Estimation of the Number of New Cases of COVID-19 per Day by Different Starting Time of Smart Distancing in Iran: A Dynamic Modelling

By raising concerns about starting businesses and social activities and increasing the contact rate of people in the community, the government has adopted an intervention called smart distancing. This intervention reduces the number of contacts in the community, but at a lower level as compared with complete quarantine (closure of all jobs and businesses, which is ideal for reducing infection rate). In this modeling, the number of new cases of COVID-19 is estimated based on the starting time of smart distancing. Four scenarios were developed that are different in terms of no smart distancing (complete quarantine with the lowest contact rate) and smart distancing time depending on when it starts. The trend of the number of new cases of COVID-19 is modeled between January 21 and February 19, 2020. It was assumed that in all scenarios, 20% of asymptomatic patients and patients with mild symptoms isolate themselves at home. Isolation means that infected people cannot transmit the disease to healthy people and it is assumed that isolation level reaches from 10% to 20% gradually.

Conclusions

- The reopening of various jobs and businesses will increase the contact rate in the community and consequently will increase the number of new cases of COVID-19 in Iran.
- In situations where complete quarantine is not feasible to do, smart distancing will prevent the contact rate from being very high.
- Delay in the start of smart distancing and reopening businesses could reduce the number of new cases of COVID-19. In addition to the delay in reopening businesses, it seems that there are ways to increase detection and, as a result, to isolate asymptomatic patients and patients with mild symptoms.