



COVID-19 Anxiety in among the People of North Iran and its Relationship with Some Factors in 2020–2021

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Abstract

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INTRODUCTION AND OBJECTIVE: COVID-19 infection is a highly contagious disease that has affected a large population worldwide. The total number of deaths due to this virus is more than the cases caused by any of its predecessors. As there is little information about this disease, it causes anxiety in the community. Lack of related studies and anxiety problems of COVID-19 including fear of the unknown disease, imbalance of mental health and work-life, and negative feelings.

AIM: This study aimed to investigate COVID-19 anxiety in among the people of North Iran and its relationship with some factors.

MATERIALS AND METHODS: This cross-sectional (descriptive-analytical) study was conducted in Gorgan in 2020. Sampling was done using convenience sampling method and a sample size of 400 people was obtained. Data were collected online using the Coronavirus Anxiety Scale (CAS). The collected data were analyzed using Spearman, Mann-Whitney U, and Kruskal-Wallis tests by SPSS version 23. To deduce quantitative responses, normality was first measured. Statistical significance level was considered at $p = 0.05$.

RESULTS: The results showed that COVID-19 anxiety in the people of Gorgan was 15.76 ± 9.34 . Most of the participants ($n = 243$, 60.8%) had low levels of anxiety. Furthermore, COVID-19 anxiety in mental dimension (11.32 ± 5.5) was higher than anxiety in physical dimension (4.44 ± 4.78) in the people of Gorgan. Non-parametric Kruskal-Wallis test also showed that the mean score of anxiety was significantly correlated with education level ($p = 0.01$) and different occupation levels ($p < 0.001$). Regarding gender, Mann-Whitney U-test showed that there was a statistically significant difference in the mean score of anxiety between men and women ($p = 0.003$).

CONCLUSION: The results indicate that following the COVID-19 pandemic as an emerging disease, although the anxiety of the people of Gorgan was generally at a low level, this anxiety was more in the mental dimension than in the physical dimension.

Introduction

Coronavirus (COVID-19) has emerged in December 2019 in Wuhan, China. About 40 cases of pneumonia of unknown cause had been reported, some of which were salesmen in the seafood market. The World Health Organization (WHO) started a cooperation with Chinese officials and the new virus was called the novel coronavirus (2019-nCoV) [1].

COVID-19 infection is a highly contagious disease that affects a large number of people, the total number of deaths from the virus exceeding those caused by any of its predecessors. In April 24, 2020, a total of 2,626,321 confirmed cases from 204 countries were reported. Furthermore, there are 181,938 confirmed deaths worldwide [2]. Coronavirus also spreads in Iran and endangered the physical and mental health of the people [3]. The number of patients with this disease in this country on April 24, 2020, was about 87,026 people and the number of deaths was reported to be 5481 cases [3].

COVID-19 disease occurs suddenly and is highly contagious [4]. As there is little information about this disease, it causes anxiety in people in the community [5]. At this time, people are looking for more information to relieve their anxiety. Anxiety can cause people to be unable to distinguish between right and wrong information, so they may be exposed to false news [6]. On the other hand, due to the widespread use of social media, fake news on the subject is also spreading rapidly. In most cases, these cases cause worry and anxiety in people in the community [7].

Stress and anxiety can weaken the immune system and make them vulnerable to diseases such as COVID-19 [3]. Fear and anxiety also can lead to hatred and stigma. Moreover, social stigma causes people to hide their disease and not seek health care immediately. The WHO provides guidance and responds to general questions to help individuals manage fear, stigma, and discrimination during COVID-19 [7].

Bao *et al.* also reported that the widespread prevalence of infectious diseases, such as COVID-19,

is associated with mental distress and symptoms of mental disorders [8]. Psychiatrists around the world should use these symptoms, their relationship, and strategies to manage them, including both the needs of specific populations and the preventive measures needed to curb the spread of COVID-19 infection [9].

Recent evidence also suggests that individuals held in isolation and quarantine experience significant distress in terms of anxiety, anger, confusion, and post-traumatic stress symptoms [10]. The study of general mental health and its associated factors is of practical importance during the outbreak of COVID-19 [4]. Therefore, the study of these areas is very important in the Iranian population. Mental health issues are another major health concern that rises unexpectedly during this epidemic. Lack of related studies and anxiety problems of COVID-19 including fear of the unknown disease, imbalance of mental health and work-life, and negative feelings. This study aimed to investigate COVID-19 anxiety in among the people of North Iran and its relationship with some factors.

Materials and Methods

This cross-sectional study designed with a descriptive-analytical approach was conducted in 2020–2021. The population of Gorgan city is 480,541 people. Sampling was done using convenience sampling method and a sample size of 400 people was obtained. The research sample was the people of Gorgan who met the inclusion criteria. Inclusion criteria were the ability to read and write, no disease and mental disorders according to self-report, willingness to participate in the study, residence in Gorgan for at least 3–6 months, and being over 18 years old.

Exclusion criteria also included incomplete completion of questionnaires (questionnaires with completion of less than 5% of questions) and selection of one response for all questions of the questionnaire. According to the study of Alipour *et al.* (2019) and based on the mean and standard deviation of COVID-19 anxiety criterion using the following formula, an independent community with confidence level of 0.95, maximum error of 0.1, and maximum standard deviation, the sample size was calculated to be 425.

$$n = \frac{z_1^2 - \alpha / 2^{S^2}}{d^2}$$

Samples were collected after obtaining permission from the Research Council and the Ethics Committee of Medical Science of Golestan University (Ethical code: IR.G.U.M.S.REC.1399.36). In this study, due to traffic restrictions to prevent the spread of the coronavirus, the questionnaires were used online in

social networks such as Telegram and WhatsApp by setting up the anxiety questionnaire online. Inclusion criteria were initially set up in the questionnaire and when designing the questionnaire, it was set so that the studied samples could continue the process and complete the questionnaire if they met the inclusion criteria.

The data collection tool in this study had two parts: The demographic information section and the Coronavirus Anxiety Scale. The first part was related to the demographic information (age, sex, education level, marital status, occupational status, underlying disease, insurance status, and access to the desired information) and the second part was related to the Coronavirus Anxiety Scale.

Corona Disease Anxiety Scale (CDAS) was designed and validated by Alipour *et al.* (2019) during the COVID-19 epidemic. This questionnaire has 18 questions. In their study, the data were evaluated using internal consistency by Cronbach's alpha and Guttman's lambda-2 (Guttman's λ^2), and construct validity was evaluated using confirmatory factor analysis (CFA) by Lysis 8 software. The value of Guttman's λ^2 for the whole questionnaire was 0.922 and Cronbach's alpha coefficient was $\alpha = 0.879$ for mental symptoms, $\alpha = 0.861$ for physical symptoms, and $\alpha = 0.919$ for the whole questionnaire [3]. The questionnaire was scored from 0 to 54; score 0 to 16 (mild anxiety or no anxiety), score 17 to 29 (moderate anxiety), and score 30 to 54 (severe anxiety) [3].

After collecting the data, they were entered SPSS version 23. Mean and standard deviation were used to describe quantitative data and a frequency table as number and percentage was used for qualitative data. To deduce quantitative data, first, the normality of the data was measured using Shapiro–Wilk test, and as the data did not have a normal distribution, so the non-parametric Mann–Whitney U and Kruskal–Wallis tests were used. Statistical significance level was considered at $p = 0.05$.

Results

Of 400 participants in the study, 276 participants (69%) were female and 124 (31%) were male. In terms of education level, the highest number of participants ($n = 167$, 41.8%) had bachelor's degree and the lowest one ($n = 30$, 7.5%) had an education level less than high school diploma. In terms of occupational status, the highest number of the participants ($n = 97$, 49.2%) was employees and the lowest one ($n = 12$, 30%) was labors.

In terms of marital status, the majority of the participants ($n = 296$, 74%) were married and in terms of the underlying disease, 305 people (76.2%) had no history of disease. In terms of insurance status,

the majority of the participants ($n = 383$, 95.8%) had medical insurance. Regarding the access to information, the findings showed that majority of the participants ($n = 192$, 48%) reported social networks as the main source of information. The findings related to the frequency distribution of the participants' demographic information are given in Table 1.

Table 1: Frequency distribution of participants' demographic information

Variable	Frequency (percentage)
Gender	
Female	276 (69)
Male	124 (31)
Education level	
<High school diploma	30 (7.5)
High school diploma	44 (11)
Associate's degree (undergraduate degree)	51 (12.8)
Bachelor's degree	167 (41.8)
Master's degree	75 (18.7)
Ph.D.	33 (8.2)
Occupational status	
Employee	197 (42.2)
Labor	12 (3)
Unemployed	103 (25.8)
Freelance	46 (11.5)
Retired	42 (10.5)
Marital status	
Married	296 (74)
Divorced	8 (2)
Single	90 (22.5)
Widow	6 (1.5)
Underlying disease	
Yes	95 (23.8)
No	305 (76.2)
Medical insurance	
Yes	383 (95.8)
No	17 (4.2)
Access to information	
Social media	192 (48)
Articles and magazines	48 (12)
Radio and TV	107 (26.8)
Others	53 (13.2)
Total	400 (100)

The results of this study showed that COVID-19 anxiety in the people of Gorgan was 15.76 ± 9.34 ; most of the participants ($n = 243$, 60.8%) in this study had anxiety at a low level. The levels of anxiety in the participants are separately shown in Table 2.

Table 2: Frequency distribution of anxiety levels in the participants

Anxiety levels	Frequency (percentage)
Mild	243 (60.8)
Moderate	119 (29.7)
Severe	38 (9.5)
Total	400 (100)

The results showed that COVID-19 anxiety in the mental dimension (11.32 ± 5.5) was higher than physical dimension anxiety (4.44 ± 4.78) in the people of Gorgan.

Furthermore, frequency distribution of anxiety levels in the mental and physical dimensions is given

Table 3: Frequency distribution of COVID-19 anxiety levels by anxiety dimensions in the people of Gorgan

Anxiety dimensions	Anxiety levels	Frequency (percentage)
Physical dimension	Mild	54 (13.5)
	Moderate	309 (77.2)
	Severe	37 (9.3)
Total		400 (100)
Mental dimension	Mild	140 (35)
	Moderate	210 (52.5)
	Severe	50 (12.5)
Total		400 (100)

in Table 3.

To determine the relationship between COVID-19 anxiety in the people of Gorgan and demographic characteristics (age, sex, marital status, education level, occupational status, underlying disease, and access to information), first, the normality of anxiety score was measured by Shapiro–Wilk test, which did not have a normal distribution, as shown in Table 4. Therefore, non-parametric Mann–Whitney U and Kruskal–Wallis tests were used.

Table 4: The total anxiety score of the people of Gorgan by demographic characteristics and their relationship

Variable	Total anxiety score (mean \pm standard deviation)	p-value
Gender		
Female	9.59 \pm 16.69	0.003
Male	8.45 \pm 13.69	
Education level		
<High school diploma	18.53 \pm 10.7	0.01
High school diploma	16.14 \pm 9.18	
Associate's degree (undergraduate degree)	17.24 \pm 9.57	
Bachelor's degree	14.46 \pm 9.12	
Master's degree	14.63 \pm 8.41	
Ph.D.	19.58 \pm 9.79	
Occupational status		
Employee	16.30 \pm 9.27	<0.001
Labor	13.92 \pm 8.3	
Unemployed	18.22 \pm 9.99	
Freelance	11.57 \pm 6.84	
Retired	12.26 \pm 8.42	
Marital status		
Married	15.73 \pm 9.44	0.68
Divorced	12.75 \pm 8.65	
Single	16.11 \pm 9.18	
Widow	15.83 \pm 9.23	
Underlying disease		
Yes	17.49 \pm 10.51	0.08
No	15.22 \pm 8.9	
Medical insurance		
Yes	15.67 \pm 9.35	0.29
No	17.71 \pm 9.11	
Access to information		
Social media	15.35 \pm 8.65	0.66
Articles and magazines	18.02 \pm 11.15	
Radio and TV	15.49 \pm 8.99	
Others	15.72 \pm 10.59	

Spearman's correlation test showed that there was no significant relationship between age and anxiety score ($p = 0.09$). Non-parametric Kruskal–Wallis test showed that there was no significant relationship between the mean score of anxiety and marital status ($p = 0.68$) as well as access to information ($p = 0.66$). Non-parametric Mann–Whitney U-test showed that the mean score of anxiety in individuals despite the underlying disease ($p = 0.08$) and having health insurance ($p = 0.29$) was not significantly different.

Non-parametric Kruskal–Wallis test also showed that the mean score of anxiety was significantly correlated with education level ($p = 0.01$) and different occupation levels ($p < 0.001$) so that the participant with a Ph.D. degree and those who did not have a job and were unemployed had more anxiety. Regarding sex, Mann–Whitney U-test showed that there was a statistically significant difference in the mean anxiety scores between men and women ($p = 0.003$) so that the anxiety level was higher in women than men. The

total anxiety scores by demographic characteristics and their relationship are given in Table 4.

Discussion

The results showed that most people in Gorgan had a low total score of anxiety caused by COVID-19 and the highest level of anxiety was related to mental dimension, which is inconsistent with the results of the study by Qiu *et al.* (2020). In a study on the level of psychological distress related to COVID-19 in the Chinese population, they showed that the onset of the COVID-19 epidemic in China was associated with anxiety, distress, and sleep disorders and depression, and 53.8% of people had moderate-to-severe levels of mental problems during the COVID-19 pandemic, 16.5% of people reported moderate-to-severe depression, and about 16.5% of people reported moderate-to-severe anxiety [11]. In this regard, little information about COVID-19 can increase anxiety caused by coronavirus [5]. Possible reasons for the low level of COVID-19 anxiety in individuals could be due to a study conducted several months after the outbreak of the disease, obtaining relative information about the disease through social media, and initiating protective measures such as vaccination.

The results showed that anxiety is higher in the mental dimension than in the physical dimension. The mental dimension included psychological symptoms such as worry, fear, and stress, and the physical dimension included physical symptoms such as sleep disorders, anorexia, and headache. In this regard, Bao *et al.* also stated that the widespread prevalence of infectious diseases such as COVID-19 is associated with mental distress and psychological symptoms [8]. The researchers reported that due to the COVID-19 pandemic, there were anxiety and stress caused by individual quarantine at the highest level and sleep disturbance at the lowest rate (2). Another study by Zandifar *et al.* (2020) on the effects of COVID-19 pandemic in Iran showed that the unpredictability of the disease, the unknown and serious nature of the disease, social isolation, and insufficient and erroneous information can cause stress in society, which is of great importance [12].

Shigimura *et al.* (2020) in their study investigated the effects of COVID-19 disease on the feeling of well-being and found that most people in the community had a high level of fear and panic behaviors [13]. Lima *et al.* also reported anxiety as a prominent mental symptom in response to COVID-19 disease [14]. Furthermore, two studies in Canada on mental health status related to COVID-19 showed that anxiety has been one of the most important consequences of COVID-19 [15].

The results showed that the total score of

anxiety was not significantly different in terms of having/not having the underlying disease. Limited information on the nature of COVID-19 disease in terms of pathophysiology, complications, and consequences may be the reasons for this finding. However, some studies have shown that the following groups of people are more prone to the psychological consequences of COVID-19. These groups included the elderly [16], the homeless [17], migrant workers [14], and patients with a history of mental health problems [18], pregnant women [19], and Chinese overseas students [23]. Yaho *et al.* (2020) also reported that patients with a history of mental disorder are at higher risk of recurrence or a new disorder due to COVID-19 stress [18].

Shigimura *et al.* (2020) reported that most people in the community, such as patients with COVID-19, their family members, people with physical and mental disabilities, and medical staff, are at higher risk of developing COVID-19 stress than the rest of the community [13].

The results also showed that there is a statistically significant relationship between the total score of anxiety and the education level of people of Gorgan, which is consistent with the results of the study of Wang *et al.* (2020). They showed that the risk of depression following COVID-19 was 0.39 times higher in a group of people (those with postgraduate degree and higher) in the regions of China [21], which is consistent with the results of a study by Qiu *et al.* [14]. People with higher education levels are more prone to stress because they have higher self-awareness about health [22].

The results showed that the total score of anxiety was not significantly different in terms of the marital status. In a similar study, Lu *et al.* (2020) investigated COVID-19-related depression and anxiety in health care workers worldwide using the Hamilton Depression Rating Scale (HAM-D) and Hamilton Anxiety Rating Scale (HAM-A), and reported that COVID-19-related anxiety and depression were not significantly different in terms of marital status [23].

The total score of anxiety was significantly different in terms of gender so that it was higher in women than men, which is consistent with the results of the study of Wang *et al.* [4]. They investigated the mental status of individuals and some related factors during the COVID-19 pandemic in some parts of China using a self-report questionnaire. They reported that anxiety level was higher in women than men [21], which are consistent with the results of the study of Cao *et al.* (2020) [11].

In a similar study, Sarin *et al.* (2013) showed that women are more sensitive to stress and more prone to post-traumatic stress disorder [24]. Wang *et al.* (2020) also showed that anxiety levels related to COVID-19 were higher in women compared to men [4]. However, Lu *et al.* showed that gender had

no statistically significant relationship with the level of anxiety related to COVID-19 [23].

The total score of anxiety was significantly different in terms of occupational status so that it was higher in employees than those with other jobs. Consistent with this finding, Qiu *et al.* (2020) reported that COVID-19-related distress has had a statistically significant relationship with occupational status, but the highest anxiety score was reported among migrant workers [11]. Consistent with the findings of the present study, Wong *et al.* also showed that the anxiety level has a statistically significant relationship with occupational status and that the risk of depression in industrial service workers was 0.31 times higher than the rest [4].

Conclusion

According to the results of the present study, following the COVID-19 pandemic as an emerging disease, although the anxiety of the people of Gorgan was generally at a low level, this anxiety was more in mental dimension than in physical dimension. Therefore, to maintain and promote the mental health of people in the community, it is recommended to pay more attention to the mental dimensions of the disease. Furthermore, identifying the anxiety level in the people of the city and adopting programs to promote mental health can be helpful.

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