

1 **Title:** Telemedicine Volunteering Experience as a Medical Student During the COVID-19 Pandemic in Brazil

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26 **Discussion Points:**

- 27 1. What is the role of telemedicine in a middle-income country during the pandemic?
- 28 2. Should medical students be enrolled in telemedicine volunteering?
- 29 3. What is the role of telemedicine in medical education?
- 30 4. What is the role of medical students during the pandemic?
- 31 5. Telemedicine is an alternative for medical students during the pandemic.

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1 **THE EXPERIENCE.**

2 The coronavirus disease 2019 (COVID-19) pandemic has strongly affected Brazil in many different aspects,
3 and the country is considered an epicenter of the new disease. With over 5.5 million confirmed cases and 160
4 thousand deaths by November 2020,¹ the country's healthcare system was oversaturated during the pandemic.
5 Since COVID-19 is a highly transmissible disease, to avoid its spread to society, many universities canceled in-
6 person classes for an indefinite period. To deal with both situations (healthcare system oversaturation and high
7 transmissibility of the virus), many Brazilian medical students enrolled themselves as volunteers in telemedicine
8 services across the country. Since we have wanted to do volunteer work but never had the chance to because
9 of a busy schedule in college, once we saw the invitation through social media, we immediately registered
10 ourselves as volunteers to help with the pandemic in Brazil.

11
12 As it is no longer restricted to assistance and solidarity, volunteering has acquired new characteristics and it
13 increasingly occupies spaces for training, education, culture promotion and professionalization.² In this sense,
14 medical students enrolled in telemedicine may enhance their clinical and communication skills in a period when
15 in-person clinical training is not possible to be carried out by many students.

16
17 Volunteerism is composed of people who perform social work that reaches areas which the Public Sector is
18 unable to cover effectively.³ The non-governmental organization Médecins Sans Frontières (MSF) announced
19 that Brazil was not testing adequately during the peak of the COVID-19 pandemic, with 7,500 tests per million
20 people.⁴ Thus, during a pandemic where the lack of available healthcare resources may pose risks to many
21 lives, telemedicine plays an essential role in relieving the country's overwhelmed healthcare system. Still
22 reported by the MSF, nearly 100 nurses were dying from the disease per month during the peak of the COVID-
23 19 pandemic in Brazil, being the fastest rate globally.⁴ Given that in-person contact helps spread the disease,
24 telemedicine can be a useful tool to avoid new infections since the attention may be provided without exposing
25 the health professionals and the patients to one another. Many medical decisions are purely cognitive, and
26 telemedicine can deal with less severe and non-life-threatening cases, following-up with patients and referring
27 them to more specialized health facilities if necessary.

28
29 In a nation of considerable size like Brazil, the different regions of the country may face different pandemic
30 phases. In this regard, since medical students or volunteer doctors do not have to leave their houses,
31 telemedicine is also a great strategy that promotes better allocation of health professionals for more distant
32 areas facing a worse pandemic phase and have fewer resources to cope with the health crisis. To date, more
33 than 15 thousand free telemedicine consultations have already been carried out in 135 different cities across
34 Brazil through the telemedicine service we are involved in.

35
36 In our experience, medical students are allocated to give telemedicine assistance. We screen patients according
37 to priorities, mainly symptoms and family and economic history. Then, we fill out the patients' medical records
38 and schedule appointments. Contact with patients is very interesting and, in general, they are very receptive,
39 grateful and friendly. The increased demand for this commitment during the pandemic can be an obstacle to
40 formal medical teaching in clinical scenarios, since attending physicians may not have enough time to explain
41 the cases to the students because they are busy with too many patients. Even though we have contact with

1 patients and their medical records, our performance is limited to medical screening and succinct history taking,
2 lacking more direct clinical experience together with the attending physician, which is an unfavorable point for
3 medical learning. Despite that, we can still practice our communication and history-taking skills and improve our
4 medical knowledge by studying the cases we had contact with, which leads to a worthwhile learning experience
5 in our medical studies.

6
7 Nevertheless, it is known that ill-prepared medical students added to the unfamiliarity with the latest guidelines
8 might pose a risk to the country's public health.⁵ Since telemedicine is a new tool for the majority of the students,
9 basal and continued training are essential to offer high-quality health services. On this matter, during our
10 volunteering experience, materials that guide how to access and deal with the virtual platforms were offered by
11 the project's staff. In addition, at the weekly meetings, those responsible for training explained in detail
12 everything that must be done to ensure patient care was satisfactory and effective. After a certain period of
13 working in the same role, volunteers receive new training to be prepared to assume new roles in the project.
14 With this, the experience becomes broader, allowing a comprehensive knowledge of the project's functioning.

15
16 Besides COVID-19 cases, our telemedicine volunteering experience also uses video calls to aid patients with
17 medical conditions across several medical fields, such as: pediatrics, obstetrics and gynecology, psychiatry,
18 dermatology, oncology, ophthalmology, allergology, cardiology, sports medicine, geriatrics, otorhinolaryngology
19 and other infectious diseases. However, we noticed a high prevalence of need for psychological assistance,
20 especially among the elderly. The reasons are diverse and often have a deep relationship with the current reality
21 of the pandemic, consisting of social isolation, fear and the possibility of seeing their relatives dying, which was
22 also mentioned in other telemedicine experience.⁶ COVID-19 has contributed to a significant increase in stress,
23 anxiety and depression rates worldwide.⁷ To combat this, online mental health services were widely
24 implemented in China during the outbreak to alleviate psychological distress,⁸ showing how important these
25 aids are during pandemic times.

26
27 We believe that telemedicine volunteering is an overall positive experience in medical training that helps to
28 attenuate the deficits from remote teaching. COVID-19 may change the way medicine is performed in many
29 different manners and it is important to train medical students so that the new generation of medical doctors are
30 capable of using technological support to manage unfavorable situations. Being part of telemedicine and helping
31 people receive high-quality and free health care also generates in us the feeling of gratitude for having the
32 chance of making an impact in people's lives during difficult times.

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