



A Survey of Awareness and Stress of Coronavirus Disease 2019 in a Part of the Iranian Population

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Abstract

Background: The coronavirus disease 2019 (COVID-19) includes a large family of Coronaviridae, which was first found in Wuhan, China in 2019, and has caused a global pandemic. This study aimed was to assess the awareness, stress, and fear of this disease in part of the Iranian population.

Methods: Based on the aim of this cross-sectional and analytical study, electronic questionnaires were sent to 201 of the Iranian population. The statistical data from inferential chi-square and Spearman tests were analyzed with IBM SPSS Statistics (version 24), and the level of significance was considered at 0.05.

Results: The findings showed that 69.07% of the population was from northern Iran. The awareness level of the majority of people (76.06%) was reported to be favorable. The highest and lowest levels of awareness in people with higher education and unemployed people, respectively, showed meaningful significance between education level and age. Finally, the amount of stress to COVID-19 revealed a significant relationship with age.

Conclusions: Based on the obtained results, awareness about age and education was reported to be at the desired level. At the beginning of the outbreak, the anxiety level of people was high while its rate decreased by gaining awareness of the prevention of this disease, indicating the importance of personal health and self-care in society.

Keywords: Awareness, COVID-19, Iran, Stress

Background

Coronaviruses are a large family of viruses that cause a wide range of diseases in mammals and birds. The infection of the members of this viral family leads to a broad set of clinical symptoms ranging from the common cold to chronic respiratory illness (1). Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) as a new virus was spread from this family in 2019, and the World Health Organization called the causative agent of the novel coronavirus disease as 2019-nCoV (2). Six species of coronaviruses capable of causing infection in humans were identified until December 2019. Among these species, SARS and the Middle East respiratory syndrome (MERS) coronavirus caused a worldwide pandemic and were associated with high mortality in 2002 and 2012, respectively (3).

The sequence of genomic nucleotides in bats (*Rhinolophus affinis*) was first discovered in Wuhan, China and was 96.2% similar to the virus, suggesting that the bat is probably the natural host of the virus. Due to genetic differences, the existence of an intermediate host other than pangolin, a small mammal whose genome shows about 99% similarity to the virus, is possible (4). The

incubation period of the disease in infected people usually lasts between 14 and 20 days although symptoms develop after 24 days in some people (5).

The prevalence of this virus is higher in men compared to women. After the incubation period, most infected people have clinical manifestations of a mild to moderate respiratory illness, including fever, dry cough, a feeling of tiredness, and muscle aches, as well as shortness of breath which can be treated with adjuvant therapy. The occurrence of this disease is more severe in the elderly who have underlying diseases such as diabetes, cardiovascular disease, cancer, hypertension, and obesity (6). With the rapid spread of coronavirus disease 2019 (COVID-19), it is now becoming physically and mentally urgent in just a few months. The prevalence of this disease is constantly increasing and thus causes concerns related to community health and may lead to serious psychological problems such as anxiety and uncertainty. Nonetheless, it can be prevented with medical and psychiatric treatment (7-9).

Anxiety is a common symptom in patients with chronic respiratory disorders and can significantly reduce the quality of a patient's life. In almost all cases of anxiety, it also includes physical cases which can be accompanied

and overlapped by the symptoms of the chronic respiratory disease and drug side effects (10). Anxiety about COVID-19 is common mostly due to ignorance and confusion among people about the virus. Fear of the unknown reduces the perception of immunity and has always been stressful for humans (11). Therefore, with the increasing expansion of COVID-19 in the world, this study was designed with the purpose to assess the level of awareness and stress of the COVID-19 in the population of Iran.

Materials and Methods

This study utilized a cross-sectional survey design. Due to the widespread outbreak of coronavirus and the lack of face-to-face access to individuals, the authors created a questionnaire in Google Docs and then sent it to people virtually via WhatsApp, Telegram, Instagram, and Email. Public participation in the present study lasted from May to the first week of July 2020. The total sample size was 201 people and the population size was 420 people according to the Morgan table. Electronic consent was obtained for participation in the survey front page of the survey that was completely voluntary and any person could cancel and withdraw by not sending a reply. This tailored-made questionnaire has been scheduled in the Persian language to have easy access to everyone.

The approximate time to complete the questionnaire for each person was about 15-25 minutes, which was set by the questioner in the web environment and its link was sent without any interference or capture. It should be noted that the objectives of the project were thoroughly described for each person at the beginning of the electronic questionnaire and before completing the questionnaire.

Data Collection

Data collection tools included a demographic information checklist consisting of data about age, level of education (high school, diploma, associate degree, bachelor, master, and doctorate), employment status (employee, student, self-employed, and unemployed), and location (all cities of Iran but mostly in the north portion and the centre of the country). The checklist also contained the source of information about coronavirus (national media, internet and article, social networks, and other sources). In addition, other applied instruments were two questionnaires that included questions related to measuring the level of awareness and stress about COVID-19. The statistical population of the participants in this study was in the age range of 13-85 years.

Data Analysis

The responses in the case of the questions related to

measuring awareness and stress were recorded on a three-scale (yes=2, No=1, No answer=0). The total score of the questionnaire for assessing people's awareness was between 0 and 28. The criterion for measuring the level of awareness was the number of yes answers, and the total contractually obtained scores were classified into weak (0-14), medium (14-21), and favorable (21-28) groups. The total score of the questionnaire for assuming the level of stress was between 0 and 12, and the measure of stress was the number of yes answers and the total points obtained contractually were classified into weak (0-6), medium (6-9), and favorable (9-12) categories. The validity of each questionnaire was assessed by content validity through research professors in the field of viral diseases and psychology (3 psychologists and 2 microbiologists). The content validity of all items based on the content validity ratio and content validity indexes of the questionnaire was confirmed and considered as 0.99. Moreover, their reliability after statistical analysis by calculating Cronbach's alpha was determined as $\alpha=0.779$ and $\alpha=0.847$ for awareness and stress questionnaires, respectively (Table 1). Data analysis using IBM SPSS Statistics (version 24) was performed through descriptive statistical indicators (e.g., frequency percentage, mean, standard deviation, agreed tables, and chi-square test). The significance level in this study was considered 0.05.

Results

In general, 51.7% and 48.3% of participants were women and men, respectively. The mean (standard deviation) of age in the study population was 29.18 ± 9.95 with a maximum of 85 and a minimum of 13 years. The majority of the included people ($n=201$) were from the north (69.7%) and center (16.42%) of Iran, respectively (Figure 1). In addition, 46.3% ($n=93$) and 38.8% ($n=78$) of them had a bachelor's degree and were students, and their source of information was national media 33.8% ($n=68$, Table 2).

Most participants (96.6%, $n=201$) knew about COVID-19 (They were ranked in the middle and upper awareness score category) and 90% ($n=181$) of them indicated that a virus was the cause of COVID-19. In this study, 97% ($n=195$) of people had good information about the ways of spreading this disease and 47.3% ($n=95$) of them considered this disease as a biological weapon (Table 3). According to the global prevalence of COVID-19, 85.1% ($n=171$) of participants were stressed and worried that they and their relatives would get infected and 76.1% ($n=153$) of cases wanted to receive up-to-date information regarding disease control and care (Table 3).

The awareness of the majority of people was at a desirable

Table 1. Calculation of Reliability for Each Item in the Questionnaire

| Stress Measurement | | Awareness Assessment | |
|--------------------|-----------------|----------------------|-----------------|
| Cronbach's alpha | Number of Items | Cronbach's alpha | Number of Items |
| 0.847 | 6 | 0.779 | 14 |



Figure 1. Distribution of Study Samples Across Various Cities of Iran.

level (71.6%, n = 144). Based on the results, the highest level of awareness (desirable class) about COVID-19 was related to the age range of 21-40 years (86.1%, n = 124) who had a bachelor’s degree (50.7%, n = 73) and were students (34.7%, n = 50). However, the lowest level of awareness (poor class) belonged to those who were within the age range of 21-40 years (71.4%, n = 5), had a bachelor’s degree (57.1%, n = 4),

and were unemployed (42.9%, n = 3). The awareness score showed a statistically significant relationship between the education level ($P=0.031$) and individuals’ age ($P=0.000$) while there was no statistically significant relationship between the awareness score and job ($P=0.144$, Table 4).

The findings revealed that the stress level of most

Table 2. Frequency Distribution of the Education Level, Job, and Source of Information in the Subjects

| Demographic Characteristics of the Subjects (N = 201) | | No. (%) |
|---|----------------------|-----------|
| Level of education | High school | 12 (6) |
| | Diploma | 36 (9.17) |
| | Associate degree | 20 (10) |
| | Bachelor | 93 (3.46) |
| | Master | 27 (4.13) |
| | PhD | 13 (5.6) |
| Job | Unemployed | 40 (9.19) |
| | Student | 78 (8.38) |
| | Self-employed | 32 (9.15) |
| | Employee | 51 (4.25) |
| Source of information | Article and Internet | 53 (4.26) |
| | Social networks | 61 (3.30) |
| | National media | 68 (8.33) |
| | Other | 19 (5.9) |

Table 3. The Percentage of Responses to Awareness and Stress Questions

| No. | Awareness Questions | Yes (%) | No (%) | No Answer (%) |
|-----|--|---------|--------|---------------|
| 1. | Is the virus (COVID-19) the cause of the disease? | 90 | 6 | 4 |
| 2. | Is new coronavirus a contagious infectious disease? | 86.1 | 6.4 | 7.5 |
| 3. | Fever, cough, and shortness of breath are the main symptoms of COVID-19? | 91.5 | 6.2 | 2.3 |
| 4. | Is the disease contagious during latency (not detectable)? | 87.1 | 5.9 | 7 |
| 5. | Is COVID-19 contagious through surfaces? | 88.1 | 3.2 | 8.7 |
| 6. | Are sputum testing and CT scan the only ways to make a definitive diagnosis of COVID-19? | 54.7 | 27.4 | 17.9 |
| 7. | Does the mask have an effect on preventing the transmission of COVID-19? | 91.5 | 2.5 | 6 |
| 8. | Is COVID-19 transmitted through sneezing, coughing, talking, and rubbing? | 97 | 0.7 | 2.3 |
| 9. | Is educating people in the community the most important and best method of prevention? | 89.6 | 7 | 3.4 |
| 10. | Is there a vaccine for COVID-19? | 6.5 | 71.6 | 21.9 |
| 11. | Are drug addicts safe against COVID-19? | 5.5 | 80.1 | 14.4 |
| 12. | Are antibiotics effective in preventing COVID-19? | 12.9 | 65.2 | 21.9 |
| 13. | Can mothers with COVID-19 transmit the disease to their babies during pregnancy? | 43.8 | 26.9 | 29.4 |
| 14. | Is this disease a man-made weapon? | 47.3 | 10.9 | 41.8 |
| No. | Stress Questions | Yes (%) | No (%) | No Answer (%) |
| 1. | Does the outbreak of coronavirus in the city where you live cause fear and concern for the health of yourself and your loved ones? | 85.1 | 13.9 | 1 |
| 2. | Has the outbreak of coronavirus changed your sleep or eating patterns? | 33.8 | 63.7 | 2.5 |
| 3. | Considering the outbreak of COVID-19, have you had trouble sleeping or concentrating? | 30.8 | 66.2 | 3.2 |
| 4. | Has the disease worsened your mental health? | 50.7 | 45.3 | 4 |
| 5. | Are you worried about being exposed to this dangerous disease and trying to protect yourself against the virus for reasons such as having an underlying disease or a weak immune system? | 43.8 | 51.7 | 4.5 |
| 6. | Would you like to learn more about COVID-19 and how to care for patients? | 76.1 | 18.9 | 5 |

Note. COVID-19: Coronavirus disease 2019.

Table 4. Frequency and the *P* Value Between the Education Level and Job Awareness

| Frequency and the <i>P</i> Value Between Education Level and Job Awareness | | | | | |
|---|------------------|-----------|------------|------------|----------------|
| Variable | Awareness | Weak | Medium | Optimal | <i>P</i> Value |
| Level of education | High school | 1 (14.3%) | 5 (10.0%) | 6 (4.2%) | 0.031 |
| | Diploma | 2 (28.6%) | 12 (24.0%) | 22 (15.3%) | |
| | Associate degree | 0 (0.0%) | 10 (20.0%) | 10 (6.9%) | |
| | Bachelor | 4 (57.1%) | 16 (32.0%) | 73 (50.7%) | |
| | Master | 0 (0.0%) | 3 (6.0%) | 24 (16.7%) | |
| | PhD | 0 (0.0%) | 4 (8.0%) | 9 (6.3%) | |
| Job | Unemployed | 3 (42.9%) | 9 (18.0%) | 28 (19.4%) | 0.144 |
| | Student | 2 (28.6%) | 26 (52.0%) | 50 (34.7%) | |
| | Self-employed | 0 (0.0%) | 8 (16.0%) | 24 (16.7%) | |
| | Employee | 2 (28.6%) | 7 (14.0%) | 42 (29.2%) | |
| Frequency and the <i>P</i> Value Between the Education Level and Job Stress | | | | | |
| Variable | Awareness | Weak | medium | Optimal | <i>P</i> Value |
| Level of education | High school | 3 (15.8%) | 6 (6.1%) | 3 (3.6%) | 0.657 |
| | Diploma | 3 (15.8%) | 18 (18.2%) | 15 (18.1%) | |
| | Associate degree | 2 (10.5%) | 9 (9.1%) | 9 (10.8%) | |
| | Bachelor | 8 (42.1%) | 43 (43.4%) | 42 (50.6%) | |
| | Master | 1 (5.3%) | 15 (15.2%) | 11 (13.3%) | |
| | PhD | 2 (10.5%) | 8 (8.1%) | 3 (3.6%) | |
| Job | Unemployed | 8 (42.1%) | 20 (20.2%) | 12 (14.5%) | 0.032 |
| | Student | 1 (5.3%) | 43 (43.4%) | 34 (41.0%) | |
| | Self-employed | 4 (21.1%) | 15 (15.2%) | 13 (15.7%) | |
| | Employee | 6 (31.6%) | 21 (21.2%) | 24 (28.9%) | |

participants with coronavirus was moderate and high (90.6%, $n=201$), and the maximum percentage related to the highest level of stress (optimal class) due to coronavirus belonged to people aged 21-40 years (86.7%, $n=72$) who had a bachelor's degree (50.6%, $n=42$) and were students (41%, ($n=34$)). Conversely, the lowest level of stress was observed in people aged 21-40 years (73.7%, $n=14$) who had a bachelor's degree (42.1%, $n=8$) and were unemployed (42.4%, $n=8$). Based on the findings, a statistically significant relationship was found between stress and job ($P=0.032$) while no statistically significant relationship was observed between the education level ($P=0.657$) and age ($P=0.053$), the details of which are provided in Table 4. The demographic characteristics of the participants as well as the percentage of awareness and stress questions are shown in the Figure 2.

Discussion and Conclusion

The results of the study showed that out of 201 people, 104 (51.7%) and 97 (48.3%) of the population responding to the questionnaire were women and men, respectively. The mean age of individuals was 29.18 ± 9.95 . According to statistics, 46.3% of people with university education and 33.8% of the participants obtained the necessary information through the national media (radio and television) on average.

Additionally, various statistical studies have focused

on COVID-19 in Iran and other countries. In a study conducted by Taghrir et al on 240 Iranian medical students including 98 (40.8%) males and 142 (59.2%) females, the average age of the subjects was calculated to be 23.67 years, which had a younger population (12) compared to the present study. Likewise, Alipour et al evaluated 378 people containing 229 (74%) men and 80 (26%) women of the Iranian population using a virtual questionnaire. Based on their findings, only 105 (34.1%) cases had a bachelor's degree (13), showing a close relationship with the results of the present study. The most important data source in the coronavirus is media such as television, radio, social media (e.g., Telegram and Instagram), Satellite TV, websites, and corporate text messages, along with face-to-face conversations. In this crisis, providing valuable information to all people with different age groups, gender, education level, and living situation is a difficult and time-consuming task (14).

With regard to participants' awareness, the upcoming study indicated that most of them (96.6%) were familiar with the COVID-19 and 90% of cases identified it as a virus through media reports. Based on the obtained data regarding measuring people's level of awareness, no significant relationship was found between the education level and age while there was a relationship between and people's job. The results also showed the desired level of awareness with a frequency of 86.1%.

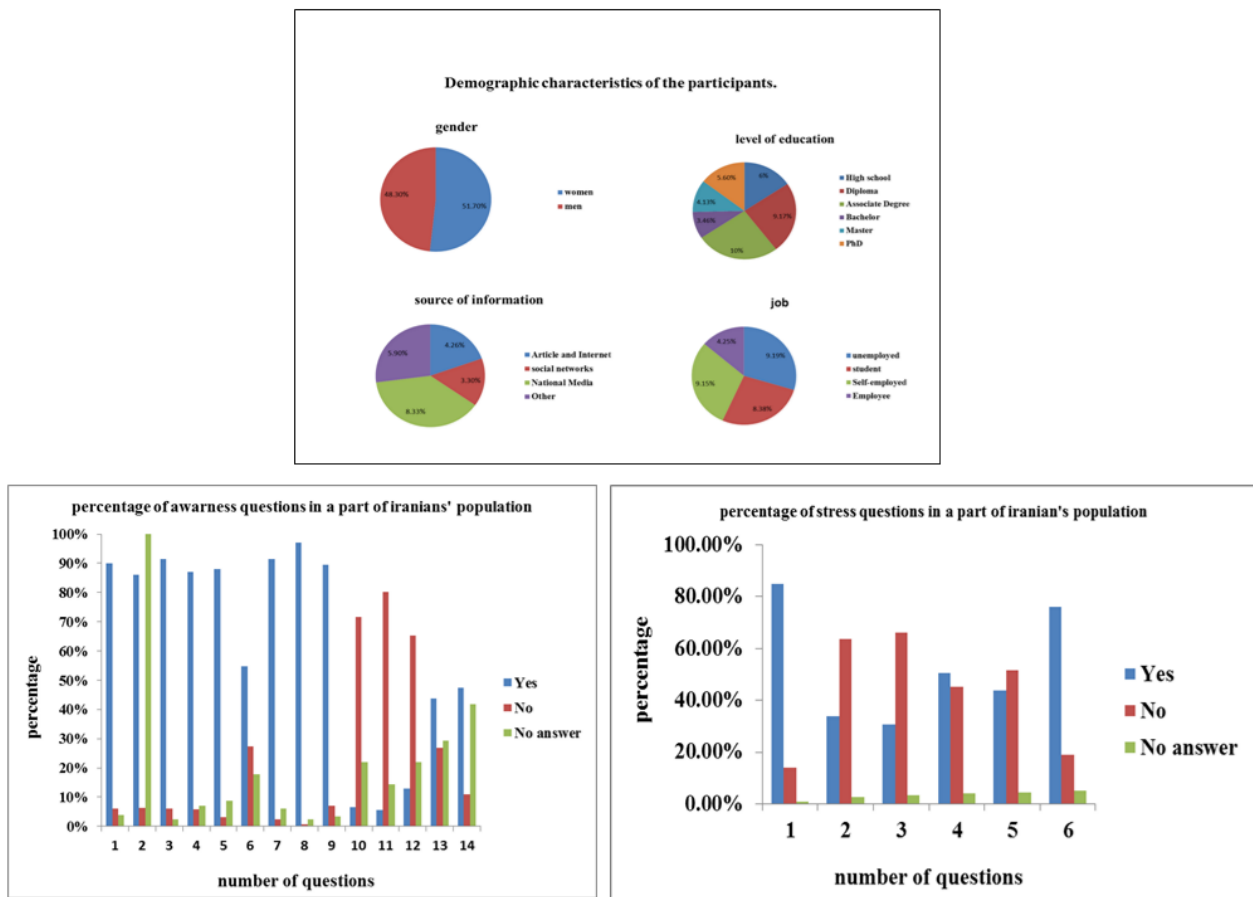


Figure 2. Percentage of Awareness and Stress Questions in a Part of Iranian's Population.

In their study, Fallahi et al reported that the level of awareness was desirable (above 50%). There was a significant relationship between COVID-19 awareness and gender (15), which is in line with the results of the present study. Similarly, Rahmanian et al surveyed medical students and concluded that 98.3% of them were familiar with the disease and 95% of cases identified the coronavirus as contagious (16), which is highly consistent with the findings of the current study. Similar to our study, the relationship of students' awareness with the education level was significant in the above-mentioned study. On the other hand, the results of the study by Nasirzadeh et al on the citizens of Qom province represented no significant relationship between awareness and the education level (17), which is inconsistent with the findings of the present study.

Peng et al accomplished a study on 872 participants, comprising 534 (61.2%) females and 338 (38.8%) males. In this study, women's awareness score (82.3%) was higher compared to men, and 73.81% of women had a positive attitude in this regard (18), which corroborates with the results of the current study.

Despite access to accurate information about COVID-19 by passing time and knowing more about the disease and ways to prevent and control it, there is still disagreement between different communities in most developing countries. It is important to propagate the right information

about COVID-19 because up-to-date awareness and useful information in all aspects can reduce the spread of the disease and the mortality rate (19).

In this survey, 85.1% of participants were stressed and worried about themselves and their relatives regarding COVID-19 and 76.1% of them were willing to receive information on ways for caring and controlling this disease. Participants had moderate-to-high levels of stress and ages 21-40 were classified in the high level. There was a significant relationship between job and stress ($P=0.032$).

In an investigation conducted on the staff of Masih Daneshvari hospital in Tehran, Esmaeili Dolabinejad et al reported that the levels of stress and anxiety due to COVID-19 had the highest rate of psychological damage in those who were in the age range of 20-30 years. In the present work, the stress was also at a moderate-to-high level and the injuries caused by this disease were observed in the age range of 40-21 years (20), which is in conformity with the result of this study.

The findings of the research by Fathi et al on 252 students of Tabriz Azad University containing 208 women and 44 men indicated that students' anxiety was significant. They found that the stress caused by COVID-19 plays a remarkable role in their concentration and learning. However, no significant relationship was observed between education and anxiety in this study (21). A study by Qian et al in China revealed that the stress rate of COVID-19 in

Wuhan residents was 32.7% and that of the Shanghainese people was 20.4% ranging from moderate to severe (22).

From the perspective of health psychology, the psychosocial effects of coronavirus can be traced on patients, medical personnel, patients' families, community, children, the elderly, and the effects of mourning on the survivors. Although a slight level of anxiety is required for general sensitivity, previous experiences with a high prevalence of dangerous diseases indicate a high potential for general panic, which is often more dangerous than the disease itself (23). According to studies, patients with COVID-19 have a low psychological tolerance capacity and due to the current state of the disease in the world, these people are highly exposed to psychological disorders such as anxiety, fear, depression, and negative thoughts. If left untreated and uncontrolled, Psychological disorders may cause permanent injuries in patients such as the influx of disturbing memories, avoidance behaviors, and irritability (24).

Authors' Contribution

All authors contributed to the collection, calculation, and writing.

Ethical Approval

All participants completed the questionnaires with informed consent.

Conflict of Interests

The authors declare that there is no conflict of interests associated with this publication.

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