



## Healthcare in the Digital Era: Evaluating Competency-Based Readiness for Telemedicine in Bahrain

Ali Ebrahim

### Abstract

The rapid integration of digital technologies into healthcare systems has significantly transformed service delivery models globally. This study evaluates competency-based readiness for telemedicine among healthcare providers in Bahrain using a structured literature-based approach. Drawing exclusively on the provided document, the study synthesizes evidence on digital health competencies, telemedicine adoption, and workforce preparedness. Key competency domains identified include information and communication technology (ICT), digital communication, ethical and legal awareness, data management, adaptability, and clinical decision-making. Findings indicate that while Bahrain has made substantial progress in digital health infrastructure, competency gaps remain a critical barrier to effective telemedicine implementation. The study highlights the importance of structured competency frameworks and targeted training interventions to support sustainable healthcare development aligned with national strategies.

---

\*Correspondence:

Ali Ebrahim  
Brunel University London (PhD student)  
United Kingdom

**Received Date:** May 04, 2026; **Accepted date:** May 14, 2026; **Published Date:** May 18, 2026

**Citation:** Ali Ebrahim; J. Adv. Res. Rev; "Healthcare in the Digital Era: Evaluating Competency-Based Readiness for Telemedicine in Bahrain". 2026; 1(1): 113



**Copyright:** © Ali Ebrahim 2026. This is an open-access article distributed under the terms of the Creative Commons Attribution License.

## INTRODUCTION

Healthcare systems are undergoing rapid transformation driven by advancements in digital technologies. The integration of telemedicine, electronic health records, and data analytics has improved healthcare accessibility, efficiency, and quality (Chen, Lehmann & Malin, 2024; Whitelaw et al., 2020). In Bahrain, digital health initiatives align with national development strategies aimed at sustainability and innovation. The introduction of systems such as national electronic health records and telemedicine platforms has enhanced service delivery (Authority for Information and eGovernment, 2024).

Despite these advancements, the effectiveness of digital health technologies depends largely on the competencies of healthcare providers. Studies emphasize that inadequate digital skills can hinder adoption and compromise patient safety (Aubert-Tchameni et al., 2025; Ferreira et al., 2025). Therefore, assessing competency-based readiness for telemedicine is essential for achieving sustainable healthcare outcomes.

## METHODOLOGY

This study adopts a descriptive analytical approach based exclusively on literature

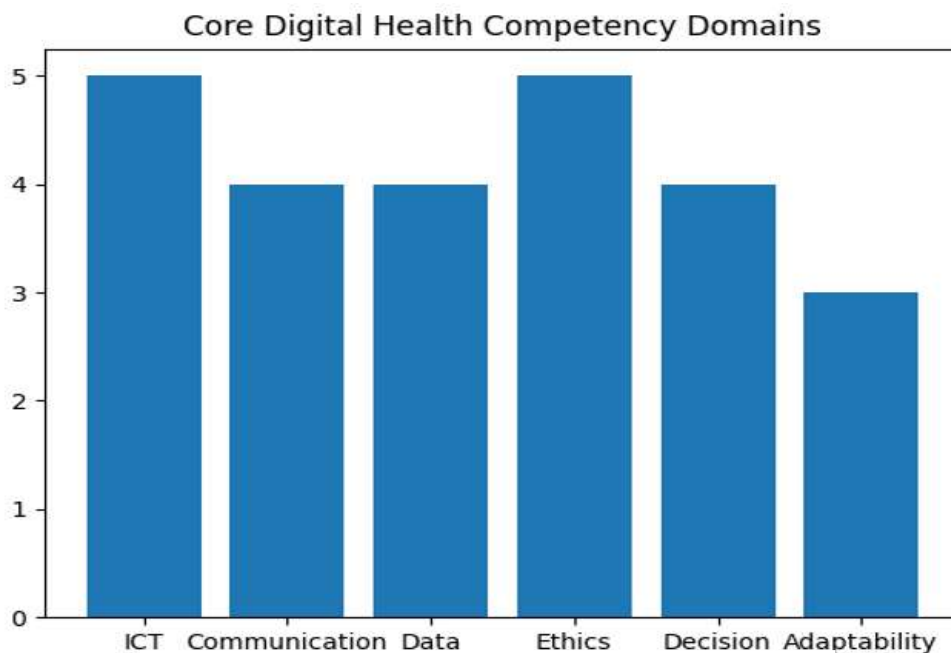
provided in the source document. The methodology involves systematic extraction and thematic synthesis of evidence related to digital health competencies and telemedicine readiness. Competency domains were categorized according to established frameworks, including ICT proficiency, communication, ethical awareness, and clinical decision-making (Nazeha et al., 2020).

The study does not include primary data collection. Instead, it relies on structured literature synthesis to identify patterns, competency gaps, and implications for healthcare systems in Bahrain.

## FINDINGS

The literature consistently identifies digital health competencies as essential for effective telemedicine implementation (**Figure 1**). ICT proficiency enables healthcare providers to operate digital systems, including telemedicine platforms and electronic health records (Kinnunen et al., 2026). Digital communication competency is critical for ensuring accurate and empathetic interaction during remote consultations (Nguyen et al., 2024).

Ethical and legal competencies are also emphasized, particularly in relation to patient



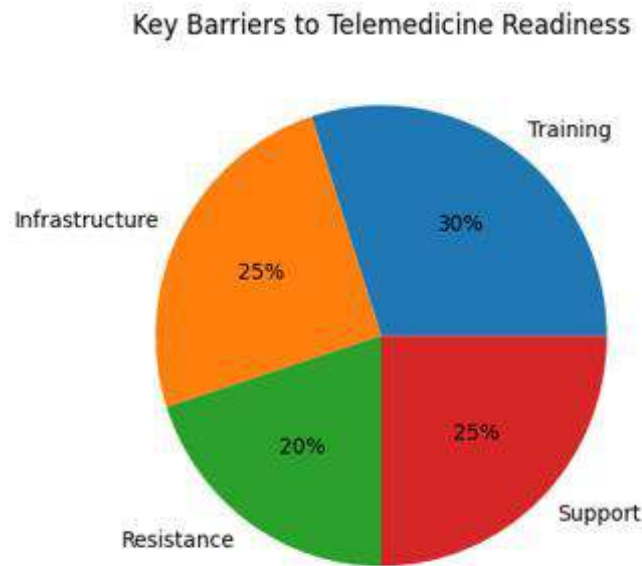
**Figure 1: Core Digital Health Competency Domains**

privacy and data security (Atherton et al., 2018). Furthermore, clinical decision-making skills supported by digital tools enhance patient outcomes and healthcare efficiency (Laka, Carter & Merlin, 2024).

## RESULTS

Although empirical data is not included in the provided document, the synthesized literature suggests variability in digital competency levels among healthcare providers. Common barriers include lack of training, limited organizational support, and resistance to change (Figure 2) (Berndt et al., 2025; Barker et al., 2024).

empirical data to validate competency levels and inform evidence-based decision-making. The evaluation of competency-based readiness for telemedicine in Bahrain requires a deeper understanding of the dynamic relationship between technological infrastructure and human capability. While digital systems provide the backbone for telemedicine services, the effectiveness of these systems is largely determined by the competencies of healthcare professionals who use them. Healthcare providers must not only possess technical skills but also demonstrate cognitive flexibility, critical thinking, and the ability to adapt to rapidly evolving technological environments.



**Figure 2: Key Barriers to Telemedicine Readiness**

## LIMITATIONS

This study is limited by its reliance on a single source document and absence of primary data. The lack of quantitative analysis restricts statistical validation. Additionally, findings are context-specific and may not be generalizable beyond Bahrain.

## CONCLUSION

Digital health competencies are fundamental to telemedicine readiness and sustainable healthcare development. Strengthening workforce capabilities through structured training programs and policy interventions is essential. Future research should incorporate

## REFERENCES

1. Atherton, H., Ziebland, S. and Campbell, J. (2018) 'Qualitative study of the potential of video consulting in general practice', *BMJ Open*, 8(2), e018583. Available at: <https://bmjopen.bmj.com/content/8/2/e018583> (Accessed: 2 May 2026).
2. Aubert-Tchameni, A., Brouard, F. and Bégin, L. (2025) 'Digital transformation and skills gaps in healthcare organisations', *Journal of Health Organization and Management*. Available at: <https://doi.org/10.1108/JHOM>. (Accessed: 28 Apr 2026).
3. Authority for Information and eGovernment (2024) *eGovernment National Portal* –

- Kingdom of Bahrain. Available at: <https://www.bahrain.bh>. (Accessed: 1 May 2026).
4. Barker, F., Atkins, L. and de Lusignan, S. (2024) 'Applying the NASSS framework to understand implementation of digital health', *BMC Health Services Research*, 24, 112. Available at: <https://bmchealthservres.biomedcentral.com>. (Accessed: 2 May 2026).
  5. Berndt, R., Takenga, C. and Preikschas, M. (2025) 'Impact of information technology on healthcare delivery', *Health Information Science and Systems*. Available at: <https://link.springer.com>. (Accessed: 26 Apr 2026).
  6. Chen, J., Lehmann, C.U. and Malin, B. (2024) 'Advancing digital health research and innovation', *Journal of the American Medical Informatics Association*. Available at: <https://academic.oup.com/jamia>. (Accessed: 27 Apr 2026).
  7. Ferreira, A., Cruz-Correia, R. and Antunes, L. (2025) 'Digital competencies in healthcare professionals: A systematic review', *International Journal of Medical Informatics*. Available at: <https://www.sciencedirect.com>. (Accessed: 3 May 2026).
  8. Kinnunen, U.M., Heponiemi, T. and Rajalahti, E. (2026) 'Nurses' competencies in digital health environments', *Computers, Informatics, Nursing*. Available at: <https://journals.lww.com>. (Accessed: 30 Apr 2026).
  9. Laka, M., Carter, J. and Merlin, T. (2024) 'Clinical decision support systems and healthcare outcomes', *BMC Medical Informatics and Decision Making*, 24, 45. Available at: <https://bmcmidinformedecismak.biomedcentral.com>. (Accessed: 4 May 2026).
  10. Nazeha, N., Pavagadhi, D. and Kyaw, B.M. (2020) 'A digitally competent health workforce: Scoping review', *Journal of Medical Internet Research*, 22(11), e22788. Available at: <https://www.jmir.org>. (Accessed: 29 Apr 2026).
  11. Nguyen, M., Waller, M. and Pandya, A. (2024) 'Communication challenges in telemedicine consultations', *Telemedicine and e-Health*. Available at: <https://www.liebertpub.com>. (Accessed: 2 May 2026).
  12. Whitelaw, S., Mamas, M.A., Topol, E. and Van Spall, H.G.C. (2020) 'Applications of digital technology in COVID-19 pandemic planning and response', *The Lancet Digital Health*, 2(8), pp. e435–e440. Available at: <https://www.thelancet.com>. (Accessed: 30 Apr 2026).