

**Review Article**

**Implementation of Epidemic Restrictions to Disrupt the COVID-19 Pandemic in Iran: A Mini-Review**

Amin Talebi Bezmin Abadi<sup>1\*</sup>, Farid Rahimi<sup>2</sup>

1. Department of Bacteriology, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran.

2. Research School of Biology, The Australian National University, Canberra, Australia.

Received: September 24, 2020, December 20, 2020

**Abstract**

The number of cases infected with severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2), which causes COVID-19, has been steadily rising globally. Iran, one of the countries with a relatively high number of positive cases, has an inevitable role to play in controlling the pandemic by implementing effective policies and countermeasures to interrupt the viral transmission chain. Epidemic restrictions implemented following an Iranian presidential mandate were especially effective following the Nowruz holidays—the solar New Year celebration in the Persian-speaking culture. These restrictions started flattening the incidence curve of the epidemic in Iran two weeks after implementation, from 10 April 2020. Supplying sufficient face masks, disinfectants, sanitizers, and medical equipment to all government-run and non-for-profit hospitals were included in the presidential mandate. We believe that continuing this policy strictly will be required for further controlling the pandemic throughout the country.

**Keywords:** COVID-19; Social Distancing; Iran, Pandemic; SARS-CoV-2.

\***Corresponding Author:** Amin Talebi Bezmin Abadi; **Email:** amin.talebi@modares.ac.ir

**Please cite this article as:** Talebi Bezmin Abadi A, Rahimi F. Implementation of Epidemic Restrictions to Disrupt the COVID-19 Pandemic in Iran: A Mini-Review. Arch Med Lab Sci. 2020;6:e11. <https://doi.org/10.22037/aml.v6.32966>

**Introduction**

December 2019 saw the inception of a viral outbreak in Wuhan, China, which attracted much international attention (1). The causative agent of the outbreak was identified as the severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2), which belongs to the same Coronavirus family that caused the other two moderate epidemics -the Middle East respiratory syndrome and severe acute respiratory syndrome- 20 years ago. The corresponding disease caused by SARS-CoV-2, COVID-19, thus far has had a wide range of clinical presentations from no symptoms to severe respiratory distress syndrome (2) with many other recently described associations, such as loss of smell and taste (3,4); gastrointestinal symptoms such as loss of appetite, nausea, and diarrhea (4,5); cardiovascular outcomes, strokes, and blood clots (6-9,4); frostbite-like rash on toes (4); delirium (4); and the multisystem inflammatory syndrome or Kawasaki-disease-like presentation in young

children (10,4). Nevertheless, reportedly an estimated 44% of COVID-19 cases may have spread from person to person before any symptom appeared (11), confirming the case for asymptomatic carriers (12-14) and making SARS-CoV-2 one of the most contagious viruses. According to an updated report by the World Health Organization (WHO), 67,402,630 cases were confirmed globally as of 7 December 2020 (15), while humanity grapples with many and multifaceted repercussions of the pandemic. Therefore, the implementation of important health measures has been necessary to interrupt the chain of viral transmission to effectively control the pandemic (16). In some countries like Iran, the implications of the pandemic and its control are profound. Daily road or air travel within the country or internationally is highly frequent. Iran could have easily facilitated the viral spread to its neighboring countries. Some Iranian traditions and their social fabric inherently clash with social distancing. For example, in the southwest Khuzestan province, the

number of people attending the funeral ceremonies of some COVID-19 victims has reached 400 at a time, reportedly in March 2020. Nevertheless, controlling the spread of SARS-CoV-2 in Iran deserved attention when the incidence curve of the pandemic was being gradually controlled.

#### **Iran's restrictive measures**

From the emergence of the initial confirmed cases of COVID-19 in the Chinese city Wuhan until now, many countries have adopted a principally uniform or a mixed combination of the counterstrategies suggested controlling the spread of the virus within their respective borders. However, each public-health system needs to actively modify the countermeasures according to domestic factors, including socioeconomic status and agenda, cultural or religious sensitivities, or their political arena.

Iran, with more than 84 million residents (See <https://www.worldometers.info/world-population/iran-population/>), acted quickly after considering the collective expert medical and WHO advice.

Here, we highlight some exemplary measures that may have encouragingly facilitated the flattening of the incidence curve of the COVID-19 pandemic in Iran. First, dissemination of hand sanitizers and face masks was initiated, just before the Nowruz celebrations, while the national television broadcaster began promoting many timely and sensible campaigns to encourage the Iranian people to begin self-isolating and start working from home. Furthermore, an Iranian presidential directive issued on 5 April 2020, just after Nowruz, called upon the Minister of Health and Medical Education with other relevant organizations to adjust the countermeasures and mandate a Smart Social-Distancing Program (SSDP) in all the provinces, except Tehran (17). Hence, the ministry was to cooperate with the "Iranian National Task Force for Fighting Coronavirus" to provide all the relevant supplies (face masks, disinfectants, sanitizers, and medical equipment) and to implement the newly modified countermeasures as soon as practicable (17). Accordingly, SSDP mandated closure of all the mosques; banning of all the religious gatherings and ceremonies (e.g., Ramadan and Eid); closure of the football and other sporting stadiums; closure of

the schools and universities; and closure of the big shopping centers until further notice. Additionally, SSDP was advertised through waves of media releases emphasizing the importance of physical distancing in the marketplaces and other public places such as recreation parks. (We understand that some industries, agriculture, municipalities, and essential services- like defense and security, medical, and emergency services- cannot be shut down.)

We note that Iran is now under strict economic sanctions, which have hampered wider government support to vulnerable social classes during the quarantine; therefore, adopting SSDP to gradually reopen the country's economy is a rational decision. Thus, SSDP was designed to help the authorities achieve two ideal goals: 1) flatten the curve; and 2) cautiously operate all essential organizations and services with mass-gathering needs (18).

Following SSDP, the number of new COVID-19-infected cases gradually decreased. For example, according to World meter, the daily number of new cases peaked at 3,186 on 30 March, whereas 983 cases per day were recorded on 30 April 2020. Similarly, the number of active COVID-19 cases waned while the number of recovered cases remained steady. However, a new surge of positive cases referred to hospitals in the Khuzestan province, and the government ordered a new round of lockdown restrictions for the entire Khuzestan (19, 20). Apparently disobeying the mandate by the general population has been the most important reason underlying the new surge of the positive cases. Thus, coordinated observance of the epidemic restrictions in all the provinces could have helped SSDP to prevent the new incidence waves of the COVID-19 in Iran.

## **Conclusion**

SSDP has been relatively promising for the Iranian public-health services and will take them beyond the present trend of the pandemic, although more time is needed to completely flatten the incidence curve, especially the emerging surge of the COVID-19-infected cases. Conclusive implementation of a restrictive measure against the COVID-19 pandemic should consider the national *status quo*

instead of generalizing the suggested global countermeasures to all the different nations.

## Conflict of Interest

The authors declared that they have no conflict of interest.

## Acknowledgment

Not to declare.

## Funding/Support

The authors declared that there is no financial support for this work.

## References

- Zhou F, Yu T, Du R, Fan G, Liu Y, Liu Z, Xiang J, Wang Y, Song B, Gu X, Guan L. Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study. *The Lancet*. 2020 Mar 11. doi:10.1016/S0140-6736(20)30566-3
- Kock RA, Karesh WB, Veas F, Velavan TP, Simons D, Mboera LE, Dar O, Arruda LB, Zumla A. 2019-nCoV in context: lessons learned?. *The Lancet Planetary Health*. 2020 Mar 1;4(3):e87-8. doi:10.1016/S2542-5196(20)30035-8.
- Yeager A. Lost smell and taste hint COVID-19 can target the nervous system. *The Scientist*. 2020 Mar 24.
- Jarvis C. The unusual symptoms of COVID-19. *The Scientist*. 2020. <https://www.the-scientist.com/news-opinion/the-unusual-symptoms-of-covid-19-67522>. Accessed 21 May 2020.
- Hashimoto T, Perlot T, Rehman A, Trichereau J, Ishiguro H, Paolino M, Sigl V, Hanada T, Hanada R, Lipinski S, Wild B. ACE2 links amino acid malnutrition to microbial ecology and intestinal inflammation. *Nature*. 2012 Jul;487(7408):477-81. doi:10.1038/nature11228.
- Driggin E, Madhavan MV, Bikdeli B, Chuich T, Laracy J, Biondi-Zoccai G, Brown TS, Der Nigoghossian C, Zidar DA, Haythe J, Brodie D. Cardiovascular considerations for patients, health care workers, and health systems during the COVID-19 pandemic. *Journal of the American College of Cardiology*. 2020 May 12;75(18):2352-71. doi:10.1016/j.jacc.2020.03.031.
- Hulot JS. COVID-19 in patients with cardiovascular diseases. *Archives of cardiovascular diseases*. 2020 Apr;113(4):225.
- South AM, Diz DI, Chappell MC. COVID-19, ACE2, and the cardiovascular consequences. *American Journal of Physiology-Heart and Circulatory Physiology*. 2020 Apr 13.
- Zheng YY, Ma YT, Zhang JY, Xie X. COVID-19 and the cardiovascular system. *Nature Reviews Cardiology*. 2020 May;17(5):259-60. doi:10.1038/s41569-020-0360-5.
- Pianegonda E. What is Kawasaki disease, what are the symptoms and is it linked to coronavirus?—ABC News. 2020. <https://www.abc.net.au/news/2020-04-29/kawasaki-disease-symptoms-is-it-linked-coronavirus-in-australia/12197008>. Accessed 30 April 2020.
- He X, Lau EH, Wu P, Deng X, Wang J, Hao X, Lau YC, Wong JY, Guan Y, Tan X, Mo X. Temporal dynamics in viral shedding and transmissibility of COVID-19. *Nature medicine*. 2020 May;26(5):672-5. doi:10.1038/s41591-020-0869-5.
- Yu C, Zhou M, Liu Y, Guo T, Ou C, Yang L, Li Y, Li D, Hu X, Shuai L, Wang B. Characteristics of asymptomatic COVID-19 infection and progression: a multicenter, retrospective study. *Virulence*. 2020 Jan 1;11(1):1006-14.
- Al-Tawfiq JA. Asymptomatic coronavirus infection: MERS-CoV and SARS-CoV-2 (COVID-19). *Travel medicine and infectious disease*. 2020 Feb 27. doi:10.1016/j.tmaid.2020.101608.
- Bai Y, Yao L, Wei T, Tian F, Jin DY, Chen L, Wang M. Presumed asymptomatic carrier transmission of COVID-19. *Jama*. 2020 Apr 14;323(14):1406-7. doi:10.1001/jama.2020.2565.
- The World Health Organization. Coronavirus disease (COVID-19) 2020 <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports>. Accessed 7 December 2020.
- Hellewell J, Abbott S, Gimma A, Bosse NI, Jarvis CI, Russell TW, Munday JD, Kucharski AJ, Edmunds WJ, Sun F, Flasche S. Feasibility of controlling COVID-19 outbreaks by isolation of cases and contacts. *The Lancet Global Health*. 2020 Feb 28. doi:10.1016/S2214-109X(20)30074-7.
- Official website of the President of the Islamic Republic of Iran. Close monitoring of provinces in which Smart Social Distancing will be implemented essential/no new decision made for Tehran province.2020. <http://www.president.ir/en/114676>. Accessed April 24 2020.
- The World Health Organization Coronavirus disease (COVID-19) Situation Report 2020–51. [https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200311-sitrep-51-covid-19.pdf?sfvrsn=1ba62e57\\_6](https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200311-sitrep-51-covid-19.pdf?sfvrsn=1ba62e57_6). Accessed 14 April 2020.
- Reuters Editorial. Iran locks down southwest county after spike in coronavirus cases. Reuters. <https://www.reuters.com/article/us-health-coronavirus-iran-idUSKBN22M0Q7>. Accessed 22 May 2020.
- Worldometer. Coronavirus (COVID-19) mortality rate. Dadax. <https://www.worldometers.info/coronavirus/>. Accessed 25 April 2020.