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Do in-person nationwide university entrance exams affect COVID-19 transmission? An experience from Iran

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Abstract

Background Nationwide University Entrance Exams (NUEEs) are essential scheduled exams that, in some countries, have been conducted in-person even during the COVID-19 pandemic. Considering the potentially fatal consequences of any pandemic-related decisions by policymakers, the response of the national health systems and regulatory bodies to this matter must be evidence-based. This study has been the first to evaluate the effects of NUEEs on measurements and indices associated with COVID-19.

Methods Five NUEEs were conducted in the year 2020 from July 30 to August 22 in the province of Fars, located in the south of Iran. The trends of emergency services, 16-hour special health center visits, PCR tests, hospital services, and death rates due to COVID-19 following these NUEEs were assessed in a 72-day span in this study.

Results All COVID-19 related indices and measurements in this study showed a decreasing trend across the board with the exception of the number of total and positive polymerase chain reaction (PCR) tests.

Conclusion This study found that following the conduction of 2020 NUEEs, there was no increasing trend in the number of COVID-19 cases and the associated indices and measurements. The findings of this study will be valuable for future practices, health protocols, and policies. This study also highlighted the importance of the constant implementation of strict health protocols and measures before, during, and after each NUEE.

Keywords COVID-19, In-person university exams, Pandemics

Background

Following the outbreak of Coronavirus Disease 2019 (COVID-19), according to reports from the World Health Organization (WHO), up until September 14th, 2020, Iran had the second number of confirmed cases of COVID-19 (402,029) among Eastern Mediterranean countries [1]. Fars, one of the largest provinces of Iran, had been highly affected by COVID-19 and was responsible for a significant portion (47,988) of the total numbers of confirmed cases of COVID-19 in Iran up until September 2020 [1]. Since the occurrence of the first case of COVID-19 in Iran on February 19, 2020, until February

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a self-declaration form before entering the exam venue stating that they did not have any respiratory signs and symptoms related to COVID-19 and that they had not been in close contact with any individuals with confirmed COVID-19 test. In the case of identifying suspects with positive signs, the separation of individuals and allocating them to a designated COVID-19 facility in a different building secluded from other participants was mandatory. Five confirmed COVID-19 cases whose information was recorded in the national Corona Lab system were isolated and took their university entrance exam at a designated COVID-19 facility. All exam venues were buildings that have rooms and halls with a capacity of at least 12 cubic meters with natural and industrial ventilation system. A minimum distance of 1.8 m between candidates, volunteers, and staff was implemented at all points of entry and exit and in all corridors, halls, and classrooms in the venue. The windows of the exam halls and corridors were kept open throughout the examination process. To protect the health and safety of the participants, the integrity of the protocols was rigorously monitored by ensuring that masks were used at all times, participants washed their hands for at least 20 s before the exam or disinfected their hands using hand sanitizers, and surfaces and tables were properly disinfected before and after the exams. When the exams were done and booklets were collected, candidates were asked to remain seated. The candidates were then ushered to separately leave the exam center while keeping appropriate social distancing [16].

Therefore, to enhance safety during health crises, it is suggested that policymakers prioritize evidence-based decision making and strengthen health protocols, including mandatory mask-wearing and social distancing. Implementing self-declaration forms for participants, establishing post-event surveillance for tracking COVID-19 cases, and launching public awareness campaigns on safety practices are essential.

Limitations

The limitation of our study was that the evaluation of changes in the COVID-19 related measurements and indices after COVID-19 would have been more accurate if we had performed COVID-19 PCR test for all the participants of NUEEs. Nonetheless, we performed PCR test on individuals suspected to have COVID-19, but because of time and financial constraints, the urgent nature of COVID-19, lack of access to all participants, and failure to obtain permission from the ethics committee to conduct testing on all participants, we were not able to do so in mass on all NUEEs participants. Another limitation of this study was the failure to examine confounding factors at the individual level, which is one of the limitations of ecological studies that we encountered.

Conclusion

This study has found that following the conduct of 2020 NUEEs in the province of Fars, there was no increasing trend in the number of COVID-19 cases and the associated indices and measurements. Considering the COVID-19 pandemic situation in Iran and its impacts on the educational and social systems, the results of this study are particularly significant. While some previous studies indicated an increase in COVID-19 cases due to large gatherings, our findings may indicate a positive impact from the implementation of strict health protocols. The findings of this study will be valuable for future practices, health protocols, and policies. However, since we are still scratching the surface with regard to pandemics, future research and studies on in-person nationwide exams and their impacts on different pandemics are recommended. This study also highlighted the importance of the constant implementation of strict health protocols and measures before, during, and after each exam.

Abbreviations

COVID-19	Coronavirus Disease 2019
WHO	World Health Organization
NUEEs	Nationwide University Entrance Exams
EMS	Emergency Medicine Services
PCR	Polymerase Chain Reaction
ICUs	Intensive Care Units
MCMC	Medical Care Monitoring

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Authors' contributions

Z.MN and A.M conceptualized of the study. M.H.S, A.H and Z.J provided support while collecting data. Z.MN, A.M and A.M managed the data. Z.MN, A.M, and A.M wrote the first draft. All authors read and approved the final manuscript.

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Data availability

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate

The current study was carried out in accordance with the Declaration of Helsinki and was approved by the Ethical Committee of Shiraz University of Medical Sciences (Ethics Code: IR.SUMS.REC.1399.1185). Meanwhile, all data were taken from databases without any patients' information or identifications, so we did not need to have any informed consent form be filled. Since all data used in this study were obtained exclusively from existing databases and contained no identifiable patient information or personal identifiers, the requirement for obtaining informed consent from participants was waived by the aforementioned Ethics Committee. This waiver is consistent with national regulations and institutional policies regarding research using anonymized secondary data.