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MEDICAL EDUCATION DURING COVID-19 PANDEMIC: THE EXPERIENCE OF FACULTY OF MEDICINE, BEIRUT ARAB UNIVERSITY (BAU): CHALLENGES, SUCCESSES AND LESSONS LEARNED

Naglaa Mashaal

Dean of Faculty of Medicine, Professor of Medicine, Beirut Arab University, Beirut, Lebanon,
najlaa.mashaal@bau.edu.lb

Hala Ahmadieh

Endocrinology Specialist, Assistant Professor of Medicine, Clinical Sciences Department, Faculty of Medicine, Beirut Arab University, Beirut, Lebanon, hala.ahmadieh@bau.edu.lb

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MEDICAL EDUCATION DURING COVID-19 PANDEMIC: THE EXPERIENCE OF FACULTY OF MEDICINE, BEIRUT ARAB UNIVERSITY (BAU): CHALLENGES, SUCCESSES AND LESSONS LEARNED

Abstract

Background: The novel Coronavirus pandemic (COVID-19) has significantly disrupted and challenged medical education at the undergraduate and postgraduate levels. In this article, the experience at Beirut Arab University Faculty of Medicine (BAUFM), during the COVID-19 pandemic, is being shared with its challenges, successes and lessons learned. The program of BAUFM is divided into three phases: Pre-Clerkship (Semesters 1 to 6), Clerkship (Semesters 7 to 10), and Pre-internship (Semesters 11 and 12), it extends over six years duration, followed by one year of Internship. The curriculum is developed to be outcomes-based, and is composed from Phases and Modules. **Methodology:** In this study, Data was collected from interviews with members of Medical Education Department and Quality Assurance Unit, in addition to feedback questionnaire from students and instructors. Qualitative data was summarized, coded and sorted manually, while quantitative data was analyzed using Statistical Package of Social Science (IBM SPSS version 23.1). **Results:** Adherence to social distancing has eliminated all face-to-face activities, including in-person classes, in-person small group discussions and workshops, during which students used to interact with their peers and tutors in students-centered learning activities. Lectures were covered through help of virtual teaching platforms, online educational resources and audio-recorded Power-Points Presentations; whereby they were given to students in interactive (synchronous) sessions, or provided with audio support (asynchronous). Students' satisfaction to online learning was 40%. While 54% of instructors believe that online learning should encompass less than 25% of the curriculum, 36% believe that it should cover 25-50%. **Reflection and Discussion:** The most important challenges that were faced, during the COVID-19 pandemic, were with the clinical rotations that used to take place during the Clerkship and Pre-internship phases. Decision was taken to ensure that all year six clinical rotations were to be completed which enabled their graduation on time. For the 4th and 5th year students, clinical rotations were resumed in Modules that included outpatient clinical exposure, while postponed for other Modules to the next academic year. A number of students (30%), regardless of their level of training, showed interest in community engagement and in volunteering community activities during the Coronavirus pandemic. **Lessons Learned:** BAUFM, while committed to its mission in graduating competent, humane, ethical, and socially accountable physicians, has to modify its learning strategy to comply with the recent international changes in medical education. **Conclusion:** Although COVID-19 pandemic has affected the educational program, BAUFM responded early by shifting to online education in the theoretical part of the curriculum. Meanwhile, the educational program and the curriculum learning objectives were maintained to comply with the accreditation standards. The impact of COVID-19 pandemic accelerated the transformation of education in BAUFM to the online and blended learning.

Keywords

Medical education, Undergraduate students, COVID-19, Virtual learning, online learning

1. INTRODUCTION

Since late 2019 until present times, the world has perceived an infectious pandemic caused by Coronavirus, which has affected all countries worldwide, including Lebanon. Medical faculties were faced with challenges on how to ensure students' safety and at the same time fulfil their mission of graduating competent and qualified medical doctors. In Lebanon, the first lockdown happened from March 9 to May 25 of the year 2020. Consequently, medical schools responded rapidly by shifting to alternative education options, mainly virtual online learning.

The novel coronavirus disease-2019 (COVID-19) pandemic has disturbed the traditionally deeply rooted structure of undergraduate and graduate medical education – whose pillar has always been in-person and interactive forms of teaching (Hilburg R, 2020). While many medical schools decided not to allow students continue providing patient care and continue their training, other medical schools decided to graduate students earlier than expected in order to contribute to a strained workforce, and those students had to be exposed early on to an unfamiliar clinical environment (American Medical Association, 2020).

BAUFM offers a Bachelor Degree in Medicine and Surgery (M.B.B.Ch). Its program is divided into three phases: Pre-Clerkship (Semesters 1 to 6), Clerkship (Semesters 7 to 10), and Pre-internship (Semesters 11 and 12), it extends over six years duration, followed by one year of Internship. The curriculum is developed to be outcomes-based and is composed from Phases and Modules. The diversity of learning activities, e.g., PBL, TBL. Flipped classroom ensures preparedness of students for lifelong learning. The principles of assessment in all phases of the program is based on semester Grade Point Average (GPA), however, pass/fail system was adopted during Spring Semester 2019/2020. This study aims to discuss and evaluate the experience of Beirut Arab University Faculty of Medicine (BAUFM) during the COVID-19 pandemic. The study also reflects on the impact of the pandemic on the Faculty learning strategy, which has to be modified to comply with the international changes in medical education after the pandemic time.

2. METHODOLOGY

This study is a descriptive qualitative and quantitative case study that evaluates and reflects on the program changes that happened during the COVID-19 pandemic. Qualitative data was collected from interviews with members of Medical Education Department and Quality Assurance Unit, while quantitative data was collected from feedback questionnaires, which were sent via email to students, part-time and full-time faculty members to evaluate their response to online learning and assessment. Qualitative data was summarized, coded and sorted manually, while quantitative data was analyzed using Statistical Package of Social Science (IBM SPSS version 23.1).

3. RESULTS

An early response of the Faculty of Medicine at BAU to COVID-19 pandemic was the announcement on March 9, 2020 that all Modules were to be delivered remotely mainly through the help of online platforms. However, the educational program and the curriculum learning objectives were maintained to comply with the accreditation standards. Training sessions were provided to faculty members to support teaching online and adaptation to different platforms. Communication between students, faculty members, and non-academic staff were ensured using emails, posting on University portal, and other modalities. During the pandemic, 57% of the sessions were delivered in synchronous formats using Zoom and Microsoft Teams platforms, 11% of sessions were uploaded to be used later according to students' needs, and 32% were delivered in a combined approach. The students' response rate to the feedback questionnaire was 32.30 %, (197/610). Most of the students (40%) were satisfied with online learning. The majority (75%) considered it a good alternative to face-to-face theoretical sessions during the pandemic; however, 50% of students did not agree to attend practical/clinical online sessions. Meanwhile, the results revealed that students prefer face-to-face learning for the following reasons: less time wasting (55.33%), easier participation (67%), better knowledge transfer (72%), and more interactivity (72.5 %). Regarding online assessment, the results showed that 42% of students consider the online assessment unfair, while 78% agreed that the adopted Pass/Fail system was fair. Most of them (71%) believe that online education should not be more than 50 % of the curriculum. The survey also included 45 instructors, with response rate of 62% (28/45). Their ranks were as follows: 61% lecturers and senior lecturers, 21% assistant and associate professors, and 18% professors. The majority of them were teaching from inside Lebanon (89%),

while the remaining part were teaching from outside the country mainly from Alexandria University, Egypt. The feedback questionnaire revealed that most instructors found that face-to-face teaching is superior to online teaching with respect to: less wasting of time (53%), easier to attend (82%), and better knowledge transfer (78%), easiness of asking questions (71%), better feedback (82%). Meanwhile, 54% of instructors believe that online learning should encompass less than 25% of the curriculum, whereas 36% believe that it should cover 25-50%. Regarding students' assessment, 53% of instructors found that online assessment was not fair and 40% found that the adoption of pass/fail system was fair.

4. REFLECTION AND DISCUSSION

While it is important to act quickly when making adaptations during COVID-19, it is equally important to anticipate the long-term shifts that may become the new normal. Many adaptations, such as effective online instruction, are catalyzed by the urgency of the pandemic (Wong R, 2020, Ferrel, 2020, Rose S, 2020).

4.1. Adaptations in Pre-Clerkship Phase

The Faculty initiated remote teaching to deliver the knowledge and the theoretical parts that students should normally acquire during this phase. Adherence to social distancing has eliminated all face-to-face activities, including in-person classes, in-person small group sessions and workshops, during which students used to interact with their peers and tutors in student-centered learning activities. Even, all in-person exams were withheld. Lectures were covered through help of virtual teaching platforms, online educational resources and audio-recorded Power-Points Presentations; they were given to students in interactive (synchronous) sessions, whereby all students were allowed to attend and to actively participate. Presentations were also provided with audio support; occasionally they were sent by email or posted on Moodle (asynchronous sessions). Accordingly, students in the pre-clerkship phase experienced minimal disruptions in their didactic education. Moreover, clinical skills sessions such as history taking were performed through the help of videos and role-plays. In the meantime, multiple-choice examinations were performed online, and concept map evaluation occurred virtually. For year 3 students, hospital training and clinical skills were replaced by presentations and videos posted online.

4.2. Adaptations in the Clerkship and Pre-Internship Phases

Students were forced to stop their clinical rotations in 9 March 2020, only to return partially approximately few months later. It is widely known that clinical rotation for medical students is considered crucial for the acquisition of various skills and professional attitudes, and this of course, was challenging, especially with the increasing number of Coronavirus cases in the hospitals, which would pose a risk to students and to their family members in case they were infected. This risk was high especially that there was a shortage in the availability of adequate Personal Protective Equipment (PPE) for the protection of healthcare personnel. Even more, the educational value was significantly reduced with the cancelation of routine admissions, surgical procedures and outpatient appointments. Thus, our decision in this period was to stop clinical rotations except for year 6, who will graduate by the end of July 2020, those students were able to resume and finish their clinical rotation at one of the main affiliated hospital. As for the theoretical topics, they were successfully covered during the lockdown period that extended from 8 March till almost the end of May. Regarding Years 4 and 5, clinical rotations were continued in the following Modules due to their nature, which relies on outpatient clinics; family medicine, psychiatry, ophthalmology and ear nose throat (ENT) rotations. Clinical skills sessions such as physical examination and electrocardiogram (EKG) training also took place virtually through the help of Videos, and through practicing role-play on one of the family members at home. Furthermore, clinical skills sessions on EKG reading and training on pulmonary function tests reading were conducted virtually. Regarding the assessment, part of it was completed during the lockdown through individual oral online exam, in addition to students' presentations and online multiple-choice examinations. Objective structured clinical examination (OSCE), for clinical modules, was performed when classes were resumed.

4.3. Students' Role During the Coronavirus Pandemic

Although medical students can act as vectors for viral transmission, and may consume personal protective equipment, however, letting students serve some clinical roles may provide benefits overall (Miller D, 2020). A good number of our students (30%), regardless of their level, showed interest in volunteering community engagement and activities during the Coronavirus pandemic. Some of them did awareness on Coronavirus infection. Still others decided to help the Ministry of Health by receiving phone calls from patients who suffered from symptoms of the virus to guide them on the next action. This merit high appreciation to see future doctors cultivating their teamwork, compassion and addressing the community needs during these stressful times.

5. LESSONS LEARNED

The main difference between traditional and technology-based educational sessions is that the latter allow students to undertake the learning in their own time and in their preferred location. Technological solutions allow teaching to be delivered to groups or individuals and can process the individual student's responses in real time (Samaraee A, 2020, Coccolini F, 2020). The impact of COVID-19 pandemic accelerated the transformation of education in almost all medical schools to the so called online, blended, or hybrid learning. In view of this fact, BAUFM, while committed to its mission in graduating competent, humane, ethical, and socially accountable physicians, has to modify its learning strategy to comply with the recent international changes in medical education.

Our future strategy will focus on:

- Adopting the online and blended learning in conjunction with traditional learning activities especially when giving theoretical knowledge.
- Developing "Technology-Enhanced" learning environment in the form of digital classroom.
- Developing and integrating different approaches using technology enhanced learning in practical and clinical practice e.g., the use of virtual patients and telemedicine.
- Consider the possibility of modifying a part of the curriculum to be more adaptive to allow students study in their own pace and sequences.
- Emphasizing the Faculty mission to graduate physicians who are socially accountable.

6. CONCLUSION

Although COVID-19 pandemic has affected the educational program, BAUFM responded early by shifting to online education in the theoretical part of the curriculum. In the meantime, the educational program and the curriculum learning objectives were maintained to comply with the accreditation standards. In this article, BAUFM shared its experience in medical education, during COVID-19, with lessons learned. This provides insight on the need to make use of this pandemic in changing the future about medical education and anticipate the long-term changes that may become the new normal.

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