

## The potential association of COVID-19 and Psychological Distress and Anxiety in Iran

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### Abstract

**Objective:** COVID-19 prevalence is a new and serious threat to public health. The disease has had an impact on nearly every important economic, political, social, and even military aspect of many countries around the world. As a result, the psychological effects of this viral disease on different levels of society's psychological health are critical, necessitating scientific research. This study looked into the possible link between COVID-19 and psychological distress and anxiety in Iran.

**Methods:** The first large-scale global study of psychological distress and anxiety in public society, this cross-sectional (descriptive-analytical) study was based on the participation of people from some Asian countries during the COVID-19 epidemic. Only the results from Iran were presented in this article. This study had 1480 participants and used a standard questionnaire called the COVID-19 Peritraumatic Distress Index (CPDI) with a Cronbach's alpha of 0.82.

**Results:** It was discovered that 1171 (79%) of the participants were female, while 309 (21%) were male. The CPDI Questionnaire yielded a mean score of  $54.16 \pm 6.13$ . There was a significant relationship ( $p=0.0002$ ) between age group and total score of psychological distress and anxiety. The findings revealed a link between anxiety variables and education ( $p = 0.0001$ ), monthly income ( $p = 0.008$ ), and gender ( $p = 0.019$ ).

**Conclusion:** It can be concluded that many study participants were in an unfavorable psychological distress and anxiety situation.

**Keywords:** COVID-19, Anxiety, Psychological Distress, Iran

## Introduction

International attention was drawn to the rapid spread of Coronavirus disease (COVID-19) in Wuhan, China. Following the global spread of this disease, the World Health Organization (WHO) declared it a global epidemic on March 11, 2020. (1,2). Many people are worried about the virus's rapid spread and high mortality rate, which has put a significant psychological strain on communities and health professionals (2). Some of the epidemic's stressors may endanger people's health (3). Separation from family and friends, a lack of basic necessities, a loss of daily income, social isolation, and school closure are all factors that can contribute to psychological distress (4). This pandemic necessitates a variety of psychosocial responses, including extreme anxiety, the likelihood of developing the disease, indifference, or excessive preventive measures (5).

Some people may deny the disease's dangers and avoid recommended health behaviors such as social isolation and health advice; thus, a better and more timely understanding of society's psychological responses to this infectious disease is critical for a variety of reasons. At the start of a widespread outbreak, especially in a disease pandemic, the level of anxiety and worry among people who are directly exposed to the virus is extremely high (6). Furthermore, the occurrence of psychological distress and anxiety in society can have a devastating effect on people's daily lives, resulting in immediate social and economic consequences such as job loss and financial problems. It is therefore critical to protect the psychological health of the community through psychological interventions and to prevent anxiety disorders during times of crisis (7).

Anxiety, weakness, exaggerated assessment of the probability of infection, inappropriate precautionary measures, and increased demand for healthcare services despite a lack of facilities are all possible psychosocial responses to a pandemic (8). Individuals' daily functions can be disrupted by psychological responses, which can have immediate social and economic consequences (7). People in quarantine, for example, report significant fatigue, anxiety, irritability, and insomnia (9, 10). The prevalence of COVID-19 is undeniably stressful for people and communities, as people are constantly concerned about the healthcare system's inability to combat COVID-19 (11). This disease's prevalence may be due to incorrect interpretations of health stimuli such as emotions and changes. People's emotions may not change, or they may experience disease symptoms (4). Everyone in a society is affected by nervousness and anxiety. In general, all studies that have looked into psychological disorders

during the COVID-19 epidemic have found that affected people exhibit a variety of symptoms such as emotional distress, depression, stress, mood swings, irritability, insomnia, attention deficit, hyperactivity, post-attack stress, and anger (12).

Research has shown that a repeated media exposure can cause anxiety (13). However, given the current situation, predicting the psychological and emotional consequences of COVID-19 is difficult. According to research conducted in China, the first country to be affected by the virus, people's fear of the unknown virus can lead to psychological disorders (14). The virus's pathogenicity, prevalence, and high mortality rate may have an impact on the psychological health of people from all walks of life, from patients and health care providers to families, children, students, workers, and others (15). Despite the fact that COVID-19 has been present in Iran for less than two years, no comprehensive research in this field has been conducted. COVID-19 has caused significant harm to human health all over the world. Some of the world's most important economic and industrial sectors were on the verge of being closed down, resulting in the unemployment of millions of people worldwide, which may have resulted in the loss of many family members.

In various countries, the health-care community has suffered irreversible deaths as well as extreme stress and anxiety. The psychological distress of those affected must be investigated and addressed. This necessitates additional research, which is the primary goal of this study. This project began with the collaboration of more than 12 countries. The findings of the Iranian study are presented in this article. As a result, the primary goal of this study was to look into the possible links between COVID-19 and psychological distress and anxiety in Iran.

## Method

This was an internet-based cross-sectional (descriptive-analytical) study conducted from March to April 2020, and it is part of the first large-scale global study of psychological distress and anxiety in Iranian society, which is based on people who participated in this study during the COVID-19 epidemic. In Iran, each province's health is managed by its own province University of Medical Sciences. Representatives from various universities across Iran took part in the study in order to have a sample from different provinces and more heterogeneity. The researchers reached the minimum sample set for the countries participating in the study (about 1000 cases) in order to establish the reliability of the findings in this study (Bangladesh, Egypt, India, Indonesia, Iran, Malaysia, Myanmar, Nepal,

Philippines, Sri Lanka, Thailand, Turkey, and Vietnam) (16).

Appropriate coordination was carried out, representatives from various universities effectively collaborated, and the questionnaire was designed using a pre-designed structured online questionnaire. The questionnaire is divided into two sections: Part 1: Sociodemographic data (state, gender, age, education, marital status, co-morbidities); Part 2: Qui and colleagues' COVID-19 Peritraumatic Distress Index (CPDI) (17). The COVID-19 CPDI was a self-reported questionnaire with 24 questions that used a Likert Scale to assess anxiety, depression, specific phobias, cognitive change, avoidance, and compulsive behavior, physical symptoms, and loss of social function in the previous week (never- 0, occasionally-1, sometimes-2, often-3, and always-4). The questionnaire was modified to reflect Iranian culture and some important Iranian parameters (Cronbach's alpha = 0.79).

Snowball sampling, a type of convenience sampling, was used to collect data from research networks of universities, hospitals, friends, and relatives. The study population consisted of adults aged 18 and up who lived in their respective countries for at least one week during the World Health Organization's COVID-19 pandemic announcement. The structured online questionnaires were distributed across multiple countries via emails, WhatsApp, Telegram, and other social media platforms. Through their link and network, all co-researchers and colleagues identified the respondents' social media account. The amount of the income per month was asked and it is believed that the answer to this question is valid because there was no question about personal information of respondents, so data would be valid and reliable.

The research team effectively conducted follow-up sessions, which resulted in the desired outcome. This study was part of the first large-scale global study of psychological distress and anxiety, and the sample size was calculated using each country's representative population (16). Finally, the researchers collected 1480 cases from various and accessible members of society, such as offices, organizations, and high school students. The target individuals in this study were those who had undergone basic education, work with smartphones, and willing to participate in the study. The participants in the study were drawn from various provinces in Iran and were literate enough to use the internet and read text. Some university professors working in that field assisted in data collection in various Iranian provinces. About half of the sample was younger than 30, so the age divided into two groups: less than 30 and equal or older than 30 years.

Psychiatrists, clinical psychologists, physicians, specialists, pharmacists, clinicians, and public health experts from the respective countries translated and culturally validated the texts into their respective national languages: Bangladesh (Bengali), Egypt (Arabic), India (Hindi), Indonesia (Bahasa Indonesia), Iran (Persian), Malaysia (Bahasa Melayu), Myanmar (Burmese), Nepal (Nepali), Philippines (Tagalog), Sri Lanka (Sinhala), Thailand (16). Pilot testing included 15 people from each country to test face validity and 50 people from each country to test internal consistency. The Cronbach's alpha values ranged between 0.82 in Iran and 0.925 in Malaysia, indicating that the questionnaire has good to excellent internal consistency across all countries (16). There is no valid procedure to examine the dependability of this characteristic due to the complication of monthly income. Furthermore, there were many other factors that should have been considered in this regard, such as job loss, disagreements with family, and lack of contact with others; however, due to low responses to these questions, they were excluded from analysis.

A total score of 0 to 28 was considered normal. A total score of 28 to 51 indicated mild to moderate anxiety, while a total score of 52 or higher indicated severe anxiety. The questions were answered entirely electronically by the participants. The questionnaire was designed in such a way that the individual could not proceed without answering all of the questions. As a result, there was no drop or decrease in the responses. The data was analyzed using SPSS software version 25 (IBM Corp., Armonk, NY, USA) and statistical tests such as Chi-square, t-test, and regression.

Data collection began two weeks after the WHO declared COVID-19 to be pandemic. For about a month, the online link was available. Our study was a completely voluntary online survey. By enabling the feature that prevents multiple responses from the same history, consented participants were able to respond only once using a single account. The participants were asked to respond based on their one-week prior experience. The responses from the spreadsheet were exported into IBM SPSS version 25 and Stata 13.0. (Stata Corp., USA). The survey received 36% of responses.

For the demographic variables, descriptive statistics were performed and reported as frequency (count), percentage, mean, standard deviation, and prevalence. The crude odds ratios for associations between countries, age, gender, religion, education, and employment with distress were calculated using univariate logistic regression. A multivariate logistic regression was then used to investigate the relationship between distress and provinces.

**Table 1.** Frequency of Participants' Total Score of Psychological Distress and Anxiety

Classification of Psychological Distress and Anxiety	Frequency	Percentage
Mild - Moderate	712	48.1
Severe	768	51.9

**Table 2.** The Relationship Between the Variables and the Severity of Psychological Distress and Anxiety

Severity of Anxiety		Mild or Moderate		Severe		P-value *
		N	%	N	%	
Age Group	<30	420	59	381	49.6	0.0002
	≥30	292	41	387	50.4	
Gender	Female	545	76.5	626	81.5	0.019
	Male	167	23.5	142	18.5	
Education	Secondary	236	33.1	171	22.3	0.0001
	Tertiary	476	66.9	597	77.7	
Monthly Income	<500\$	238	33.4	208	27.1	0.008
	≥500\$	474	66.6	560	72.9	

\*Using Chi-Square Test

**Results**

This study included 1480 participants. The participants' ages ranged from 15 to 83 years old, with more than half of the subjects (54%) being under 30 years old. The subjects' average age was 37 years. 79% (1171) of the participants were female, with the remaining (21% being male).

The study's findings also revealed that the majority of participants (72.5%) had a university education. The CPDI questionnaire had a mean score of 54.16±6.13. The mean score of psychological distress and anxiety revealed that 712 people experienced mild to moderate psychological distress and anxiety, while 768 experienced severe psychological distress and anxiety as a result of COVID-19 disease. As a result, more than half of the study participants were in an unfavorable situation in terms of psychological distress and anxiety (Table 1).

The Chi-square test results showed a significant relationship between people's anxiety and distress and their age, education, monthly income, and gender. However, there was no statistically significant relationship between individuals' occupation, type of employment, whether or not they worked for the Ministry of Health, religion, or ethnicity and their total score of psychological distress and anxiety (Table 2).

**Discussion**

The global prevalence of COVID-19, as well as the percentage of deaths caused by this disease, has placed many countries in a difficult health challenge. The question of how long this crisis will last is still unanswered, which necessitates patience. This ambiguous situation could have a variety of consequences, including psychological distress. As a

result, identifying the source of psychological distress among people in various communities whose psychological health may be jeopardized is critical for using appropriate psychotherapy.

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In this study, participants had a high level of anxiety and distress which indicates that high psychological insecurity has occurred in Iran after the prevalence of COVID-19. Previous research in Iran has also revealed a high level of stress in this country (22,23,24). People may become depressed in such situations when they feel powerless to support their families, especially the elderly and those who live alone (25).

According to the findings, the majority of participants (48.1% mild or moderate and 51.9% severe) experienced psychological distress and anxiety as a result of COVID-19. In comparison to other communities, the prevalence and severity of this disease is relatively high. COVID-19 caused psychological anxiety in 40% of the population, according to the findings of a study conducted in Saudi Arabia by Khaled and colleagues (26) on 3036 people. 33% of those polled experienced mild anxiety, while 7% experienced severe anxiety.

Shrestha and colleagues (27) also investigated the impact of COVID-19 on the psychological health of Nepalese residents. They conducted their research on 410 people, with an 11.5% prevalence of various levels of anxiety. Other studies conducted by Huang et al (28) and Sani and colleagues (29) found that the prevalence of anxiety caused by COVID-19 was 35.1% and 44.7%, respectively.

The current study discovered a significant relationship between age and total anxiety score, with people under 30 years old having a higher total anxiety score. This finding is consistent with the findings of a study conducted by Khaled and colleagues (26) and Ghasemnejad and colleagues (30) that found a much higher level of anxiety among young people. This finding contradicts the findings of a study conducted by Shrestha and colleagues (27) who found that the prevalence of anxiety is higher in people over the age of 45.

According to the findings of this study, there was a significant relationship between gender and total

score of psychological distress and anxiety. In this regard, Shrestha and colleagues (27) and Costantini and colleagues (31) discovered a significant relationship between being female and the total score of psychological distress and anxiety in their studies. Based on the two studies conducted by Rahay in Iran and Gonzalez in Spain (32, 33), the mean score of psychological health among participants was lower in males than in females, indicating that men had better psychological health, which is consistent with the findings of this study. However, Gholamy and colleagues (34) discovered that there is no significant relationship between being female and anxiety score, which contradicts the findings of the current study.

There was no significant difference between religion and total anxiety score in this study, which contradicts the findings of Costantini and colleagues' study (31). The analysis revealed that there was no significant relationship between total anxiety score and working for the Ministry of Health. According to Khaled and colleagues (26) the level of anxiety among health care workers, particularly those on the front lines, was extremely high. Nakhostin-Ansari and colleagues (35) reported in another study that students and hospital staff who had worked in COVID-19 inpatient wards for some time adjusted to the situation, which could reduce their anxiety.

In this study, a significant relationship was found between education and anxiety score. This finding is consistent with the findings of Shrestha and colleagues (27) who discovered that anxiety was more prevalent in groups with post-secondary education. Tang and colleagues (18) stated in this regard that people with higher education are more curious about dealing with the disease, but if they focus on negative information, it may increase their confusion and anxiety. According to Nakhostin-Ansari and colleagues (35) having more information about COVID-19 may cause anxiety.

The current study found no significant relationship between income and total score of psychological distress and anxiety. This finding contrasts with the findings of Sajjadi and colleagues (36) who discovered a relationship between health and economic status index. Regarding income and economic status affecting Iranian's public health and which cause distress and anxiety, it should be noted that economic insecurity in the COVID-19 epidemic is very high in Iran. Iranians are concerned about their job prospects and financial security. People with higher incomes may be less concerned about purchasing sanitation and disinfectant, whereas people with lower incomes are more likely to experience anxiety as a result of unemployment and declining income during the pandemic (37).

The main strength of this study is the inclusion of the large number of respondents from different corners of the globe. However, because these respondents were recruited through convenience sampling, the presence of bias may limit the findings. Non-respondents, such as severely distressed patients who have no desire to participate in the survey or participants with low digital literacy, may have an impact on the generalizability of the findings in these populations. However, the efficiency of data collection, lower cost, and acceptability of online survey recruitment could provide a useful alternative to formal regional or national surveys. Furthermore, because we began this research project a few months after the Covid-19 pandemic began, people were very anxious, and if we asked too many questions, they would not give true and valid answers. Furthermore, regarding the high percentage of women in the study, it is worth noting that many of the respondents in previous online (Google-based) studies were women, and it is not possible to push men to answer the questions.

### Conclusion

The numerous effects of COVID-19 on various aspects of human health, as well as the increasing number of patients and deaths, have resulted in psychological disorders such as stress, anxiety, depression, distress, and suicide among people in society. As a result, it is necessary to conduct more thorough research on these phenomena in order to prevent their occurrence as much as possible and to deepen understanding among these disorders. In this study, the emphasis is on psychological distress and anxiety, because these two phenomena are the predominant predisposition of psychological disorders. Distress influences behavioral responses in a variety of life situations. As a result, the findings of this study should be used to estimate the prevalence of anxiety in society based on individual characteristics. Data should be made available to macro-planners in order to prevent the widespread and destructive dimensions of these phenomena in society, which will naturally reduce the damage caused by COVID-19. However, more extensive studies on patients, health care providers, and treatment teams are recommended in order to reduce the impact of COVID-19 on human life, particularly in communities with insufficient health care facilities.

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