

Digitalization in Ayurveda: Scope, Benefits, and Challenges

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Abstract

Ayurveda, one of the most ancient systems of medicine, emphasizes holistic health and personalized care. In the digital era, healthcare is undergoing a paradigm shift with the integration of technologies such as telemedicine, electronic health records, artificial intelligence, and health information systems. Digitalization offers Ayurveda an unprecedented opportunity for global integration, research advancement, and patient-centred care. At the same time, challenges such as standardization, data interoperability, practitioner readiness, and ethical concerns need to be addressed. This article explores the scope, benefits, and challenges of digitalization in Ayurveda, with examples from India's *Ayush Grid*, telemedicine initiatives, digital pharmacopeia projects, and global digital health strategies.

Key Words - Ayurveda, Digital health

Introduction

Ayurveda, rooted in the principles of *dosha*, *dhatu*, and *agni*, has historically relied on personalized diagnosis and individualized therapies. While this approach has proven effective for centuries, the absence of systematic documentation and digital integration has limited its visibility in global healthcare.

The rise of digital health—defined by WHO as the use of digital technologies to support healthcare delivery, disease prevention, and public health—has opened avenues for Ayurveda to become more evidence-driven, globally accessible, and integrated with modern healthcare systems.

India is most rapidly developing country nowadays. Technological advances are used in all sectors in India.

Health care system is also using advance and digital technologies for diagnosis, treatment and keep records. Indian government has taken initiative for digitalization in healthcare. Ayushman Bharat Digital Mission (ABDM) is one example of it. Here are few examples explained.

Example 1: India's *Ayush Grid* initiative⁽¹⁾, launched in 2018 by the Ministry of AYUSH, aims to digitally connect all stakeholders of Ayurveda, Yoga, Unani, Siddha, and Homeopathy (AYUSH).

Example 2: Private platforms like *NirogStreet* and *AyuRythm* use technology to connect practitioners, patients, and pharmacies with AI-driven personalized Ayurveda.

This article systematically discusses the scope, benefits, and challenges of digitalization in Ayurveda, with examples and references.

Scope of Digitalization in Ayurveda

Area	Scope	Example
Electronic Health Records (EHRs)	Digitization of Ayurvedic diagnosis & treatment including <i>prakriti</i> , <i>vikriti</i> , <i>agni</i>	Kottakkal Arya Vaidya Sala digitizing chronic disease records
Digital Pharmacopeia(3)	Creation of searchable databases of plants, formulations, and rasayanans	Traditional Knowledge Digital Library (TKDL) with 300,000+ formulations
Telemedicine	Remote consultations for Ayurveda patients	eSanjeevani AYUSH Telemedicine services with 1M+ consultations during COVID-19
AI & Analytics	Predictive modeling for <i>prakriti</i> & disease	AyuRythm app integrating wearables & AI
National Integration	Linking Ayurveda with NDHM & health insurance	Ayush Grid under Digital India
Mobile Apps & Wearables	Apps for diet, lifestyle, yoga monitoring	HealthifyMe&AyuRythm integrating Ayurveda

Benefits of Digitalization in Ayurveda

Benefit	Explanation	Example	Reference
Global Outreach	Ayurveda knowledge is more visible and accessible worldwide	TKDL prevented biopiracy of turmeric & neem	CSIR-TKDL, 2017
Enhanced Patient Care Research & Evidence	Long-term digital records improve continuity Enables systematic reviews & multi-center trials	Cancer care center in Gujarat tracking outcomes digitally Digital tracking of Ashwagandha trials during COVID-19	Patel et al., 2019 Chandran et al., 2021
Public Health Integration	Ayurveda can be included in preventive programs digitally	AYUSH immunity-boosting guidelines disseminated via apps during	Ministry of AYUSH, 2020 COVID-19
Cost-effectiveness	Telemedicine saves time and costs for patients	eSanjeevani consultations free of charge	MoHFW, 2021
Education & Training	E-learning platforms spread Ayurveda education	AYUSH eLearning portal for global learners	Ministry of AYUSH, 2022

Challenges of Digitalization in Ayurveda

Challenge	Explanation	Example	Reference
Standardization	Difficult to encode <i>ojas</i> , <i>dhatu</i> , <i>agni</i> into ICD codes	ICD-11 lacks Ayurveda-specific ontology	WHO ICD-11, 2019
Interoperability	Ayurvedic EMRs not integrated with allopathic systems	Limited linkage between AYUSH & NDHM	NDHM Policy, 2020
Quality & Reliability	Many mobile apps are unregulated	Study found <20% Ayurveda apps evidence-based	Rathore et al., 2020
Privacy Concerns	Risk of misuse of AI-generated prakriti data	Wearable-linked Ayurveda apps collecting sensitive data	Rastogi, 2020
Resistance to Change	Some practitioners hesitant to digitize practice	Surveys show <40% Ayurvedic doctors use EMRs	Patwardhan, 2019
Legal & Regulatory	Classification of herbal drugs varies globally	Ashwagandha regulated as supplement in US, medicine in India	FDA & AYUSH guidelines

Case Examples

- eSanjeevani Telemedicine Platform** – Provided more than 1.2 million AYUSH consultations during COVID-19 (MoHFW, 2021).
- TKDL (Traditional Knowledge Digital Library)** – Digitized 300,000+ Ayurvedic formulations to prevent biopiracy; successfully defended turmeric and neem patents in the US and EU (CSIR, 2017).
- AyuRythm App** – AI-driven mobile app that assesses prakriti using pulse diagnosis and wearable integration (9).
- NirogStreet** – A digital platform for Ayurveda doctors that enables e-consultation, supply chain management, and evidence-sharing (NirogStreet Report, 2020).

- Ashwagandha Clinical Trials** – Digital coordination enabled rapid recruitment and outcome measurement for immune-boosting trials during COVID-19 (Chandran et al., 2021).

Future Directions

- Development of **Ayurveda-specific digital ontologies** (parallel to ICD-11).
- Use of **blockchain** to secure Ayurvedic formulations and ensure authenticity of medicinal supply chains.
- Expansion of **AI-driven personalized Ayurveda** using genomic and microbiome integration.
- Capacity building** through digital literacy training for Ayurvedic practitioners.

- Cross-border **collaborations** between Ayurveda and WHO digital health initiatives.

Conclusion

Digitalization presents Ayurveda with transformative opportunities—making it more scientific, accessible, and globally integrated. The scope ranges from EMRs and drug databases to AI-powered predictive models. The benefits include global outreach, patient empowerment, and stronger evidence generation. However, challenges like standardization, interoperability, misinformation, and ethical dilemmas need urgent attention. A balanced approach combining technological innovation with respect for traditional wisdom will ensure Ayurveda's relevance in the digital health era.

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