



Challenges of Tele-Nursing in Iran with a Focus on Health System Functions: Providing Suggestions for Improvement

Reza Abdollahi^{ID}

Patient Safety Research Center, Clinical Research Institute, Nursing & Midwifery School, Urmia University of Medical Sciences, Urmia, Iran

*Corresponding Author: Reza Abdollahi, Email: rezaabdollahi97@yahoo.com

Citation: Abdollahi R. Challenges of tele-nursing in iran with a focus on health system functions: providing suggestions for improvement. Journal of Kerman University of Medical Sciences 2026;33:4357. doi:10.34172/jkmu.4357

Received: November 28, 2025, **Accepted:** December 16, 2025, **ePublished:** June 16, 2026

Dear Editor,

Tele-nursing, defined as the delivery of nursing care and consultation through information and communication technologies, has emerged globally as a powerful tool to improve access, reduce costs, and enhance continuity of care, especially in geographically dispersed or resource-limited settings. According to the World Health Organization (WHO) 2023 report, only 50% of low- and middle-income countries have a national telemedicine policy, and tele-nursing coverage remains below 20% in most of them (1). In Iran, despite having a young and tech-savvy population, tele-nursing adoption lags far behind high-income countries where adoption rates exceed 70%, such as in nations like South Korea and Estonia (2).

The magnitude of the problem is significant: Iran has a nurse-to-population ratio of only 1.8 per 1,000 (WHO recommends ≥ 3.5), and 30% of the population lives in rural or deprived areas with limited physical access to healthcare facilities. The COVID-19 pandemic dramatically highlighted the potential of tele-nursing, yet post-pandemic momentum has been lost due to systemic barriers. This study is necessary to systematically identify these barriers across all health system building blocks and propose evidence-based, feasible solutions. The practical aim is to provide policymakers, nursing leaders, and international donors with an actionable roadmap to accelerate tele-nursing implementation in Iran by 2030, ultimately improving equity and quality of care for millions of underserved Iranians.

Challenges of Tele-Nursing in Iran

The absence of a cohesive national policy framework for tele-nursing in Iran creates significant barriers to its adoption. Health system managers, often with short tenures averaging 2–3 years, prioritize short-term projects over long-term investments like tele-nursing, which may

require 5–10 years to demonstrate cost-effectiveness. For example, a pilot tele-nursing project conducted in Tehran in 2022 was discontinued due to changes in leadership, illustrating the impact of inconsistent policymaking. The lack of a centralized authority for tele-nursing results in fragmented initiatives, with organizations like the Ministry of Health and private hospitals operating independently, leading to duplicated efforts and inefficient resource use. Furthermore, expert input is underutilized, as nurses and IT specialists are rarely involved in policy development, limiting innovation (3).

Iran's telecommunication infrastructure is a critical bottleneck for tele-nursing. As of 2023, only 60% of rural areas in Iran had access to high-speed internet, with average speeds of 10 Mbps compared to the global average of 40 Mbps required for reliable video-based consultations. This limits tele-nursing to text- or audio-based services, reducing diagnostic accuracy (Table 1). Legal restrictions prevent the use of international software platforms like Zoom due to data privacy concerns, and domestic software lacks advanced functionalities, such as real-time data integration or secure cloud storage. The shortage of IT specialists, with only 1.2 professionals per 1,000 healthcare workers, exacerbates the challenge of managing clinical data. Additionally, the lack of integration of patient data into electronic health records (EHRs) increases the risk of errors, as seen in a study conducted in 2022 where 30% of tele-nursing consultations in Isfahan resulted in misdiagnoses due to incomplete patient records (4).

Cultural resistance among healthcare providers and patients is hindering the adoption of tele-nursing. A survey conducted in 2023 with 500 Iranian nurses revealed that 65% of them were concerned about the risks of misdiagnosis in tele-nursing due to the inability to perform physical examinations, and 40% feared job displacement. Patients, especially those in rural and religious communities,



have privacy concerns. In a focus group in 2024, 70% of respondents expressed discomfort with sharing medical information online. Low digital literacy is another obstacle to adoption. Only 45% of Iranians over the age of 50 are proficient in using digital health platforms. Additionally, nursing education in Iran lacks tele-nursing-specific curricula, with only 10% of nursing programs offering digital health training. This leaves nurses unprepared for delivering remote care. Recruitment challenges persist in Iran, as the country is facing a nursing shortage. The nurse-to-population ratio in Iran is 1.8 per 1,000, compared to the global average of 3.5 (5).

Legal frameworks in Iran are not aligned with the requirements of tele-nursing. For instance, the absence of regulations for electronic signatures prevents the use of e-prescriptions, forcing reliance on paper-based systems. A case in Shiraz in 2023 highlighted this issue when a tele-nursing service was sued for unauthorized prescription practices, underscoring unclear professional accountability. The licensing process for tele-nursing platforms is protracted, often taking 12–18 months, deterring providers from entering the market. Additionally, the lack of authentication mechanisms for verifying service providers and patients increases the risk of fraud, eroding trust. For example, a data breach in a tele-nursing app in 2022 exposed sensitive patient information, leading to public backlash. Economic barriers significantly impede tele-nursing in Iran, particularly in resource-constrained settings. The initial setup cost for tele-nursing infrastructure, including hardware and software, is estimated at \$500,000–\$1 million per hospital, a significant burden for Iran’s public health sector. Ambiguity in reimbursement policies further complicates adoption. For instance, only 20% of tele-nursing services are covered by insurance, leaving patients in deprived areas, where 30% of Iran’s population resides, unable to afford care. A pilot study conducted in Kerman province in 2022 failed due to insufficient funding and unclear tariff structures, highlighting the economic challenges (6).

Solutions for Tele-Nursing Challenges

To address policy weaknesses, Iran must establish a national tele-nursing task force consisting of nurses, IT experts, policymakers, and patient representatives. This task force will create a 5-year roadmap for integrating tele-

nursing. The roadmap should include economic feasibility studies, such as cost-benefit analyses of tele-nursing in rural areas, and set clear milestones, such as achieving 50% EHR integration by 2028. Engaging stakeholders through public forums and involving nurses in policy decisions can enhance trust and coordination, as seen in successful telemedicine programs in Turkey (7).

Investing in infrastructure is crucial. The government should allocate \$100 million annually to enhance internet connectivity in rural areas, aiming for 80% coverage by 2027. Public-private partnerships (PPPs) can expedite this process. For instance, a PPP in Mashhad in 2023 effectively implemented teleconsultation kiosks in 10 clinics. Creating secure, domestically produced tele-nursing software with EHR integration and real-time analytics can help tackle legal and functionality concerns. Training 1,000 IT specialists each year through government-funded programs can also help alleviate the shortage of skilled personnel (8).

To overcome cultural resistance, Iran should launch a nationwide digital literacy campaign targeting both healthcare providers and patients. For instance, a pilot program in Tabriz in 2023 trained 200 nurses in tele-nursing skills, leading to a 25% increase in service uptake. Integrating tele-nursing modules into nursing curricula, with an emphasis on remote diagnostics and patient communication, can prepare future nurses. Public awareness campaigns, including TV and social media ads addressing privacy concerns, can help build trust, especially in conservative communities (9).

Legislative reforms should prioritize the creation of a legal framework for electronic signatures and accountability in tele-nursing, drawing on models such as the EU’s eHealth regulations. Streamlining the licensing process to 3-6 months can encourage provider participation. Economically, the government should subsidize tele-nursing setup costs for public hospitals and establish clear reimbursement tariffs, covering at least 50% of services by 2026. A successful example is a pilot study conducted in 2023 in Yazd, where subsidized tele-nursing services increased access by 40% in underserved areas (10).

The researcher’s concrete proposals for improvement are as follows:

- 1. Establish a National Tele-Nursing Task Force (2025–2030) with mandated nurse and patient representation.
- 2. Allocate at least US\$100 million per year for rural

Table 1. Summary of Challenges and Proposed Corrective Actions

Domain	Main Challenges	Proposed Solutions (2025–2030)	Expected Outcome by 2030
Governance & Policy	No national framework, short managerial tenure, fragmented initiatives	Create National Tele-Nursing Task Force & 5-year roadmap with milestones	Unified policy, sustained political support
Infrastructure	60% rural high-speed internet coverage, slow domestic platforms	\$100 million/year investment + PPPs; develop integrated national platform	≥80% rural coverage, reliable video consult
Human Resources & Education	Low digital literacy, absence of tele-nursing curricula, nursing shortage	Mandatory tele-nursing modules in all nursing schools; train 5,000 nurses & 2,000 IT specialists	Competent workforce, reduced resistance
Legal & Regulatory	No e-signature law, unclear accountability, lengthy licensing, fraud risk	New legislation within 18 months; licensing ≤6 months; mandatory authentication systems	Legal certainty, increased provider entry
Financing & Economic	High setup costs (\$0.5–1 M/hospital), only 20% insurance coverage	Subsidized setup for public hospitals; insurance coverage ≥70%; clear tariff structure	Financial viability, equity for deprived areas
Socio-cultural	Provider fear of misdiagnosis/job loss; patient privacy concerns	Nationwide digital literacy & awareness campaigns; community champion programs	≥70% acceptance among providers & patients

3. broadband and secure domestic tele-nursing platforms.
3. Mandate the integration of tele-nursing modules in all nursing curricula starting in 2026.
4. Implement a legislative package within 18 months that enables electronic signatures, establishes clear professional accountability, and expedites licensing within 3-6 months.
5. Ensure progressive insurance coverage for $\geq 70\%$ of tele-nursing services by 2028, with full subsidies for underserved areas.

If implemented collaboratively, these measures will directly benefit patients (improved access and reduced travel costs), nurses (new professional roles and reduced burnout), and the health system (long-term cost containment). Iran can leapfrog from its current tele-nursing penetration of less than 10% to over 50% by 2030, aligning with the WHO recommendations and regional leaders such as Turkey and the United Arab Emirates (1).

Conclusion

Tele-nursing in Iran is hindered by policy fragmentation, insufficient infrastructure, cultural and educational gaps, underdeveloped legal frameworks, and economic barriers.

Competing Interests

The authors declare no conflict of interest.

Data Availability Statement

Not applicable.

Ethical Approval

Not applicable.

Funding

This article received no financial support.

References

1. Utami A, Achour N, Pascale F. Evaluating telemedicine for

- chronic disease management in low-and middle-income countries during corona virus disease 2019 (COVID-19). *Hospitals* 2025;2(2):9. doi:10.3390/hospitals2020009
2. Wahyuni Y, Komariah M, Somantri I. Application of telenursing as a nursing care delivery model in improving treatment adherence and glycemic control: a scoping review. *Jurnal Keperawatan Padjadjaran* 2023;11(3):236-44. doi:10.24198/jkp.v11i3.2114
3. Fathizadeh Dehkordi P, Heidari H, Masoudi R, Sedehi M, Khajeali F. Telenursing strategies in Iran: a narrative literature review. *Int J Epidemiol Health Sci* 2020;1: e03. doi:10.51757/ijehs.1.3.2020.46189
4. Marashi Shoostari SS. Report on Establishing Telemedicine Services in Iran. 2022. Available from: <https://pubblicazioni.unicam.it/handle/11581/482767>.
5. Raesi R, Abbasi Shaye Z, Saghari S, Sheikh Beig Goharri MA, Raei M, Hushmandi K. The impact of education through nurse-led telephone follow-up (telenursing) on the quality of life of COVID-19 patients. *J Egypt Public Health Assoc* 2021;96(1):30. doi:10.1186/s42506-021-00093-y
6. Sadeghmoghadam L, Ahmadi Babadi S, Delshad Noghabi A, Nazari S, Farhadi A. Effect of telenursing on aging perception of Iranian older adults. *Educ Gerontol* 2019;45(7):476-82. doi:10.1080/03601277.2019.1657263
7. Taheri Hatkehlouei SA, Sandanasamy S, Okamoto Y, McFarlane P, Heidari Gorji AM. Effect of telenursing on self-efficacy among diabetic patients: a systematic review. *J Nurs Rep Clin Pract* 2024;3(3):258-67. doi:10.32598/jnrcp.2405.1098
8. Ahadi Shahri M, Shirinabadi Farahani A, Rassouli M, Khabazkhoob M, Mohammadi Aghbelagh SH. The impact of telenursing on the self-management of gastrointestinal symptoms in adolescent cancer patients receiving chemotherapy. *Cancer Nurs* 2026;49(2):121-8. doi:10.1097/ncc.0000000000001447
9. Khoddami A, Imani E, Jamhiri R, Hosseini Teshnizi S. Evaluating the effect of telenursing and multimedia self-care educational program on the level of existential anxiety in patients with COVID-19: a quasi-experimental study. *J Adv Biomed Sci* 2023;13(2):116-30. doi:10.18502/jabs.v13i2.13011
10. Eskandari F, Soleimani R, Jalilvand A, Soleimani M. The use of health information technology by nurses in healthcare. *Prev Care Nurs Midwifery J* 2019;9(1):36-9. doi:10.29252/pcnm.9.1.36