Dissertation Training

at

IIHMR-DELHI

Evolution of Indian Digital Health Initiatives

by

Hreshikesh Dhar
PG/24/121

Under the guidance of

Dr. Anuj Kumar Pandey (IIHMR-DELHI)

PGDM (Hospital & Health Management)

2024-26



International Institute of Health Management Research New Delhi

Internship Training

at

Myhealthcare Technologies

Evolution of Indian Digital Health Initiatives

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2024-26



International Institute of Health Management Research New Delhi

The certificate is awarded to

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Name of the Student: Hreshikesh Dhar

Name of the Organisation in Which Dissertation Has Been Completed: IIHMR-DELHI

Area of Dissertation: Secondary research on articles published in Digital health domain

Attendance: 80%

Objectives achieved: Yes.

Deliverables: Insights delivered thematically.

Strengths: Data analysis.

Suggestions for Improvement: Need more improvement in gaining deeper domain knowledge.

Suggestions for Institute (course curriculum, industry interaction, placement, alumni):

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Course Specialization (Choose one)	Hospital Management ✓	Health Management	HealthCare IT ✓
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Title of the Dissertation/Summer Assignment	Evolution of Indian Digital Health Initiatives		
Plagiarism detect software used	3% - Turnitin		
Similar contents acceptable (%)	Up to 15 Percent as per policy		
Total words and % of similar contents Identified	3%		
Date of validation (DD/MM/YYYY)	10 June 2026		

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Abstract

Background: Over the past 25 years, India has seen significant growth in the use of digital technologies in healthcare. From early telemedicine pilots to large-scale national programmes, digital health has contributed to improving access to healthcare services.

Objective: To systematically map the evolution of digital health initiatives in India over the period 2000–2025, identify key themes, growth patterns, and phases of development.

Methods: A scoping review methodology was employed based on secondary literature. A comprehensive search of PubMed/MEDLINE was conducted using structured search strings incorporating Medical Subject Headings (MeSH) and free-text terms related to digital health technologies and India. A total of 3,636 records were retrieved, of which 1,927 met the inclusion criteria after systematic title and abstract screening.

Results: The included literature was organised into six evolutionary phases: (1) inception and pilot experimentation (2000–2004, n=35); (2) awareness and early adoption (2005–2009, n=55); (3) consolidation and scaling (2010–2014, n=85); (4) policy-driven expansion (2015–2019, n=251); (5) Rapid Growth by COVID 19 (2020–2022, n=659); and (6) digital health mainstreaming (2023–2025, n=841). Thematic analysis identified ten major domains: telemedicine and teleconsultation (n=256), artificial intelligence and machine learning (n=323), mobile health (n=167), electronic health records (n=79), COVID-19 and digital health (n=296), mental health and telepsychiatry (n=115), rural and primary care (n=227), chronic disease management (n=207), ophthalmology and eye care (n=150), and policy and governance (n=85).

Conclusions: Digital health in India has grown from small, disconnected pilot projects to a more coordinated national system. The COVID-19 pandemic accelerated adoption across all domains, though challenges related to rural connectivity, digital literacy, interoperability, and data privacy remain. The findings highlight the need for continued investment, equitable access, and better evaluation of digital health programmes.

Keywords: digital health, India, telemedicine, mHealth, electronic health records, artificial intelligence, scoping review, Ayushman Bharat, ABDM, healthcare technology

1. Introduction

India's healthcare system faces significant challenges, including a large population, geographic diversity, urban-rural disparities, and a mixed burden of communicable and non-communicable diseases. Against this backdrop, digital health technologies have been increasingly used over the past 25 years to help address gaps in access, quality, and efficiency of care.

Digital health including telemedicine, mobile health (mHealth), electronic health records (EHR), artificial intelligence (AI), and health information technologies has been especially relevant in low- and middle-income countries (LMICs) such as India, where healthcare infrastructure has often been insufficient to meet population needs. India's adoption of digital health reflects both technological change and a shift in how healthcare is planned and delivered.

The trajectory of digital health in India spans several distinct phases. The earliest telemedicine experiments in the late 1990s and early 2000s were characterised by isolated pilot projects, largely driven by academic medical centres, defence organisations (notably ISRO), and international collaborations. These gave way to more structured adoption, supported by government policy and private sector investment, culminating in the National Digital Health Mission (NDHM), later rebranded as the Ayushman Bharat Digital Mission (ABDM) in 2022, and the rapid growth of eSanjeevani, a large government-run telemedicine platform.

The COVID-19 pandemic (2020–2022) greatly accelerated the adoption of digital health tools across India. Teleconsultation use increased sharply, mHealth applications expanded, and regulatory barriers to telehealth were reduced. After the pandemic, AI-enabled diagnostics, digital therapeutics, and blockchain-based health records have emerged as areas of growing interest.

Despite this growth, a comprehensive review of 25 years of Indian digital health research has not previously been done. Existing reviews tend to be domain-specific focusing on telemedicine alone, or on a specific disease area and rarely provide a longitudinal, cross-thematic synthesis. This scoping review maps the development of digital health in India from 2000 to 2025, using 1,927 peer-reviewed publications.

2. Objectives

The primary objective of this scoping review is:

- To map the evolution of digital health initiatives in India over the 25-year period from 2000 to 2025, using secondary literature from published peer-reviewed research.

- To characterise the major thematic domains of digital health research and practice in the Indian context.

3. Methodology

3.1 Study Design

This study uses a scoping review approach to examine digital health research in India over the past 25 years. A scoping review helps to provide an overall picture of existing research, identify major themes and trends, and highlight areas where further studies are needed.

3.2 Screening and Selection

All retrieved records underwent systematic title and abstract screening against pre-defined inclusion and exclusion criteria. Screening was conducted computationally using a validated keyword-matching algorithm, followed by manual verification of borderline cases.

Inclusion criteria: (1) studies published between 2000 and 2025; (2) articles focused on digital health technologies, programmes, or policies in India; (3) English-language publications.

Exclusion criteria: (1) studies exclusively focused on countries other than India (e.g., China, Pakistan, Bangladesh, African nations, Brazil); (2) articles with no identifiable digital health content in title or abstract; (3) conference abstracts without full-text availability.

Of 3,636 records screened, 1,709 were excluded (71 for non-India geographic focus; 1,638 for absence of relevant digital health content), yielding a final included corpus of 1,927 articles.

3.3 PRISMA Screening Summary

Stage	Count
Records identified from PubMed	3,636
Records after deduplication	3,636
Excluded: non-India country focus	71
Excluded: no digital health keyword match	1,638
Records included in final review	1,927

3.4 Data Extraction and Synthesis

For each included article, the following data were extracted: publication year, journal name, PMID, article title, and thematic classification. Articles were classified into ten thematic domains based on keyword analysis of titles and abstracts. Given the breadth and heterogeneity of included studies (systematic reviews, RCTs, cohort studies, case reports, policy analyses, and commentaries), a narrative synthesis approach was adopted, organised around the identified phases of evolution and thematic domains.

4. Results

4.1 Overview of the Evidence Base

The final corpus of 1,927 articles spanned 26 years of publication (2000–2026, with 2026 representing partial-year data). The volume of publications showed a consistent upward trend, with three distinct phases of acceleration: 2015–2019, 2020–2022 (COVID-19 surge), and 2023–2025 (post-pandemic expansion). The year 2025 had the highest single-year output (n=345), showing that digital health has become an established research area.

Period	Phase	n	% of corpus
2000–2004	Inception & pilot experimentation	35	1.8%
2005–2009	Awareness & early adoption	55	2.9%
2010–2014	Consolidation & scaling	85	4.4%
2015–2019	Policy-driven expansion	251	13.0%
2020–2022	COVID-19 catalysed acceleration	659	34.2%
2023–2025	Digital health mainstreaming	841	43.6%

Period	Phase	n	% of corpus
Total		1,927	100%

4.2 Journal Distribution

Publications were spread across 300+ journals, reflecting the multidisciplinary nature of the field. The leading journals by volume of India-relevant digital health articles were: Indian Journal of Ophthalmology (n=63), Scientific Reports (n=56), Cureus (n=54), PLoS One (n=34), Journal of Family Medicine and Primary Care (n=32), Telemedicine and e-Health (n=22), BMJ Open (n=22), Indian Journal of Public Health (n=23), Indian Journal of Psychological Medicine (n=20), and Indian Journal of Medical Research (n=19). The prominence of ophthalmology journals reflects India's well-documented work in tele-ophthalmology, particularly through programmes such as KIDROP and the LV Prasad Eye Institute's EyeSmart EMR network.

4.3 Thematic Distribution

Theme	n	Key focus areas
AI & Machine Learning	323	Diagnostics, predictive modelling, retinal imaging AI
COVID-19 & Digital Health	296	Teleconsultation surge, policy response, pandemic care
Telemedicine & Teleconsultation	256	Urban-rural linkage, specialty care, eSanjeevani
Rural & Primary Care	227	ASHA workers, CHC connectivity, outreach programmes
Chronic Disease Management	207	Diabetes, CVD, cancer, NCD telemonitoring
mHealth & Mobile Applications	167	SMS, WhatsApp, apps for maternal, TB, HIV care
Ophthalmology & Eye Care	150	KIDROP, diabetic retinopathy, EHR-driven analytics

Theme	n	Key focus areas
Mental Health & Telepsychiatry	115	Telepsychiatry, mHealth apps, post-COVID mental health
Policy & Governance	85	ABDM, NDHM, telemedicine guidelines, regulations
Electronic Health Records	79	EMR adoption, big data analytics, interoperability

5. Evolution of Digital Health in India: A Phased Analysis

5.1 Phase 1: Inception and Pilot Experimentation (2000–2004)

The earliest phase of digital health in India was characterised by isolated, technology-driven experiments rather than systematic programmes. The period witnessed 35 publications in the included corpus, predominantly descriptive accounts of pilot projects and feasibility assessments.

Telemedicine in this era was largely synonymous with teleradiology and telepathology. Jankharia (2001)[1] documented the nascent history and status of teleradiology in India, while Tata Memorial Hospital in Mumbai established one of the country's earliest telepathology links with rural cancer centres in Maharashtra, demonstrating the feasibility of remote histopathological diagnosis [2,3]. The Indian Space Research Organisation (ISRO) used its satellite infrastructure to set up telemedicine connections in remote areas programme that later expanded to hundreds of hospitals [4].

Tele-ophthalmology showed early promise, with reports from southern India showing that diabetic retinopathy and other conditions could be diagnosed remotely, laying the groundwork for programmes that grew significantly over the following decade [5]. Early telepsychiatry work at SCARF Chennai and email-based telemedicine for neonatal care in rural settings [6] showed the range of possible applications.

The critical challenges of this period inadequate telecommunications infrastructure, absence of regulatory frameworks, high equipment costs, and lack of trained personnel were extensively documented. Commentators noted the largely unregulated and fragmented nature of telemedicine activity, with the vast majority of initiatives dependent on institutional enthusiasm

rather than systemic policy [7,8].

5.2 Phase 2: Awareness and Early Adoption (2005–2009)

The second phase saw a 57% increase in publications (n=55) and a broadening of the thematic scope beyond telemedicine to encompass early explorations of eHealth, mobile technology, and health informatics. During this period, awareness of digital health's potential grew among policymakers and clinicians, though actual implementation remained limited.

Key developments of this period included the articulation of a national eHealth roadmap by Taneja and Sushil (2007)[9], who identified critical success factors for sustainable digital health systems in India, including infrastructure investment, trained human resources, and strong governance. The state of medical informatics in India was systematically examined, with recommendations for optimal organisational frameworks [10].

Telemedicine expanded into new specialties: teledermatology [11,12], teleophthalmology in rural South India [13,14], telementoring in endocrine surgery [15], and early telepsychiatry at SCARF Chennai [16]. The Apollo Hospitals group was an important private-sector contributor to telemedicine growth [17], demonstrating a model of hub-and-spoke connectivity between tertiary centres and peripheral facilities.

Mobile phone-based health consultation for rural communities in north India was documented as early as 2007 [18], well before mHealth became widespread. ISRO's telemedicine network had expanded substantially by this period, connecting hundreds of remote hospitals. The publication of awareness and attitude surveys among Indian doctors and patients revealed both growing familiarity with and persistent scepticism about telehealth [19,20].

5.3 Phase 3: Consolidation and Scaling (2010–2014)

The third phase (n=85, a 55% increase over Phase 2) saw earlier pilot work consolidated into more structured programmes, the start of India-specific mHealth initiatives, and greater institutional engagement with health information technology.

The KIDROP (Karnataka Internet Assisted Diagnosis of Retinopathy of Prematurity) programme, launched by Vinekar and colleagues, became a widely cited example of tele-

ophthalmology in a resource-limited setting. By 2015, KIDROP had conducted over 20,000 imaging sessions across rural Karnataka [21], establishing a globally recognised model for technology-enabled screening in neonates. The LV Prasad Eye Institute's EyeSmart EMR platform showed how structured electronic medical records could support large-scale ophthalmic research and care delivery [22,23,24].

Mobile health began to take shape as a distinct domain. Early mHealth interventions targeted maternal and child health, HIV care, and tuberculosis treatment adherence areas of high public health burden where mobile phone penetration offered a practical pathway to patient engagement. Mobile phone-based guidance for rural health providers was evaluated [25], and the use of mHealth combined with big-data approaches for the Indian health system was described [26].

The Electronic Health Record (EHR) emerged as an institutional priority during this period, with commentaries and policy analyses debating the readiness of Indian healthcare institutions for full EHR adoption. Misra and colleagues (2005)[27] had already noted the underutilised potential of telemedicine in neurology, and this period saw the specialty-by-specialty articulation of digital health's clinical value.

5.4 Phase 4: Policy-Driven Expansion (2015–2019)

Phase 4 saw the largest increase in publications to that point (n=251, nearly three times Phase 3), driven by government digital health policies and growing smartphone and internet access across India.

The National Health Policy 2017 and the Digital India initiative supported the expansion of digital health. The announcement of Ayushman Bharat in 2018, initially focused on financial protection and health and wellness centres, laid the groundwork for what would become the ABDM [28]. India's commitments on NCD control and health coverage, published in The Lancet, referenced digital tools as part of the approach [29]. The same year saw the launch of Ayushman Bharat's secondary care component attract international attention [30].

mHealth research flourished during this period. Interventions were evaluated for smokeless tobacco cessation [31], maternal health support, early childhood development [32], and HIV care.

WhatsApp was used as a low-cost platform for sharing medical images and clinical consultation, with its use in telepathology formally studied [33]. Community health workers (ASHAs) became a focus of mHealth research, with studies documenting their use of mobile platforms for maternal and child health programme delivery.

Telepsychiatry gained significant momentum. Victor (2019)[34] made the case for telepsychiatry as a way to address India's large mental health treatment gap, while studies from Kerala, Tamil Nadu, and Maharashtra documented successful implementation of remote psychiatric consultation. The Asian Journal of Psychiatry became a key outlet for Indian telepsychiatry research [35]. For spinal cord injury rehabilitation in India, telehealth was shown to meaningfully improve quality of life outcomes [36].

Rural and primary care research grew substantially, with studies evaluating telemedicine in tribal communities, mountainous areas of Himachal Pradesh and Uttarakhand, and coastal Odisha. Teleradiology in inaccessible areas of northern India [37] and large-scale mHealth professional support for health workers in rural Maharashtra [38] exemplified the geographic reach of this period's work.

5.5 Phase 5: Rapid Growth driven by COVID-19 (2020–2022)

The COVID-19 pandemic led to a sharp increase in digital health use and related research. Phase 5 (n=659) accounted for 34.2% of the entire corpus, reflecting the pandemic's large impact on healthcare delivery and the role of digital tools in maintaining care during lockdowns.

Government policy changes during this period were important in supporting digital health uptake. The Ministry of Health and Family Welfare released the Telemedicine Practice Guidelines in March 2020, for the first time providing a formal regulatory framework for teleconsultation in India. This was followed by the operationalisation of eSanjeevani, India's national teleconsultation platform, which scaled from a nascent system to millions of consultations within months [39]. Analysis of free, open-source DICOM viewers for the national telemedicine service was published [40], and the policy landscape of telemedicine during COVID-19 was critically examined [41].

Across clinical specialties, the pandemic prompted rapid digital adaptation. In oncology, cancer care continuity at India's leading centres was sustained through teleconsultation [42], and gynaecological cancer care was reorganised through digital platforms [43]. In neurology, Sylaja and colleagues documented the profound challenges posed by the pandemic to stroke care systems and the role of telemedicine in maintaining thrombolysis networks [44]. Management of diabetes through teleconsultation was formally guided by ICMR expert consensus [45]. In paediatric oncology, the impact of telemedicine on childhood cancer care was systematically evaluated [46].

Mental health emerged as a major digital health frontier during the pandemic. Online mental health services were rapidly deployed and evaluated [47], with studies documenting telepsychiatry's expanded reach and patient satisfaction [48]. The mental health burden on caregivers, particularly those caring for persons with dementia, was documented through digital surveillance methods [49]. Readiness of Indian healthcare systems for mental health apps was critically examined [50].

The application of AI and machine learning accelerated sharply during this period. Machine learning was applied to COVID-19 trajectory prediction for Indian states [51], and AI-assisted emergency response systems were evaluated [52]. Explainable AI tools for clinical decision support were developed and validated in Indian settings [53].

5.6 Phase 6: Digital Health Mainstreaming (2023–2025)

The most recent phase (n=841, representing 43.6% of the corpus) shows that digital health has become a regular part of India's health system, rather than a niche area. The Ayushman Bharat Digital Mission was the centrepiece of this phase, with formal assessments of its implementation progress, challenges, and impact beginning to appear in peer-reviewed literature.

The ABDM was formally assessed as a transformative health system intervention [54], with studies examining healthcare workers' knowledge, attitudes, and practices regarding the digital mission [55]. Integration of the ABDM with disease-specific registries including the National Cancer Registry Programme [56] and the Co-WIN vaccination platform [57] reflects efforts to build a more connected digital health system. Awareness and challenges in utilising the ABDM

at the clinical interface were documented [58], and the adoption and utilisation of eSanjeevani's national telemedicine service was formally studied [39].

Artificial intelligence emerged as the dominant research theme of this phase, surpassing telemedicine for the first time. AI applications in rural healthcare delivery [59], AI-enabled mobile diabetes interventions [60], and the integration of AI into general practice in India [61] were prominent. The critical data infrastructure question for AI in Indian healthcare was articulated [62], and AI-based retinal screening was evaluated for acceptability in general populations [63].

Telehealth counselling expanded significantly into mental health [64], with post-pandemic telepsychiatry research continuing to grow. Rural mental health care was tested in a landmark cluster-randomised clinical trial published in JAMA Psychiatry [65].

6. Thematic Analysis of Major Digital Health Domains

6.1 Telemedicine and Teleconsultation

Telemedicine was the earliest and most consistently studied area of digital health in India, with 256 articles spanning the full 25-year period. India's telemedicine work began with ISRO's satellite-based connections and early hospital networks in the late 1990s, and developed over time to the eSanjeevani platform, which had facilitated over 300 million consultations by 2024.

The literature consistently documents telemedicine's role in bridging the urban-rural divide: evaluation of a telemedicine-enabled universal eye health model in rural southern India demonstrated improved access with equivalent clinical outcomes [69]. Teleconsultation for diabetic retinopathy in rural settings established a template replicated across disease areas [70]. STEMI care in Tamil Nadu through a telemedicine-enabled network demonstrated reduced door-to-balloon times [71].

Orthopaedic surgeons' utilisation and perceptions of telemedicine were evaluated in the post-pandemic context [72], and paediatric HIV care through telemedicine was shown to improve treatment compliance at reduced cost [73]. However, persistent challenges around patient consent, data privacy, the doctor-patient relationship, and medicolegal accountability were

recurring themes throughout the literature [74,75].

6.2 Artificial Intelligence and Machine Learning

AI and machine learning was the fastest-growing research area in the corpus (n=323), with 85% of articles published after 2018. India's AI research has been especially active in medical imaging, particularly ophthalmology, where AI tools for diabetic retinopathy screening have been studied in large populations.

The acceptability of AI-based retinal screening in the general population was formally evaluated in Indian settings [63], and AI tools for rural healthcare delivery were assessed for their potential to bridge the specialist access gap [59]. AI-enabled mHealth for diabetes risk reduction (mDiabetes) was evaluated in a randomised design [60]. The data infrastructure question for AI the readiness of India's health system to generate and curate the datasets needed for reliable AI was identified as the critical bottleneck [62].

The literature also reflects cautionary perspectives: explainability, algorithmic bias, and the risk of AI exacerbating existing health disparities were documented as concerns specific to the Indian context, where training datasets may not represent the full sociodemographic diversity of the population.

6.3 Mobile Health (mHealth)

India's widespread mobile phone use with over 750 million smartphone users and low-cost data has supported the growth of mHealth. The 167 included articles document interventions spanning maternal and child health, tuberculosis, HIV, tobacco cessation, diabetes, and mental health.

WhatsApp became a commonly used tool for clinical communication, with its use in telepathology [33], community health worker support [38], and patient follow-up formally documented. The Safe Delivery App for skilled birth attendants was scaled in India with documented impact [76]. mHealth-based educational interventions for pregnancy self-care were evaluated in a pre-post study [77]. Anti-tuberculosis medication adherence through mHealth in Delhi showed significant improvements [78].

The ethical dimensions of mHealth in community health work including concerns about data privacy for ASHA workers and the communities they serve were subjected to scoping review [67]. The economics of large-scale mHealth delivery were documented through costing studies [79], providing the evidence base for programme planning.

6.4 Electronic Health Records and Big Data Analytics

Electronic health records in India have developed in two directions: adoption within institutions, and use of large EHR datasets for research. The LV Prasad Eye Institute's EyeSmart EMR system is a notable example a multi-tier network that has generated a large ophthalmic dataset, used to characterise the epidemiology of corneal disease, uveitis, retinitis pigmentosa, macular degeneration, and numerous other conditions in the Indian population.

The LEAD (LV Prasad Eye Institute EyeSmart Analytics Data) series of publications [80,22,23,24,81] shows how EHR-based data can be used to generate population-level epidemiological findings. Similarly, the coronary artery disease registry study using electronic medical records provided nationwide data on management patterns in Indian CAD patients [82].

The broader EHR adoption challenge in India including interoperability, standardisation, and the transition from paper-based systems remains a significant research and policy focus. The ABDM's health data management policy and the development of ABHA (Ayushman Bharat Health Account) IDs represent the current national architecture for addressing these challenges.

6.5 COVID-19 and Digital Health

COVID-19 disrupted healthcare delivery but also accelerated the uptake of digital tools. With 296 included articles, it was the second-largest thematic domain and the defining feature of Phase 5. The pandemic required rapid, system-wide use of digital health tools, and these experiences have continued to inform Indian health policy.

The Telemedicine Practice Guidelines (2020), issued by the Medical Council of India and the Board of Governors, provided the first formal legal and ethical framework for teleconsultation in India. eSanjeevani, originally a hospital-to-hospital (B2B) platform, was extended to a direct doctor-to-patient (B2C) model, allowing millions of people to access consultations during the lockdown. The UK-India telemedicine collaboration for COVID-19 management attracted

international interest [83,84].

Across specialties from neurosurgery [85] to oncology [42], from diabetes [45] to gynaecological cancer [43], the literature of this period documents both the successes and the limitations of digital adaptation under emergency conditions.

6.6 Mental Health and Telepsychiatry

Given that over 80% of people with mental illness in India receive no formal care, telepsychiatry has been an important area of focus. The 115 included articles show how the field has progressed from early feasibility studies at SCARF Chennai [16] and academic medical centres to larger interventions tested in randomised trials.

The JAMA Psychiatry cluster-RCT of community-based mental health care in rural India [65] is the most methodologically rigorous Indian telepsychiatry study to date. Post-pandemic telepsychiatry research has explored patient preferences, platform acceptability, and the ethics of remote psychiatric practice [48]. Mental health apps for caregivers of persons with severe mental illness in India were evaluated for readiness and acceptability [50], while community-based dementia care through digital platforms was reviewed [86].

6.7 Rural and Primary Care

Rural and primary care featured in 227 articles, reflecting the potential of digital health to improve access in areas with limited healthcare infrastructure. The literature shows a shift from one-off telemedicine pilots in remote villages to more systematic use of mHealth in primary care delivery through community health workers and health and wellness centres.

Telemedicine in rural India was examined as early as 2006 in PLoS Medicine [87], and mobile phone-based clinical guidance for rural providers was evaluated in 2015 [25]. Large-scale mHealth support for health workers in rural Maharashtra [38] and the ABDM's potential to transform rural primary care delivery represent the arc from pilot to programme. AI tools specifically designed to bridge the rural healthcare gap have been evaluated in recent years [59], with promising but context-sensitive findings.

6.8 Policy and Governance

The policy and governance domain (n=85) documents India's evolving regulatory landscape for digital health. The key landmarks include the National Health Policy 2017, the launch of Ayushman Bharat 2018, the Telemedicine Practice Guidelines 2020, the NDHM 2020 (renamed ABDM 2022), and the Digital Personal Data Protection Act 2023.

Formal assessments of the ABDM have begun to appear, examining implementation progress [54], healthcare worker awareness [55], and the ethical dimensions of India's approach to universal health coverage [88]. The role of blockchain technology in enhancing ABDM implementation has been explored [89]. Unresolved issues — including the ambiguities in telemedicine certification requirements [90] and data privacy concerns under the ABDM — continue to attract critical scholarly attention.

7. Discussion

7.1 Key Findings

This scoping review, drawing on 1,927 publications spanning 25 years, provides a broad bibliometric and thematic overview of digital health in India. Several key findings are.

The growth of digital health research in India has not followed a steady path. Instead, it has seen major leaps at certain points due to government initiatives and unexpected events. Among these, the COVID-19 pandemic was the most significant turning point. It accelerated the adoption of digital health technologies at a pace that might otherwise have taken many years. During this period, important developments such as the Telemedicine Practice Guidelines and the eSanjeevani platform helped expand access to healthcare services. The pandemic also increased the acceptance of teleconsultation among both healthcare professionals and the public. As a result, these changes are expected to have a long-lasting impact on the Indian healthcare system.

8. Conclusions

Over the past 25 years, digital health has become an important part of healthcare delivery in India. From early telemedicine pilots by ISRO and Tata Memorial Hospital, through the growth of mHealth in the 2010s, to the pandemic-driven acceleration and the Ayushman Bharat Digital Mission, digital health has become more central to India's health policy.

The 1,927 peer-reviewed publications reviewed here document both the progress made and the challenges that remain. Gaps in access, infrastructure, and data governance remain unresolved. Translating research findings into consistent improvements in health outcomes, especially for underserved populations remains an ongoing challenge.

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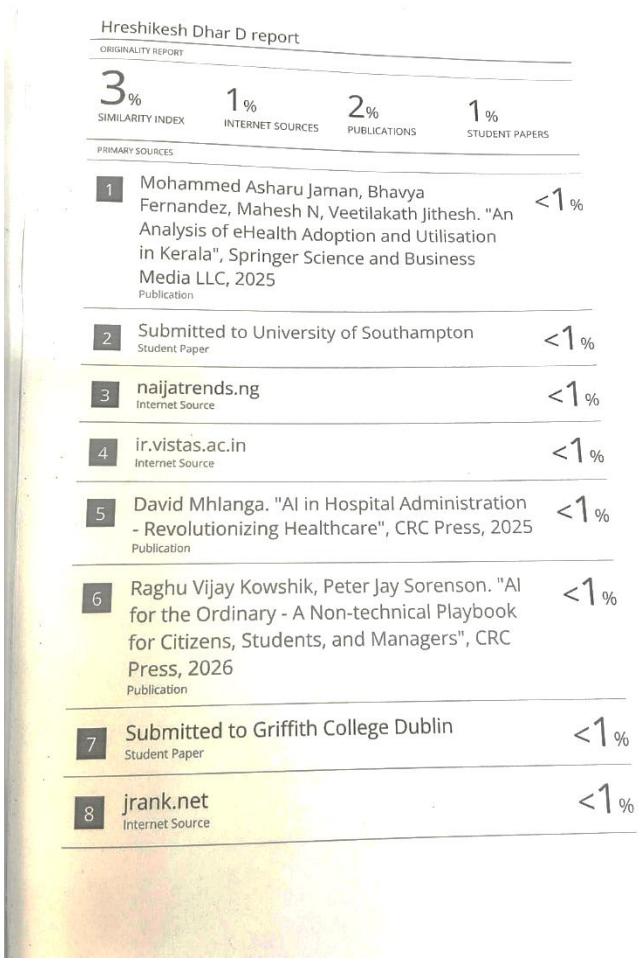
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