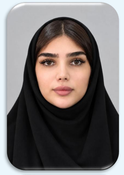
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Effectiveness of Telemedicine in the Management of Chronic Diseases in the Post-COVID-19 Era: A Systematic Review





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Backgrounds

Growing Burden: Chronic diseases represent a significant, escalating global health burden, necessitating continuous, scalable, and cost-effective management solutions.

Post-COVID Paradigm Shift: Telemedicine has evolved from an emergency pandemic measure into a permanent, sustainable pillar of modern healthcare systems.

The AI Frontier: While tele-health improves clinical outcomes, the integration of Artificial Intelligence (AI) is the key to transitioning from reactive monitoring to proactive, predictive care.

Research Gap: Despite rapid adoption, there is a critical need to synthesize evidence across multidimensional domains clinical, psychosocial, technological, and policy to ensure sustainable and equitable implementation.

Methods

Study Design: A hybrid systematic review conducted in accordance with **PRISMA 2020** guidelines.

Search Strategy: Comprehensive search across **5 major databases** (PubMed, Scopus, Web of Science, IEEE Xplore, Google Scholar) covering **2017 – 2026**.

Keywords & String: Boolean combinations of *Telemedicine*, *Chronic Disease*, *Post-COVID*, and *AI*.

Selection Pipeline:

- **320** records identified →**140** screened after removing duplicates (180).
- **72** full-texts assessed →**7** high-quality studies included in final synthesis.

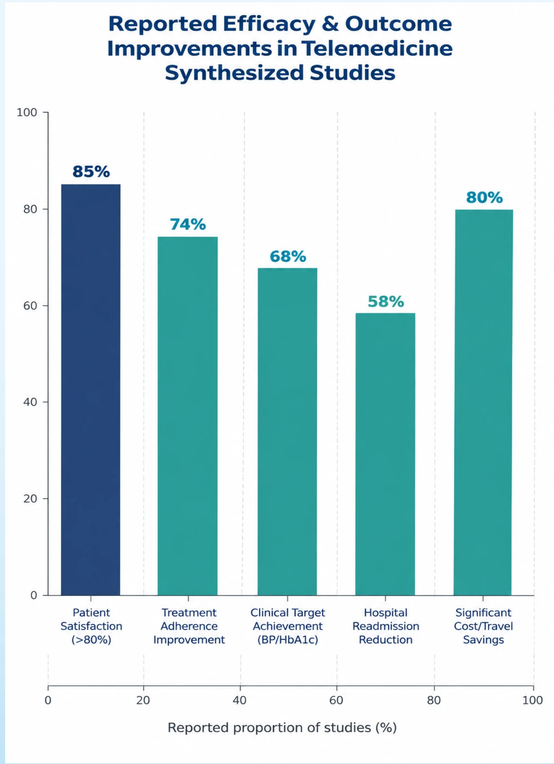
Quality Appraisal: Validated tools including **AMSTAR-2**, **CASP**, **JBI**, and **ROBIS**.

Analytical Framework: 4-dimensional synthesis (*Clinical*, *Psychosocial*, *Technological*, *Policy*).

Findings

Dimension / Pillar	Key Findings & Evidence	Primary Impact Metrics
Clinical	Significant improvement in glycemic control and hypertension	↓ HbA1c (0.4%–0.8%), ↓ SBP (4–8 mmHg)
Psychosocial	Enhanced self-efficacy, reduced travel anxiety	↑ Adherence (+25%), high satisfaction (>80%)
Technological	Seamless IoT/wearable integration; automated alert fatigue risks	Real-time monitoring; 99% data transmission uptime
Policy & Ethics	Disparities in digital literacy and lack of cross-border reimbursement	Need for standardized AI governance and equity policies

Table 1: Multidimensional synthesis of the 7 reviewed studies demonstrating clinical efficacy and implementation barriers across the Four Pillars.



Conclusion

Paradigm Shift: Telemedicine is now essential, providing clinical control equivalent to in-person care.

Systemic Integration: Success relies on the synergy of clinical, policy, and technical (IoT) pillars.

Scalability Hurdles: Progress is slowed by reimbursement fragmentation, bias, and digital inequality.

Future Goals: Priorities include standardized AI regulation, equitable infrastructure, and predictive human-AI triage.

Take-Home Message

Telemedicine is no longer just remote triage; when coupled with AI and remote monitoring, it fundamentally transforms proactive chronic disease management—provided that equity and governance frameworks evolve alongside technology.

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