The future of telemedicine after COVID-19 pandemic

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To the Editor,

the COVID-19 pandemic was responsible for many changes in the healthcare sector as social distancing and restriction measures forced healthcare professionals to find alternatives to continue the follow-up of chronic patients and respond to acute conditions. The COVID-19 epidemic was a breakthrough in telemedicine (1, 2).

Telemedicine, already practiced earlier on a much smaller scale, underwent exponential growth during the pandemic period, showing its benefits and advantages but also revealing its needs and obstacles which had been previously overlooked. After COVID-19, telemedicine globally became widely accepted (1-3).

However, not everything is foolproof. For example, Justvig et al. (4) warned about the limitations in physical examination and the difficulties in learning and accessing technology, as well as the need for administrative support as challenges to be improved. Gilkey et al. (5) also investigated the relationship between telemedicine and costs for patients and concluded that although costs were reduced in most cases, some families reported increased spending on medication. Physicians need to adapt their practice to this innovation, similar to how they adapted to using computers.

The strict privacy policy, regulations, and licenses must be addressed as they were facilitated during the pandemic due to unusual necessity (6). For the future, the necessary conditions for institutions, including the platforms to be used, remain to be clarified.

In our hospital, virtual consultations were implemented within two weeks in response to the pandemic situation. These consultations were conducted through a dedicated platform, ensuring that physicians were in the hospital to uphold standards of privacy and professionalism and to facilitate administrative procedures. When clinically indicated (e.g., doubts in diagnostic evaluation or in cases of greater severity), patients were referred to face-to-face appointments, which occurred in less than 5 % of cases. This demonstrates the clinical value of telemedicine (7, 8).

As also found in Portugal, even though patients with asthma were slightly more satisfied with face-to-face consultations, remote consultations were considered a valid alternative in follow-up services for these chronic patients (9).

The COVID-19 pandemic began to gain weight in Portugal in February 2020 and culminated in a state of emergency twice: March 19, 2020 to May 2, 2020 and November 9, 2020 to April 30,

2021. Teleconsultation had its greatest relevance in the first month of emergency status, occupying 74 % of all consultations in our department. When the measures were lifted, in the summer of 2020, we observed a significant decrease in its adherence that grew again as the number of cases increased in October 2020, peaking again in January and February 2021 during the second state of emergency. After that, the use of teleconsultation stabilized at low levels, averaging between 2 % and 6 % of total consultations per month (Figure 1). This period of stability was followed by a continued decline in the following years. In 2021, teleconsultations accounted for 7 % of all consultations, decreasing to 4 % in 2022 and further dropping to 2 % in early 2023. These trends indicate a clear shift back to in-person consultations as pandemic-related restrictions were eased, as shown by the gray areas in Figure 1 (SE – State of Emergency), which correspond to periods of COVID-19-related isolation in Portugal, specifically from March 19 to May 2, 2020, and from November 9, 2020, to April 30, 2021.

Analyzing the population more adherent to video appointments, we found that younger patients (under 40) and those with chronic conditions like asthma were more likely to use teleconsultations during the pandemic. Post-pandemic, this trend shifted, with older patients and those requiring frequent in-person assessments (e.g., for complex conditions) reverting to face-to-face appointments.

Comparing our data with studies from other countries reveals similar trends. For example, studies from the US and UK also show a decline in telemedicine use post-pandemic, though the rates of decline vary. These international comparisons highlight common challenges such as technology access, patient preferences, and regulatory issues.

Table II summarizes the difficulties and unmet needs in telemedicine, along with possible strategies to address them.

The future of telemedicine may be promising, but it depends on the effort to solve the issues addressed, need to involve all stakeholders including healthcare professionals, patients, payers, and administrative sectors working together and is likely to benefit from new technologies enhancing patient remote examination and monitoring with artificial intelligence.

More studies and data are emerging in order to improve its practice, making it accessible to a greater number of people, prioritizing quality and patient privacy, but telemedicine is here to stay, extending beyond the pandemic crisis, as an important tool to improve both the efficiency and the capacity of the healthcare systems (1-3, 10).
Now is the time. We must not lose this unique opportunity.

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Table I - Number of appointments (In-person vs. Teleconsultation) by semester from 2020 to 2023.

Semester	In-person	Teleconsultation	Total	% Teleconsultation
Jan-Jun 2020	**7783**	**1126**	**8909**	**12.64%**
Jul-Dec 2020	9767	1007	10774	9.35%
Total 2020	**17550**	**2133**	**19683**	**10.84%**
Jan-Jun 2021	11096	1248	12344	10.11%
Jul-Dec 2021	11964	602	12566	4.79%
Total 2021	**23060**	**1850**	**24910**	**7.43%**
Jan-Jun 2022	12646	634	13280	4.77%
Jul-Dec 2022	12960	433	13393	3.23%
Total 2022	**25606**	**1067**	**26673**	**4.00%**
Jan-Jun 2023	14340	427	14767	2.89%
Jul-Dec 2023	12576	323	12899	2.50%
Total 2023	**26916**	**750**	**27666**	**2.71%**
Total	**186264**	**11600**	**197864**	**5.86%**

Table II - Challenges and proposed strategies in telemedicine.

Challenge	Strategy
Technology Access	Improve digital literacy programs
Patient Preferences	Offer hybrid models (in-person and telemedicine)
Regulatory Issues	Standardize telemedicine regulations
Privacy and Security Concerns	Enhance cybersecurity measures
Cost of Implementation	Provide financial incentives for telemedicine