

## **Expanding Access to Patient Care Services through Tele Health and Tele Nursing Applications in Modern Healthcare Systems**

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**Abstract:** The adoption of telehealth and telenursing within this arm of healthcare has dramatically changed its delivery and access. Telehealth and telenursing are essential in overcoming organizational problems and practitioner isolation. This study focuses heavily on telenursing and telehealth technologies, describing their enhanced integration into the healthcare system. This paper employs a qualitative method and leverages the perspectives of administrators, patients, nurses, and experts, conducting a survey among them. The case studies from various urban and rural areas highlight the constant and scalable combination of telehealth. Telehealth and telenursing are altering their context by placing control in the patient's opinion. It underscores the requirement of a solution to solve these infrastructural, ethical, and technological issues. Telehealth and telenursing are transforming healthcare organizations with the right digital technology, making patients feel more comfortable. It enables patients to connect with doctors and nurses via video calls, online appointments, and consultations.

**Keywords:** Telehealth, Telenursing, Patient Care, Digital Healthcare, Accessibility, Remote Monitoring, Healthcare Systems, Patient-Centered Care.

### **1. Introduction**

The transformation of the healthcare sector is primarily attributed to the rapid adoption of digital technologies and a shift in focus of services towards a more accessible and patient-centric approach. Telehealth is the delivery of clinical services and communication via information technology such as video calls, remote monitoring of patients, and mobile health systems. A subdivision of telehealth is telenursing, which is the practice of nursing from remote location. In this context, nursing is improved by the ability to streamline the nurse-patient relationship through furthering nurse patient education and post care, managing chronic illnesses, and providing emotional support (Bashshur et al., 2000). The combination of these improvements supports the principal aims of health care systems today which are to improve effectiveness while decreasing costs, enhance health care outcomes, and broaden access to health services (Weinstein et al., 2014).

Telehealth and telenursing are gaining popularity all over the globe because they help minimize disruptions and prioritize the safety of their services during the COVID-19 pandemic. Beyond the immediate reaction to the pandemic, however, these technologies will fundamentally change the future of healthcare delivery (Dinesen et al., 2016; Scott & Mars, 2015). They increase patient empowerment through enhanced self-care, participation, and even alleviated structural barriers. Even with the actionable attributes,

to guarantee sustainable integration, issues of digital competence, privacy, structural technology, and policy governance needs to be handled accordingly (Rutledge et al., 2014).

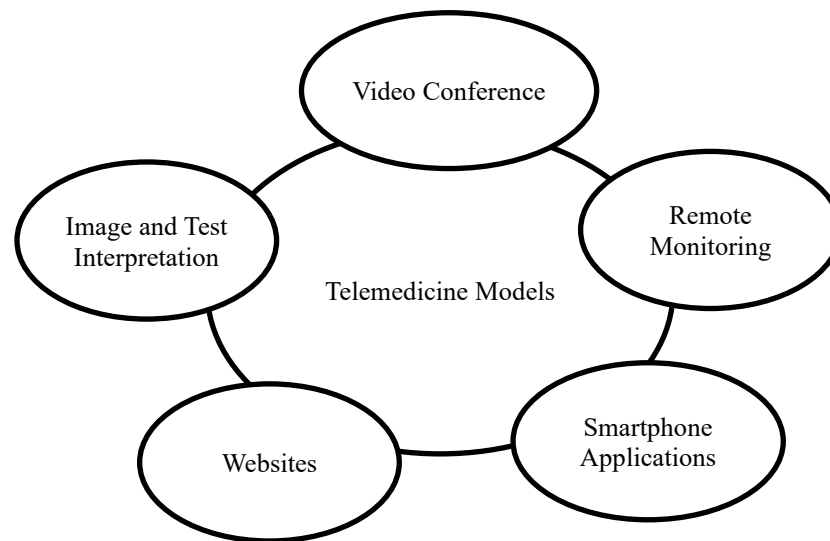


Figure 1: Telemedicine Model

Different classes of methods of supplying healthcare using digital technologies and their synergy in improving patient reach and treatment effectiveness are provided in figure 1 (Kern-Goldberger & Srinivas, 2020). Patient-level remote monitoring involves the tracking of vital signs and chronic diseases through connected devices, and video or cellular telephone patient contacts in real-time and mobile patient and specialist consultations during patient visits. Store-and-forward or real-time medical data transfer performs imaging and test analysis, aviating specialist feedback (Beheshti et al., 2022). Websites and mobile applications augment the patient's engagement and the providers' efficiency through patient education, medication reminders, and other tools as well as physician's orders. In addition, the ease of texting and patients' secure email accounts enables rapid asynchrone contacts about short messages or minor issues which obviates the need for a full consultation, greatly enhancing the efficiency of the healthcare system (Asbath et al., 2025).

## 2. Literature Review

By utilizing their unique observations at the bedside, nurses put in new strategies that result in better patient care (Mohammed & El-Sol, 2020). Newer technologies to support Information and communication have been adapted to the nursing profession at the level of the modern healthcare system (Mohandas et al., 2024; Al Baalharith et al., 2022).

A growing number of technologies are being utilized to deliver care, confer with patients or other experts, and deliver instruction or information across regional boundaries (Tirkey et al., 2020). Tele-nursing is an innovative technology that saves time and money. It has experienced rapid growth over the past few years and is expected to continue expanding (Wosik et al., 2020). It will be a great career choice for 21st-century nurses. Nurses must be vigilant in ensuring that they do not practice nursing outside of their

scope of practice (Mahoney, 2020; Fortney et al., 2011). Numerous evaluated studies have demonstrated the advantages of telenursing for both patients and nurses, as well as for additional nursing students across many nations (Wei & Johnson, 2024). Nurses who wish to work as tele nurses need to be optimistic, open-minded, knowledgeable, and able to utilize technology while recognizing its limitations (Prathiba et al., 2025). They ought to be capable of determining whether hospitalization and care plan modifications are necessary. There are issues with telenursing, such as clients and nurses finding it challenging to use technology due to a lack of guidance, education, and support (Sari et al., 2025).

Particularly in times of crisis, such as the COVID-19 pandemic, telemedicine significantly enhances patient access by utilizing digital technologies to deliver healthcare treatments remotely (Ezeamii et al., 2024; Unanah & Mbanugo, 2025). This systematic study examines the impact of telemedicine on patient outcomes, access to care, and its role in the evolving healthcare system (Kun, 2001; Hoffman, 2020). MeSH phrases and keywords were used to find pertinent research through manual reference list searches and electronic databases. The selected empirical studies examined telemedicine across various patient demographics, employing both quantitative and qualitative approaches (Bakhadirova, 2025). The evaluation grouped the findings into themes related to accessibility of care and patient outcomes. Telemedicine is one way to address chronic conditions, specifically diabetes, and is a game-changer resource for telemedicine. Demonstrating improved patient health outcomes with a significant reduction in expenses is a terrific telemedicine solution (Sharma et al., 2022). For instance, telehealth systems improve diabetes management by enhancing patient involvement and improving clinical metrics such as HbA1c levels (Abbott & Coenen, 2008; Tran & Ngoc, 2024).

Furthermore, these telemedicine services for diabetic foot disease (DFD) extend custom care to patients beyond geographic boundaries, resulting in better satisfaction and increased accessibility.

### **3. Proposed Methodology**

This study demonstrates the effectiveness of telenursing and telehealth digital technologies. It used quantitative and qualitative approaches to identify the benefits of digital technologies for organizations and patients. It describes the study results, patient experience, and synthesizes qualitative and quantitative systems. This research gather data from hospital documents, telenurse service and tehologies survey, healthcare sytem records and journals. This aligns thematically with clinical outcomes, accessibility of care, measures to enhance cost-effective care, and trends in the adoption of telehealth technologies. The impact of telehealth and telenurse services on the quality of patient care, patient satisfaction, hospital readmission rates, and satisfaction scores will be assessed using statistical, descriptive, and comparative methods.

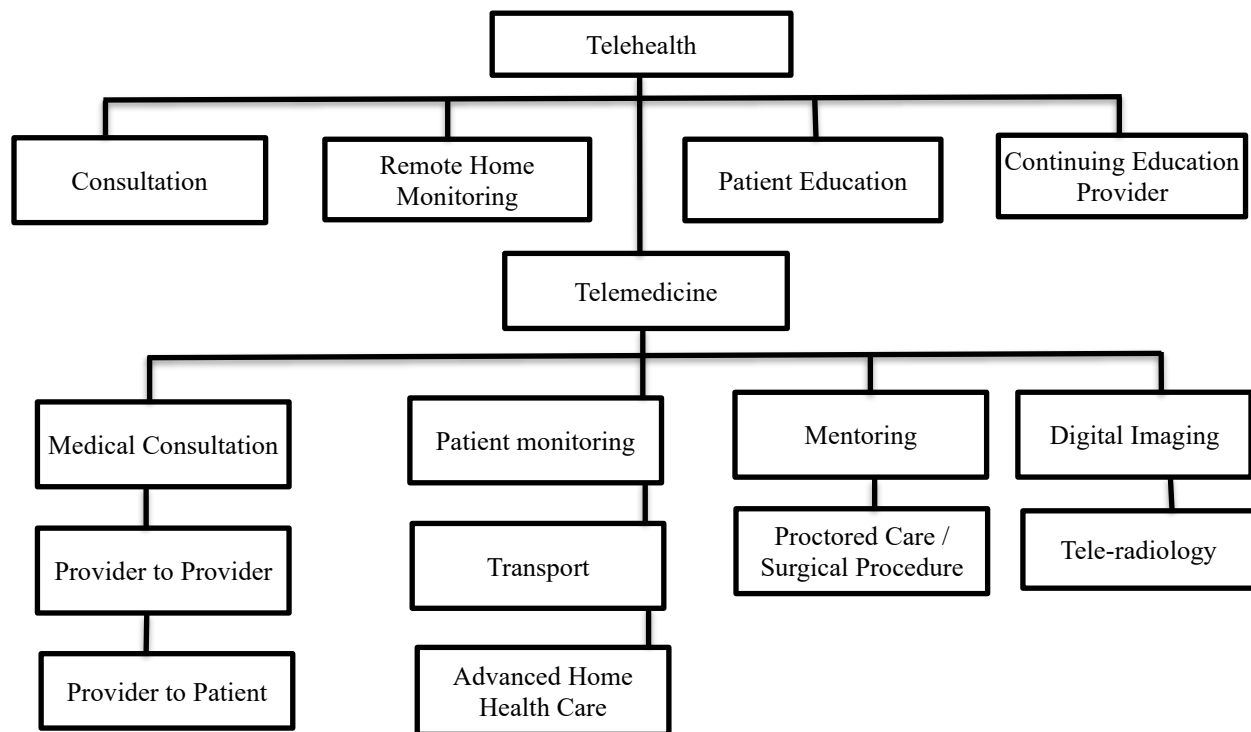


Figure 2: Diagram of Telehealth and Telemedicine

An example of telehealth is remote patient consultation, remote patient monitoring, telepatient education, patient e-learning, and clinician self-directed learning (Rutledge et al., 2017). Apart from the domains above, figure 2 also throws light on the telehealth domain of patient care. This includes digital imaging, remote patient monitoring, tele-sculpting, tele-mentorship, and tele-consultation.

To capture the thoughts of healthcare tele users and telehealth service users, the evaluators paired each practitioner (doctor, tele-surgeons, nurse, hospital administrator etc.) with patient interview. Evaluators also aimed to capture the users of telehealth services and the practitioners certifying the technologies' fielding and offerings of telehealth services. A thematic analysis of the provided constructs will be performed to realize organizational readiness, tech obstacles, and ethical boundaries.

To analyze particular instances of successful telehealth and telenursing undertakings within urban and rural healthcare systems, a case study methodology will be utilized.

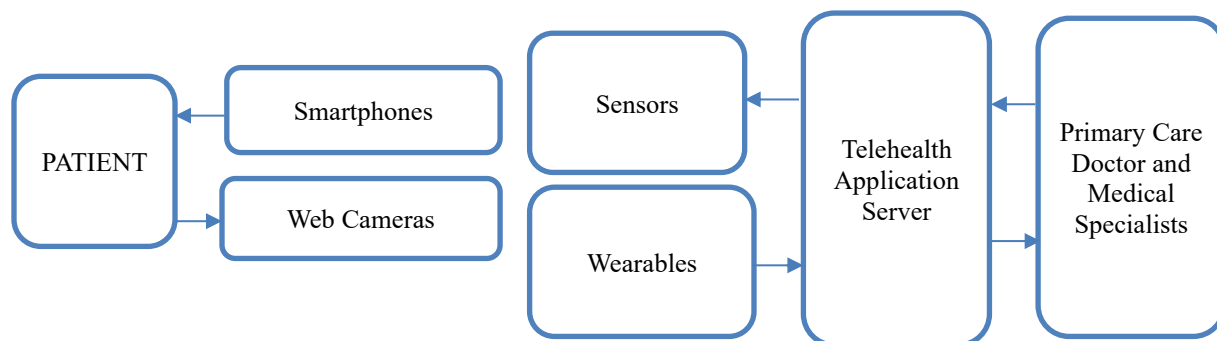


Figure 3: Telehealth Architecture

Figure 3 shows the telehealth technology's architecture, which includes the requirements of telehealth services and explains these technologies. This model features smartphones, webcams, and numerous sensors.

The case study method was employed to assess the effectiveness of telenursing and telehealth services in both urban and rural healthcare settings. It will examine a stable system that shows the healthcare framework with positive results. This study employed a triangulation approach to identify the data outcomes, gather data, and validate the reliability and validity. Informed consent accepts all members to participate in qualitative surveys, and ethical acceptance includes data protection compliance and confidentiality. This method understands the blocks and gaps of digital technology in the contemporary healthcare system and intends to enhance telehealth and telenursing access to the patient care system.

## 4. Result and Discussion

The use of telehealth services in hospitals worldwide has been steadily and significantly increasing, according to an examination of secondary quantitative data. The proportion of hospitals offering telehealth services increased gradually from 72.6% in 2018 to 86.9% in 2022, as shown in figure 4. Instead of being a short-term solution to emergencies like the COVID-19 epidemic, this pattern highlights the normalization of telemedicine as a mainstream healthcare delivery strategy. The dramatic increase from 78.3% to 85.1% between 2019 and 2020 demonstrates how outside forces accelerated the digital transformation of healthcare, while subsequent years show how these services have been steadily integrated into standard practice.

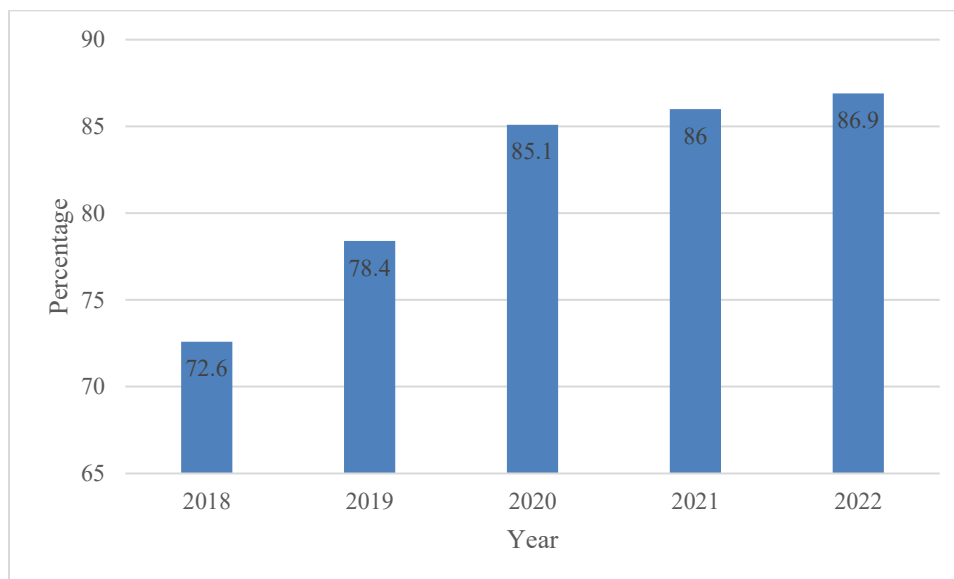


Figure 4: Hospitals Providing Telehealth Services from 2018 to 2022

By providing insights into actual user experiences and organizational issues, the qualitative findings give credence to these trends. According to medical professionals, telehealth has increased patient accessibility, particularly for individuals residing in rural and underserved areas. Physicians and nurses

emphasized how virtual consultations and remote monitoring decreased needless hospital stays and made resource allocation more effective. Patients mentioned obstacles such as digital literacy, connectivity issues, and privacy concerns, but they also reported satisfaction with the ease of virtual care.

Analysis of case studies also uncovered recommended practices for implementing telehealth successfully. To ensure smooth communication among patients, nurses, and doctors, urban hospitals have placed a strong emphasis on integrating telehealth architecture (as shown in figure 3) with cutting-edge electronic health records (EHRs). Telehealth services in rural areas were primarily focused on mobile-based consultation systems and remote home monitoring (as illustrated in figure 1), which were crucial for populations with limited physical access to medical facilities.

But there are still difficulties. To optimize the efficacy of telenursing, providers expressed concerns about data security, regulatory compliance, and the need for ongoing professional training. The digital gap was highlighted by patients in low-resource environments, who noted that a lack of access to cellphones, wearable technology, and reliable internet connections hindered their ability to utilize telehealth services effectively.

Overall, the findings demonstrate that telehealth and telenursing have become integral components of contemporary healthcare systems, resulting in improvements in patient satisfaction, accessibility, and efficiency.

## **5. Conclusion**

The results of the study confirm that telehealth services and telenursing are no longer adjunct to healthcare delivery; they are fundamental to it. Their sustained use has demonstrated that tech-enabled care is responsive to chronic system issues, rather than just reacting to an urgent situation like the Covid-19 pandemic. Telehealth has improved access in underserved areas, reduced unnecessary admissions, and bridged the gaps of inequity and geography in access to care. This has primarily been facilitated by telenursing, which strengthens the nurse-patient relationship in chronic illness by patient education, psychosocial support, and integration of curriculum.

While some of the aims are being achieved through mHealth applications, others, which concern the WHO health strategies such as universal health coverage, are not being accomplished. Equitable and just integration of telehealth still poses an ethical challenge. Digital Divide Disparities of adoption and use agents, all of which are failing to correct the divide. Moreover, digital processes and the continuous need for education are conditioned by the support of and adherence to the telenursing and telehealth domains. For all the above, there are barriers to the integration of telehealth and telenursing for gainful purposes.

## References

- [1] Abbott, P. A., & Coenen, A. (2008). Globalization and advances in information and communication technologies: The impact on nursing and health. *Nursing outlook*, 56(5), 238-246.  
<https://doi.org/10.1016/j.outlook.2008.06.009>
- [2] Al Baalharith, I., Al Sherim, M., Almutairi, S. H. G., & Albaqami, A. S. A. (2022). Telehealth and transformation of nursing care in Saudi Arabia: a systematic review. *International Journal of Telemedicine and Applications*, 2022(1), 8426095. <https://doi.org/10.1155/2022/8426095>
- [3] Asbath, A., Tanaka, K., & Nakamura, Y. (2025). Tele-nursing: the future of remote care for healthcare efficiency and accessibility. *Journal of World Future Medicine, Health and Nursing*, 3(1), 65-74.
- [4] Bakhadirova, M. (2025). Effectiveness of Tele-Dentistry in Managing Oral Health of the Elderly in Rural Areas. *Clinical Journal for Medicine, Health and Pharmacy*, 3(1), 14-19.
- [5] Bashshur, R. L., Reardon, T. G., & Shannon, G. W. (2000). Telemedicine: a new health care delivery system. *Annual review of public health*, 21(1), 613-637. <https://doi.org/10.1146/annurev.publhealth.21.1.613>
- [6] Beheshti, L., Kalankesh, L. R., Doshmangir, L., & Farahbakhsh, M. (2022). Telehealth in primary health care: a scoping review of the literature. *Perspectives in health information management*, 19(1).
- [7] Dinesen, B., Nonnecke, B., Lindeman, D., Toft, E., Kidholm, K., Jethwani, K., ... & Nesbitt, T. (2016). Personalized telehealth in the future: a global research agenda. *Journal of medical Internet research*, 18(3), e53. <https://doi.org/10.2196/jmir.5257>
- [8] Ezeamii, V. C., Okobi, O. E., Wambai-Sani, H., Perera, G. S., Zaynieva, S., Okonkwo, C. C., ... & Obiefuna, N. G. (2024). Revolutionizing healthcare: how telemedicine is improving patient outcomes and expanding access to care. *Cureus*, 16(7). <https://doi.org/10.7759/cureus.63881>
- [9] Fortney, J. C., Burgess Jr, J. F., Bosworth, H. B., Booth, B. M., & Kaboli, P. J. (2011). A re-conceptualization of access for 21st century healthcare. *Journal of general internal medicine*, 26(Suppl 2), 639. <https://doi.org/10.1007/s11606-011-1806-6>
- [10] Hoffman, D. A. (2020). Increasing access to care: telehealth during COVID-19. *Journal of Law and the Biosciences*, 7(1), Isaa043. <https://doi.org/10.1093/jlb/Isaa043>
- [11] Kern-Goldberger, A. R., & Srinivas, S. K. (2020). Telemedicine in obstetrics. *Clinics in perinatology*, 47(4), 743-757. <https://doi.org/10.1016/j.clp.2020.08.007>
- [12] Kun, L. G. (2001). Telehealth and the global health network in the 21st century. From homecare to public health informatics. *Computer methods and programs in biomedicine*, 64(3), 155-167. [https://doi.org/10.1016/S0169-2607\(00\)00135-8](https://doi.org/10.1016/S0169-2607(00)00135-8)
- [13] Mahoney, M. F. (2020). Telehealth, telemedicine, and related technologic platforms: current practice and response to the COVID-19 pandemic. *Journal of Wound Ostomy & Continence Nursing*, 47(5), 439-444. <https://doi.org/10.1097/WON.0000000000000694>
- [14] Mohammed, H. M., & El-Sol, A. E. S. H. (2020). Tele-nursing: Opportunities for nurses to shape their profession's future. *International journal of novel research in healthcare and nursing*, 7(3), 660-676.
- [15] Mohandas, R., Veena, S., Kirubasri, G., Mary, I. T. B., & Udayakumar, R. (2024). Federated learning with homomorphic encryption for ensuring privacy in medical data. *Indian Journal of Information Sources and Services*, 14(2), 17-23. <https://doi.org/10.51983/ijiss-2024.14.2.03>

- [16] Prathiba, P. M., Umar, M., Siji, C., Rathore, M. I., Geetha, P. A., Karfe, K., & Suhashini, D. N. (2025). Optimizing healthcare outcomes and broadening nursing capabilities in digital era: telemedicine transformative impact. *Int J Res Med Sci*, 13(4), 1628.
- [17] Rutledge, C. M., Haney, T., Bordelon, M., Renaud, M., & Fowler, C. (2014). Telehealth: preparing advanced practice nurses to address healthcare needs in rural and underserved populations. *International journal of nursing education scholarship*, 11(1), 1-9.
- [18] Rutledge, C. M., Kott, K., Schweickert, P. A., Poston, R., Fowler, C., & Haney, T. S. (2017). Telehealth and eHealth in nurse practitioner training: current perspectives. *Advances in medical education and practice*, 399-409. <https://doi.org/10.2147/AMEP.S116071>
- [19] Sari, P. K., Trianasari, N., & Prasetyo, A. (2025). Investigating the Main Factors Affecting Healthcare Workers' Information Security Behaviors: An Empirical Study in Indonesia. *J. Internet Serv. Inf. Secur.*, 15(1), 1-15. <https://doi.org/10.58346/JISIS.2025.I1.001>
- [20] Scott, R. E., & Mars, M. (2015). Telehealth in the developing world: current status and future prospects. *Smart Homecare Technology and TeleHealth*, 25-37. <https://doi.org/10.2147/SHTT.S75184>
- [21] Sharma, A., Pruthi, M., & Sageena, G. (2022). Adoption of telehealth technologies: an approach to improving healthcare system. *Translational medicine communications*, 7(1), 20. <https://doi.org/10.1186/s41231-022-00125-5>
- [22] Tirkey, S., Mishra, D., & Mahalik, D. K. (2020). A study on 'Why outsourcing in health care' by Friedman two-way analysis of variance method. *International Academic Journal of Organizational Behavior and Human Resource Management*, 7(1), 01-08.
- [23] Tran, H., & Ngoc, D. (2024). The Influence of Effective Management on Hybrid Work Styles and Employee Wellness in Healthcare Organizations. *Global Perspectives in Management*, 2(4), 8-14. <https://doi.org/10.66027/GPIM/V2I4/GPM24402>
- [24] Unanah, O. V., & Mbanugo, O. J. (2025). Telemedicine and mobile health imaging technologies: Business models for expanding US Healthcare Access. *Int J Sci Res Arch*, 14(2), 470-489. <https://doi.org/10.30574/ijrsra.2025.14.2.0398>
- [25] Wei, L., & Johnson, S. (2024). Standardized Terminology for Symptom Reporting in Telemedicine Consultations. *Global Journal of Medical Terminology Research and Informatics*, 2(2), 14-17.
- [26] Weinstein, R. S., Lopez, A. M., Joseph, B. A., Erps, K. A., Holcomb, M., Barker, G. P., & Krupinski, E. A. (2014). Telemedicine, telehealth, and mobile health applications that work: opportunities and barriers. *The American journal of medicine*, 127(3), 183-187. <https://doi.org/10.1016/j.amjmed.2013.09.032>
- [27] Wosik, J., Fudim, M., Cameron, B., Gellad, Z. F., Cho, A., Phinney, D., ... & Tchong, J. (2020). Telehealth transformation: COVID-19 and the rise of virtual care. *Journal of the American Medical Informatics Association*, 27(6), 957-962. <https://doi.org/10.1093/jamia/ocaa067>