

## Evolution of telehealth and its future in Pakistan

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Provision of health information, prevention, health care services, and monitoring of the patient by the health care provider through a technology-based virtual platform at the doorstep of the patient is termed as telehealth.<sup>1</sup> In 1959, the first telepsychiatry consultations were made between the Nebraska Psychiatric Institute in Omaha and the state mental hospitals.<sup>2</sup> Boom to this concept was observed with the emergence of internet access and digital devices. However, the worldwide development in telehealth has been steady and gradual in the last two decades, owing to the lack of sustainable health system models. The telehealth revolution was set in motion by the COVID-19 pandemic. The quarantine of patients required access to medical care, made possible by the virtual health care system, which eased the burden of disease on organizations and hospitals, as well as permitted health care providers with COVID-19 to stay at home **and contribute to patients' care when possible.**<sup>3</sup> With the provision of telehealth services in a local tertiary health care facility in Virginia, a greater than 5000% rise in virtual health services was observed within a fortnight of the epidemic<sup>4</sup>. This clearly depicts the twofold advantage of dealing with the epidemic while preserving the capacity of the healthcare system.

Telemedicine can be valuable to patients in inaccessible localities; this, in turn, reduces outpatient visits and benefit those with disabilities. It allows the health personals to witness evidence-based practices and deal with health data under the supervision of experts<sup>5</sup>. Yet, the full incorporation of telehealth into best practice has evident risks and obstacles. Physical examinations, diagnostic procedures, rehabilitation, and certain mental health treatments cannot be replaced by virtual health services<sup>6</sup>. Telehealth permits well-timed and adaptable care to patients anywhere they may be; though this is helpful for the patients yet, privacy, safety, and medical reimbursement are jeopardized. In a virtual meeting, it is difficult to ascertain the laws applicable in that context<sup>7</sup>. The cost of telecommunication services, data management equipment and technical training for medical personnel in these services are major hurdles in the implementation of telehealth services in large areas. In Pakistan, equitability is another issue as many individuals and communities lack not only access to the

internet but also the knowledge to operate electronic devices and, in many instances, the electronic gadget itself.

In Pakistan, the disproportionate delivery of healthcare personnel combined with the rapid increase in population has led to a persistent shortage of doctors. Health care service provision indicators show the availability of 0.8 doctors per 1000 residents.<sup>8</sup> This shows poor access to health care providers. The position gets worse with areas distant from the large cities. There is a dire need to develop a system of telehealth in Pakistan in order to promote the international slogan of health coverage for all. This will also help Pakistan to comply with principles of equity and equality in health care coverage too. With the emerging need to develop telehealth services in Pakistan, initiatives are taken at governmental and non-governmental levels. The development of the whole telehealth department in KEMU is one of the great examples of this initiative. But, according to WHO, Pakistan has no laws and regulations in place for telehealth services.<sup>8</sup> Need of the hour indicates that such laws and regulations should be made in lieu of the development of telehealth services too for effective implementation. India, Bangladesh, Kenya, and Uganda are examples of developing countries that have implemented telehealth services through various electronic applications for maternal and child care. Aga Khan University Hospital (AKUH) in Karachi has implemented Information technologies (IT) and mobile health (mHealth) services in a video-based educational intervention in post-stroke patients with great success.<sup>9,10</sup> Another example of implementation of mHealth in rural areas is a mobile-based audiovisual application, employed by lady health workers to supervise the Feeding program for children under two years of age for their mothers, which is another successful intervention.<sup>11</sup> Regardless of technical advances, the major obstacle hindering the progress and feasibility of telehealth is a deficiency of physical contact with patients and the inability to perform clinical examinations.<sup>12</sup>

Pakistan has recently opened a pathway for telehealth service provision. These services are introduced at a very primitive level and lack accessibility. Areas to be focused on a wider range of

population due to lack of awareness.<sup>13</sup> Although COVID-19 has boosted the telehealth system in Pakistan, there is a lack of a patient-centered, preventive, collaborative, and cost-effective model of care. A well-informed policy catering to both public and private health care systems, in collaboration with stakeholders, is vital to revive the outdated and overburdened health sector in Pakistan.<sup>3</sup> Moreover, there is a dire need to establish training facilities for health care providers engaged in the provision of telehealth services.<sup>14</sup> Such initiatives will enhance the progress of telehealth and promote the health care delivery system of Pakistan.

## REFERENCES

1. Tuckson RV, Edmunds M, Hodgkins ML. Telehealth. *New England Journal of Medicine*. 2017 Oct 19;377(16):1585-92.
2. Mahdi SS, Amenta F. Eighty years of CIRM. A journey of commitment and dedication in providing maritime medical assistance. *International Maritime Health*. 2016;67(4):187-95.
3. Mahdi SS, Allana R, Battineni G, Khalid T, Agha D, Khawaja M, et al. The promise of telemedicine in Pakistan: A systematic review. *Health Science Reports*. 2022 Mar; 5(1):e438.
4. Barsom E, Feenstra T, Bemelman W, Bonjer J, Schijven M. Coping with COVID-19: Scaling up virtual care to standard practice. *Nature Medicine*. 2020; 26(5):632-634.
5. Keck C, Doarn C. Telehealth technology applications in speech-language pathology. *Telemedicine and e-Health*. 2014; 20(7):653-659.
6. Dorsey ER, Topol EJ. State of telehealth. *New England Journal of Medicine*. 2016 Jul 14;375(2):154-61.
7. Mirmoeini SM, Marashi Shoostari SS, Battineni G, Amenta F, Tayebati SK. Policies and challenges on the distribution of specialists and subspecialists in rural areas of Iran. *Medicina*. 2019 Dec; 55(12):783.
8. Ahmed A, Ahmed M. The Telemedicine Landscape in Pakistan-Why are we falling behind. *Journal of Pakistan Medical Association*. 2018 Dec 1; 68(12):1820-2.
9. Iftikhar S, Saqib A, Sarwar MR, Sarfraz M, Arafat M, Shoaib QU. Capacity and willingness to use information technology for managing chronic diseases among patients: A cross-sectional study in Lahore, Pakistan. *PloS One*. 2019 Jan 10; 14(1):e0209654.
10. Kamal A, Khoja A, Usmani B, Magsi S, Malani A, Peera Z, et al. Effect of 5-minute movies shown via a mobile phone app on risk factors and mortality after stroke in a low-To middle-income country: Randomized controlled trial for the stroke caregiver dyad education intervention (Movles4Stroke). *JMIR mHealth and uHealth*. 2020 Jan 28; 8(1):e12113.
11. Akber S, Mahmood H, Fatima R, Wali A, Alam A, Sheraz SY, et al. Effectiveness of a mobile health intervention on infant and young child feeding among children ≤ 24 months of age in rural Islamabad over six months duration. *F1000Research*. 2019; 8.
12. Bradford N, Caffery L, Smith A. Telehealth services in rural and remote Australia: a systematic review of models of care and factors influencing success and sustainability. *Rural Remote Health*. 2016 Oct-Dec; 16 (4): 4268. RRH4268. 2016.
13. Ashfaq A, Memon SF, Zehra A, Barry S, Jawed H, Akhtar M, Kirmani W, Malik F, Khawaja AW, Barry H, Saiyid H. Knowledge and attitude regarding telemedicine among doctors in Karachi. *Cureus*. 2020 Feb 9; 12(2).
14. Ahmed W. Telehealth: Trend in Pakistan. *Journal of the College of Physicians and Surgeons Pakistan*. 2017 Oct 1;27(10):663-5.