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## EFFECTS OF COVID-19 PANDEMIC AND LOCKDOWN ON MENTAL HEALTH OF IRANIAN PEOPLE

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### ABSTRACT

**INTRODUCTION.** The highly contagious novel coronavirus disease 2019 (COVID-19) emerged recently as a global pandemic. An efficient way to mitigate the spread of the disease is lockdown and quarantine.

**OBJECTIVE.** This study aimed to evaluate the Iranian population's mental health under lockdown during the COVID-19 pandemic.

**MATERIAL AND METHODS.** The General Health Questionnaire-28 (GHQ-28) was utilized to assess the mental health and psychosocial wellbeing of Iranian residents through an online survey. The questionnaire was sent on April 3, 2020, and remained open to responses until April 10, 2020. This period was the time of complete lockdown in Iran. Inclusion criteria included either gender, reading Farsi, internet access, and being between the ages of 18 and 65. Respondents with scores  $\geq 24$  were classified as having psychiatric problems.

**RESULTS.** Of 35,529 completed surveys, 28,790 were eligible for analysis. 73.4% of the respondents were female. The majority of the participants were between the ages of 26 to 45. Of the participants, 35.5% had scores in the pathological range. We found that females, younger residents, singles, and individuals with lower education had higher levels of psychopathology.

**CONCLUSIONS.** Our study suggests that the psychological impacts of the COVID-19 pandemic and quarantine are wide-ranging, substantial, and can be long-lasting.

**Keywords:** *psychological status, lockdown, COVID-19*

### INTRODUCTION

Since the first person was infected with the novel coronavirus disease 2019 (COVID-19) in December 2019 in Wuhan City, China, it has spread worldwide and received global attention (1). Coronaviruses are ribonucleic acid (RNA) viruses, which cause a wide range of diseases, from common colds to severe acute respiratory syndrome (2). The rapid spread of the disease around the globe led the World Health Organization (WHO) to announce that the COVID-19 is a global pandemic in March 2020 (3).

Amid this unexpected pandemic, the entire community has at times been forced to remain in lockdown and observe the principles of social distancing to curb the spread of the disease. Lockdown is an urgent strategy that prevents the general population from shifting between places. In a complete lockdown, all educational organizations, shopping centers, factories, public transportation, etc., are closed down, except hospitals and emergency facilities.

While lockdown may be a beneficial and efficient principle in order to combat the rapid spread of the highly contagious COVID-19, it can lead to degrees of adverse mental status in individuals and societies (4, 5). Previous studies indicated that the prevalence of depression, anxiety, and posttraumatic stress disorder (PTSD) in the general population is projected to rise (6, 7). During the previous coronavirus pandemic (severe acute respiratory syndrome/SARS, 2003), quarantine was linked to a variety of psychological problems, including depressive symptoms, loneliness, anxiety, fear, sleep disturbances, and frustration in the first few days of isolation, and symptoms of posttraumatic stress disorder and depression developed even after three to four weeks (8).

Brooks et al. in a review of the recent studies on the psychological effects of lockdown found that most of the studies have indicated adverse psychosocial impacts including PTSD, confusion, and anger. The origins of these issues were extended isolation, fear of being infected, frustration, boredom, insufficient

supplies, lack of information, financial difficulties, and stigma (9). In the United Kingdom (UK), significant increases in anxiety and depression, substance use, loneliness, domestic violence, and child abuse were observed during the pandemic and lockdown. This issue is critical enough that Mental Health UK has released mental first aid instructions (10).

## OBJECTIVE

In the present article, we aimed to survey the psychological impact of the COVID-19 pandemic and lockdown on the general population living in Iran.

## MATERIAL AND METHODS

An online questionnaire, which was developed using the *Porsline* platform (available at <https://porsline.ir>), was distributed using social media (WhatsApp, Telegram, Instagram). The *Porsline* platform provides the option of sending the answer while the responder remains anonymous. The person who developed the survey could only see the answers without any information about the responder's identity. The link was initially shared on April 3, 2020, and responses were accepted until April 10, 2020. This period was the time of complete lockdown in Iran.

The first page of the survey explained explicitly that participants have the option of not taking part in the survey and that participating in the survey entails giving informed consent. The online survey contained multiple questions to collect demographic details such as age, marital status, gender, and educational level.

The General Health Questionnaire-28 (GHQ-28) was utilized in the online survey to measure mental health and psychosocial status. The mentioned questionnaire was developed for studies where the researchers needed more information than a single severity score. In developing the GHQ-28, questions were specified to cover four major areas: somatic presentations, anxiety/insomnia, social dysfunction, and severe depression (11). The GHQ-28 asks respondents to assess their overall wellbeing over the previous few weeks, utilizing questions with a 4-point scale to assess the following frequencies of experience: "not at all", "no more than usual", "rather more than usual" and "much more than usual".

In this study, we applied the same scoring system as the original study indicated (11), the Likert scale 0, 1, 2, 3. The minimum score for the 28 item version of the GHQ is 0, and the maximum is 84. Higher GHQ-28 scores show higher levels of psychological issues. Participants with cumulative scores of 23 or less should be categorized as a person without a psychiatric problem, and those with scores of 24 or more should

be classified as a person who suffers from psychiatric problems, according to Goldberg (12).

Inclusion criteria were either gender, being literate, having an internet connection, and being aged between 18 to 65. Exclusion criteria were having COVID-19, being a health worker, and not living inside Iran.

**Statistical analysis.** IBM SPSS Statistics 21.0 was used to perform statistical analysis on the results. The variables were compared with ANOVA and T-test. P-values less than 0.05 were considered statistically significant.

## RESULTS

The survey was commenced by 42,123 Iranian residents. Of them, 35,529 individuals completed the survey and sent it back to us. After an initial assessment, 28,790 completed forms were eligible to be studied. Six thousand seven hundred thirty-nine forms were excluded (1,367 were Iranian living out of Iran, 2,896 were health workers, 2,476 had completed the survey twice). 73.4% of the respondents were female. The majority of the participants were between the ages of 26 to 45. Of the participants, 72.5% were married, and 58.4% were educated to above diploma level. The sociodemographic profile of the respondents is depicted in Table 1.

The mean score of all the respondents was  $21.90 \pm 12.54$  (24 is considered the cutoff point for pathological range). 35.5% of Iranian residents who responded to our questionnaire had scores in the

Table 1. Sociodemographic variables of the respondents

Variable	N	Percentage
Sex		
Male	7,657	26.6
Female	21,133	73.4
Age(years)		
18-25	3,989	13.9
26-35	7,731	26.9
36-45	8,452	29.4
46-55	5,202	18.1
56-65	3,416	11.9
Marital status		
Dingle	7,085	24.6
Married	20,881	72.5
Divorced	824	2.9
Education level		
Below diploma	3,725	12.9
Diploma	8,244	28.6
Higher diploma	3,052	10.6
Bachelor's	9,756	33.9
Master's	3,455	12.0
Ph.D. or higher	5,58	1.9
Total	28,790	100

pathological range. 38.5% of the females and 27.7% of males had scores in the pathological range. Among the age groups, individuals aged 18-25 and 56-65 had the highest and lowest scores, respectively. Single respondents compared to married ones, and those with

lower education levels compared to individuals with higher education levels showed more psychological issues. The psychological distress status of the participants is shown in Table 2, and compared in Table 3.

Table 2. Mental health status of the respondents

Variable	GHQ-28 Score <24 (%)	GHQ-28 Score ≥24 (%)	Total (%)
Sex			
Male	5,536 (72.3)	2,121 (27.7)	7,657 (100)
Female	13,006 (61.5)	8,127 (38.5)	21,133 (100)
Age (years)			
18-25	1,993 (50.0)	1,996 (50.0)	3,989 (100)
26-35	4,643 (60.1)	3,088 (39.9)	7,731 (100)
36-45	5,479 (64.8)	2,973 (35.2)	8,452 (100)
46-55	3,755 (72.2)	1,447 (27.8)	5,202 (100)
56-65	2,672 (78.2)	744 (21.8)	3,416 (100)
Marital status			
Single	3,996 (56.4)	3,089 (43.6)	7,085 (100)
Married	14,061 (67.3)	6,820 (32.7)	20,881 (100)
Divorced	485 (58.9)	339 (41.1)	824 (100)
Education level			
Below diploma	2,281 (61.2)	1,444 (38.8)	3,725 (100)
Diploma	5,407 (65.6)	2,837 (34.4)	8,244 (100)
Higher diploma	1,961 (64.3)	1,091 (35.7)	3,052 (100)
Bachelor's	6,296 (64.5)	3,460 (35.5)	9,756 (100)
Master's	2,231 (64.6)	1,224 (35.4)	3,455 (100)
Ph.D. or higher	366 (65.6)	192 (34.4)	558 (100)

Table 3. Mean scores of General Health Questionnaire-28 (GHQ-28)

Variable	Total GHQ score	P-value
Sex		<.001
Male	19.50 ± 12.010	
Female	22.77 ± 12.615	
Age (years)		<.001
18-25	26.29 ± 15.165	
26-35	23.13 ± 12.972	
36-45	21.67 ± 12.088	
46-55	19.61 ± 10.757	
56-65	18.04 ± 9.453	
Marital status		<.001
Single	24.32 ± 14.19	
Married	21.01 ± 11.743	
Divorced	23.71 ± 13.942	
Education level		<.001
Below diploma	23.05 ± 13.749	
Diploma	21.67 ± 12.497	
Higher diploma	21.81 ± 12.321	
Bachelor's	21.84 ± 12.217	
Master's	21.50 ± 12.106	
Ph.D. or higher	21.56 ± 13.687	
Total	21.90 ± 12.540	

## DISCUSSION

Our study showed that 35.5% of Iranian residents during the COVID-19 pandemic and lockdown had GHQ-28 scores in the pathological range. We found that females, younger residents, singles, and individuals with lower education levels demonstrated higher rates of psychopathology.

In a review article that surveyed the impact of the COVID-19 pandemic on public health, a high prevalence of adverse psychiatric symptoms was reported (13). In that study, the prevalence of depressive symptoms ranged from 14.6% to 48.3% (14-19). The reported rates are higher than the previously estimated one-year prevalence of depression among the population before the pandemic (20). The prevalence of anxiety symptoms in different studies during this pandemic ranged from 6.33% to 50.9% (21-23). Non-specific psychological distress was also assessed in several studies. One study reported the prevalence rate of symptoms of psychological distress at 38% (24), while another study (25) reported a prevalence of 34.43%.

In all of the reviewed studies, females were more likely to develop depressive, anxiety, and psychological symptoms compared to their male counterparts (16, 21-23). This concept was matched by the results of

our study. Also, participants from the younger age group ( $\leq 40$  years) presented with more psychological symptoms (14, 15, 21). In accordance with these studies, our findings indicated that younger ages were associated with more psychological problems. In a study in Turkey that surveyed depressive symptoms among the population during of the pandemic, high school graduates had higher mean depression scores than university graduates (26).

In line with their results, we found that individuals with lower education levels had more psychological symptoms.

The reported rates of psychopathology are higher than those estimated among the population prior to the pandemic (20). Different psychosocial factors contribute to this high rate of psychiatric symptoms among people during the COVID-19 pandemic and lockdown conditions. Psychological factors like fear of death due to the life-threatening nature of the disease, concern for family members and fear of transmitting the disease, stigmatization associated with this disease, and the uncertainty about antiviral drugs and vaccines can lead to anxiety, depression, and posttraumatic stress disorder symptoms (27-29). Quarantine, isolation, social distancing, and financial problems are social factors contributing to psychopathology in the COVID-19 pandemic (30, 31). Given the widespread use of the internet and smartphones, people are overwhelmed with all kinds of information, resulting in misunderstandings about the disease, excessive concerns, and unnecessary fear (32). Lack of antiviral drugs with definite efficacy and unavailability of effective vaccines are other sources of anxiety in people during this pandemic (33).

### Strengths and Limitations.

As a strength, our study featured a significantly high number of respondents during the lockdown period. However, there are several limitations to this study. First, the study's cross-sectional design cannot explicitly imply causation between variables and mental issues. Second, due to the lockdown policy, we utilized an online survey to conduct the study and it was impossible for some groups to participate, e.g. elderly or blind people. Furthermore, there seem to be a number of selection biases, such as unequal gender proportions, literacy rates, and internet access. Overall, further long-term studies are needed to be carried out in the future in order to portray a clearer picture of this issue.

## CONCLUSIONS

According to the present study, women, younger residents, singles, and individuals with lower education levels had a significantly higher prevalence of psychiatric symptoms. Given this unprecedented situation, providing psychological counseling and support seems necessary, especially for high-risk groups.

**Abbreviations:** COVID-19: Coronavirus Disease 2019; GHQ-28: General Health Questionnaire; RNA: Ribonucleic acid; WHO: World Health Organization; PTSD: Posttraumatic Stress Disorder; SARS: Severe Acute Respiratory Syndrome; UK: United Kingdom; ANOVA: Analysis of variance

**Ethics approval and consent to participate:** The present study is approved by the Ethics Committee of Shiraz University of Medical Sciences (IR.SUMS.REC.1399.420). All participants took part in this study voluntarily.

**Competing interests:** All authors declare no conflicts of interest.

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