



## New Solutions to Subside the Spread of Omicron Variants and Sixth Wave: Based on Past Experiences to Overcome Different COVID-19 Variants in Iran

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*Dear Editor,*

In 2019, the new coronavirus (COVID-19) was diagnosed after a Chinese festival called the Spring Festival and spread rapidly around the world. This tragic scenario continued until the World Health Organization (WHO) declared COVID-19 a pandemic. Iran was one of the countries that officially announced COVID-19 for the first time in Qom in February 2019 (1-4). Economic and political sanctions imposed over the years on Iran by the United States, its allies, and EU member states have led to a severe recession in COVID-19 in Iran. The Iranian Ministry of Health and Medical Education declared combating the disease and controlling the prevalence of COVID-19 a priority and organized a committee called the "National Committee to Combat COVID-19" (NCCC). Under these circumstances, the committee took extraordinary measures to combat COVID-19 by using the country's facilities, knowledge, equipment, and skilled personnel, to reduce the disease (5-7). With the prevalence of different variants of COVID-19 disease, different waves of this disease occurred, an essential wave occurring with the highest number of cases in the fifth wave by the Delta variant.

The Delta variant severely paralyzed the Iranian health system due to more severe pathogenicity, faster prevalence, host immune system escape, involvement of unvaccinated individuals, and severe hypoxia of patients requiring hospitalization for oxygen delivery because hospitals were not able to respond to the massive volume of patients. The fifth wave also subsided with prompt action by the NCCC, such as prompt vaccination, especially the second reminder dose, the ban on inter-provincial travel, 20-day closure of government and non-government centers, and compliance with distancing protocols (4,5). However, identifying a new variant called Omicron (B. 1.1. 529) SARS-CoV-2 in Botswana and

South Africa was different from previous variants and showed an apparent escape from the vaccine's effectiveness and the protective ability of antibodies. The Omicron receptor is also an ACE2 in human cells, and numerous mutations in the spike protein and elsewhere have raised concerns because they were the main reason for the vaccine's failure to function. Besides that, many mutations have been detected in the receptor binding domain, and the S2 protein of this variant, which on the one hand, increases the tendency of Omicron to ACE2 receptor and, on the other hand, increases the possibility of transferability compared to previous variants (8). Various countries in Asia, Europe, and other parts of the world have reported this variant, and in the meantime, countries such as Japan have taken strict measures against this dangerous virus, such as closing their borders. Under these circumstances, the British government re-prioritized vaccination of people under the age of 40 and the use of masks in schools, public transport, and shops, as well as quarantined all those who came in contact with a patient for ten days (9). It has been shown that the Omicron variant is also rapidly transmitted to vaccinated individuals, and one of the main differences between this variant and the Delta variant is that vaccination against the Delta variant was very effective. However, although the mutations have led to significant antigenic differences between the Omicron variant and previous variants and vaccination is likely to have little effect on this variant, vaccination must be completed because it compensates for the lack of antigenic compatibility when the antibody increases (9,10). It has been about three months since the Iranian national media reported the first patient with the Omicron variant, and this news was very worrying because it had the consequences of the sixth wave of COVID-19 for the people and the medical staff. When many patients were admitted to the fifth wave by the Delta variant,

there was no capacity to receive patients in the hospitals, resulting in high mortality. As a result, the Iranian health care system could not deal with this massive volume of disease, we are now watching the sixth wave with the Omicron variant, which is spreading rapidly, and many people are at risk. In this situation, the NCCC of Iran can use the two years of experience in dealing with different variants of COVID-19 to deal with the Omicron variant, so we offer suggestions to deal with and reduce the sixth wave in the following sentences:

- The national media can be very effective because it should encourage people to follow the health protocols proposed by the WHO, so it should be a priority to use masks, wash hands, and observe a distance of two meters.
- Get vaccinated faster, not only have many people not yet received the first and second doses, but many have not received the third booster dose to improve vaccine performance.
- People should be informed to avoid unnecessary gatherings because due to the high rate of outbreaks of the Omicron variant, if the virus spreads, a large number of patients will need to be hospitalized. Therefore, they will face a hospital with a high volume of bed deficiency, and the Iranian health system will be paralyzed.
- In some provinces of Iran, the incidence of COVID-19 is very high in which Iranian government should temporarily ban inter-provincial travel.
- Given that schools and universities are open and reports of COVID-19 infection in this age group have increased, it is suggested that schools and universities be temporarily closed to reduce the sixth wave.
- If a person is diagnosed with omicron, people in contact with the infected person should be screened and quarantined immediately to prevent the virus from spreading.
- People should know that they should postpone weddings, religious and mourning ceremonies, etc., which cause people to gather.
- Government and non-government companies should use proper air conditioning and respond to customer demands as much as possible online.

In the last two years, Iran has proven that it has been able to compensate for the various waves of

COVID-19 and the lack of facilities caused by sanctions by using domestic experts and elites. Certainly, using the suggestions presented in this article, can also inhibit the sixth wave caused by the Omicron variant. Therefore, in this vital situation, specialists and all people must work together to eradicate this evil virus.

## References

1. Dousari AS, Moghadam MT, Satarzadeh N. COVID-19 (Coronavirus disease 2019): a new coronavirus disease. *Infect Drug Resist.* 2020;**13**:2819. doi: [10.2147/IDR.S259279](https://doi.org/10.2147/IDR.S259279). [PubMed: [32848431](https://pubmed.ncbi.nlm.nih.gov/32848431/)].
2. Moghadam MT, Taati B, Paydar Ardakani SM, Suzuki K. Ramadan fasting during the COVID-19 pandemic; observance of health, nutrition and exercise criteria for improving the immune system. *Front Nutr.* 2021;**7**:570235. doi: [10.3389/fnut.2020.570235](https://doi.org/10.3389/fnut.2020.570235). [PubMed: [33521030](https://pubmed.ncbi.nlm.nih.gov/33521030/)].
3. Moghadam M, Babakhani S, Rajabi S, Baravati F, Raeisi M, Dousari A. Does stress and anxiety contribute to COVID-19?. *Iran J Psychiatry Behav Sci.* 2021;**15**(1):2. doi: [10.5812/ijpbs.106041](https://doi.org/10.5812/ijpbs.106041).
4. Shakibnia P, Ahmadi RH, Fallah F, Ebrahimzadeh F, Dosari AS, Mojtahedi A, et al. Iran as the Center of challenges in the Middle East for the Outbreak of COVID-19 Delta Variant. *Iran Red Crescent Med J.* 2021;**23**(11):e1394. doi: [10.32592/ircmj.2021.23.11.1394](https://doi.org/10.32592/ircmj.2021.23.11.1394).
5. Ali Khani FE, Mohammadzadeh Shabestari A, Eshaghizadeh P, Aminzadeh S, Taati Moghadam M. The successful efforts of Iran in decreasing of Delta variant COVID-19; after about two years of conflict with the COVID-19 pandemic. *Iran Red Crescent Med J.* 2022.
6. Taghizadeh P, Salehi S, Heshmati A, Houshmand SM, InanlooRahatloo K, Mahjoubi F, et al. Study on SARS-CoV-2 strains in Iran reveals potential contribution of co-infection with and recombination between different strains to the emergence of new strains. *Virology.* 2021;**562**:63-73. doi: [10.1016/j.virol.2021.06.004](https://doi.org/10.1016/j.virol.2021.06.004). [PubMed: [34265628](https://pubmed.ncbi.nlm.nih.gov/34265628/)].
7. Fattahi Z, Mohseni M, Beheshtian M, Jafarpour A, Jalalvand K, Keshavarzi F, et al. Disease waves of SARS-CoV-2 in Iran closely mirror global pandemic trends. *MedRxiv.* 2021. doi: [10.1101/2021.10.23.21265086](https://doi.org/10.1101/2021.10.23.21265086).
8. Omid Karimdadi Sariani MTM. Possible psychological consequences in public after the first reports of Omicron variant (B. 1.1. 529) of SARS-CoV-2 identification in Iran. *Iran J Psychiatry Behav Sci.* 2022.
9. Torjesen I. Covid-19: Omicron may be more transmissible than other variants and partly resistant to existing vaccines, scientists fear. *BMJ.* 2021;**375**:2943. doi: [10.1136/bmj.n2943](https://doi.org/10.1136/bmj.n2943). [PubMed: [34845008](https://pubmed.ncbi.nlm.nih.gov/34845008/)].
10. Brandal LT, MacDonald E, Veneti L, Ravlo T, Lange H, Naseer U, et al. Outbreak caused by the SARS-CoV-2 Omicron variant in Norway, November to December 2021. *Euro Surveill.* 2021;**26**(50):2101147. doi: [10.2807/1560-7917.ES.2021.26.50.2101147](https://doi.org/10.2807/1560-7917.ES.2021.26.50.2101147). [PubMed: [34915975](https://pubmed.ncbi.nlm.nih.gov/34915975/)].