

# Telehealth in Education and Research in Primary Care in Pandemic: COVID-19 Case

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## Abstract

The use of electronic services through a wide range of communication platforms to provide knowledge in order to provide health to populations, in what is known as telehealth. This article shows scientific evidence of the merit of the use of telehealth in the education of health sciences students and in primary care research during the COVID-19 pandemic as central axes for the success of health control programs in the approach to this emerging disease, based on the review of scientific studies in digital format published up to May 2021 that met the inclusion criteria (originality, adequate conclusions and no duplication). The information found is organized into three sections to facilitate reading and understanding, namely: telehealth in the COVID-19 pandemic; preparation in primary care of health sciences students based on telehealth and COVID-19; and research in primary care in times of information and communication technology and the COVID-19 pandemic. Finally, as a product of the analysis, the authors provide conclusions.

## Keywords

Telehealth, Primary Health Care, COVID-19, Pandemic

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## 1. Introduction

Primary health care goes beyond being a simple health service or level of medical care, because it articulates health promotion, disease prevention and specific protection, which requires a family approach and clear social participation, based on universal coverage (for all equally) and the provision of services according to needs, in full recognition of the cultural diversity of the communities, and their capacity to empower the health programs that make up the State multisectoral health action, characteristics that can be substantially favored in pandemics, such as that caused by SARS-CoV-2. Telehealth refers to the use of electronic services (which mainly includes telecommunications), through a wide variety of platforms to bring, on the one hand, knowledge about primary care to students of health sciences and information about COVID-19 to the rest of the members of a community; and on the other hand, telehealth allows significant research in this area [1, 2].

Telehealth has its origins in the 1920s with the growing use of radio in patient care, a fact that is undergoing a major boost with the funding of research aimed at providing medical care to astronauts and the crew and passengers of commercial airlines. Later, its use is extended to underserved populations with difficult geographic access (indigenous groups and/or rural populations) or with legal impediments (prison population). Other aspects that contribute to the growth of telehealth are the flourishing and growing access to the Internet, the reduction of barriers imposed by transport and the impulse that citizen empowerment experiences, as well as the development of sophisti-

cated digital communication devices, and of course the growing demand for timely, easily accessible, time-saving and cost-effective healthcare, with the capacity to adapt to the collective needs of health promotion and disease prevention [3, 4].

In the world, with special emphasis on low-income countries, telehealth expansion has been slower than expected, mainly due to poor support from health systems and the lack of sustainable reimbursement models. With the arrival of the COVID-19 pandemic, the great opportunity to promote the use of telehealth (which includes telecommunications through a wide variety of platforms) in global health systems comes so well, health and prevention of this fearsome viral disease. This approach to telehealth has generated a reinforcement in health education and in research on the SARS-CoV-2 virus, since it is an emerging disease with a high capacity to spread between humans, without specific pharmacological treatment, except, and only recently vaccination, most countries resorted (many countries still have it) to segregation and social quarantine and distancing between peers, thus setting the stage for the relaunch of an accessible option, adapted to the reality of distancing as is telehealth [4, 5].

Under this global public health emergency framework, the multidisciplinary medical-scientific, clinical, pharmacological, educational field, was intercepted in the use of telehealth as a meeting point, to generate studies, research and educational alternatives (formal and non-formal). The objective of this writing, then, is to show evidence on the viability of telehealth or telemedicine as a tool in the education of students of health sciences and in research in primary care during the pandemic and in the promotion of health and prevention, to get sick from COVID-19 of the human collective.

## **2. Methods**

It is a descriptive research of a documentary review of scientific literature in electronic format on telehealth in education and research in primary care in a pandemic due to COVID-19 based on reflective analysis. For documentation, virtual databases (Bireme/OPS, Medline, PudMed, Scielo) were used based on descriptors or keywords, names of authors and theories or models. Likewise, documents repeated in search engines, as well as those without clear conclusions and without originality, were excluded. Articles published up to May 2021 were included. The information found was grouped into sections to facilitate reading and understanding: telehealth in the COVID-19 pandemic, preparation in primary care of health sciences students based on telehealth and COVID-19 and Research in primary care in times of information and communication technology and the COVID-19 pandemic. Finally, and as a contribution from the researchers, the conclusions are outlined.

## **3. Telehealth in the COVID-19 pandemic**

In COVID-19, telehealth constitutes a conscious and well-directed effort to avoid contagion, as a fundamental measure in the control of the transmission of this recently-appearing viral pathology. Its usefulness was particularly enhanced by the home confinement to which citizens of different nations were subjected, with the understanding that in public health, the common good prevails over the individual. In this sense, there are several examples of health institutions that responded quickly in primary care, (based on the first level of Leavell and Clark that makes mention of health promotion and specific prevention), established on the basis that the telehealth is a tool that substantially reduces the risk of exposure among the population and healthcare personnel, also allows healthcare providers who are COVID-19 positive (asymptomatic or with mild to moderate symptoms) to continue their contributions from home, In short, telehealth achieves the flattening of the viral transmission curve and the maintenance of the functional integrity of the health system [6, 7].

As the use of telemedicine in primary health care advances (as the basis in the hierarchical pyramidal conception of medical care), it is directed at large masses of individuals in an attempt to promote health and prevent disease. The satisfaction of social groups must be prioritized (reflected in interculturality, the difference is what defines them) and the profitability of the health care process, since with this tool the population groups and information providers agree to see each other when necessary and more convenient for them. Also, the general costs of health programs decrease substantially, whether they are those existing against pathologies other than COVID-19 or those recently created to address this viral disease. Likewise, the geographic location of the populations is no longer a limitation, as long as adequate electronic communication systems are available. This generates, that the limitations imposed by the physical spaces of health centers to offer primary care are also overcome, and also allows the coordinated inclusion of several specialists in the field, located in different geographical areas, where the clarification of doubts about the different aspects involved in the disease [8, 9].

The approach to the COVID-19 pandemic, which forces the rapid and massive confinement of large population

masses, is definitely supported by primary health care (as it is the first contact with the health system and is responsible for the process of integrating the entire spectrum health care) for being in charge of offering information on how to prevent disease and avoid death, which through telemedicine can guarantee the most equitable, coordinated, continuous and transversal distribution of the knowledge that communities require to take care of their health, that includes aspects as varied as the purely biological aspects of the virus and susceptible host, go through the emotional ones (mental health), even to include social problems, all of them on the based on the acceptance by social groups of telehealth interventions in primary care [10, 11].

#### **4. Preparation in primary care of health sciences students based on telehealth and COVID-19**

The training in primary care of health sciences students, has been influenced by the pandemic caused by SARS-CoV-2 because in a matter of weeks and months, universities had to adapt their curricular plans, to the telehealth communication tool, an option that has allowed them to participate actively and remotely (to prevent infections) in classes, which until recently were mostly face-to-face, and thus continue to maintain their training process. We believe this has been favored by the character of digital natives that is currently attributed to the new generations of students. Besides, there are reports of valuable suggestions about said process via telehealth that the students have carried out; In addition, this teaching technique allows those interested to learn from local and world experts about the different aspects that make up primary health care [12, 13].

With telehealth, collaborative learning is enhanced, as experts in primary care have worked together, as the understanding of the natural history of COVID-19 advances, in the best forms of intervention to avoid the transmission of SARS-CoV-2, spirit that students show in the different conferences that are transmitted to them by telehealth and through teaching formats of greater interaction (synchronous or asynchronous) such as workshops, round tables of discussions, forums, among others, which undoubtedly they result in a serious challenge for the virtual environment. Finally, among the limitations of primary care training for students in health sciences careers, the limitations to access and quality of transmission of technological platforms and the experience in their use of teachers and students stand out [14-16].

Telehealth, particularly in times of pandemic, has a prominent place in the training process in health sciences, it constitutes the ideal tool to show its curricular content in circumstances that highlight the true value of this aspect of health care. In this sense, the student learns that primary care allows the coordination, continuity and integration of health systems by promoting teamwork between specialists and general practitioners, and between different fields of medicine, it also encourages greater community participation in the care and administration of their health, all this from the comfort of their homes and without the risk of contagion, on the basis that digital education is as effective as traditional learning in the formation of communication skills, supporting the promotion of health. In general terms, it is a redesign or reinvention of primary care training just when it is most useful, in the midst of the COVID-19 pandemic, consequently students learn by doing [17, 18].

#### **5. Research in primary care in times of information and communication technology and the COVID-19 pandemic**

Health research in pandemics that force the restriction of social contact, such as that caused by COVID-19, is based, like others that do not have these measures to restrict free movement, on the collection and analysis of data, but focused on the digital exchange of information between researchers from different fields with an emphasis on epidemiological data (keys in the design of primary health care strategies), in order to determine the natural history of the disease, which includes, among other aspects, the life cycle of the pathogen, period of transmissibility, transmission routes, reservoirs and susceptible host, basic elements for the design of health programs that seek to control the pandemic [19, 20].

The COVID-19 pandemic forced the interruption of investigations in different fields and pathologies, due to difficulties in accessing the research centers and population under study. The researchers redirected their focus towards what can really be done during these types of situations, they saw the need to rely even more on information and communication technology, as well as specialized software to communicate results and request information on variables investigated by others pairs. However, in relation to COVID-19, remote studies are used to determine the effectiveness of primary health care measures in the control of the pandemic and the final assurance of quality of life, based on questionnaires and interviews, with the permission or consent of the participants, whose results are the real expression of what happens in the general population in relation to the proven health intervention [21, 22].

## 6. Conclusion

The COVID-19 pandemic has driven the already growing consensus of the incorporation of telehealth in primary care as a tool for the health authorities of a country to promote health and prevent the possibility of becoming ill from the SARS-CoV-2 virus, particularly since large sectors of the population and even entire populations were forced to confine themselves to their homes during the spread of the virus, that is, to isolate themselves socially. In this sense, telehealth allows sick and healthy people access to continuous, effective and timely healthcare, and only dependent on the quality and efficiency of telecommunications platforms or technological infrastructure and the capacity that individuals have to operate them. Then the appearance of COVID-19 constitutes a unique opportunity for the advancement and reinvention of primary care based on telehealth as a profitable and collaborative health intervention model, capable of substantially helping in the control of such a fearsome and unexpected pandemic.

The arrival of SARS-CoV-2 has revealed the viability and profitability of primary care training for health sciences students through telehealth based on the collaborative learning of students adequately trained in the use of technological communication tools. and with the participation of local, national and international professionals, in short, it is about taking advantage of technology and remote teaching techniques to show sufficiently and in real time the social objective (concept that gives rise to it) of primary care, this means, the achievement of the optimal level of health for the largest number of people in the community, since telehealth brings students and teachers closer together without the risk of contagion, thus allowing learning and evaluation, with a significant reduction in family monetary expenditure to the not having to move to university educational institutions.

The scarce existing research on the benefits and disadvantages of telehealth in times of pandemic is fundamentally based on preliminary findings, opinions and predictions, which highlight among the benefits of telehealth the provision of massive care that could not be delivered; better and greater access to care provision; optimizing the training of professionals in health sciences; improvements in the quality control and monitoring of primary health care; and the reduction of costs in education, research and health for the states, but among its disadvantages are the breakdown of the relationship between the community and the health professional, and the operational and bureaucratic difficulties, hence it can be assumed that with more and In-depth research clarifies the picture better, especially since primary and secondary research has been conducted in high-income countries.

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