

# Research Paper: The Modification of the Education System in a Medical Faculty in Iran During the COVID-19 Outbreak



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## ABSTRACT

**Background:** The coronavirus disease 2019 (COVID-19) pandemic has had an important effect on medical education. Universities around the world responded to the crisis by announcing the immediate closure and substituted the in-person sessions with online ones.

**Methods:** Iran University of Medical Sciences designed a platform for medical students. To maintain the social distance, only onethird of students living in the dormitory were present at the dormitory in this condition. Some training courses were divided into two parts and each group was supposed to participate in given courses in-person for 15 days. The crash courses were trained on all days of the week. Then, the first group left the dormitories and was replaced with the second group, and they used dormitories for 15 days after being disinfected. Besides, for the best use of time, students who could not present in these 15-day training courses took part in virtual training programs.

**Results:** It is depopulate the educational sessions at hospitals and classes in educational sectors. Besides, using the virtual classroom software given by the university, students can take part in virtual training programs.

**Conclusion:** Using this platform, the number of trainees, as well as the gathering of students at dormitories, was reduced.

## 1. Introduction

The coronavirus disease 2019 (COVID-19) outbreak, as an ongoing pandemic, in just a few months, has altered numerous facets of our lifestyles, as well as education. Throughout the world, more than one billion medical students terminated their teaching or learning activities in schools and universities, and all

activities were rearranged. It was obvious to the whole academic community that it was essential to change the direction of the study and research preferences to the COVID-19 outbreak, to provide fundamental information and knowledge. Besides, the prospect of medical education at all levels has been uncertain. Also, the commencement of this health disaster has distorted the educational and training procedures in hospitals and medical universities, making students and teachers confused

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[1, 2]. The protocols of social distancing have prevented students from taking part in group interactions, and patient care environments, and canceled workshop sessions, appointments, and surgeries. All these issues have been accompanied by the lack of COVID-19 assessment kits as well as protective equipment leading to the pause of the medical educational system.

In the current universal disaster, most of the medical education schools around the world have replaced in-person courses with virtual ones for health system sciences. Also, some of the clinical skills meetings have been held virtually and the students' assessments have been done through online systems.

Most of the medical schools in Iran have provided a platform to provide virtual training. Iran's Virtual University of Medical Sciences (VUMS) has provided educational resources and content to assist medical schools across the country. It has provided an electronic platform for the training of medical science, which helps tutors evaluate medical students' procedures of education. Moreover, the national VUMS has offered massive open online courses with the cooperation of Iran's leading universities of medical sciences [3].

Considering the necessity of continuing medical education to track the trend of educating medical staff, Iran University of Medical sciences has directed its curriculum toward the pathway, in which medical education needs to be continued despite the least connection between students, faculty members, and patients. In this study, we addressed the educational curriculum of Iran University of Medical Sciences in the COVID-19 outbreak.

## 2. Materials and Methods

This curriculum was designed for the optimal use of time, place, and educational facilities at Iran University of Medical Sciences and affiliated hospitals in the field of medical education. The School of Medicine of Iran University of Medical Sciences, as one of the largest medical schools in the country, is currently training 723 students and 459 interns studying the clinical courses of general medicine. In this regard, about half of the students have normally settled in dormitories affiliated with the university, which is not possible for them to be present in the dormitory due to the special conditions resulted from the recent epidemic. To maintain the social distance to prevent students from getting infected with the coronavirus, only one-third of students living in dormitories are present at the dormitory in this condition.

Based on the designed curriculum, some training courses have been divided into two parts and each group is supposed to participate in given courses in-person for 15 days. In this curriculum, the crash courses will be trained on all days of the week and there would not be any break during this period. At the end of this course, the first group will leave the dorms and be replaced with the second group; they will use dormitories for 15 days after being disinfected.

Besides, for the best use of time, students who cannot be present in these 15-day training courses, will take part in virtual training programs. On the one hand, this program can hold the virtual morning training programs using the virtual meeting software provided by the university. With the outbreak of COVID-19, all educational departments were asked to prepare educational content and upload it in the virtual education system of Iran University of Medical Sciences. Passing three months from the onset of the outbreak, a considerable number of departments have created educational content based on their educational curriculum and they were uploaded for students on the official website of the university [4]. Under the structural programming, the scientific quality of uploaded content was supervised by the head of the department and educational council, and finally by the education and development office.

## 3. Results

By reducing the number of settled students in the dormitory to on-third and dividing students into two groups, the number of trainees will reduce, and also there will be a dramatic decrease in student gatherings at dormitories. It will depopulate the educational sessions at hospitals and classes in educational sectors. In the next step, we can plan to educate students in evening and night clinics and give virtual exams to achieve the goal of continuing the medical education in the current specific conditions and protect students, faculty members, and medical staff.

A study on 17 medical schools of Canada demonstrated their provided platform during COVID-19 as follows:

All in-person classes were replaced with distant training through an online platform. Case-based learning was carried through videoconferencing, and YouTube educational videos, mobile applications, and formerly recorded educational sessions were used for medical programs. In-person clinical experiences were replaced with online publishing of clinical skills, development of new webinars, and video conferencing to provide family medicine teaching for year 1 or 2 students. The clerkship of year 3

students was replaced with flexible learning experience projects until the improvement in the situation to start the clerkship. The year 4 students who have previously finished the core curriculum, have a two-week elective period, which has been now substituted by public health or research projects [5].

## 4. Discussion

One of the important issues during this crisis is that medical students continue to be examined to achieve the curriculum goals. Also, it is significant to apply for an Academic Fellowship Programme. The King's College London as well as the Imperial College London held the medical examination as an open-book examination from home and through an online system. The exam was designed in a way that can measure the capability of the student to integrate all the information given to them and to reach a conclusion; thus, it tests the students' knowledge and problem-solving skills; however, there was a time limit to search all questions [6, 7].

Medical education using a virtual training system may have advantages as well as benefits. In a survey in Belgium on 300 final year students, it was shown that 42.3% had decreased activity and 23% had complete cancellation in their clinical activity. Also, 59% believed that they have a qualitative decline in their education, 51% believed that they may not be prepared for the future, and 63% stated that they had a low level of experience. However, self-study and theoretical knowledge were increased. The COVID-19 outbreak has had many impacts on students. This may increase students' anxiety since they think they may not obtain enough appropriate skills. Besides, they are worried about their residency application due to missing clerkships and having lessened workload placements. They feel insecure about their future and mentors face difficulties in choosing the greatest candidates [6].

From another point of view, virtual courses could offer a chance for students to learn from the best teachers in the world. They could also develop their personal network and speed up their professional progress using online learning. Also, the information will be circulated equally among students in lower benefited and more advantaged areas. As advantageous, online learning can be used as a substitute for students who cannot participate in some classes. Besides, the improvement of virtual learning could help medical students to advantage more from online lessons before starting the clerkship stage. Moreover, virtual medical learning could make it possible for the physicians of disadvantaged areas to use the same educational resources as the privileged countries [8].

## 5. Conclusion

Medical education throughout the world has experienced a foremost disturbing alteration as a result of the COVID-19 pandemic and technology has been promptly and creatively used to continue education and training. The prospect of medical education is ambiguous after the pandemic. The use of emergent technology for training, including virtual reality and artificial intelligence for adaptive education, are highly probable to be vital components of the transformative alterations and the future of medical education.

## Ethical Considerations

### Compliance with ethical guidelines

All ethical principles are considered in this article. The participants were informed about the purpose of the research and its implementation stages.

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### Author's contributions

All authors equally contributed in preparing this article.

### Conflict of interest

The authors declared no conflict of interest.

## References

- [1] Ahmed H, Allaf M, Elghazaly H. COVID-19 and medical education. *Lancet Infect Dis*. 2020; 20(7):777-8. [DOI:10.1016/S1473-3099(20)30226-7]
- [2] Ferrel MN, Ryan JJ. The impact of COVID-19 on medical education. *Cureus*. 2020; 12(3):e7492. [DOI:10.7759/cureus.7492] [PMID] [PMCID]
- [3] Tabatabai S. COVID-19 impact and virtual medical education. *J Adv Med Educ Prof*. 2020; 8(3):140-3. [DOI:10.7759/cureus.7492]
- [4] Aghakhani K, Shalbafan M. What COVID-19 outbreak in Iran teaches us about virtual medical education. *Med Educ Online*. 2020; 25(1):1770567. [DOI:10.1080/10872981.2020.1770567] [PMID] [PMCID]
- [5] Wong RY. Medical education during COVID-19: Lessons from a pandemic. *BCM J*. 2020; 62(5):170-1. <https://bcmj.org/special-feature-covid-19/medical-education-during-covid-19-lessons-pandemic>

- [6] Kapila V, Corthals S, Langhendries L, Kapila AK, Everaert K. The importance of medical student perspectives on the impact of COVID-19. *Br J Surg.* 2021; 107(10):e372-3. [DOI:10.1002/bjs.11808] [PMID] [PMCID]
- [7] Birch E, de Wolf M. A novel approach to medical school examinations during the COVID-19 pandemic. *Med Educ Online.* 2020; 25(1):1785680. [DOI:10.1080/10872981.2020.1785680] [PMID] [PMCID]
- [8] Ebrahimi A, Ebrahimi S, Ashkani Esfahani S. How COVID-19 pandemic can lead to promotion of remote medical education and democratization of education? *J Adv Med Educ Prof.* 2020; 8(3):144-5. [DOI:10.1080/10872981.2020.1785680] [PMID]