

An Adapted Online Family Medicine Training for House Officers Amid Covid-19 Pandemic in Egypt

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Abstract

Introduction: The COVID-19 pandemic is an unprecedented challenge to house officers training programs because of the safety measures. **Objective:** This current study aimed to introduce the adaptation of family medicine training for house officers during COVID-19 pandemic and gauge their level of satisfaction with the training. **Methods:** Unfortunately, more than one-fourth of the house officers attending the family medicine training turned out to be hospital-admitted or in obligatory home isolation. A time-sensitive plan was proposed to maintain a competent training guaranteeing safety and support of house officers and fulfilling the training objectives in a virtual setting. Three mentors were assigned to each 10 house officers to provide continuous support and monitoring. Tutor and house officer interaction and reflection were maintained through a virtual clinical training session via Zoom application and a daily online discussion of a clinical scenario. Peer interaction was provided through post-webinar and small-group online discussion sessions. **Results:** The adapted training was applied on thirteen cohorts of house officers. The response rate was 70% (666 out of 950). Most of them were satisfied with the training (84.6%). Their satisfaction with each modality of the training was encouraging. **Conclusions:** During COVID-19 pandemic, successful adaptation of family medicine training has succeeded in fulfilling the training objectives and providing psychological support and engagement for house officers without burdening the hospital-admitted and home-isolated house officers.

Keywords

medical education & training, family medicine, primary care, COVID-19

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Introduction

In the wake of the coronavirus (COVID-19) pandemic, the Center for Disease Control and Prevention (CDC) recommended implementing physical distancing measures and avoiding gathering of more than 10 people gatherings.¹ Accordingly, Egypt exerted great efforts in controlling this pandemic that were praised by the WHO expert team.² Egypt has locked down its international borders. Instructing people to stay safe at home with fully paid wages and mandating for social distancing were implemented.³ Moreover, Egypt made the decision to halt study in its educational institutions, a decision which has negatively affected students, especially postgraduate medical students.⁴ In such tumultuous times, since the disruption of medical trainings has occurred for an uncertain period, keeping safety of trainers and trainees, and patients has become a top priority.^{5,6}

Even though postgraduate medical trainings have been immensely struck by the outbreak of COVID-19 in Egypt, such programs cannot be halted in its tracks.^{7,8} In response to the current pandemic, it is essential provide competent health care workers with excellent training programs for better allocation in the most needed health services.⁹ Specifically, these programs struggle to provide safety for all health workers in this situation due to the continuous need for trained health care workers in the front lines, and the concurrent shortage and temporary loss of health

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professionals due to the obligatory isolation after contact with positive cases of COVID-19 or catching the infection themselves or even death.¹⁰

Adaptation of the training programs has become a necessary obligation of medical schools. Recent literature provides many suggested solutions to overcome the obstacles as much as possible. These suggestions consider the safety, the stressors, the burden, and the competency of the trainees.⁹ Suggested solutions include technology assistance, simulation, peer interaction,^{7,9} and educational videos.⁸ For the sake of better efficacy, we integrated these tools and techniques in the adapted family medicine training program.

In such a dire situation, it was mandatory to adapt the 2-week family medicine training to cope with this situation by integrating technology and sharing medical knowledge and experiences online. Especially that more than one-fourth of the house officers were either COVID-19 positive or contacted a positive case. This current study aimed to introduce the adaptation of family medicine training for house officers during COVID-19 pandemic and gauge their level of satisfaction with the training.

Materials and Methods

Family Medicine Department and House Officer Rotation

The family medicine department at Cairo University was established in 1998. It has 22 faculty members. Training of residents and house officers takes place in our 4 outpatient clinics, which offer primary health care services for all age groups from Saturday to Thursday every week. The house officers training in the family medicine department is a 2-week compulsory training, and the average number of house officers is 55 in each cohort.

The study was an educational interventional study. It was approved by the family medicine department council and the ethical committee of faculty of medicine, Cairo university (ID: N-19-2021). The principles of ethical and professional conduct have been adhered to, ensuring the confidentiality of the collected data.

House Officer Training before COVID-19 Pandemic

The training program was designed to fulfill the training objectives, including recognizing the concepts of family medicine specialty and its importance, applying biopsychosocial approaches and clinical reasoning skills in addressing the patient concern, and constructing a comprehensive evidence-based management plan for the most critical cases encountered in primary care. Hence, the training program included:

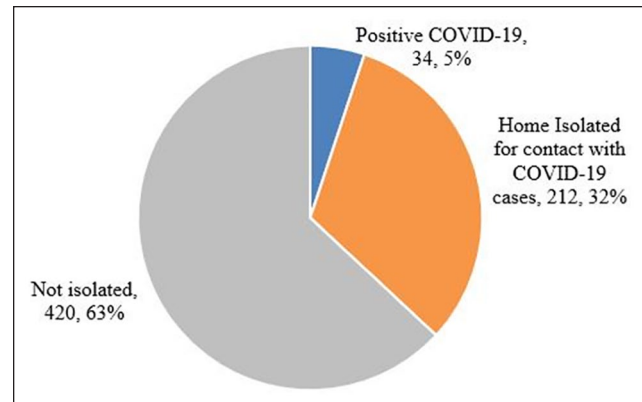


Figure 1. Isolation status of the participating house officers.

- Attendance of a family medicine orientation workshop
- Daily attendance of family medicine outpatient clinics
- Attendance of scientific discussion sessions that addressed the clinical pathways of the most important chronic diseases encountered in primary health care in Egypt. This occurred 5 times per week after clinics attendance
- Attendance of a role-play session that addressed the concept of family medicine through multiple cases scenarios.
- Attendance of the scientific day of the department, which was held once per week.
- The completion of most of the required activities was mandatory for completion of family medicine rotation.

Due to the outbreak of COVID-19 pandemic in Egypt, the training program underwent some modifications to ensure the safety of the house officers. A schedule for attendance of family medicine outpatient clinics was prepared where each house officer would attend the clinic once per week while keeping all the safety precautions. A plan for a virtual training session using a zoom meeting application was prepared, where multiple case scenarios would be introduced, and an online discussion reflection would be provided. However, we faced a major challenge; the family medicine rotation was preceded by the emergency rotation, and many of the house officers dealt with COVID-19 positive cases. Unfortunately, more than one-fourth of the house officers were instructed for obligatory home-isolation (31.8%, 212 house officers) while 34 house officers (5.1%) turned out to be COVID-19 positive and were admitted to hospital for treatment (Figure 1).

Therefore, a time-sensitive plan for adaptation of family medicine training was put into action to cope with the grave situation. The rationale entailed the following:

- Having a comprehensive discussion with all the members of the department on alternative methods of training (available online activities) that could fulfill our learning objectives.
- Devising a working scheme and assigning the tasks to all the faculty members
- Conducting a time-sensitive needs assessment
- Developing an online capacity building program to address the main faculty needs including the use of Zoom and Microsoft Teams applications.
- Dealing with house officers stress and ensuring their engagement with the training
- Obtaining continuous feedback from house officers and instructors.

House Officer Training during COVID-19 Pandemic

The first step was to ensure regular follow-up and continuous support. Therefore, each cohort was divided into 5 groups, and each group was assigned to 3 mentors: a resident, an assistant lecturer, and a lecturer. A WhatsApp group was created for each group to facilitate communication among the house officers and their mentors.

The second step included modifying the training to adapt to the current situation as follows:

- A class and a group for each cohort of house officers were created on the learning management system (LMS), Schoology, which was used because it is user-friendly and is easy to join using an invitation code.
- A family medicine orientation workshop was recorded and uploaded on the LMS and an online meeting using Zoom meeting application was held to explain the components of the training program, introduce the concepts of family medicine, and address any inquiries.
- A handout was prepared for each clinical pathway and was uploaded on the LMS. For each clinical pathway, a Google form containing relevant case scenarios was prepared and uploaded to evaluate understanding and comprehension.
- Online daily discussion of a clinical scenario was set up. The clinical scenario was posted on Schoology discussion forum, and discussion was held regarding differential diagnosis, investigations, and cost-effective management. The aim of this activity was to introduce the scope of family medicine and to emphasize the biopsychosocial approach of family practice.
- Four virtual training sessions were designed to address the concepts of family medicine, application of biopsychosocial approach and clinical reasoning.

This was a one-to-one training through simulation. A detailed schedule of the virtual clinical sessions was prepared and announced to the house officers in advance. Each house officer was supposed to attend one virtual training session with each mentor. Each training session included different case scenarios, followed by online reflection for each house officer's performance at the end of the session. One online small-group discussion session was held to facilitate peer support and social engagement. Four house officers joined the small group discussion with the assigned resident.

- A webinar was held once per cohort via Microsoft team and consent of recording was obtained from all the participants. Each webinar allowed for deep discussion of one topic and presented the comprehensive approach of family medicine practice. The previously recorded webinars were uploaded on the LMS. Each webinar covers an important topic in family medicine practice (eg, depression and anxiety in primary care). A WhatsApp group was created for addressing inquiries and for post-webinar discussion which was held after each session.
- To monitor the effectiveness of the training, continuous house officers' feedback was obtained, and daily feedback was obtained from the tutors in order to explore areas of strength and weakness of training and to seize any opportunity for modification. Also, to explore the workload of tutors which was kept at an acceptable level as all other academic and clinics activities were lessened during the pandemic.
- The completion of most of the required activities (including google form quizzes) was mandatory for completion of family medicine rotation. As shown in Table 1, the difference between the training program before and during COVID-19 pandemic was stark. Mainly, the face-to-face interaction in the training before COVID-19 pandemic was replaced with virtual sessions and online communication.

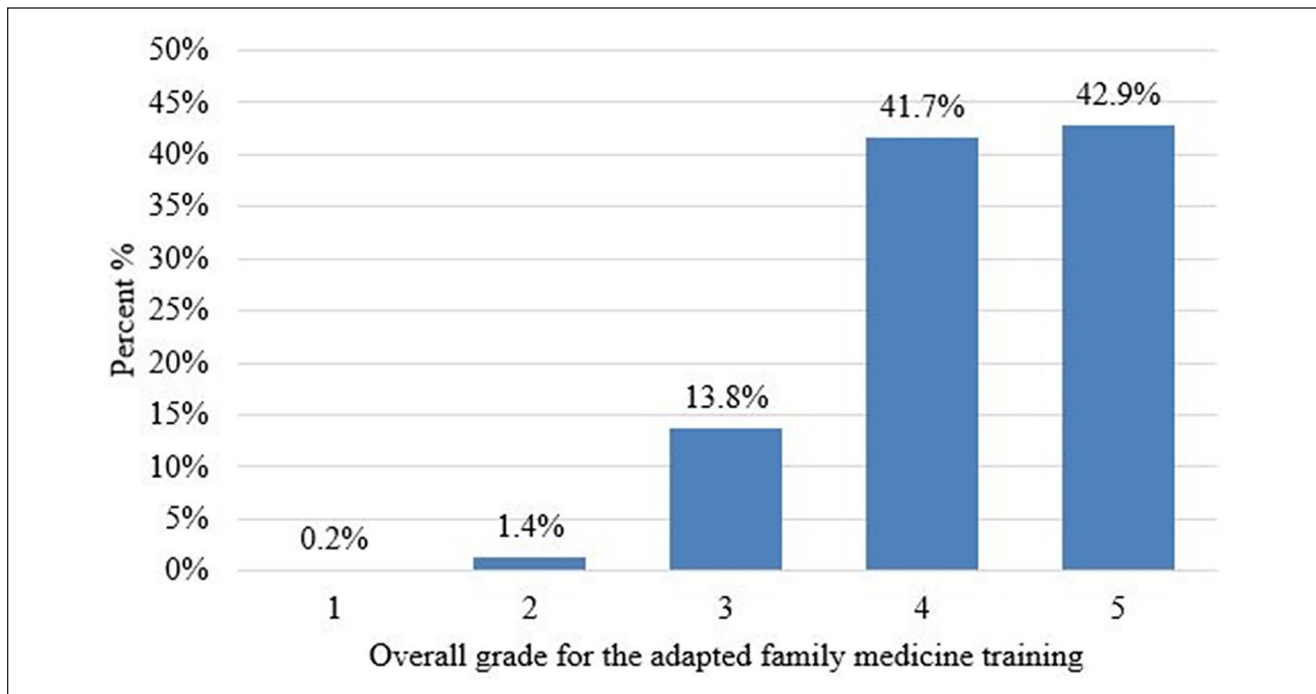
Results

The adapted 2-week family medicine training was applied on thirteen cohorts of house officers with a total number of 950 trainees starting from 1st of May 2020 to 15th of February 2021. Training Feedback from the house officers was obtained using a previously structured questionnaire on Google Form, with a response rate of 70% (666 trainees).

Regarding the overall grading of the adapted family medicine training, 84.6% graded it with scores of 4 and 5 out of 5 points scale (1 "poor" and 5 "excellent") as shown in (Figure 2). For the overall feedback, the house officers' feedback was encouragingly positive mainly because they deeply appreciated the exerted efforts. Even while in

Table 1. The Main Differences between the Training Programs before and during COVID-19 Pandemic.

	House officer training before COVID-19 (face-to-face training)	House officer training during COVID-19 (adapted online training)
Monitoring and feedback	Face to face	Through WhatsApp group and LMS
Family medicine orientation	Face to face workshop	Recorded session then online meeting using Zoom meeting
Family medicine outpatient clinics	On daily basis	N/A
Clinical pathways of the most important chronic diseases encountered in PHC in Egypt	Discussion sessions after the clinics	Uploaded on LMS and a google form was prepared to evaluate understanding and comprehension
Face to face Training session "role play"	One session	N/A
Virtual training session "role play"	N/A	4 virtual training session were done via zoom meeting app
Discussion of important family medicine topics	Scientific day of the department held once per week	Webinar via Microsoft team and the links to the previous webinars uploaded on LMS
Daily online discussion of a clinical scenario	N/A	Posted daily on the discussion forum in Schoology

**Figure 2.** Overall grading of family medicine training.

isolation, they felt connected and supported by their trainers and mentors. Trainees including the hospitalized house officers who were diagnosed positive for COVID-19 were keen on completing the training sessions. From the trainee feedback, some stated *"I am so grateful for your efforts (all of you doctors) You gave us time, interest, and knowledge"*, *"I suggest more details about family medicine as a specialty"*. *"It was a very useful and interesting training"*, *"the online training was very professional, if clinics attendance is to be resumed later, it should be in hand with online activities"*

and some hoped for a longer family medicine training period. They hoped for training in the clinics very soon.

The e-learning tools such as Zoom and Microsoft Teams applications were user friendly as indicated by 89.7% and 66.2% of the participating trainees accordingly. Regarding the virtual training sessions, more than 84% of house officers were satisfied with scores of 4 and 5 on a 5-point scale (1 "extremely unsatisfied" and 5 "extremely satisfied"). While 82.6% recommended to offer the training for upcoming groups. Some house officers asked in their feedback to

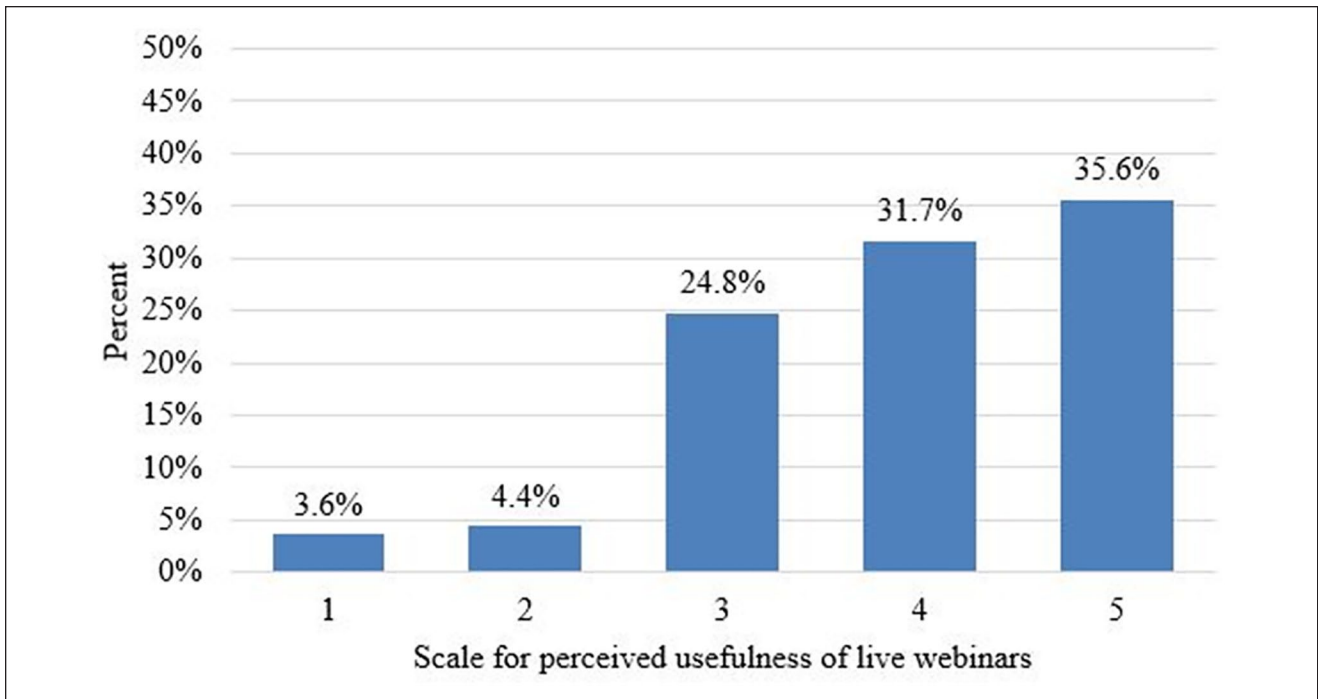


Figure 3. House officers' grading of the live webinars.

“increase sessions with more variety of topics and more cases and to increase the time of the session”, “Clinic visits after Zoom”, “To be group discussion is better than personal discussion”.

The live webinars were perceived as useful sessions by the house officers as shown in (Figure 3). It has many positive aspects as stated by house officers such as the chosen hot topics, the active discussions and shared ideas, the organization, and easy accessibility from home. However, some negative aspects were recorded such as unstable internet connection with few participants and the long duration of the webinar.

Most house officers found the case discussions on Schoology and the clinical pathways useful (about 75.5% and 77.3% respectively). One trainee stated that *“case discussions on Schoology are very beneficial”*. Others preferred it to be recorded lectures rather than PDF files.

Discussion

During COVID-19 pandemic, the adaptation of the house officer training has succeeded in having a student-centered training that fulfilled the training objectives without burdening the hospital-admitted and home-isolated house officers. This was evident from their feedback regarding the overall feedback on the family medicine training, where 84.6% graded it with scores 4 and 5 on a 5-point scale. In addition to their appreciation of the exerted effort in

adapting the training, they were grateful for the continuous support of their mentors as shown in their eagerness for attendance of the training sessions and webinar and their engagement in the daily discussions.

During designing our time-sensitive plan, the real challenge was not changing the mode of delivering family medicine training program for house officers from face to face to online, but to redesign the available instructional materials to be delivered online. And at the same time, integrate both synchronous and asynchronous modes of online training to improve house officers' higher cognitive skills, and transform all the house officers' support and mentorship activities from face to face to an online mode.

The main concern of the training team was to engage the house officers during obligatory home self-isolation and hospital stay. Social isolation is directly correlated with mental illness as mentioned by Lim et al,¹¹ and building a culture of care for physicians will have a positive impact on their mental and social health.¹²

Taking into consideration that the sudden change of role from a medical staff to a patient might lead to helplessness, frustration and adjustment issues as revealed by Rana et al.¹³ Therefore, most of our training program was delivered through synchronous mode to provide social involvement and continuous support for house officers to enhance their psychological well-being.

On the other hand, the adapted family medicine training program provided webinars addressing important topics in

family medicine practice (eg, depression and anxiety in primary care). It allows the house officers and staff to have an online live discussion. In this way, the lecturer can monitor responses of the attending house officers, and allow house officers-engagement, which gives the feeling of safety. Users are logging in from computers, smartphones, and tablets, which allow house officers engagement from any location including the hospitals. In addition, recording webinars allows uploading the videos on a cloud account accessible by all house officers for future review. We chose the topic of the first webinar to be depression and anxiety in primary care, to emphasize the importance of mental health in family medicine practice. Also, to make sure that the house officers recognize the signs and symptoms of depression and anxiety and to identify when to seek psychological help.

On the other hand, peer interaction was supported through online small-group discussions which were held with the assigned resident and through post-webinar discussions which allowed interaction with all the tutors and house officers from different cohorts. The WhatsApp groups were considered an important channel for communication. Three mentors were assigned to every 10 house officers to provide continuous support and monitor progress.

The current study found that most house officers were satisfied with the virtual training sessions on Zoom. A free application, the Zoom was used to overcome the limited resources, and tutor-simulation was adopted where the tutor plays the role of the patient. It was an important channel for mentor-house officers communication and for one-to-one feedback and reflection. This has motivated the training team to develop more cases in different aspects of family medicine practice and to start applying it at residency level, taking into consideration that poorly designed virtual training can promote negative feedback.

Another important concern was to ensure that the adapted training has fulfilled the required training objectives, especially that family medicine was not included in their undergraduate curriculum (it was introduced to first year students starting 2018). This was considered their last chance to be introduced to the family medicine specialty before starting their internship. Therefore, different training modalities were introduced to fulfil the objectives including the daily case discussions on Schoology and the clinical pathways, which were found to be informative as stated by the house officers (about 75.5% and 77.3% respectively). The case discussion helped the house officers integrate knowledge and highlighted the importance of integration of information obtained from the patient history, examination, and investigations to reach a diagnosis.

Communication with patients was a keystone skill in the training, and the current crisis emphasizes the importance of the holistic biopsychosocial approach adopted by family

medicine physicians. Our patients now—aside from their symptoms and complaints—suffer from multiple stressors and insecurities which need to be addressed as mentioned by de Sutter et al.¹⁰ This objective was fulfilled through the virtual training sessions, the daily discussions, and the webinar.

Conclusion

In conclusion, during COVID-19 pandemic, online adaptation of family medicine training was successful without burdening the sick house officers in this unusual situation. The house officers perceived the online adapted training to be beneficial and satisfactory. The different online training modalities could be used after COVID-19 pandemic in parallel with training in family medicine clinics.

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