ONLINE VERSION: ISSN 1028-4818
RPNS-1853

Multimed 2026; 30: e3351

Opinion piece

Scope of telemedicine intervention and its beneficial contribution to contemporary life

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ABSTRACT

Currently, telemedicine has moved beyond being an emergency measure to become a fundamental component of global public health systems. Its scope ranges from basic consultations to highly complex procedures, all supported and assisted by technology, with a positive impact on quality of life and, of course, on the sustainability of public services. In countries with complex geographies, such as those in South America, telemedicine overcomes territorial barriers, facilitating communication with isolated communities and upholding the principles of justice and equity.

Keywords:alternative medicine; Health; Telemedicine.

Received: 4/05/2026
Approved: 12/05/2026

ONLINE VERSION: ISSN 1028-4818
RPNS-1853

Introduction

Telemedicine has ceased to be a futuristic promise and has become an everyday tool, although it is not without its debates.The authors of this article believe that it is necessary to take full advantage of technological development in this field to comply with the principles of justice and equity that benefit the world's population.

To understand the scope and limitations of telemedicine in the current healthcare system, it is helpful to start with an operational definition. Lovo, (1) describes it as the symbiosis between medicine and technology made available to society, an alliance that unfolds a wide range of benefits in areas such as general medicine, nutrition, physical therapies, psychology, psychiatry, dermatology and, fundamentally, in primary and secondary interventions.

According to the aforementioned author, it constitutes a health intervention mechanism capable of radically reducing economic, time, and mobilization costs. Among the wide range of opportunities offered by this medium are specialized telemedicine and telemanagement, which encompasses telediagnosis (transmitting radiological images or electrocardiograms), and currently also includes telesurgery, telemonitoring, and teleconsultation.

The vision presented by Echeverría et al. (2) convincingly demonstrates the diverse areas in which telemedicine makes a direct contribution. a) In the storage, acquisition, concentration, and dissemination of knowledge, made available to various healthcare professionals for learning and consultation. This includes currently available mobile applications such as UpToDate, which is designed to support clinical decisions using evidence. b) In the provision of healthcare services, through thematic access to consultations, examination reports, laboratory studies, and images, among others. c) In scientific research focused on health diseases, which encompasses the search for and acquisition of information intended to refine the results obtained in various health interventions. d) In the collection and management of data such as medical histories or records.

On the other hand, Rossetti et al.'s (3) approach to the contributions of telemedicine focuses in accordance with the objectives proposed internationally by the United Nations in 2015 as

part of the 2030 Agenda for Sustainable Development, specifically, in goal three of health and well-being which promotes ensuring a healthy life and well-being for all at all ages.

These concepts are aligned with the contemporary stance of the World Health Organization (WHO), which recognizes the reach of digital technologies as a key driver of the Sustainable Development Goals, particularly in strengthening health systems in all countries. In this regard, information and communication technologies (ICTs) have significant potential to address some of the challenges faced by both developed and developing countries in providing accessible, high-quality, and cost-effective healthcare services. Telemedicine utilizes these technologies to overcome geographical barriers and increase access to healthcare services.

It is also essential to consider telemedicine from the patient's perspective, since this approach necessarily incorporates the ethical dimensions inherent in digitized medical practice.

Telemedicine facilitates home monitoring in virtual environments, substantially reduces healthcare costs, and significantly improves patients' quality of life. Furthermore, it enables the implementation of individualized treatment plans and promotes a more comprehensive approach to various conditions.

On the other hand, Royo-Sanchis argues that certain areas of mental health—including addictive behaviors, depression, pathological grief, sexual abuse, and other related disorders—can be addressed more effectively through telemedicine, since this resource encourages patients to express their experiences more freely and less inhibited than traditional face-to-face consultations.[4]

Based on this context, Llinás-Delgado, et al., (5) complement the wide range of approaches and benefits offered by telemedicine, pointing out that in contemporary life there is an added advantage for this type of intervention, which is based on the constant technological evolution that characterizes the 21st century.

Telemedicine decentralizes healthcare, which was previously concentrated in urban centers, and brings specialized care in various health fields to rural or hard-to-reach areas. Furthermore, it streamlines hospital medical intervention, as patients receive remote monitoring from their homes, reducing hospital-acquired infections and freeing up critical

resources for emergency situations. Another key aspect is the patient's active role in their treatment, as they become active managers of their own health through the use of mobile devices and applications.

Based on these structural concepts presented, the objective of this research proposal was to analyze the scope of telemedicine intervention and its contribution to the accessibility, quality and continuity of health services today.

Development

Telemedicine and its beneficial contribution to contemporary life

To delve deeper into the importance and impact that telemedicine has generated in the 21st century, it is essential to refer to Vila-Viñas and Picontó-Novales, (6) who address the confluence of citizens' rights, technology and telemedicine and face ethical and legal aspects, they present this scenario in the following way: technology acts as the vehicle, telemedicine as the service and rights as the framework that guarantees that human dignity is not lost with the digital intervention in health.

Within this frame of reference, it is noted that at the level ofIn the digital environment, health data collected is classified as sensitive data. It is essential to emphasize that patients have fundamental rights regarding their information, such as: a) Right to privacy: the use of electronic platforms must guarantee absolute confidentiality and zero interference from third parties to prevent data interception. b) Cybersecurity: it is essential that healthcare providers implement blocking protocols against leaks or discrimination related to insurers or employers. c) Right to be forgotten and access: patients must have access to their digital medical record and request its correction or deletion.

In the context of the current digital age and the phenomenon of globalization, Quilezi et al. (7) address the feedback loop between telemedicine and artificial intelligence, stating that the latter acts as a “brain machine” capable of processing information in real time, improving preventive rather than reactive medical interventions. Currently, through artificial intelligence integrated into telemedicine platforms, it is possible to analyze images such as X-rays or skin lesions with a high level of diagnostic accuracy, similar to that of a specialist.

Another cutting-edge advantage of telemedicine lies in the analysis of the patient's clinical and genetic history to propose pharmacological treatments and specific doses, along with an exploration of side effects and treatment efficacy.

In light of the above, it is necessary to mention that lThe technological evolution of healthcare administration has undergone a transformation that impacts medicine itself, evolving from a reactive and fragmented system to a proactive, integrated, and patient-centered one. This metamorphosis has not only generated improvements in the operational efficiency of institutions but has also redefined universal access to healthcare through telemedicine approaches.

Technology has optimized healthcare resource management in three critical areas: a) Big Data and Predictive Analytics: government management of large volumes of medical data facilitates the prediction of epidemiological outbreaks. b) Interoperability: technological advancements enable different systems (laboratories, pharmacies, specialists) to speak the same language, reducing bureaucratic burdens and allowing physicians to focus on the patient rather than the paperwork. c) Universal Electronic Health Record: digitization reduces medical errors, avoids duplicate tests, and ensures continuity of care.(8)

From the perspective of Barbosa-Ardila, et al., (9) there are specific areas where telemedicine has stood out for its value, for example: at the level of acute diseasesThere is a clinical trial that analyzed the safety of teleconsultation for children with special needs and children in daycare centers; the rate of successful completion was similar at 98.1% and 97.6%, considering adverse events, which were 0.3% and 0.5% respectively, which projected the effectiveness of this procedure.

Another area where telemedicine has had a visible impact is in the control of childhood obesity, a public health problem, where monitoring and nutritional re-education have proven highly effective. Similarly, the monitoring of heart disease has seen successful interventions: numerous studies reflect positive results obtained through videoconferencing. Besides,Camavilca-Ureta et al. (10) complement these contributions and indicate that telemedicine facilitates medical intervention in populations that were previously almost impossible to reach due to the difficulties of their conditions, such as people with terminal illnesses, disabilities such as physical, visual, and auditory impairments, as well as geriatric

populations. Another example of the impact that this health mechanism can generate is seen in completely neglected areas of South Africa, where it is currently one of the means to address healthcare deficits.

Additionally, its application in the treatment of people with diabetes is noteworthy. Finally, mental health services saw a significant increase in telehealth appointments during the COVID crisis, a period in which behavioral and mood disorders such as depression, melancholy, suicidal ideation, hopelessness, and anxiety were identified.

Despite its clear potential to overcome geographical barriers and promote health equity, the authors of this study note that there are several reasons why some governments do not use telemedicine to benefit their rural populations, including: the technological infrastructure gap, high initial costs and lack of investment, cultural resistance and lack of acceptance, the deficient legal and regulatory framework, lack of political will and prioritization, the shortage of trained personnel and, finally, the fear of technological obsolescence.

Conclusions

It is possible to conclude that telemedicine in the 21st century is a valuable resource for medical intervention. Together with technological advancements such as artificial intelligence, medical software, and monitoring and tracking devices, it allows for equitable and inclusive access for population groups that previously lacked access to these universally recognized rights. Finally, it is important to mention that, while not universal, some countries have updated ethical and safety protocols tailored to their specific needs, thus ensuring a suitable salutogenic approach through this mechanism.

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Conflicts of interest

No conflicts of interest are declared.

Authors' contributions

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