AI FOR GERIATRIC CARE

Bridging the Silver Divide: Challenges and Opportunities in Deploying AI for Geriatric Care in India

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Abstract

AI has permeated all facets of life, society and economy. This article purports to evaluate the role of Artificial Intelligence (AI) in the Indian Healthcare landscape with particular reference to geriatric healthcare. The paper focuses on the silver divide and the scope it offers for health care providers who can leverage a growing elderly care segment. The study also presents the current AI based interventions in the health care for the aged and their alignment to the relevant sustainable development goals. The strategic opportunities offered by the silver economy, funding support from government and private players, governmental interventions and the regulatory framework along with ethical considerations are also discussed in this paper.

Keywords: Artificial intelligence; geriatric healthcare; silver divide; regulatory framework

1 Introduction

The simulation of human intelligence by machines specifically by computers is referred to as Artificial Intelligence (AI). The major elements would be learning about the information and the rules to process this information, reasoning to arrive at definitive conclusions and self-correction. The entire process is capable of handling large data sets and demonstrates considerable speed and accuracy that goes beyond human limits.

Application areas of AI in healthcare includes diagnostics, laboratory testing automation, clinical decision support, robotic surgery, virtual health assistants, electronic health records, remote monitoring, mental healthcare, geriatric healthcare, research and development, drug discovery, clinical trial recruitment, genome editing etc.

In the global healthcare sector, AI is driving a major paradigm shift from reactive treatment to proactive, personalized medicine. With healthcare industry witnessing increasing operating costs and workforce shortages, AI comes in as a critical saviour. It enhances diagnostic accuracy, democratizes clinical expertise, and streamlines administrative workflows to lower delivery costs while elevating patient outcomes.

2 Objectives of the study

The focal point of this study is to critically evaluate the integration, deployment patterns, and systemic challenges of Artificial Intelligence within the Indian healthcare delivery model, with specific reference to geriatric care. As India undergoes an unprecedented demographic transition,

understanding how advanced computational technologies can be leveraged to sustain an aging population is a vital socio-economic imperative.

To achieve this goal the study focuses on the following objectives:

1. To understand the status and size of the silver economy in India along with growth trajectories.
2. To evaluate the strategic opportunities of AI in geriatric care. This objective seeks to identify how AI-driven tools—such as remote monitoring, predictive diagnostics, assistive robotics, and automated fall detection—can enhance clinical outcomes, foster independent living, and bridge regional healthcare access gaps.
3. To analyse the structural challenges of AI deployment for the elderly.
4. To understand the government initiatives to foster geriatric care, and the regulatory and ethical frameworks in India.

3 Review of literature

Das et al. (2024) in their article explore future paths of AI in India's healthcare advancement, emphasizing the critical role of diagnostic accuracy and early detection in improving healthcare outcomes which also emphasizes on AI Skill development.

Srivarshan and Gokila (2025) in their article highlight how TB and cancer screening initiatives using AI-powered diagnostic tools have benefitted patients in states like Delhi and Telangana. They also bring out examples of how ICMR & IISc collaborated to develop Indian-specific datasets for AI model training.

Khalid et al. (2025) in their article examine the coming together of AI based innovations and elderly care and how these are consistent with the sustainable development goals (SDGs).

In their report *Artificial intelligence in healthcare: Navigating regulatory frontiers in India*, Nishith Desai Associates (2025) expounded the regulatory framework of AI in Healthcare in India mentioning the regulatory bodies and the regulations.

The Press Information Bureau (2025) report on "Transforming Healthcare Delivery through Artificial Intelligence" highlights the role of AI Enabled tools in the eradication of TB and engagement of 282 million patients through telemedicine consultations from April 2023 to November 2025 through the e-sanjeevani programme. The report brings out AI Solutions from the government and private sector in the healthcare delivery domain in the country.

4 Discussion

4.1 Silver economy in India: The market

India's demographic landscape is witnessing a major transition. According to demographic data and projections from the Ministry of Statistics and Programme Implementation (MoSPI) and the United Nations Population Fund (UNFPA), India is aging at an unprecedented rate. In 2026, India's elderly population (defined as individuals aged 60 years and above) is estimated to have reached approximately 150 to 160 million citizens, representing nearly 11% of the country's total population. Looking ahead, this demographic curve steepens dramatically: by 2050, the number of senior citizens in India is projected to surge to over 340 million, accounting for nearly 20% of the entire national population. This means that by mid-century, one out of every five Indians will be a senior citizen, outnumbering

the population of children under the age of 15. A point to note here is India's life expectancy has improved from 41 years in 1950 to 72 years as of 2023.

Table 1 presents the india's elderly population growth (60+ years).

Table 1. India's elderly population growth (60+ years).

Year	Population Size	% of Total Population
2026	150-160 Million	11%
2036	230 Million	15%
2050	340 Million	20%

Source: Ministry of Statistics and Programme Implementation

The concept of the "Silver Economy" encompasses all economic activities, products, and services designed to meet the specific consumption, healthcare, lifestyle, and housing needs of the elderly population. In India, this sector is shifting from a niche philanthropic concern into a massive, highly lucrative market ecosystem. Certain demographic trends also stand out. One is regional disparity in ageing: Southern states and select northern states have large elderly population and this disparity is expected to further widen by 2036. The other is women's survival advantage at older ages. All these imply higher dependency in old age. We are also witnessing a change in household structure and an increase in urbanisation – factors which decrease the capacity of informal and traditional care and increase the need for formal care services, purpose-built senior living communities, and technology-enabled support.

4.2 Government's focus

Government of India is also rightly prioritising elderly care, aligning itself with the United Nations Decade of Healthy Ageing (2021–2030). The latest Union Budget, introduced in Feb 2026 has a special focus on elderly care, announcing a plan to train 1.5 lakh caregivers to strengthen India's geriatric care. Earlier in 2022, Government of India had launched initiative like SAGE (Senior-care Ageing Growth Engine) to promote the 'Silver Economy' (pertaining to products and services catering to ageing population) by encouraging entrepreneurial ventures and start-ups to participate in this space.

The economic valuation of the Indian Silver Economy is expanding fast, driven by increasing life expectancy, rising disposable incomes among urban retirees, nuclearization of families, and a shifting cultural mindset toward institutional senior care. Valued in the tens of billions of dollars globally, the domestic market for senior-specific services—ranging from specialized geriatric healthcare and assisted living facilities to senior-friendly real estate and digital wellness solutions—is expanding at an annual growth rate exceeding 10-12%.

However, the aggregate statistics mask deep systemic disparities. The economic profile of India's silver demography is highly polarized. A small, affluent segment of urban retirees possesses stable pensions, corporate healthcare covers, and real estate assets, driving the demand for premium private senior living and high-end digital care apps. Conversely, a staggering 70% to 80% of India's elderly live in rural areas, characterized by high rates of financial dependency, lack of formal social security, and systemic poverty. Over 50% of seniors in India are entirely dependent on others for their daily financial survival, with older women facing the highest levels of economic vulnerability

due to lower lifetime workforce participation and systemic asset illiteracy. This stark economic divide dictates that any technological intervention, particularly AI deployment, must be structurally cost-effective and publicly scalable to prevent widening the health equity gap between affluent urban enclaves and impoverished rural communities.

4.3 Schemes for the elderly by the Government of India and SDG relevance

To address these compounding demographic challenges, the Government of India has instituted a series of national policies and social welfare schemes. These public interventions are designed to protect the health, financial stability, and digital inclusion of the elderly, aligning directly with the United Nations Sustainable Development Goals (SDGs).

The foundational policy framework is the National Policy on Older Persons (NPOP), which mandates the state to ensure the financial security, healthcare, shelter, and welfare of senior citizens. Operationally, this is supported by the National Programme for Health Care of the Elderly (NPHCE), which focuses on delivering dedicated, specialized geriatric care services across various tiers of the public health infrastructure, from primary health centres to tertiary regional geriatrics institutes. Furthermore, the Ministry of Social Justice and Empowerment runs the Seniors Able through Dignity in Productivity (SACRED) portal, an innovative digital platform matching senior citizens with job providers, actively promoting the economic re-integration and cognitive engagement of older adults.

Crucially, the government has launched the Seniorcare Ageing Growth Engine (SAGE) initiative. SAGE acts as a state-backed incubator program, specifically designed to identify, support, and fund innovative startups developing tech-driven products, medical devices, and AI-enabled solutions tailored for the geriatric population.

These national efforts directly advance several UN Sustainable Development Goals:

- **SDG 3 (Good Health and Well-being):** By aiming to integrate AI tools—such as automated remote diagnostic networks and predictive chronic disease management—into public initiatives like the Ayushman Bharat Digital Mission (ABDM), India can scale specialized clinical insights across remote geographic landscapes. This reduces preventable mortality and manages multi-morbidities effectively.
- **SDG 10 (Reduced Inequalities):** Government-backed tech platforms like SAGE democratize access to advanced care tools. Deploying open-source, affordable AI assistive devices and low-cost diagnostics ensures that world-class geriatric care is not restricted to affluent urban elites. This mitigates inequalities driven by geography and wealth.
- **SDG 8 (Decent Work and Economic Growth):** Initiatives like the SACRED portal, alongside the growth of an AI-driven silver tech industry, transform an aging population from a perceived economic burden into an active engine of productivity and job creation.

Table 2 presents the government initiatives mapped to United Nations SDGs.

Table 2. Government initiatives mapped to United Nations SDGs.

Government Schemes	SDGs
SAGE & NPHCE Schemes	SDG 3: Good Health & Wellbeing
SACRED Employment Portal	SDG 8: Decent Work & Econ Growth
Open-Source AI Care Initiatives	SDG 3: Good Health & Wellbeing

Source: Ministry of Social Justice and Empowerment Portal

4.4 Geriatric care industry in India and role of AI

The geriatric care industry in India is undergoing a structural evolution, moving from informal, family-dependent structures toward an institutionalized, technologically integrated market. Historically, elder care was handled within the joint family system, where younger generations assumed absolute responsibility for aging kin. However, rapid urbanization, the breakdown of joint families into nuclear units, and the migration of young professionals overseas have left millions of Indian seniors living completely alone. This sociological shift has catalyzed the growth of a formal geriatric care industry, currently divided into three primary segments: specialized senior living communities, home-based healthcare agencies, and institutional hospice/daycare facilities.

The home healthcare sector is the fastest-growing component of this industry. For seniors managing chronic physical illnesses or cognitive decline, home care preserves independent living while ensuring safety. However, the traditional home care model faces massive operational bottlenecks, including high staff turnover rates, a severe shortage of certified geriatric nurses, manual monitoring errors, and an inability to track patients continuously overnight.

This is exactly where AI deployment is transforming the industry. Leading private home care providers and specialized hospital chains are leveraging AI-driven hardware and software solutions to optimize care delivery. Natural language processing tools are used to train and assist semi-skilled home health workers, guiding them through complex clinical protocols via voice-interactive local languages. AI-powered remote monitoring ecosystems utilize non-invasive ambient sensors, smart mattresses, and wearable devices to continuously track vitals, sleep patterns, and cognitive behaviors without disrupting the patient's routine.

A personalized behavioural base line for each senior is established by machine learning algorithms locally. Anomaly detections like a sudden drop in the heart rate, a sudden change in the gait indicative of an imminent fall, or prolonged unusual period of daytime immobility etc., triggers instant alert that will be sent to emergency response teams and distant family members. This transforms geriatric care from a reactive to a preventive care model.

4.5 Indian healthcare AI start-ups in geriatric care and funding challenges

The entrepreneurial landscape in India has seen a surge of specialized healthcare AI startups focused on gerontology, attempting to bridge the gap between advanced technology and clinical execution. These enterprises recognize that the senior demographic requires highly customized user interfaces, multi-lingual support, and highly reliable hardware.

Prominent startups leading this charge include companies like Dozee, Doctrix, Kriyadocs, and specialized elder-tech firms like GenElek Technologies, Care24, and Emoha Elder Care. Dozee, for example, has pioneered a proprietary, contactless patient monitoring system using ballistocardiography. Backed by advanced AI algorithms, its under-the-mattress sensor sheets track respiration, heart rate, and blood pressure with clinical-grade precision without requiring a single wire to touch the elderly patient. This tech turns any standard home bed into an AI-monitored step-down ICU. On the mobility front, startups like GenElek are designing AI-powered robotic exoskeletons and smart assistive devices to aid stroke rehabilitation and restore mobility in frail seniors. Meanwhile, platforms like Emoha operate comprehensive digital senior care ecosystems, using predictive

analytics to coordinate emergency dispatches, manage chronic care plans, and deliver cognitive engagement therapies to combat depression and isolation among solitary seniors.

Despite their strong technological foundations, the funding secured by geriatric-focused AI startups in India reveals a persistent systemic mismatch. While the broader Indian tech and consumer e-commerce ecosystems have historically drawn billions of dollars in venture capital, the elder-tech and geriatric AI segments operate on far tighter capital constraints. Most funding in this sector is currently concentrated at the Seed to Series A stages, with individual funding rounds generally ranging from $1 million to $15 million.

Venture capital firms often show hesitation regarding the elder-tech sector due to perceived elongated monetization cycles, complex customer acquisition dynamics (where the adult child is typically the buyer, but the elderly parent is the user), and the absence of a standardized public digital health infrastructure across rural India. While specialized impact funds, angel networks, and government grants through the SAGE initiative provide crucial early-stage capital, the lack of massive, institutional Series B and C funding rounds slows down the large-scale commercial manufacturing and public distribution of these life-saving AI technologies. For AI to truly bridge the silver divide in India, institutional investors must recognize that funding geriatric health tech is both a profound social necessity and a highly resilient, long-term macroeconomic opportunity.

4.6 The opportunities

Combining home care, tech platforms, and assisted living is the definitive template for the modern "senior care continuum" in India. Venture capital is increasingly flowing into startups that integrate these three components, as they solve the fragmentation that has plagued the Indian silver economy.

The market is projected to reach $73 billion by 2030, driven by a massive transition to nuclear families and NRI children seeking reliable oversight for their parents.

Startups successfully raising venture capital do not look at these three pillars in isolation. Instead, they leverage the tech platform as the central nervous system connecting physical home care to specialized brick-and-mortar facilities.

Table 3 presents the unit economics of various geriatric healthcare platforms.

Table 3. Unit economics of various geriatric healthcare platforms.

Core Component	Primary Tech Play & Innovation	VC Value Driver / Unit Economics
Tech Platform	AI-driven remote monitoring, predictive fall detection, IoT wearables, and real-time app dashboards for NRI children.	High gross margins, highly scalable SaaS/ subscription revenue, and a tool for low-cost customer acquisition.
Home Care	Hyper-local "Care Managers" dispatched via algorithms, managed tech-enabled medical logs, and emergency ambulance integrations.	High-frequency, sticky recurring monthly service fees (e.g., ₹74 Crore annual run rate achieved by segment leaders).
Assisted Living	Asset-light partnerships with real estate developers, specialty centers for Dementia/ Alzheimer's, and premium independent living.	High ticket sizes, predictable long-term asset monetization, and deep defensibility.

5 Regulatory framework and ethical challenges

The Maintenance and Welfare of Parents and Senior Citizens Act, 2007 and the subsequently amended Maintenance and Welfare of Parents and Senior Citizens (Amendment) Act, 2019 legally obligates children and heirs to provide maintenance to parents.

At the center of India's current digital legal architecture is the Digital Personal Data Protection (DPDP) Act. This statute establishes strict mandates regarding data processing, storage, and user consent from vulnerable senior citizens which heavily impact how geriatric AI tools that process sensitive, personal diagnostics data function. For AI startups and healthcare providers utilizing remote monitoring sensors or wearable trackers, the DPDP Act requires obtaining explicit, unambiguous, and revocable consent from users before collecting health data.

In the context of the geriatric cohort, this legal requirement introduces significant implementation hurdles. A substantial percentage of Indian seniors suffer from varying degrees of cognitive decline, dementia, or age-related digital illiteracy. Consequently, ensuring that a senior citizen truly understands how an algorithm processes their biometric data—and can provide legally valid "informed consent"—is exceptionally difficult. The regulatory framework must therefore carefully define and standardize the processes for surrogate consent by designated family caregivers, ensuring that these protections prevent financial exploitation or unwanted data monetization.

To specifically address the technological nuances of medical algorithms, the Indian Council of Medical Research (ICMR) released its landmark Ethical Guidelines for Application of Artificial Intelligence in Biomedical Research and Healthcare. This framework outlines key ethical pillars that must govern healthcare AI tools deployed within India:

- **Human-in-the-Loop Imperative:** The ICMR guidelines explicitly dictate that AI systems must never function as autonomous final decision-makers in clinical diagnostics or therapeutic prescriptions. Instead, they must operate strictly as decision-support systems, ensuring a human medical practitioner retains ultimate oversight and accountability for patient care.
- **Algorithmic Transparency & Auditability:** AI developers must ensure their deep learning models avoid the "black box" phenomenon. Algorithms deployed for public health or clinical triaging must be explainable, allowing clinicians to trace how an AI arrived at a specific risk assessment or diagnostic conclusion.
- **Data Security & Localized Validation:** To combat data bias, the guidelines mandate that medical AI models must be validated using ethnically and demographically diverse Indian datasets to ensure accuracy across local subpopulations before widespread public clinical rollout.

Beyond data protection and safety guidelines, the overarching deployment of digital healthcare technologies is driven forward by the National Health Authority (NHA) via the Ayushman Bharat Digital Mission (ABDM) that aims to build a unified digital health infrastructure across India, standardizing interoperable Ayushman Bharat Health Account (ABHA) IDs, digital health records, and telemedicine networks. Integrating geriatric AI systems into this expanding national grid ensures scale. For instance, an AI diagnostics tool connected to the ABDM framework could automatically pull a senior's historical health data, evaluate real-time telemetry from a rural home sensor, and instantly alert the nearest district hospital during an emergency.

However, achieving this seamless integration requires navigating significant regulatory gray zones. Clear liability frameworks remain undefined regarding who is legally responsible if an AI tool misinterprets a vital sign: whether accountability lies with the software developer, the hardware

manufacturer, the hospital network, or the consulting physician. Bridging these legal gaps with precise, adaptive regulations is essential to foster innovation while safeguarding the rights and well-being of India's senior citizens.

6 Conclusion

As the nation faces a massive demographic shift toward an aging society, traditional, human-dependent healthcare delivery models will prove insufficient to handle the volume and complexity of chronic illnesses, cognitive disorders, and rural health isolation. AI-driven solutions offer an innovative way forward, capable of augmenting overstrained medical workforces, automating continuous patient safety tracking, and extending specialized diagnostic insights to remote, underserved regions.

Considering the above, it is imperative that the systematic addressing of the challenges that currently slows down the industry's growth is required. All the stake holders should actively collaborate to close the divide among its elderly population, and create robust, non-biased domestic datasets to train clinical algorithms, and build institutional venture capital channels capable of scaling promising startups. By combining technical innovation with strong public policy, targeted government incentives, and a commitment to human-centric design, India can effectively bridge the silver divide. In doing so, the nation can transform the challenges of an aging population into a vibrant, inclusive silver economy that honours and protects its senior citizens with dignity.

References

[1] Das SK, Dasgupta RK, Roy SD, Shil D (2024). AI in Indian healthcare: From roadmap to reality. *Intelligent Pharmacy*, 2, 329–334. https://doi.org/10.1016/j.ipha.2024.02.005

[2] Khalid S, Midhun D, Somani P (2025). AI-driven innovations in elderly care: A sustainable pathway to achieving India's SDG commitments. *SPAST Reports*, 1(1).

[3] Nishith Desai Associates (2025). Artificial intelligence in healthcare: Navigating regulatory frontiers in India. *Nishith Desai Associates*, Mumbai.

[4] Press Information Bureau (2025). Elderly in India: Population, challenges and government initiatives. *Press Information Bureau*, Government of India, New Delhi.

[5] Srivarshan M, Gokila S (2025). AI-driven innovations in the Indian healthcare system: An update. *Journal of Engineering Research and Reports*, 27(10), 38–47.