



Psychological Impact of the COVID-19 Outbreak on Mental Health Among Iranians

Rezvan Heidarimoghadam¹, Mohammad Babamiri ^{2,*}, Nasim Alipour³, Mehdi Zemestani ^{4, **}, Rashid Heidarimoghadam ⁵, Mozhde Shekari⁶ and Mark D Griffiths⁷

¹Science and Research Branch, Islamic Azad University, Tehran, Iran

²Social Determinants of Health Research Center, Department of Ergonomics, School of Public Health, Hamadan University of Medical Sciences, Hamadan, Iran

³Department of Anesthesiology, School of Paramedicine, Hamadan University of Medical Sciences, Hamadan, Iran

⁴Department of Clinical Psychology, University of Kurdistan, Sanandaj, Iran

⁵Department of Ergonomics, School of Public Health, Hamadan University of Medical Sciences, Hamadan, Iran

⁶Hamadan University of Medical Sciences, Hamadan, Iran

⁷Psychology Department, Nottingham Trent University, Nottingham, UK

*Corresponding author: Social Determinant of Health Research Center, Department of Ergonomics, School of Public Health, Hamadan University of Medical Sciences, Hamadan, Iran. Email: mohammad.babamiri@yahoo.com

**Corresponding author: Department of Clinical Psychology, University of Kurdistan, Sanandaj, Iran. Email: m.zemestan@gmail.com

Received 2022 September 10; Revised 2023 January 24; Accepted 2023 February 11.

Abstract

Background: The coronavirus disease 2019 (COVID-19) pandemic and its consequences may impact individuals' mental health.

Objectives: The present study aimed to investigate the psychological status of individuals during the COVID-19 outbreak in Iran following the government's social distancing plan.

Methods: Data from 1,524 people were collected using a cross-sectional web-based survey via social media. Demographic variables and psychological status were evaluated using the General Health Questionnaire, Stress Response Inventory, and Brunel Mood Scale.

Results: Individuals reported that their mental health functioning decreased during the pandemic. Four factors were associated with increased stress: (1) fear of getting sick; (2) indefinite quarantine duration; (3) impaired daily activities; and (4) reduced social communication. One-third of the participants reported physical symptoms (32.7%), 47% anxiety, 72% social dysfunction, and 28.3% depression. Approximately half of the participants (52.2%) reported mental health disorder symptoms. Detrimental mental health characteristics were higher among females, younger people, and single people.

Conclusions: Health policies should be implemented to help reduce the psychological burden during and after the Iranian government's Social Distancing Plan, especially among females, single people, and younger people.

Keywords: COVID-19 Pandemic, Mental Health, Psychological Status, Social Distancing

1. Background

After the outbreak of coronavirus disease 2019 (COVID-19) in China in December 2019, all healthcare providers worldwide focused on the disease. Fear of contracting has created fear, panic, and stress among millions worldwide (1). Many countries have used quarantine measures to prevent the further spread of the virus. The Iranian government implemented a plan called Social Distancing Plan (SDP). Social distancing refers to remaining out of congregate settings, avoiding mass gatherings, and maintaining distance from others (approximately six feet or two meters).

The quarantine can create loneliness and anger among individuals. Other issues associated with psychological distress are a decline in freedom, separation from loved individuals, the duration of quarantine, uncertainty about

illness, fear of infection, frustration, defective equipment to protect against disease, inadequate and/or incorrect information about COVID-19, boredom, and fatigue (2, 3). For those in quarantine, social support decreases and is among the most critical sources of coping with stress. Previous studies examining the consequences of quarantine among individuals have reported emotional disturbance (4), depression (5), stress (6), low mood, irritability, insomnia (7), and traumatic stress symptoms (8).

2. Objectives

The present study investigated a more comprehensive range of psychological effects, symptoms, and mood states of the SDP during the COVID-19 outbreak in Iran compared to other Iranian studies.

3. Methods

3.1. Procedure and Participants

Data were collected using a cross-sectional web-based survey with a link shared via social media (i.e., WhatsApp and Telegram). Before starting the study, individuals were asked if they had any physical or mental illnesses. Only those who had no mental or physical illness and were over 18 years were included in the statistical analysis. The data collection lasted one week, from December 5 to December 11, 2020. A total of 1,524 individuals completed the survey.

3.2. Measures

3.2.1. General Health Questionnaire

The 28-item General Health Questionnaire (GHQ-28) comprises four subscales (physical symptoms, anxiety/insomnia, depression, social dysfunction), each with seven items rated on a five-point scale from 0 (never) to 4 (always). The validity and reliability of the Iranian GHQ-28 are adequate (9).

3.2.2. Stress Response Inventory

The 39-item Stress Response Inventory (SRI) assesses different aspects of stress response with seven subscales. Items are rated on a five-point scale from 0 (not at all) to 4 (absolutely). The reliability and validity were confirmed in previous studies (10).

3.2.3. Brunel Mood Scale

The 32-item Brunel Mood Scale (BRUMS-32) assesses different mood states (depression, tension, fatigue, anger, vigor, confusion, calmness, and happiness). The items are rated on a five-point scale from 0 (not at all) to 4 (extremely). Confirmatory factor analysis has confirmed the construct validity of the Iranian BRUMS-32 (RMSEA = 0.08, CFI = 0.94, TLI = 0.93). Internal consistency (tension = 0.74, vigor = 0.80, confusion = 0.72, fatigue = 0.76, happiness = 0.77, calmness = 0.78, depression = 0.70, anger = 0.72, and total = 0.78) and temporal reliability (tension = 0.90, vigor = 0.87, confusion = 0.84, fatigue = 0.86, happiness = 0.87, calmness = 0.86, depression = 0.88, anger = 0.86, and total = 0.88) were confirmed (11).

Descriptive statistics were reported as percentages and means \pm SD. The independent *t*-test and one-way ANOVA were used to investigate the association between participants' demographic variables and psychological characteristics. The results are presented with 95% confidence intervals. All analyses were performed using SPSS-25.

4. Results

Most participants were males (65.16%) and married (66.7%). Most of them were under the age of 40 years (72%).

Table 1 shows the mental health characteristics of the whole sample. One-third of the participants reported physical symptoms (32.7%), 47% anxiety, 72% social dysfunction, and 28.3% depression. Approximately half of the participants (52.2%) reported at least one mental health disorder. Means and standard deviations of stress response and mood state are shown in **Table 2**.

4.1. Gender, Marital Status, and Psychological Characteristics

Table 1 shows that the mean scores of negative psychological characteristics (physical symptoms, anxiety and insomnia, depression, tension, anger, fatigue, and frustration and confusion) were higher among females than among males, and the mean scores of positive psychological characteristics (vigor, calmness, and happiness) were lower among females than among males. These differences were significant in all the characteristics ($P \leq 0.01$).

Based on **Table 1**, the mean scores of negative psychological characteristics were higher among single participants than among married participants, and in the case of positive psychological characteristics, the trend was reversed. These differences were significant in terms of general health dimensions (social dysfunction and depression), stress response dimensions (tension, aggression, and fatigue), and mood state dimensions (vigor, confusion, and happiness) ($P \leq 0.01$).

4.2. Age and Psychological Characteristics

Table 3 shows that the mean scores of negative psychological characteristics among older participants were lower than in younger participants and that the mean scores of positive psychological characteristics were higher among older participants than in younger participants. These differences were significant in all the psychological characteristics ($P \leq 0.01$).

5. Discussion

The present study aimed to investigate the psychological status of Iranian individuals who experienced the Iranian government's SDP to minimize the spread of COVID-19 during the pandemic.

The results showed that approximately half of the participants had at least one mental health disorder (52.2%). Previous studies by Noorbala et al. reported the prevalence of general mental health disorders in Iran in 1999, 2004, 2015, and 2017 as 21%, 21%, 23.4%, and 28.5%, respectively (12-14). In the present study, as in the aforementioned studies, the mean scores of mental disorders were higher among females than males. The present study also found that the mean scores of mental health disorders and negative psychological characteristics were higher among single participants than among married ones, which is inconsistent with some previous studies (12, 14, 15). One reason could be that single individuals were forced to break

away from their friendship groups and spend more time with family during the enforcement of the SDP. Furthermore, the SDP meant universities were physically closed, and concerts, celebrations, and parties were canceled. Because younger individuals are more likely to attend such social gatherings, they are more likely to have been affected during the country's lockdown. This result can be seen when comparing different age groups. The highest rates of mental health disorders and negative psychological characteristics were found among younger individuals, which is inconsistent with previous research (14, 16). Consequently, the psychological state was better among older participants than among younger participants, even though the highest mortality rate for those with COVID-19 is among the elderly (17). This age group received much attention and social support during the implementation of the SDP from relatives and friends, as well as from relevant organizations such as the Ministry of Health. Older individuals are less likely to leave the house, even under normal circumstances, so the SDP was less restrictive for them than for younger individuals. Many older individuals are retired, so the closure of markets, offices, and businesses was less likely to cause psychological harm to them. Previous studies have shown that factors such as receiving information from the media, the internet, etc., can play a role in fear of COVID-19 (18). As young people use these news sources more, the psychological distress caused by COVID-19 has become more common among these people.

The study was cross-sectional, so causal relationships could not be determined. The study was conducted utilizing online data collection, which means some could not participate. This may have led to demographic biases among the final sample of participants, with those in higher education or of higher socioeconomic status being more likely to participate. The self-selecting and self-reporting nature of data collection means that while the sample was relatively large, it was not representative of the Iranian population, and the data were subject to well-known methods biases. Another limitation of this study was that it was not determined if the respondents or one of their relatives had contracted COVID-19 or not.

Footnotes

Authors' Contribution: M. B. and R. H. designed the research and analyzed the data. N. A. and M. Z. participated in planning the work and wrote the manuscript with the supervision of M. B. and R. H. M. S. and R. H. did the data collection. M. D. G. helped to draft and revise the manuscript critically for important intellectual content. All authors read and approved the final manuscript as submitted.

Conflict of Interests: The authors declare no conflict of interests.

Data Reproducibility: The dataset presented in the study is available on request from the corresponding author during submission or after publication.

Ethical Approval: The Research Ethics Committee of Hamadan University of Medical Sciences approved the study (Code: IR.UMSHA.REC.I399030).

Funding/Support: The Vice-Chancellery for Research and Technology of Hamadan University of Medical Sciences funded the study (grant number: 990126184).

Informed Consent: The collected data were anonymous and treated as confidential.

References

- Bao Y, Sun Y, Meng S, Shi J, Lu L. 2019-nCoV epidemic: address mental health care to empower society. *Lancet*. 2020;395(10224):e37-8. [PubMed ID: 32043982]. [PubMed Central ID: PMC7133594]. [https://doi.org/10.1016/S0140-6736\(20\)30309-3](https://doi.org/10.1016/S0140-6736(20)30309-3).
- Brooks SK, Webster RK, Smith LE, Woodland L, Wessely S, Greenberg N, et al. The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *Lancet*. 2020;395(10227):912-20. [PubMed ID: 32112714]. [PubMed Central ID: PMC7158942]. [https://doi.org/10.1016/S0140-6736\(20\)30460-8](https://doi.org/10.1016/S0140-6736(20)30460-8).
- Xu B, Kraemer MUG, Open CCG. Open access epidemiological data from the COVID-19 outbreak. *Lancet Infect Dis*. 2020;20(5):534. [PubMed ID: 32087115]. [PubMed Central ID: PMC7158984]. [https://doi.org/10.1016/S1473-3099\(20\)30119-5](https://doi.org/10.1016/S1473-3099(20)30119-5).
- Yoon MK, Kim SY, Ko HS, Lee MS. System effectiveness of detection, brief intervention and refer to treatment for the people with post-traumatic emotional distress by MERS: a case report of community-based proactive intervention in South Korea. *Int J Ment Health Syst*. 2016;10:51. [PubMed ID: 27504141]. [PubMed Central ID: PMC4976505]. <https://doi.org/10.1186/s13033-016-0083-5>.
- Hawryluck L, Gold WL, Robinson S, Pogorski S, Galea S, Styra R. SARS control and psychological effects of quarantine, Toronto, Canada. *Emerg Infect Dis*. 2004;10(7):1206-12. [PubMed ID: 15324539]. [PubMed Central ID: PMC3323345]. <https://doi.org/10.3201/eid007.030703>.
- DiGiovanni C, Conley J, Chiu D, Zaborski J. Factors influencing compliance with quarantine in Toronto during the 2003 SARS outbreak. *Biosecur Bioterror*. 2004;2(4):265-72. [PubMed ID: 15650436]. <https://doi.org/10.1089/bst.2004.2.26>.
- Lee S, Chan IY, Chau AM, Kwok KP, Kleinman A. The experience of SARS-related stigma at Amoy Gardens. *Soc Sci Med*. 2005;61(9):2038-46. [PubMed ID: 15913861]. [PubMed Central ID: PMC716975]. <https://doi.org/10.1016/j.socscimed.2005.04.010>.
- Reynolds DL, Garay JR, Deamond SL, Moran MK, Gold W, Styra R. Understanding, compliance and psychological impact of the SARS quarantine experience. *Epidemiol Infect*. 2008;136(7):997-1007. [PubMed ID: 17662167]. [PubMed Central ID: PMC2870884]. <https://doi.org/10.1017/S0950268807009156>.
- Nazifi M, Mokarami HR, Akbaritabar AK, Faraji Kujerdi M, Tabrizi R, Rahi A. [Reliability, validity and factor structure of the persian translation of general health questionnaire (ghq-28) in hospitals of kerman university of medical sciences]. *J Adv Biomed Sci*. 2013;3(4):336-42. Persian.
- Koh KB, Park JK, Kim CH, Cho S. Development of the stress response inventory and its application in clinical practice. *Psychosom Med*. 2001;63(4):668-78. [PubMed ID: 11485121]. <https://doi.org/10.1097/00006842-200107000-00020>.
- Farokhi A, Moteshareie E, Zeidabady R. [Validity and reliability of Persian version of Brunel mood scale 32 items]. *Mot Behav*. 2013;5(13):15-40. Persian.
- Noorbalaa AA, Bagheri Yazdi SA, Faghizadeh S, Kamali K, Faghizadeh E, Hajebi A, et al. Trends of Mental Health Status in Iranian Population

Aged 15 and above between 1999 and 2015. *Arch Iran Med.* 2017;20(11 Suppl. 1):S2-6. [PubMed ID: 29481116].

13. Noorbala AA, Bagheri Yazdi SA, Faghihzadeh S, Kamali K, Faghihzadeh E, Hajebi A, et al. A Survey on Mental Health Status of Adult Population Aged 15 and above in the Province of Zanjan, Iran. *Arch Iran Med.* 2017;20(11 Suppl. 1):S127-30. [PubMed ID: 29481147].
14. Noorbala AA, Bagheri Yazdi SA, Yasamy MT, Mohammad K. Mental health survey of the adult population in Iran. *Br J Psychiatry.* 2004;184:70-3. [PubMed ID: 14702230]. <https://doi.org/10.1192/bj.p.184.1.70>.
15. Zemestani M, Babamiri M, Griffiths MD, Didehban R. DSM-5 pathological personality domains as vulnerability factors in predicting COVID-19-related anxiety symptoms. *J Addict Dis.* 2021;39(4):450-8. [PubMed ID: 33691610]. <https://doi.org/10.1080/10550887.2021.1889752>.
16. Noorbala AA, Bagheri Yazdi SA, Asadi Lari M, Vaez Mahdavi MR. Mental health status of individuals fifteen years and older in Tehran-Iran (2009). *Iran J Psychiatry Clin Psychol.* 2011;16(4):479-83.
17. Liu K, Chen Y, Lin R, Han K. Clinical features of COVID-19 in elderly patients: A comparison with young and middle-aged patients. *J Infect.* 2020;80(6):e14-8. [PubMed ID: 32171866]. [PubMed Central ID: PMC7102640]. <https://doi.org/10.1016/j.jinf.2020.03.005>.
18. Seyed Hashemi SG, Hosseininezhad S, Dini S, Griffiths MD, Lin CY, Pakpour AH. The mediating effect of the cyberchondria and anxiety sensitivity in the association between problematic internet use, metacognition beliefs, and fear of COVID-19 among Iranian online population. *Helijon.* 2020;6(10). e05135. [PubMed ID: 33072911]. [PubMed Central ID: PMC7547399]. <https://doi.org/10.1016/j.heliyon.2020.e05135>.

Table 1. Gender and Psychological Characteristics

Psychological Characteristics	Mean \pm SD	P-Value
Physical symptoms		
Gender		< 0.001
Female	5.90 \pm 4.45	
Male	4.45 \pm 3.99	
Marital Status		0.144
Single	5.63 \pm 4.45	
Married	5.28 \pm 4.29	
Anxiety/insomnia		
Gender		< 0.001
Female	8.02 \pm 5.76	
Male	5.79 \pm 5.15	
Marital Status		0.0908
Single	7.22 \pm 5.68	
Married	7.26 \pm 5.65	
Social dysfunction		
Gender		0.002
Female	9.58 \pm 4.62	
Male	8.85 \pm 4.25	
Marital Status		< 0.001
Single	9.97 \pm 4.60	
Married	9.01 \pm 4.43	
Depression		
Gender		< 0.001
Female	5.27 \pm 5.54	
Male	3.67 \pm 4.75	
Marital Status		< 0.001
Single	5.90 \pm 5.82	
Married	4.11 \pm 4.96	
GHQ-28 total score		
Gender		< 0.001
Female	28.77 \pm 16.35	
Male	22.76 \pm 14.47	
Marital Status		< 0.001
Single	28.73 \pm 16.19	
Married	25.67 \pm 15.77	
Tension		
Gender		< 0.001
Female	5.89 \pm 5.01	
Male	4.52 \pm 4.22	
Marital Status		0.002
Single	5.94 \pm 4.75	

Married	5.15 ± 4.80
Aggression	
Gender	0.032
Female	1.59 ± 2.83
Male	1.28 ± 2.42
Marital Status	0.002
Single	1.78 ± 2.96
Married	1.33 ± 2.55
Anger	
Gender	< 0.001
Female	6.21 ± 5.64
Male	4.55 ± 4.81
Marital Status	0.091
Single	5.97 ± 5.47
Married	5.47 ± 5.39
Fatigue	
Gender	< 0.001
Female	7.01 ± 4.86
Male	5.28 ± 4.27
Marital Status	0.001
Single	6.99 ± 4.95
Married	6.12 ± 4.59
Frustration	
Gender	< 0.001
Female	8.09 ± 6.76
Male	5.06 ± 5.26
Marital Status	0.070
Single	7.46 ± 6.43
Married	6.82 ± 6.43
Vigor	
Gender	< 0.001
Female	7.34 ± 3.58
Male	8.08 ± 3.56
Marital Status	0.007
Single	7.25 ± 3.71
Married	7.77 ± 3.51
Confusion	
Gender	< 0.001
Female	5.33 ± 4.38
Male	4.53 ± 4.09
Marital Status	< 0.001
Single	5.96 ± 4.45
Married	4.59 ± 4.15
Calmness	
Gender	< 0.001

Female	6.00 ± 3.78	
Male	6.85 ± 3.66	
Marital Status		0.049
Single	6.03 ± 3.88	
Married	6.43 ± 3.69	
Happiness		
Gender		0.013
Female	6.86 ± 3.78	
Male	7.36 ± 3.68	
Marital Status		< 0.001
Single	6.37 ± 3.82	
Married	7.36 ± 3.68	

Abbreviation: GHQ-28, General Health Questionnaire.

Table 2. Mental Health Characteristics^a

Characteristics	Values
General Health Questionnaire	
Physical symptoms	
Healthy cases	1025 (67.3)
Suspected cases	499 (32.7)
Anxiety/insomnia	
Healthy cases	807 (53.00)
Suspected cases	717 (47.00)
Depression	
Healthy cases	1093 (71.7)
Suspected cases	431 (28.3)
Social dysfunction	
Healthy cases	424 (28.00)
Suspected cases	1098 (72.00)
GHQ-28 total score	
Healthy cases	728 (47.8)
Suspected cases	796 (52.2)
Stress Response Inventory	
Tension	5.41 ± 4.79
Aggression	1.48 ± 2.70
Anger	5.63 ± 5.42
Fatigue	6.41 ± 4.73
Frustration	7.03 ± 6.44
Brunel Mood Scale	
Vigor	7.60 ± 3.59
Confusion	5.05 ± 4.30
Calmness	6.30 ± 3.76
Happiness	7.03 ± 3.75

Abbreviation: GHQ-28, General Health Questionnaire.

^a Values are expressed as No. (%) or mean ± SD.

Table 3. Age and Psychological Characteristics

Psychological Characteristics and Age (y)	Mean \pm SD	P-Value
Physical symptoms		
18 - 30	6.00 \pm 4.44	< 0.001
31 - 40	5.18 \pm 4.26	
41 - 50	5.20 \pm 4.43	
\geq 51	3.97 \pm 3.55	
Anxiety and insomnia		
18 - 30	7.98 \pm 5.73	< 0.001
31 - 40	7.19 \pm 5.59	
41 - 50	6.76 \pm 5.67	
\geq 51	4.75 \pm 4.53	
Social dysfunction		
18 - 30	10.51 \pm 4.31	< 0.001
31 - 40	9.11 \pm 4.51	
41 - 50	8.17 \pm 4.35	
\geq 51	7.27 \pm 4.10	
Depression		
18 - 30	6.41 \pm 5.83	< 0.001
31 - 40	4.39 \pm 5.08	
41 - 50	3.04 \pm 4.12	
\geq 51	1.96 \pm 3.46	
GHQ-28 total score		
18 - 30	30.92 \pm 15.95	< 0.001
31 - 40	25.89 \pm 15.78	
41 - 50	23.19 \pm 15.15	
\geq 51	17.95 \pm 12.01	
Tension		
18 - 30	6.35 \pm 4.80	< 0.001
31 - 40	5.21 \pm 4.72	
41 - 50	4.72 \pm 4.80	
\geq 51	3.05 \pm 3.47	
Aggression		
18 - 30	2.13 \pm 3.14	< 0.001
31 - 40	1.30 \pm 2.40	
41 - 50	1.02 \pm 2.39	
\geq 51	0.28 \pm 1.24	
Anger		
18 - 30	6.84 \pm 5.69	< 0.001
31 - 40	5.44 \pm 5.33	
41 - 50	4.59 \pm 4.93	
\geq 51	2.80 \pm 3.38	
Fatigue		

18 - 30	7.57 ± 4.86	< 0.001
31 - 40	6.21 ± 4.53	
41 - 50	5.39 ± 4.40	
≥ 51	3.67 ± 3.59	
Frustration		
18 - 30	8.50 ± 6.58	< 0.001
31 - 40	6.68 ± 6.32	
41 - 50	5.97 ± 6.23	
≥ 51	3.57 ± 4.04	
Vigor		
18 - 30	7.04 ± 3.65	< 0.001
31 - 40	7.65 ± 3.63	
41 - 50	8.25 ± 3.54	
≥ 51	8.73 ± 2.88	
Confusion		
18 - 30	6.07 ± 4.37	< 0.001
31 - 40	4.97 ± 4.34	
41 - 50	4.04 ± 3.92	
≥ 51	2.60 ± 2.90	
Calmness		
18 - 30	5.71 ± 3.74	< 0.001
31 - 40	6.31 ± 3.68	
41 - 50	6.89 ± 3.86	
≥ 51	7.92 ± 3.35	
Happiness		
18 - 30	6.26 ± 3.67	< 0.001
31 - 40	7.19 ± 3.75	
41 - 50	7.77 ± 3.74	
≥ 51	8.41 ± 3.29	

Abbreviation: GHQ-28, General Health Questionnaire.