individuals' education level with attitudes, practice, and perceived self-efficacy, which is not in line with the results of Yanti's (2020) study(13). In this study, people with higher education showed a positive attitude and appropriate behavior towards social distance for corona prevention. In Kebede's (2020) study, people with higher education had better self-efficacy and practice regarding coronavirus prevention(15). A study in the US conducted on the evaluation of COVID-19-related knowledge, attitude, and practice among chronically ill adults reported that people with limited health literacy had poorer attitudes towards corona disease(19). Another study in Peru showed that people with higher education reported a better understanding of COVID-19 control measures and preventive strategies(20). The difference between the findings of the above studies and the present study is due to the type of education level division in the present study. In terms of education, the subjects were divided into two categories: academic and non-academic, and due to the type of sampling in the present study, which was online, 75% of the research units included people with academic literacy.

The results indicated that self-efficacy and attitude are the most important predictors of the individuals' practice towards coronavirus preventive behaviors. In Goni's (2019) study, a significant and positive relationship was reported between the attitude and practice of pilgrims in preventing respiratory infections(16). The results of Carico's (2020) study in the US showed that perceived self-efficacy is an important factor in reinforcing COVID-19-preventive behaviors, such as social distance and staying at home(21). Shahnazi's (2020) study in Golestan also showed that perceived self-efficacy is a predictor of practice in preventing coronavirus(12), which is consistent with the results of the present study.

An individual's attitude predicts his/her behavior. Considering whether something is good or bad will affect an individual's practice, and the type of attitude can determine his/her practice. Health behaviors are affected by external factors and internal factors, such as knowledge and awareness, perception, attitude, emotions, motivation. Discovering a new infectious disease may increase motivational pressures and cause behavioral change(13). Self-efficacy is also a mediator between knowledge and behavior and an important prerequisite for behavior change and is in fact, the confidence that an individual has in his/her ability to perform a behavior(22). Self-efficacy is increasingly associated with health behaviors changes and is a strong predictor of health-promoting behaviors. Regarding coronavirus, increased self-efficacy has been associated with a decrease in the virus prevalence(18).

One of the limitations was performing the study online due to the limitations caused by the virus. As a result, random sampling was not possible and people with lower literacy, lower economic status or older people may not have access to smartphones and, therefore, they not be studied.

Conclusion

The results showed a positive attitude, self-efficacy, and proper practice of the subjects towards coronavirus preventive behaviors. Self-efficacy, attitude, occupation, and marital status were the most important predictors of the subjects' practice. Due to the males' poorer self-efficacy and practice than

females, it is suggested that interventions be taken to improve the practice of males regarding coronavirus prevention.

Abbreviations

novel coronavirus disease (n cov-2019), World Health Organization (WHO), Content validity ratio (CVR), content validity index (CVI).

Declarations

Ethics approval and consent to participate

This study was approved by the ethics committee of Sabzevar University of Medical Sciences (code: IR.MEDSAB.REC.1399.007). All participants signed the consent form before beginning the study.

Consent for publication

Not Applicable

Competing interests

The authors declare that they not have any conflict of interest

Availability of data and materials

Not Applicable

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Authors' contributions

H.J, Z.Z and M.H contributed to the design of the study, was responsible for the management and retrieval of data, contributed to initial data analysis and interpretation, drafted the initial manuscript. A.M, R.Sh and N.M decided upon the data collection methods and responsible for the data analysis decisions. HEA conceptualized and designed the study, supervised all aspects of the study, critically reviewed and revised the manuscript, and approved the final manuscript as submitted. all authors read and approved the final manuscript.

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