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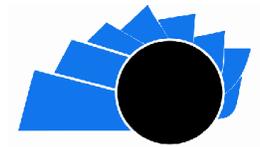
VISIÓN ELECTRÓNICA

A RESEARCH VISION

Barriers and challenges for the development of telehealth in Peru in the context of COVID-19

Barreras y desafíos para el desarrollo de la telesalud en el Perú en el contexto de la COVID-19

Walter H. Curioso-Vilchez [1], Lelis Gabriela Coronel-Chucos [2]

Abstract

The purpose of the article is to describe the main barriers and challenges for the development of telehealth in Peru. This article discusses the role of the digital ecosystem in Latin America, the digital transformation of the health sector and the access to telehealth services in Peru. The barriers and challenges are grouped into components such as: infrastructure, infostructure, regulatory framework, trained health personnel, data management and information security, and the administrative processes for telehealth in Peru. Telemedicine represents an efficient strategy to ensure the continuity of health services to the population in situations such as the current COVID-19 pandemic. It is important to promote telehealth in primary health-care centers, due to their important role in the patient flow management to be referred to a more complex center. In addition, to strengthening the training of human resources in telehealth and digital health is essential to promote the development of telehealth in Peru.

Keywords: COVID-19, digital health, medical informatics, Peru, telehealth, telemedicine.

[1] Physician, Universidad Peruana Cayetano Heredia. Master of Public Health, University of Washington, Seattle, USA. PhD in Biomedical Informatics, University of Washington, Seattle, USA. Current position: Universidad Continental, Peru. E-mail: wcurioso@continental.edu.pe ORCID: https://orcid.org/0000-0003-3789-7483

[2] Physician, Universidad Continental. Current position: Universidad Continental, Peru. E-mail: lelisgcoronel@gmail.com ORCID: https://orcid.org/0000-0002-7339-5635

Resumen

El objetivo del artículo es describir las principales barreras y desafíos para el desarrollo de la telesalud en el Perú. Se discute el rol del ecosistema digital en América Latina, la transformación digital en el sector salud, el acceso a la telesalud en el Perú. Las barreras y desafíos se agrupan en componentes tales como: infraestructura, infoestructura, marco normativo, personal de salud capacitado, tratamiento de datos y seguridad informática, y los procesos administrativos para la telesalud en el Perú. La telemedicina representa una estrategia eficiente para garantizar la continuidad de la prestación de servicios de salud a la población en situaciones como la actual pandemia por el COVID-19. Resulta importante impulsar la implementación de la telesalud en los establecimientos de salud que conforman el primer nivel de atención ya que juegan el rol importante en la gestión de pacientes para su referencia a establecimientos de mayor complejidad. Asimismo, fortalecer la formación de recursos humanos en telesalud y la salud digital resulta fundamental para impulsar el desarrollo de la telesalud en el Perú.

Palabras clave: COVID-19, salud digital, informática médica, Perú, telesalud, telemedicina.

1. Introduction

With the arrival of the COVID-19 pandemic, countries of the region have adopted several prevention and control measures including the suspension of face-to-face activities. Consequently, the use of media raised significatively and many daily activities were progressively virtualized. The situation was similar in the health sector, the telemedicine played an important role in allowing patients and healthcare professionals to stay in touch even when face-to-face consultations were not possible and allowed several important health services to continue operating regularly [1]. Countries of the region modified their regulatory framework to stimulate and promote telehealth as strategy to ensure health access in the context of mandatory social isolation, and Peru was no exception [2].

To contain the spread of the COVID-19, the Peruvian government established the mandatory social isolation since March 16, 2020, and the Ministry of Health announced the suspension of the outpatient consultations and elective surgeries and redeployed the health personnel to create health services and hospitals dedicated exclusively to COVID-19 assistance. In the

same way, and to preserve the care of patients with chronic diseases, it was sought to strengthen the scope of telehealth through the issuance of legislative decree 1490 [2].

It is important to specify that implementation of telehealth goes beyond the use and adoption of new technologies, it implies having the appropriate infrastructure, a regulatory framework, trained human resources, measures of personal data management and data protection [3,4]. The purpose of the article is to describe the main barriers and challenges for the development of telehealth in Peru.

1.1. Digital ecosystem in Latin America

Latin America and the Caribbean have a score of 49.925 in the Development Index of the Digital Ecosystem (CAF), that means a medium level of development compared to other regions. While Western Europe (71.06) and North America (80.85) have the highest score, regions as Africa (35.05) and Pacific Asia (49.16) had the highest growth rates between 2004 and 2018 reaching a growth rate of 8.27% and 9.39% respectively. On the other hand, Latin America and the Caribbean had a growth rate of only 6.21% [5]

In relation to the population with Internet access, in the Latin American region 52% of homes have internet access. However, this percentage varies greatly both between countries and within them; for 2019 Costa Rica (86%), Argentina (83%) and Brazil (80%) were the countries with the highest percentage of homes with Internet access, while Dominican Republic (26%), Salvador (24%) and Bolivia (23%) were the countries with the lowest percentage of homes with Internet access [6].

Peru in 2019 was ranked 9th in the region with only 36% of homes with internet access [6], however, for the third trimester of 2021, 55% of homes had Internet access [7]. This situation reveals the progress of the country for improving the population access to Internet services.

1.2. Digital transformation in health sector

Currently, information technologies represent new opportunities and challenges for the achievement of the 17 Sustainable Development Goals; for the health community, the strategic

and innovative use of information and communication technologies (ICT) represents an opportunity to achieve universal health coverage. [8]

Given the importance of including technology in health systems, The Pan American Health Organization (PAHO) established 8 principles for digital transformation of public healthm as following: universal connectivity, digital goods, inclusive digital health, interoperability, human rights, artificial intelligence, information security and public health architecture. [9]

In the context of the COVID-19 pandemic, the digitalization of health systems was promoted in several countries around the world. However, not all countries have the same availability of human resources and resources for a successful implementation. An example of this is that those countries with greater broadband infrastructure were able to cover the growing demand for Internet use without decreasing both fixed and mobile broadband speeds, which did occur in some Latin American countries [5,10].

Just as the digitalization of health systems has been promoted at the government level, during the COVID-19 pandemic there was also evidence of a growing interest in seeking telemedicine services by the general population. A study that assessed the search trends of Internet users in the 50 countries most affected by COVID-19 showed that during the start of the pandemic there was a significant increase in interest and demand for telehealth services [11].

2. Access to telehealth in Peru: barriers and challenges

To describe barriers and challenges for the development of telehealth in Peru, a bibliographic search was carried out in databases and repositories, including: SCOPUS, SciELO, PUBMED, ALICIA and LA Repositories during February 2022 using the key words in Spanish: "telesalud", "telemedicina" and Peru. In addition, a search using Google Scholar was conducted. The barriers and challenges are grouped into components as described below.

2.1. Infrastructure

It refers to the ICT platform and includes equipment in hardware, software, providers of technical and communication services, which together provide support for the informatics systems necessary for the development of telehealth [4]. With the urgent need to virtualize

several processes of daily life, the development of the technology has made great strides. Even though the cost of many devices is progressively decreasing, they can be still expensive for low- and middle-income countries [12].

In relation to Internet access, the difference between countries was previously mentioned. It is important to point out the existing gaps in Internet access between rural and urban population. In countries with greater Internet coverage, only 40-50% of rural population has Internet access; while in countries with lower coverage, on average, only 10% of rural population has Internet access.

Figure 1. Distribution of level I health establishments implemented to provide telehealth services according to departments in Peru.
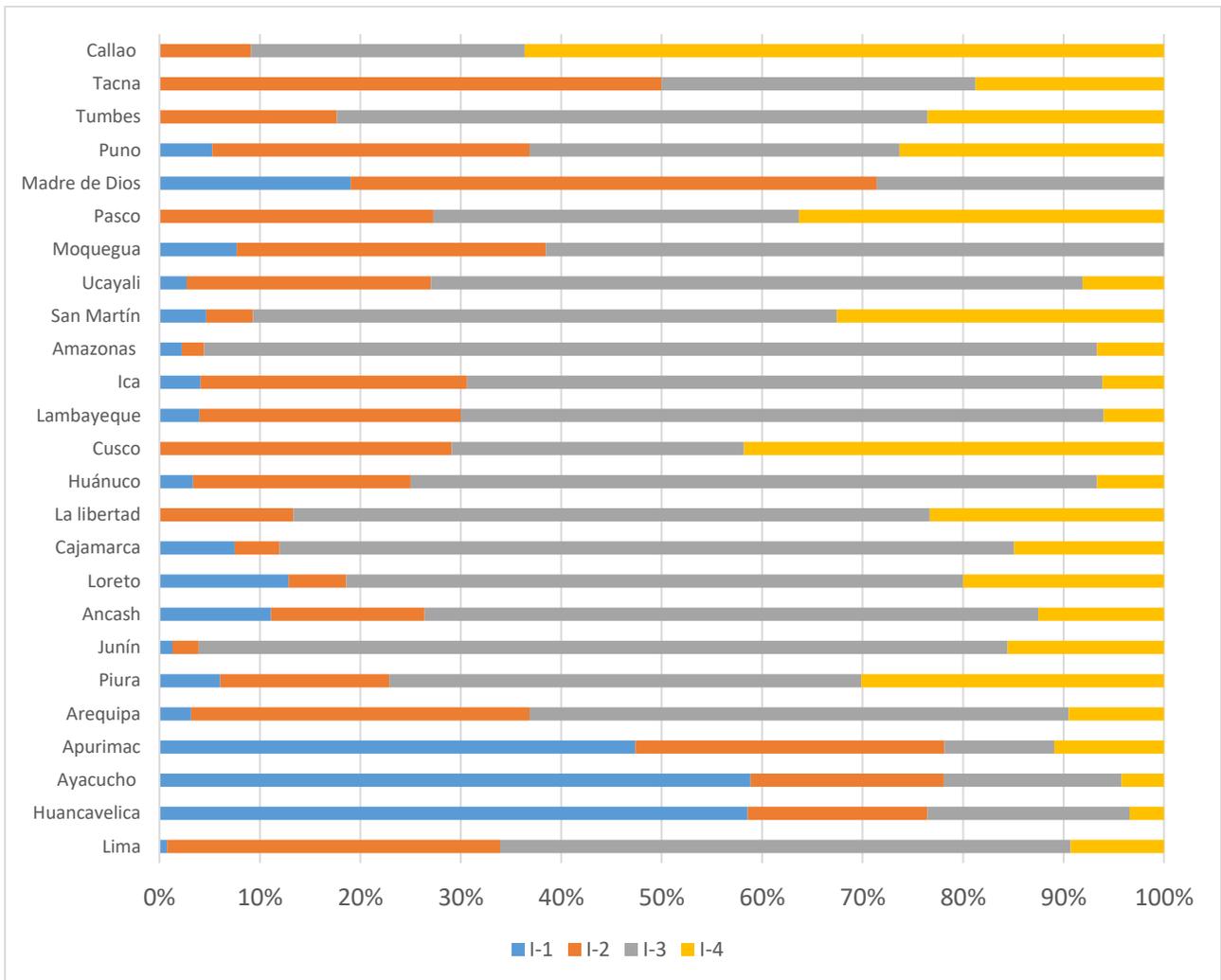
Source: Peruvian Ministry of Health [14]

Also, there is an important gap in Internet access according to socioeconomic level. In Latin America, population with the lowest income can be taken up to 10 times less access to Internet than population with the highest income. [10]

As mentioned, Peru had an increasing in the percentage of homes with Internet access; however only 20.7% of rural homes have Internet access [13], which represents an important barrier. In addition, in relation to the implementation of the Institutions Providing Health Services (IPRESS in Spanish), for November 2020, only 2341 of 21 973 health care providers [13] were into the National Telehealth Network of Peru [14]

In addition, the implementation of telehealth has been uneven. According to data of Ministry of Health, regions as Huancavelica, Apurimac and Ayacucho have prioritized the implementation of telehealth services in the primary care, implementing up to 154 level I-1 health establishments, while other regions did not implement any since they prioritized the implementation of IPRESS of greater resolution complexity.

2.2. Infoestructure

This component refers to the health information platform and constitutes the axis of interoperability between the services offered and the users [4]. For 2018, only 52.6% of countries in Latin America had an electronic health information system (HIS in Spanish). The main barriers identified for the implementation were: lack of financial resources, limited data associated with the effectiveness of telehealth programs and information on their costs [10,15]. Regarding the adoption of telehealth services, the main barriers are as following: technological; human and social; psycho-social and anthropological; governance and economical [16-17].

During the first half of 2020, at least 400 innovative digital solutions were developed in 18 Latin America countries aimed to manage the crisis and mitigate its impact on the health system. [18] In Peru, many innovative solutions were developed. In April 2020, the Ministry of Health (MINSA in Spanish) launched the web site of telemedicine "Teleatiendo" and the telephone line 113 to request consultation online that attended 5480 remote medical requests in its first two weeks [19]. It also presented the mobile application "Peru en tus manos" which, through the use of geolocation, allowed identifying areas with the highest probability of contagion in the country

[20]. Some regions of the country also developed mobile applications such as "CoronaISH" that allowed the monitoring of suspected cases of COVID-19. In collaboration with PAHO, MINSA developed the "ONCOpeds" that provides information on the early diagnosis of childhood cancer [21].

2.3. Regulatory framework

In Peru, the first regulatory document was issued in 2005 through the approval of Supreme Decree Nº 028-2005-MTC named "Plan Nacional de Telesalud" [22]. The Health Technical Standard for Telehealth, which sets the guidelines for the provision of these services, was approved four years after [23]. During the following years, telehealth services began to be slowly implemented, among the first services offered were telemammograms used for the breast cancer screening [24].

Later in 2016, Law Nº 30421 was approved to set the framework for telemedicine services [2], which impact was not substantial until the arrival of the COVID-19 pandemic, when many regulatory documents were approved [25].

Among the most important documents was the Legislative Decree Nº 1490 [2], which strengthens the scopes of telehealth in Peru and updates definitions of telehealth, telemedicine, teleconsultation, teleinterconsultation, teleorientation, telemonitoring and interoperability. [25]. In addition, given the need for personnel to provide telemedicine services, a directive that described the schedules of health personnel in telemedicine services was issued [26].

2.4. Trained health personnel

Since the start of the pandemic, at a national scale and gradually, different telemedicine services began to be implemented within the IPRESS: teleconsultation, teleinterconsultation, teleorientation, telemonitoring, among other; according to its resolution capacity and implementation [25]. The "Dirección General de Telesalud del Ministerio de Salud" established regulations, guidelines, and procedures necessary for the development of telemedicine, [9,25], however, there are still barriers for their optimal development in the primary care, considering the training for human resources as an essential component.

Thereby, the training for health personnel on the application of telehealth has not been homogeneous since it depended on the Health Networks (Redes de Salud in Spanish) at the regional level and their organization to communicate all the related documents such as protocols and guidelines, the organization system for scheduling appointment times and administrative procedures. Similarly, the demand for care by patients greatly exceeds the number of health personnel staff required to cover it.

The training of health professionals with knowledge in digital health and informatic tools is important in this context [27]. It is known that nurses represent the greatest proportion of all Peruvian health personnel, however, only one of four Peruvian universities offers courses related to health informatics in undergraduate programs in this profession; and there is an urgent need to strengthen nursing informatics competencies in Peru. [28].

An important point to assess is the perceptions and attitudes of health personnel to adopt new technological solutions such as telehealth and electronic medical records. Despite the resistance of some professionals, telehealth has been well accepted by professionals who provide care related to mental health. [29].

2.5. Data management and information security

Preserving confidentially and patient data privacy is an inherent feature of physician-patient relationship. Health personnel who provide telemedicine services must adhere to practices and regulations related to information security, as well as ensure that technological devices and equipment used by them have security protocols to prevent unauthorized access and to protect the integrity of patient information [30].

Although, cases of massive cyberattacks in the healthcare sector have not been reported in Peru, as occurred in other countries, we believe that is important to take into account that the low investment in informatic security can have severe consequences for patients and for the telehealth management system [30].

2.6. Administrative processes for telehealth in peru

For the development of teleinterconsultation (the exchange of information between health professionals), at least during the first two waves of the COVID-19 pandemic in Peru, it was necessary to fulfill three forms: the interconsultation form, the informed consent form, and complementary data from, which must be written by hand, and then scanned and sent by E-mail. The IPRESS that carry out the teleinterconsultation must have coordinated with the specialists and set the time of the teleinterconsultation. However, if the teleinterconsultation was accepted, the answer could be in hours, and may even not be answered due to connectivity problems or low healthcare staff availability.

This situation, on top of the low number of healthcare personnel assigned to teleconsultation in the reference hospitals and the limited or non-existent equipment and computer resources at many primary health care centers (IPRESS) in Peru, probably generated an increased number of unattended interconsultation requests [31].

3. Conclusions

Telemedicine represents an efficient strategy to ensure the continuity of health services to the population in situations such as the current COVID-19 pandemic when the social isolation was imposed in many countries. The correct and timely implementation of telehealth in Peru would not only reduce unnecessary medical visits, but also expand the coverage of specialized health services that were traditionally concentrated in medium and large urban cities. It is important to promote telehealth in primary health-care centers, due to their important role in the patient flow management and the referral and counter-referral systems. In addition, to strengthening the training of human resources in telehealth and digital health is essential to promote the development of telehealth in Peru.

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