

## Review Article

### Existing Scenario, Thorough Evaluation and SWOT Review of e-Health Services in Bangladesh

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#### Abstract

In recent years, Bangladesh has made considerable progress in digitizing its healthcare system through the introduction of e-Health services. These services leverage information and communication technology (ICT) to improve healthcare delivery, particularly in rural and underserved regions where access to medical professionals is limited. The Government of Bangladesh, in partnership with non-governmental organizations (NGOs) and private stakeholders, has initiated several programs including telemedicine services, mobile health (mHealth), electronic health records (EHRs), and digital health portals. Notable government-led initiatives include the deployment of telemedicine centers at Upazila Health Complexes, SMS-based health advisories, and the “Health Call Center” (16263), which offers 24/7 medical consultation. Additionally, private sector platforms like Doctorola, Maya, and Tonic have gained popularity for providing remote consultations, mental health support, and digital prescriptions. However, despite these promising developments, e-Health in Bangladesh is still in a transitional phase. Challenges such as low digital literacy, inadequate internet connectivity in rural areas, shortage of trained personnel, and lack of interoperability among systems have limited its full potential.

**Key words:** SWOT, e-Health, ICT, Bangladesh

#### 1. Current Landscape of eHealth in Bangladesh

- **Various initiatives are active**, including telemedicine platforms, mobile-based consultation services operated by telecoms (e.g., GrameenPhone’s “789” helpline), startups like Praava Health, Neeramoy, Arogga, and NGO-supported mobile outreach programs. Yet these remain **fragmented** and unevenly scaled.<sup>1, 2</sup>

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- **Telemedicine usage is limited**. Only a small fraction (~7%) of households with mobile phones actually use them for health services—with low uptake among poorer, less educated, or rural individuals.<sup>2</sup>
- Although **mobile coverage is nearly universal**, fewer than 30% of rural households have **reliable internet**, creating a digital divide that hampers equitable access to eHealth services.<sup>3</sup>

#### 2. Key Challenges & Critical Gaps

##### Governance & Coordination

- Lack of a **unified national strategy** and regulatory framework leads to overlap, inefficiency, and donor reliance. Over 70% of projects are externally funded.<sup>3</sup>
- Absence of a **National Digital Health Act** or a central authority (e.g., Central Digital Health Authority) means no standard rules on telemedicine licensure, data protection, or interoperability.<sup>3</sup>

##### Infrastructure & Access

- **Interoperable Electronic Health Records (EHRs)** are rare or siloed; digital health platforms rarely integrate with public and private providers. Many systems are pilot projects without scale.<sup>3</sup>
- Infrastructure gaps—especially at rural clinics—limit system reliability and continuity of care.<sup>3</sup>

##### Human Capacity & Training

- Over **85% of health workers are digitally illiterate**; medical curricula lack digital health competencies like AI, informatics, or electronic clinical workflows. Teaching staff shortages further reduce practical training.<sup>4, 8</sup>

##### Usability & Trust

- Many health apps suffer from **poor UI/UX**, with catastrophic or major usability issues — hampering adoption even among smartphone users.<sup>5, 7</sup>
- Low **awareness and trust**: users often don’t know about telehealth services, find health promotions confusing, or don’t trust providers they can’t see in

person. Privacy, cost, and discomfort are common concerns.<sup>2</sup>

### Financial & Equity Concerns

- Out-of-pocket healthcare spending accounts for ~73–74% of total health costs, which makes digital or telehealth unaffordable to many.<sup>6</sup>
- Digital literacy and smartphone ownership are lower in rural areas and among women (only ~22% of rural women own smartphones) – creating inequality in access.<sup>3</sup>

### 3. Broader Systemic Context

- Bangladesh suffers from a **lack of health financing**, healthcare professional shortages (about 7 doctors per 10,000 people vs. WHO target of ~22.8), and high patient volumes—making access to quality care difficult even physically.<sup>6</sup>
- Corruption and weak regulation further undermine public trust, including in digital initiatives.<sup>4</sup>
- In humanitarian settings—such as in Cox’s Bazar—chronic disease care remains severely inadequate, and digital health outreach is limited or absent altogether.<sup>7</sup>

### SWOT Review of the Current e-Health and Telemedicine Services in Bangladesh

The analytical findings of this SWOT (Strengths, Weaknesses, Opportunities, and Threats) study on the current e-health and telemedicine services in Bangladesh were derived from a review of various articles and program works conducted over the past 10 years.<sup>1</sup>

### Strengths

#### 1. Government Support and Policy Initiatives

- o The Government of Bangladesh has integrated e-Health into the national Digital Health Strategy and Vision 2041.
- o DGHS (Directorate General of Health Services) supports digitalization, including telemedicine and health information systems.

#### 2. Growing Mobile and Internet Penetration

- o High mobile phone ownership and increasing 4G/5G internet access in rural and urban areas enable wide telemedicine reach.

#### 3. Low-Cost Consultation Models

- o Affordable or free services via mobile operators and public hospitals (e.g., 16263 helpline, *Shastho Batayon*).

#### 4. Public-Private Partnerships

- o Collaboration with private telehealth platforms (e.g., *Tonic, Praava Health, CMED, Doctor Koi, Maya*) enhances service accessibility.

#### 5. COVID-19 Acceleration Effect

- o Pandemic increased awareness, funding, and adoption of telemedicine and remote healthcare.

### Weaknesses

#### 1. Digital Literacy Gap

- o A significant portion of the rural population, especially the elderly, lacks digital skills to use telehealth services.

### 4. In-Depth Critique Summary

Area	Critical Issue
Fragmentation & Donor Dependence	Projects often lack sustainability, overlap, or lack coordination.
Regulatory Vacuum	No central oversight, standardization, or legal framework; patient data standards are inconsistent.
Digital Divide & Equity Gaps	Services primarily benefit urban, educated users; many are excluded.
Workforce Unpreparedness	Digital literacy among health workers is poor and curricula are outdated.
Trust, Usability & Cultural Barriers	Poor app design, mistrust of remote care, embarrassment around sensitive health topics.
Sustainability & Funding	Heavy reliance on external funding; government spending on digital health remains low.

## 2. Infrastructure Challenges

- Inadequate internet connectivity and power reliability in remote areas hinder seamless access.

## 3. Lack of Standardization & Regulation

- No comprehensive national telemedicine regulation. Licensing, quality assurance, and patient data protection need formal frameworks.

## 4. Limited Integration with Health Systems

- e-Health platforms often operate in silos and are not fully integrated with national Electronic Health Record (EHR) systems.

## 5. Shortage of Trained Professionals

- Insufficient number of trained doctors and telemedicine support staff familiar with digital platforms.

## Opportunities

### 1. AI and Data-Driven Health Innovations

- Opportunity to implement AI for diagnostics, chatbots, predictive analytics, and personalized care.

### 2. Expansion in Rural Healthcare

- Huge potential to serve the underserved rural population with mobile-based telehealth services.

### 3. Foreign Investment and Donor Funding

- Support from organizations like WHO, World Bank, and ADB can scale projects and infrastructure.

### 4. mHealth (Mobile Health) Potential

- Growing app ecosystem and SMS-based solutions can provide health education, reminders, and maternal care support.<sup>7</sup>

### 5. Cross-Border Health Services

- Potential to collaborate with India and Southeast Asian telemedicine hubs for specialist care and knowledge exchange.

## Threats

### 1. Cybersecurity and Privacy Risks

- Increasing risk of data breaches and lack of stringent legal protection of patient health data.

### 2. Cultural and Social Barriers

- Preference for face-to-face consultations, lack of trust in remote diagnoses, and gender-related barriers to women accessing e-health.

### 3. Economic Constraints

- Poverty and affordability issues may prevent the poorest from accessing or trusting digital health services.

## 4. Digital Divide

- Risk of worsening inequality between urban and rural populations if infrastructure gaps persist.

## 5. Resistance from Traditional Healthcare Providers

- Some healthcare professionals view telemedicine as a threat to traditional practice or job security.

## Next Steps for Improvement:

- Essential to adopt the necessary policies and strategies to integrate digital solutions into the Universal Health Coverage (UHC)
- Finalize and enforce national e-Health regulation.
- Expand rural internet and power coverage.
- Train healthcare workers in digital tools.
- Promote public trust through awareness and success stories.
- Ensure ethical data use and patient privacy protection.

## CONCLUSION

e-Health and telemedicine in Bangladesh have evolved rapidly, driven by government vision, mobile connectivity, and pandemic-driven needs. e-Health and telemedicine in Bangladesh have also made promising strides, especially post-COVID-19, backed by government and private sector efforts. However, the system requires greater policy clarity, integration, and investment in digital infrastructure and capacity-building to be sustainable and equitable.

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