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# AI Inequality and Disability in India: Exploring Barriers, Consequences, and Pathways to Digital Inclusion

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**ABSTRACT**
Social development has a new booster in the form of Artificial Intelligence (AI), which has gained unprecedented growth in recent years. However, disabled people, especially in India, still face significant challenges in accessing AI-based technologies. While the existing literature highlights issues of the digital divide pertaining to caste, gender, and race, there is a paucity of research on the accessibility challenges of AI technology for disabled people, especially in the Indian context.

This study aims to fill this gap by investigating the economic and educational barriers to access AI technologies for persons with disabilities (PwDs).It will examine the impact of digital exclusion in education, healthcare and employment. Moreover, this study aims to address and promote the issues of digital exclusion by providing practical recommendations. To achieve the objective of this study, a qualitative research approach was implemented. This study focuses on the existing literature and conducts in-depth case studies to learn about the most prominent barriers that PwDsface in accessing AI technologies.

These insights will serve as the foundation for understanding real-world AI inequality and suggest actionable recommendations for governments, NGOs, and various technology companies to promote digital inclusion. Additionally, this study provides a detailed understanding of how various challenges hinder optimal outcomes in education and employment and restrict access to essential healthcare services. By providing greater AI accessibility, this study will contribute to reducing the digital divide and promoting equitable opportunities for AI accessibility for the PwD population in India.

**Key Words**: AI-Inequality, Digital Divide, Indian Perspective, PwDs, Digital Exclusion.

## I. INTRODUCTION

In the 21st century, AI has revolutionized every segment of society, including the healthcare sector, educational field, and message dissemination.AI assists humans in working faster, solve problems and make better decisions (Patil & Shankar, 2023; Siddiqui et al., 2023). These AI-driven technologies also enhance the quality of life for persons with disabilities (PwDs) by providing augmented mobility and independence (Mahmoudi-Dehaki et al. 2024). Some examples of AI-driven technologies that empower individuals with disabilities are- screen readers using natural language processing, AI prosthetics and predictive healthcare systems(Mangrolia et al., 2024). However, these benefits are not uniformly distributed. A rising digital divide has come into focus as PwDs, whoare already socially and economically disadvantaged, run the risk of being further marginalised and widening the present digital gap(Anderson et al., 2013; Fisk et al., 2023). Particularly in developing nations like India, PwDsare significantly vulnerable to falling behind in the AI revolution(Bennett & Keyes, 2019; Rohman & Vo, 2024).This inequality among PwDsis complex and multifaceted and makingit harder for them to take part in social reformation and enjoy the same opportunities as others(McLeod, 2023).

Globally, approximately 16% of the world's population, that is, 1.3 billion, live with some disability (Rana et al., 2024). According to the 2011 census data, India is home to approximately 26 million PwDs, which is a large section of the total population (Awasthi et al., 2017; Pattnaik et al., 2023). According to experts, this number is considerably higher because many persons were missed while counting, and the definition of disability also has changed over time (Pettinicchio & Maroto, 2021; Senjam & Mannan, 2023). A substantial number of these individuals face various problems in education, employment

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and healthcare(Banks et al., 2017; Hosseinpoor et al., 2016).

Recognizing these disparities, various international efforts have been initiated to promote inclusive digital transformation, such as the UN Sustainable Development Goals (SDGs), particularly Goals 10 and 11, which highlight "reduce inequality" and "Sustainable cities and communities" respectively.(Kamtam, 2023). In developed countries, such as the USA and Canada, members of the European Union have initiated several projects to prioritize AI accessibility for PwDs (Shuford, 2023). Although India's advancement in this specific area is still limited, in 2016, the Government of India came up with the Right of Persons with Disabilities Act to help PwDsand improve their lives (Gupta & Sagar, 2022; Sidana, 2018). It majorly highlights that everyone should have equal rights and access to the same opportunities. However, there is still a big gap between what the law promises and what actually happens (N. Chakraborty et al., 2023).

Various studies have outlined the digital divide that exists based on income, gender, and geography while also discussing the limitations of access to technology (Fang et al., 2019). Although these issues are of paramount importance, the difficulties faced by individuals with disabilities, mostly AI-related, often do not find a place in the conversation (Wu et al., 2015). The typical research published in the past focused on the topic of disability related to the integration of only basic concepts such as internet connectivity and assistive technology devices(Nneka Nwabueze, 2022; Omitoyin, 2024).Furthermore, the majority of these documents are based in the Western world. These developed countries' infrastructure, public attitudes, and disability policies are quite different, even in contrast to India's current situation. The challenges faced by PwDsin India in accessing AI-driven tools and systems have not been given enough room for concern in the literature. Therefore, this study delves thoroughly into AI and disability, particularly examining the cases of India, which has a vast and diverse population. At the same time, the study is expected to help map the different types of obstacles that are currently causing the non-participation of disabled people in the digital world, the impact that will result, and the course needed for the evolution of a more inclusive AI ecosystem.

**Research Objectives**:

1. To identify the infrastructural, economic and educational barriers that prevent PwDsin India from accessing AI-powered services
2. To examine the impact of digital exclusion on PwDsin the areas of education, healthcare, and employment in India.
3. This study proposes targeted solutions and policy recommendations for improving AI accessibility for PwDsin India.

**Research Questions**:

1. What infrastructural, economic, and educational barriers limit access to AI-powered services for PwDsin India?
2. How does the lack of access to AI-based technologies affect the employment, education, and healthcare outcomes of PwDsin India?
3. What targeted solutions and stakeholder (Government, NGOs) interventions are needed to promote inclusive AI access for PwDs?

## II. LITERATURE REVIEW

### 2.1 Understanding Disability

There are many notions of disability and these have developed in different areas and legal frameworks(Chander, 2016; Chhabra, 2019). Traditionally it is considered a physical or mental defect within an individual that needs to be treated or taken care of. Such a medical model conceptualizes disability as impairment(Almufareh et al., 2024; Paul & Chauhan, 2024). However, this philosophy has transformed over the decades. Social activists and disability scholars in recent decades have articulated the social model of disability, which shifts the perspective on disability. According to this model, "people are disabled not by their bodies or minds, but rather by environments and systems that fail to accommodate diversity"(Sharma & Garg, 2023). Now, for better understanding and categorising health and disability, the World Health Organisation (WHO) came up with the. It categorizes disability into three interconnected components:

a) Body function and structures, which include physiological functions
b) Activity, participation and involvement in life situation
c) Environmental and personal factors represent external conditions and a person's individual characteristics.

In India, 21 kinds of disabilities are legally recognized as it grants disabled citizens equality and dignity; in areas such as education, employment and cyber access (Samant Raja & Group, 2024). However, his acknowledgment by the law is not enough to remove all the systemic obstacles to access and participation in the life of

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society. These forms are not only physical, however – they also exist online, even including in AI-driven government schemes(Alaimo &Kallinikos, 2017; Dwivedi et al., 2022).

### 2.2 AI Inequality

AI broadly refers to technologies that can mimic human intelligence by solving various real-life problems and optimizing decision-making. The term Artificial Intelligence was first coined by John McCarthy (1956), who defined it as "the science and engineering of making intelligent machines, especially intelligent computer programs. It is related to a similar task of using computers to understand human intelligence" (Banafa, 2024). The term "AI inequality" refers to how different groups receive different benefits or are harmed by AI-driven technologies. The existence of this inequality is due to multiple reasons and causes. The primary cause of inequality is data poverty, which refers to lack of quality and under representation of data on certain populations (Devlin, 2023). Additionally, technological determinism, which basically means technology is inherently progressing and neutral in nature, works as a catalyst to widen this inequality(Alsaleh, 2024; Jokhio, 2023). Moreover, the mindset of assuming all AI users is mentally and physically similar makes this deviance further widespread(Stuart & Kneer, 2021). For example, facial recognition systems, which are mainly driven by AI, often fail to detect non-normative facial features in the same way that voice-based assistants sometimes do not recognize users with speech impairments (Stacy, 2021; Xiang et al., 2024).

The outcomes of AI inequality encompass both tangible and intangible effects on society. Materially, people with disabilities are content to use AI-driven healthcare or educational platforms as they experience challenges in using these platforms.(Bulathwela et al., 2024; Leiker et al., 2023).Metaphorically, the exclusion of people with disabilities in shaping and presenting data perpetuates the social gaze of bias and invisibility.(St-Hilaire et al., 2022). Most importantly, there is opacity and accountability in the AI dataset, which makes it more challenging to detect such exclusion.(Daneshjou et al., 2021). Therefore, AI inequality is not just a technological issue, but rather a social issue which reflects broader patterns of isolation.(Dinker, 2024; Shahvaroughi Farahani & Ghasemi, 2024).

### 2.3 The Indian Landscape: Digital Exclusion and Policy Gap

India is experiencing a digital revolution, as are the public and private sectors, but some structural disparities are also witnessed, particularly among PwDs(Saini &Kharb, 2025). The Indian government has established national initiatives, including "Digital India" and "AI-for-All", to advance digital literacy and leverage technology for empowerment (Grant & Eynon, 2017). These policies and frameworks do not address the unique needs of PwDs(Mhlongo & Dlamini, 2022). AI in public sector services (e.g., biometric authentications or digital educational or EdTech platforms) seldom considers the role of PwDsin their dataset or design data as such (Setiawan, 2024). This widespread digital exclusion hampers participatory design and fails to accommodate disabled individuals and their inputs (Bennett & Keyes, 2019; Guo et al., 2020).

This exclusion gets further intensified in India as PwDs majorly intersect with poverty, caste and gender, which compound the disadvantages and challenges(Sin et al., 2021). Although international frameworks like the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) and UNESCO's AI Ethics Guidelines adopt a rights-based approach to inclusion(Gandy, 2012; Silvers & Francis, 2005). These frameworks are inclusive in nature and work on a rights-based approach. However, these principles have yet to be meaningfully integrated into India's AI governance and regulatory systems.(Prabhakaran et al., 2022). Consequently, PwDs remain largely absent from India's AI discourse and policymaking. Without deliberate and inclusive interventions, India's AI revolution is at risk of perpetuating and deepening existing inequalities, leaving the most marginalised even further behind(Hajira, 2023).

## III. RESEARCH METHODOLOGY

This paper is a qualitative case study research, informed by(Priya, 2021)methodological framework, which examines the mutual interaction and impact of AI and inequality on PwDs inclusion in India. The specific cases are investigated with a view to understanding the impact of AI on the accessibility of the Indian PwDsin consideration, and addressing the research questions and problem statement head-on.

Purposeful sampling was achieved by selecting cases from various urban and rural settings to ensure concealment along key socioeconomic dimensions such as age, disability form, and socioeconomic position. The criteria for

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selection were designed to provide a broad coverage of different experiences and perspectives related to AI accessibility and disability inclusion issues. Each selected case was systematically analysed through three key analytical dimensions:

a. Identification of inherent barriers within AI technologies
b. Analysis of the tangible impacts these barriers have on individuals with disabilities.
c. Evaluation of supplementary or alternative approaches developed or proposed to mitigate the identified barriers.

The data sources for this study were meticulously chosen to enhance credibility and depth, including academic publications, legislative documents from government bodies, reports from NGOs actively engaged in disability rights and inclusion, industry evaluations, and assessments of technological deployment. These diverse datasets collectively offer substantial evidence of existing frameworks and initiatives within both the public and private sectors aimed at addressing and mitigating AI-related inequalities and discrimination against persons with disabilities.

Rigorous selection and analysis of these data sources facilitated the establishment of evidence-based insights, which, in turn, support robust policy recommendations and proposals intended to improve disability inclusion through equitable AI deployment.

## IV. CASE STUDY ANALYSIS

This Thematic analysis of this section consists of selected case studies that describe the challenges of real-life scenarios for PwDsin India in availing AI powered digital services. Cases were identified by field interviews, NGO published reports, government evaluations, and academic literature. The cases are organized around three main domains, namely education, health and employment, and illustrate the repercussions of non-inclusive AI design and policy on systemic digital exclusion.

### 4.1 Educational Inaccessibility in EdTech Platforms – The BYJU'S Example

India's EdTech adoption also surged to new heights in the times of COVID-19, with BYJU'S and Vedantu among the millions of children's first learning destinations. But for PwD students, particularly those with visual and other learning disabilities, such platforms are not accessible or have limited accessibility features. According to a report by the National Centre for Promotion of Employment for Disabled People (NCPEDP) 2021, BYJU'S did not have the facility of screen reader, alternative text or sign language interpretation in their standard modules (Benshoff et al., 2014).

However, a visually impaired student from Uttar Pradesh reported that although her school adopted BYJU'S for online classes, she could not access the video content or assessment modules independently. Her family lacked the technical knowledge to assist her, and no formal support mechanisms were available on the platform. Consequently, she missed an entire academic year, highlighting the critical impact of inaccessible AI in EdTech (Kartikasari & Lestiono, 2022).

### 4.2 Healthcare Disparities Through the Aarogya Setu App

The Aarogya Setu mobile app was launched in April 2020 and was the Indian government's flagship AI-enabled contact-tracing tool during the COVID-19 pandemic. Flaws were soon pointed out by disability rights activists after the app was heavily promoted, including that the app was originally not compatible for screen readers, had no voice-assisted navigation and required text-inputs that many with cognitive or visual impairments were unable to utilize(Katekar & Cheruku, 2024; Singh et al., 2024).

A blind software engineer from Bengaluru filed a formal complaint, noting that the app's default interface did not follow the accessibility norms laid out in India's Rights of Persons with Disabilities Act, 2016. The government's delayed response not only denied timely health information to persons with disabilities but also underscored the broader problem of AI implementation without inclusive testing or design protocols(Balakrishna, 2025).

### 4.3 AI Bias in Recruitment Platforms – A Case from Delhi

In 2022, A post graduate student who has been suffering from cerebral palsy. Availed some AI technology facilitated platform that is a job-matching platform while seeking for the remote content writers' job in Mumbai. Although she was a good fit with relevant skills and experience, her resume had been screened out automatically a couple of times. When investigated by a local disability rights group, it turned out that the platform's AI algorithm favoured applicants based on their typing speed, and seamless completion of digital assessment thereby inherently prejudiced those with motor disabilities(Hindustan Times, 2025).

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The candidate eventually found a job through a manually operated NGO-run employment portal, highlighting how AI bias and the absence of accommodation mechanisms in digital recruitment processes contribute to structural employment exclusion for disabled users(Osborne & Vandenberg, 2025).

### 4.4 Rural Disability and AI Access – Insights from Maharashtra

A grassroots disability rights organisation in Vidarbha, Maharashtra, fixing the gap in AI-based tele-health consultations during the time of crisis: that of a 19-year-old boy with an intellectual disability whose family attempted to access AI-based tele-health consultations during the pandemic. The family lacked both a smartphone with AI capabilities and the digital literacy required to operate health apps. When an ASHA worker helped them download a telemedicine app, but they found that the app did not offer proxy logins, or inputs by caregivers, which is a vital feature for people with cognitive disabilities(Ozuem et al., 2021)

This case highlights how rural infrastructure deficits, combined with AI tools lacking adaptive features, create multilayered barriers for families with disabled members. It also illustrates the failure of many AI health platforms to consider use case scenarios beyond the urban, literate user base.

### 4.5 Public Sector Neglect in Accessibility Standards – The UMANG App

UMANG (Unified Mobile Application for New-age Governance) app, which aims to offer access to hundreds of government services, has commonly been criticized for its non-accessibility (D. Chakraborty, 2025).An accessibility audit of 2023 conducted by an independent disability watchdog found that the app did not respect WCAG 2.1 standards(Abu Kausar et al., 2025), particularly for speech to text, for magnification, and for navigational markers for screen reading parties(Willers et al., 2025)

A visually impaired RTI activist from Chennai filed a grievance through the Department of Empowerment of Persons with Disabilities (DEPwD), stating that the inaccessibility of such an essential government app effectively excluded him from accessing public services independently(The Hindu, 2025).Despite the app's AI integrations, such as predictive search and user behaviour tracking, it lacks basic disability support, raising concerns about inclusive design in state-sponsored digital initiatives.

## V. ANALYSIS AND DISCUSSION

This study explores structural paradoxes of various levels of cognitive, functional and digital exclusion being faced by PwDs in India while trying to avail AI services, the digital exclusion effect on priority areas, and offers actionable solutions to enhance accessibility. The examination of case studies has revealed an unsettling trend of systematic exclusion, insufficient inclusive design and policymakers' oversight which, when combined, result in PwDs being denied equitable access to benefits made possible by AI.

### 5.1. Intersecting Barriers to AI Accessibility

The cases in this study highlight the overlapping adverse effects of infrastructural, economic, and educational obstacles which limit the engagement of PwDs with digital technology. These barriers are not independent; rather, they intersect with each other in compounding marginalization. For instance, a story from rural Maharashtra demonstrated how poor digital infrastructure, combined with cognitive disability and caregiver interference, made the use of an AI enabled health platform almost impossible. Similarly, the education case of BYJU'S shows how a digital design inaccessible to us, as well as low digital literacy and lack of institutional support may lead to the complete disruption of the academic career of a PwDs. The findings are consistent with previous research that found digital inequality in India is closely shaped by geography, class and disability. They also reinforce a simplistic error in thinking about AI services, which posit some kind of 'default' user – capable, urban, and digitally literate. Figure 1 provides a visual representation of the three primary factors that contribute to the widening of AI inequality.

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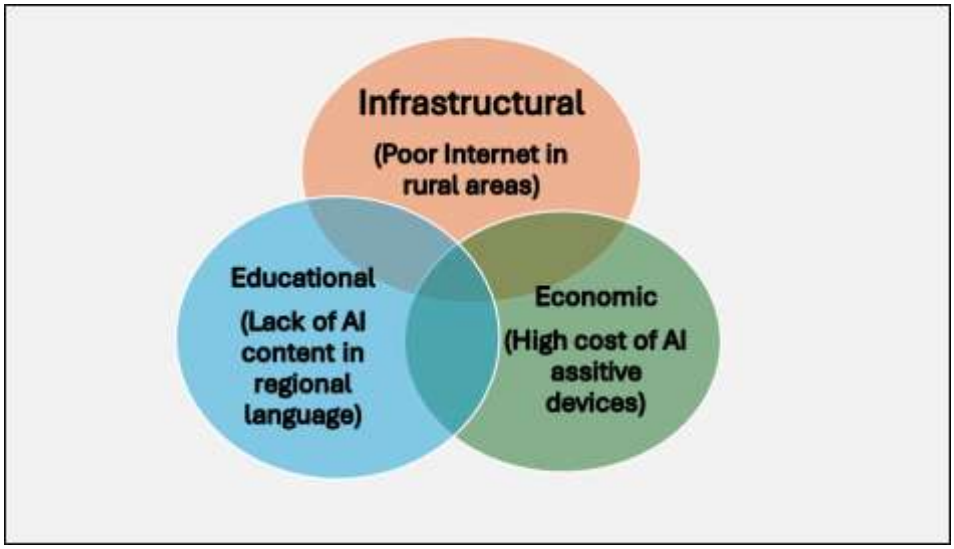


Figure 1: Visual Representation of Intersecting Factor which create AI Inequality

**5.2. Sectoral Implications of Digital Exclusion**

The consequences of this exclusion vary by sector but are severe. In education, digital inaccessibility results in long-term educational attrition and reduced employability. In healthcare, inaccessible AI interfaces can delay diagnoses, exclude patients from digital consultations, and deny critical health updates, as was evident in the Aarogya Setu app. In employment, algorithmic bias and rigid design exclude qualified candidates with disabilities from automated hiring processes, reflecting what(Noble, 2020)terms "algorithmic oppression" of marginalized identities.

Importantly, these exclusions are not simply technological flaws but are rooted in profound structural inequalities. As Sen's Capability Approach suggests, access to AI and digital services must be evaluated not only in terms of availability but also in terms of the fundamental freedoms' individuals have to use them meaningfully. When PwDs cannot interact with AI systems on equal terms, they are effectively deprived of the capabilities essential for social and economic participation. Figure 2 summarizes the consequences of AI inequality on the lives of PwDs.

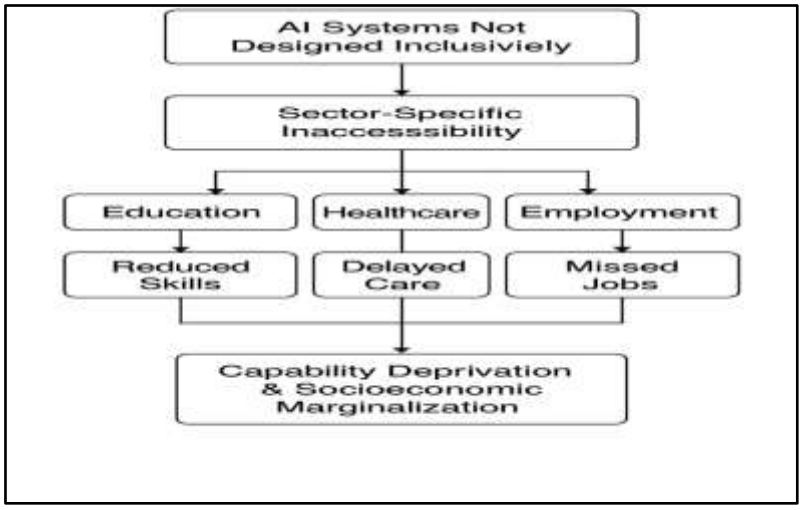


Figure 2: Negative Impact of AI Inequality

**5.3. Gaps in Policy Implementation: India vs other Global South Countries**

Despite progressive frameworks such as the Rights of Persons with Disabilities Act (2016), India's AI and digital governance strategies remain inadequately aligned with disability inclusion. Most government apps and services either partially implement or completely overlook the Web Content

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Accessibility Guidelines (WCAG), and there is limited public funding or incentives for private developers to build inclusive AI tools. Moreover, India's National Strategy for Artificial Intelligence (NITI) Aayog identifies healthcare, education, and employment as priority areas for AI implementation but makes only a passing reference to accessibility and disability inclusion. The absence of disability representation in policymaking processes further marginalizes the needs and experiences of PwDs in the AI ecosystem.

To contextualize India's gap in policy implementation, a comparative overview (2023-2025) in Table-1 with similarly positioned Global South nations such as Brazil and South Africa is provided below–

Table 1: Comparative Analysis of AI Policy India vs other Global South Countries

| Policy Focus | India | Global South | | Remarks |
|---|---|---|---|---|
| | | Brazil | South Africa | |
| **AI Accessibility Legislation** | RPwD Act AI Ethics Draft. | National Digital Inclusion Strategy | White Paper on AI (2022) with disability provisions | India lacks enforcement protocols |
| **Funding** | Only IIT Madras Sign Language model get funding for pilot study. | Co-funding between government and several universities | AI4SA Labs supported with PPP model. | India trails in public funding for inclusive datasets |
| **Rural Connectivity** | Only ~32% PwDs in rural areas digitally active | Universal broadband expansion particularly in under-connected regions | Rural connectivity at ~55% | India's rural AI gap among PwDs is wider than selected Global south countries. |

### 5.4. Toward a Rights-Based and Inclusive AI Ecosystem

The findings affirm the need to shift from a charity- or welfare-based approach to a rights-based framework that views digital accessibility as a core human right. This would require embedding accessibility standards at every stage of the AI lifecycle—from design and data collection to deployment and feedback mechanisms. Co-designing technologies with disabled users, enforcing accessibility audits, and introducing

inclusive procurement policies in public AI projects are all critical steps toward realising this vision.

Notably, the intersection of AI ethics and disability rights remains an under-theorised area in Indian scholarship and policy. There is a growing imperative to connect disability studies with critical algorithm studies, ensuring that AI ethics frameworks account for systemic exclusions rooted in ableism, bias, and institutional neglect.

## VI. CONCLUSION

This study has explored the complex and evolving relationship between AI-driven technologies and individuals with disabilities in India, focusing on the sectors of education, healthcare, and employment. Through an analysis of secondary data—including peer-reviewed literature, government reports, and organisational case studies—it identified and critically examined the infrastructural, economic, and educational barriers that hinder equitable access to AI-powered services for PwDs. The findings reveal that despite the transformative potential of AI, its deployment in India often reproduces and amplifies existing societal inequalities. Particularly in rural areas, where 70% of India's disabled population resides, limited digital infrastructure, low internet penetration (only 32%), and inadequate AI literacy continue to exclude individuals from accessing life-enhancing technologies. Moreover, the high cost of assistive AI solutions and the lack of regional language support further exacerbate the digital divide.

Several case studies highlight these issues. In employment, for example, AI-driven recruitment systems have been shown to reinforce ableist biases embedded in training datasets. As a result, an estimated 51% of disabled job-seekers report experiencing discrimination during automated screening processes. However, inclusive retraining models—such as the Primoris pilot study—have demonstrated the possibility of reversing these trends by using disability-inclusive datasets and adaptive algorithms. In the education sector, the proliferation of EdTech platforms after the COVID-19 pandemic promised expanded access to learning. However, many of these platforms failed to accommodate disabled learners due to poor interface design, minimal regional content, and a lack of accessibility features. Alarmingly, this has led to dropout rates as high as 63% among disabled students enrolled in online courses. In response, innovations like IIT Madras's regional sign language AI models have shown promising results, reducing dropout rates to 16% by integrating localised and accessible AI content.

In the area of workplace accessibility, tools like Microsoft Seeing AI offer valuable visual assistance to the visually impaired, but adoption remains limited due to high integration costs (approximately □ 2.5 lakh per employee) and low digital proficiency. However, targeted training initiatives such as Randstad India's AI literacy program have reached over 4,200 disabled employees, with 76% reporting promotions or career mobility post-training, indicating the transformative potential of such interventions. Efforts are also being made to address rural exclusion through initiatives like the Yes-to-Access app, which provides AI-enabled on-the-ground navigation support for individuals with mobility impairments. However, adoption remains low due to previously identified systemic barriers, including infrastructure, cost, and lack of awareness.

Collectively, these insights affirm that while AI can significantly enhance the quality of life and socio-economic opportunities for PwDs, its benefits are not distributed equally. AI-driven inclusion is not merely a technical challenge, but a social and political one—demanding coordinated efforts across government, private stakeholders, and civil society. To harness AI for social good, India must adopt a rights-based, inclusive digital development strategy—one that embeds accessibility into every phase of AI design, ensures representation of disabled voices in policymaking, and allocates resources to overcome infrastructural and educational divides. Only then can AI become a true enabler of dignity, equity, and empowerment for all.

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