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Inclusive education in rural india: Challenges and prospects for sustainable development: A systematic review (2005-2025)

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Abstract
Inclusive education in rural India has become an essential component of the nation's strategy to achieve Sustainable Development Goal 4 (SDG 4), that promotes for inclusive and equitable quality education. However, inequities in access, resources, infrastructure, and policy implementation consistently hinder advancement in rural areas.This systematic review synthesizes literature from January 2005 to June 2025 across five major databases: Google Scholar, Semantic Scholar, PubMed, ERIC, and BASE, using PRISMA 2020 framework.134 records have beeninitially reviewed using Rayyan software, and 91 peer-reviewed studies were identified as suitable for the review. Key themes were mapped using VOSviewer for bibliometric and thematic clustering. The review identifies five major challenges: (1) infrastructural and technological barriers, (2) teacher preparedness and inclusive pedagogy, (3) policy-practice disconnects, (4) socio-cultural resistance, and (5) limited community participation. The study also highlights successful models and innovative practices with prospects for scaling. Findings underline the urgent need for localized policy actions, capacity-building, and sustained community involvement to bridge the urban-rural educational gap and promote inclusive education for sustainable development.

Keywords: Inclusive education, rural India, SDG 4, PRISMA, educational equity, rayyan, vosviewer, systematic review, policy implementation

Introduction
Inclusive education has been widely recognized as an essential component in the global effort to “achieve SDG 4, which aims to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all." (*Transforming Our World: The 2030 Agenda for Sustainable Development | Department of Economic and Social Affairs*, n.d.)”.
Rural India, where educational inequality is exacerbated by socioeconomic, geographic, and cultural disparities, inclusive education presents both significant challenges and transformative opportunities for sustainabledevelopment ("Global Education Monitoring Report, 2020: Inclusion and Education: All Means All-UNESCO Digital Library, 2020-Google Search, n.d.); Ministry of Human Resource Development [MHRD]. National Education Policy 2020 [6]. Government of India"-Google Search, n.d.).
The principle of inclusive education, which stresses equitable access for all learners, is embedded in India’s educational frameworks,“such as Right to Education Act (2009), the National Education Policy”(2020), and aligns with UN’s Sustainable Development Goals (UNESCO, 2017) [3]. Despite these commitments, rural regions in India continue to face substantial hurdles in translating inclusive education from policy to practice (Devi, 2022) [2]. With nearly 65% of India’s population residing in rural areas, achieving inclusive education in these regions is not only essential for fostering national development but also for ensuring social equity (Parveen, 2022) [9].
This systematic review synthesizes research findings from January 2005 to June 2025, focusing on implementation, challenges, as well as future prospects of inclusive education in rural Indian contexts. Review followsPRISMA guidelines (Page *et al*., 2021) [8] and draws data from five major academic records: Google Scholar, Semantic Scholar, PubMed, ERIC, and BASE. The screening and selection of literature were facilitated using Rayyan(for article screening), a web-based systematic review tool (Ouzzani *et al*., 2016) [7], whileVOSviewer (for mapping thematic clusters) was used for bibliometric mapping to identify thematic

clusters and research trends (Van Eck & Waltman, 2010) [14].

Objectives

- To identify major challenges in implementing inclusive education in rural India.
- To review strategies and interventions promoting inclusive education in rural settings.
- To explore policy responses and institutional frameworks aligned with SDG 4.
- To identify gaps in literature and suggest directions for future research.

Methodology

Data Sources and Research Design

A systematic review follows by PRISMA 2020 principles that comprises 4 primary phases: screening, eligibility, identification, and inclusion. A comprehensive examination has been conducted across 5 principal academic databases: Google Scholar, Semantic Scholar, PubMed, ERIC, and BASE, analyzing literature published from January 2005-June 2025.

Keywords included:"inclusive education", "rural India", "SDG 4", "NEP 2020", "educational challenges", "barriers to education", "National Education Policy", "disability and education", "tribal education", "sustainable development goals in India."

The search results have been exported in RIS format for filtering and reference management.

Inclusion and Exclusion Criteria

Resulting exclusion and inclusion criteria have been employed to ensuringsignificance and quality:

Table 1: Inclusion and Exclusion Criteria for Article Selection

"Inclusion Criteria	Exclusion Criteria
Articles published between 2005 and 2025	Publications outside the time frame
Focus on inclusive or rural education in India	Studies not related to inclusive or rural education
Peer-reviewed journal articles and reports"	Opinion pieces, editorials, blogs
Written in English	Non-English articles

Screening and Selection

The initial pool of literature retrieved from databases was systematically screened using Rayyan**,** an AI-assisted collaborative review platform. After importing all references, duplicates were identified and removed. The residual records following2-stages screening process: (1) Title and abstract screening, and (2) Full-text evaluation based on eligibility criteria.

This multi-phase approach ensured that only studies of high relevance and methodological rigor were included.

Data Extraction and Management

Following the screening process, essential data fields such as title, author(s), year, journal/source, keywords, and thematic area were extracted from the final set of included studies. Rayyan's tagging and annotation features were used to manage and label articles during the screening process.

The curated dataset was then exported and prepared for bibliometric analysis using VOSviewer**,** which enabled visualization of keyword co-occurrences and thematic clusters. This step supported the identification of conceptual linkages, emerging trends, and research gaps within the selected literature on inclusive education in rural India.

Article Screening Summary (Rayyan)

A total of 134 references were imported into Rayyan from the selected databases. The deduplication process produced the following outcomes:

- Duplicates Identified**:** 10
- Duplicates Deleted**:** 5
- Duplicates Resolved**:** 5
- Unresolved Duplicates**:** 0

After deduplication, 129 unique records remained and were screened through title, abstract,as well as full-text review stages. 91 studies were finalized and included within the systematic synthesis based on inclusion criteria and relevance to the research objectives. This systematic approach ensured transparency and reproducibility, by PRISMA guidelines.

Screening Progress and Final Inclusion

The entire screening and selection process was completed using Rayyan in a single session, lasting approximately 15 minutes**,** with a100% completion rate andzero reviewer conflicts**.** The breakdown is as follows:

- Total Records After Deduplication**:** 129
- Articles Marked as "Included"**:** 91
- Articles Excluded**:** 50 (did not meet inclusion criteria)
- Articles Marked as "Maybe"**:** 0

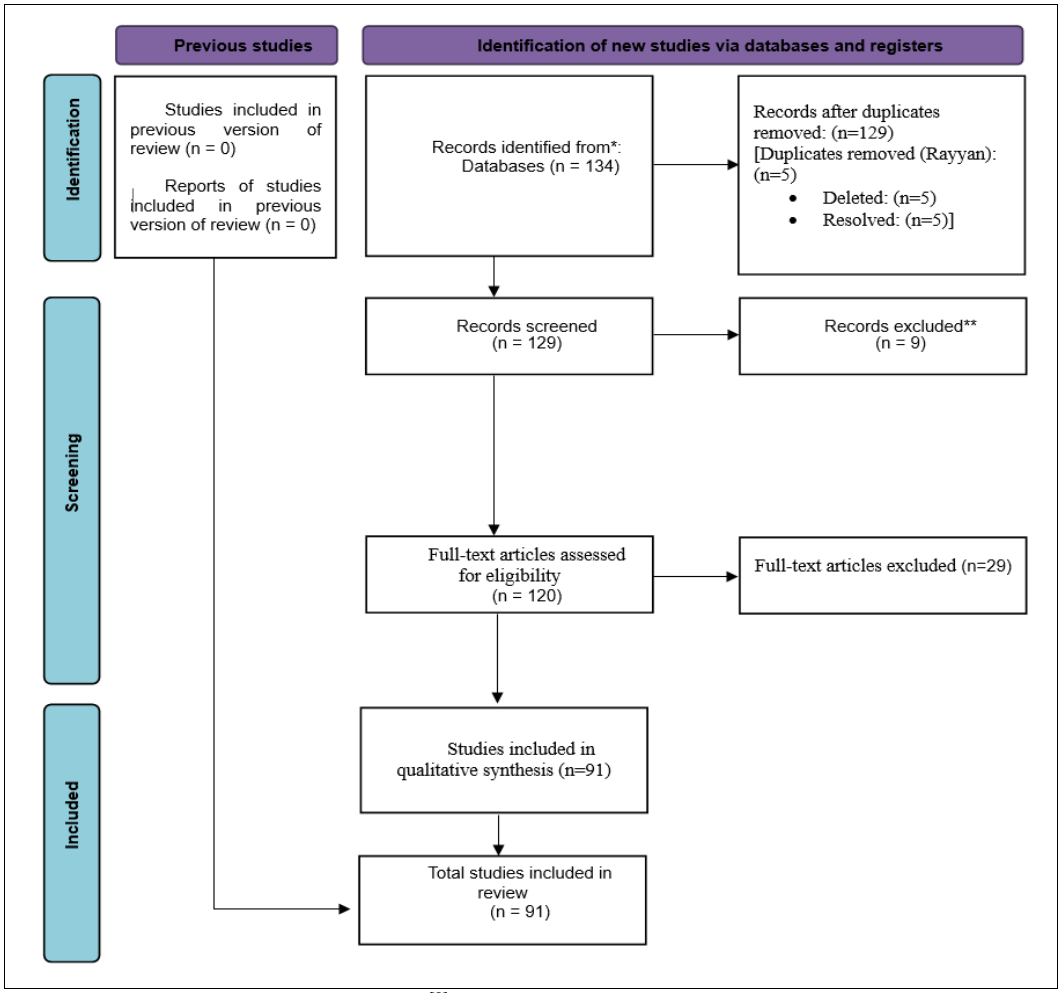
This structured and efficient screening approach helped ensure the credibility and comprehensiveness of the review, supporting the reliability of the findings and analysis in the subsequent sections.

PRISMA Flow Diagram

PRISMA diagram below illustrates comprehensive screening and selection approach utilized in this systematic review

PRISMA 2020 Flow Diagram (Based on Rayyan Data)

A flow chart outlines procedure for article selection in a systematic review on inclusive education in rural India. It is by PRISMA 2020 guidelines and is predicated on screening data from Rayyan.The figure illustrates the process of identifying, filtering, eliminating, and then adding records to the final synthesis.



Source: Page MJ, *et al*. BMJ 2021;372:n71 [8]. doi: 10.1136/bmj.n71.This work is licensed under CC BY 4.0. To view a copy of this license, visit https://creativecommons.org/licenses/by/4.0/

Fig 1: PRISMA 2020 Flow Diagram for Study Selection

Results

Study Selection and PRISMA Flow Summary

Literature screening procedure conformed to PRISMA 2020 guidance.134 data have been discovered from 5 academic databases: Google Scholar, Semantic Scholar, BASE, ERIC, and PubMed. Following the elimination of 5 duplicates by Rayyan, 129 records had been assessed. Following abstracts and screening of titles, 120 articles had been evaluated for eligibility. Therefore, 29 articles have been eliminated for failure to match the inclusion criteria, resulting to the inclusion of 91 research in the final qualitative synthesis.

Descriptive Characteristics of Included Studies

91 selected studies span the period from January 2005 to June 2025 and include a diverse range of research methodologies:

- **Qualitative studies**: 54 (60%)
- **Quantitative studies**: 22 (24%)
- **Mixed-methods studies**: 14 (16%)

The reviewed studies primarily focus on rural contexts in states such as Uttar Pradesh, Jharkhand, Odisha, Bihar, and Assam, with thematic emphases on policy analysis, disability inclusion, teacher preparedness, technological innovations, and community engagement. Articles were drawn from multiple sources, with the majority originating from Google Scholar and Semantic Scholar, and several peer-reviewed papers indexed in PubMed and ERIC.

Thematic Cluster Explanation

Cluster 1: "India" and "Inclusive Education" (Red Cluster)

- **Keywords:** *"India", "inclusive education"*
- **Theme:** This cluster centers on the geographic and conceptual focus of your review. Most articles converge on challenges and strategies associated withinclusive education within Indian context, especially in rural or underserved regions.
- **Interpretation:** This cluster emphasizes that inclusive education is not being studied in isolation, but specifically in relation to India's unique socio-political, cultural, and policy landscape.

Cluster 2: "Education" and "Sustainable Development" (Green Cluster)

- **Keywords:** *"education", "sustainable development"*
- **Theme:** This cluster connects inclusive education to SDG 4, theobjectives ensure equitable, inclusive, as well as quality education for all.
- **Interpretation:** It reflects a developmental and policy-driven perspective, where education is positioned as both a means and outcome of sustainable development. Articles in this cluster often discuss national policies like NEP 2020 or global frameworks like Education for All (EFA).

Connections between Clusters

- The keyword "education" acts as a bridge between the two clusters.
- This indicates that inclusive education in India is being widely discussed in connection with broader education goals and sustainability outcomes.

Table 2: Summary of Thematic Cluster Explanation

Cluster	Core Keywords	Theme	Implication
Red	India, Inclusive Education	National context of inclusive education	Local implementation, policy gaps
Green	Education, Sustainable Development	Global development goals and educational equity	SDG 4 alignment, policy vision

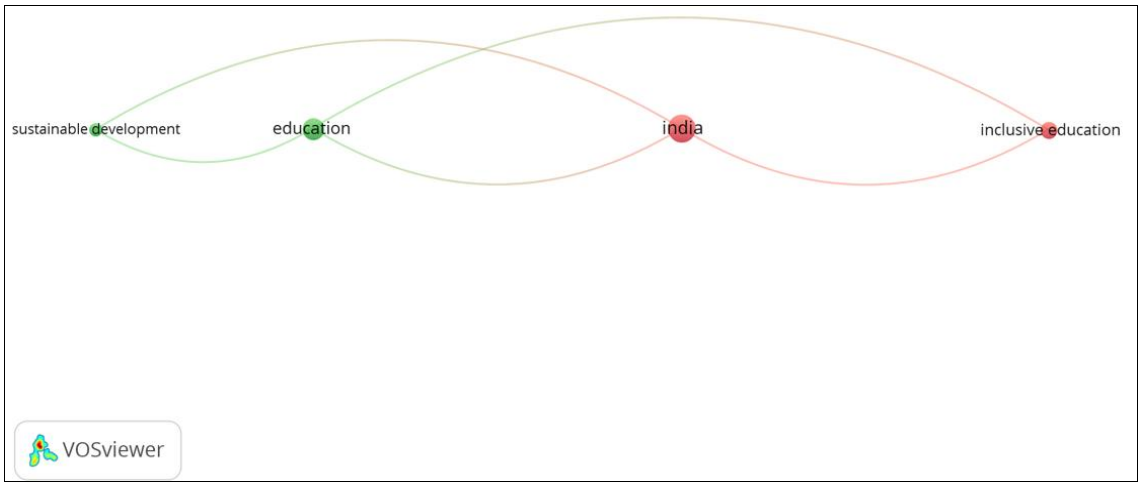


Fig 2: VOSviewer Keyword Co-occurrence Map

The visualization shows two major thematic clusters. The red cluster represents the national focus on *inclusive education in India*, while green cluster reflects discussions connecting *education* to *sustainable development goals*. The connecting term "education" highlights its centrality across both local and global perspectives.

Thematic Clusters Identified via VOSviewer Analysis

Thematic analysis of 91 selected articles with peer review published from 2005-2025. focusing on inclusive education in rural India, guided by VOSviewer-based co-occurrence mapping, revealed four dominant and interrelated clusters. Each represents a significant area of concern or opportunity in landscape of inclusive education in rural India. These clusters form foundation for detailed synthesis in the subsequent sections.

Barriers to Inclusive Education

The most prominent challenge identified is the persistent infrastructural and systemic barriers in rural educational settings. Several educational institutions lack fundamental physical infrastructure, including ramps, accessible bathrooms, electricity,as well as sufficient classroom space, rendering them unsuitable for learners with disabilities (Kumar & SINGH, 2024) [4].

Moreover, the shortage of trained teachersand inadequate exposure to inclusive pedagogy significantly hinder the integration of special needs children into regular classrooms (Parveen, 2022) [9]. The review also highlights a lack of assistive learning materials and underutilization of available government schemes meant for inclusive support.

A majority of the studies (e.g., Devi, 2022; Sharma & Raina, 2025) [2,] highlighted structural barriers including inadequate infrastructure, teacher shortages, as well as lack of inclusive pedagogy in rural schools. These constraints disproportionately affect marginalized groups, especially tribal and disabled students.

Policy and Implementation Gaps

While"policies,includingthe National Education Policy (2020)and Right to Education Act (2009)", advocate inclusive education, implementation remains uneven, especially in rural contexts (Devi, 2022) [2]. Several studies point to a disconnect between central policydesign and local-level execution, often exacerbated by insufficient funding, bureaucratic delays, and limited institutional accountability.

Monitoring systems are either absent or ineffective in ensuring policy compliance at the grassroots level. As a result, well-intentioned reforms often fail to translate into tangible changes for rural learners.

Numerous studies assessed the impact of government policies, including "the National Education Policy (NEP) 2020 and the Right to Education (RTE) Act".While these policies advocate inclusive education, implementation remains inconsistent across rural contexts (e.g., Kumar & SINGH, 2024) [4]. Studies emphasized the need for stronger monitoring, better-trained teachers, and decentralized policy execution.

NGO-led and Community-based Interventions

A significant subset of the reviewed literature documented the positive role of NGOs and community organizations in promoting inclusive education, particularly in tribal and remote regions. These interventions were found to be scalable and culturally rooted**, e**ffectively addressing both logistical and socio-cultural challenges (Banga Chhokar, 2010) [1]. Examples include after-school support programs, community mobilization for enrollment, and teacher sensitization workshops. Such grassroots efforts have shown measurable improvements in school participation and learning outcomes.

Technology and Innovation in Rural Inclusion

Despite the challenges, the review reveals several promising

innovations and practices that demonstrate the potential for inclusive transformation in rural education. The introduction of MOOCs and ICT-based learning modelshas enabled flexible and accessible education, especially in remote areas (Kumar & SINGH, 2024) [4].

Moreover, NGO-led community programs, particularly in tribal and underserved regions, have successfully introduced inclusive classroom models, teacher sensitization workshops, and mobile learning units(Sharma & Raina, 2025). These models are often cost-effective, scalable, and responsive to local cultural contexts.

Such initiatives highlight the importance of contextual adaptation, community involvement, and inter-sectoral collaboration as cornerstones of successful inclusion strategies.

Articles from the post-2015 period increasingly focused on the role of e-learning platformsand digital technology, especially during and afterCOVID-19 pandemic. MOOCs, community radio, and mobile-based learning apps were found to improve educational access in isolated villages (Kumar & SINGH, 2024) [4]. However, digital literacy and connectivity continue to hinder scalability.

Social and Cultural Dimensions of Exclusion

The review identifies deep-rooted socio-cultural factors as critical barriers to inclusion. Rural children from marginalized castes, tribal communities, and minority religions frequently face discrimination, both overt and subtle, within the schooling process (Mehendale *et al*., 2015) [5]. Similarly, gender-based exclusion remains prevalent, particularly for girls with disabilities or from conservative communities. The stigma surrounding disability and a general lack of awareness about inclusive rights further compound these challenges (Singal, 2019) [13]. In many cases, parents and community members are unaware of the support services or legal provisions available to them, undermining their ability to advocate for their children's education.

Innovations and Best Practices in Inclusion

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Moreover, NGO-led community programs, particularly in tribal and underserved regions, have successfully introduced inclusive classroom models, teacher sensitization workshops, and mobile learning units (Sharma & Raina, 2025a) [10]. These models are often cost-effective, scalable, and responsive to local cultural contexts.

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Discussion

The findings of this review highlight a significant and persistent urban-rural divide in “implementation of inclusive education in India. Although national policies,includingthe Right to Education Act (2009) and the National Education Policy (2020)”, emphasize inclusivity, their on-ground implementation in rural areas remains limited and inconsistent (Devi, 2022) [2].

One of the central challenges is the lack of readinessbetween teachers, who are expected to deliver inclusive pedagogy without adequate training or institutional support (Parveen, 2022) [9]. Many rural teachers are unfamiliar with differentiated instruction or approaches to address various learning needs of students with disabilities, language barriers, or socio-economic disadvantages.

The review also points to structural barriers such as inadequate infrastructure, limited access to learning materials, and poor monitoring mechanisms that further constrain inclusive practices in rural schools.

Despite these challenges, there are notable signs of progress. The emergence of technology-enabled solutions—including Massive Open Online Courses (MOOCs), mobile learning units, and digital content has expanded access and created alternative pathways for inclusive education delivery. Additionally, community-based and NGO-led models have demonstrated that localized, low-cost innovations can effectively support inclusion when improved cultural and socio-economic context of rural regions.

However, for these innovations to have a sustained impact, they require long-term investment, policy support, and scaling through public-private partnerships. Additionally, inclusive education shouldn't operate in isolation. It should be integrated with broader rural development agendas, including nutrition, healthcare, sanitation, and livelihood programs, to create a holistic and enabling environment for learning.

In summary, while inclusive education in rural India remains an aspirational goal, it is attainable through context-sensitive policy implementation, teacher capacity-building, technology integration, and community empowerment. These components must work together within a multi-sectoral framework to ensure that no child is left behind.

Conclusion and Recommendations

This systematic review of 91 studies conducted between 2005 and 2025 reveals that inclusive education in rural India remains a complex as well as evolving issue, shaped by infrastructural limitations, socio-cultural challenges, and gaps in policy implementation. Although frameworks, such as“the National Education Policy (2020) and Right to Education Act (2009)”, have establishedstrong foundation, their impact remains limited in rural and marginalized settings due to inconsistent execution and inadequate support systems.

The findings highlight significant barriers such as a shortage of trained teachers, inadequate infrastructure, and deep-rooted social attitudes that resist inclusion. However, the literature also points to emerging practices with potential,such as usage of communication technologies (ICTs) and information, mobile classrooms, MOOCs, and NGO-led initiatives that demonstrate scalable, locally relevant solutions. Crucially, the review emphasizes that inclusive education must be linked with wider development agendas in health, nutrition, and rural livelihoods to ensure long-term sustainability and impact.

Advancing inclusive education in rural India demands more than policy reform—requires systemic change, active community engagement, and cross-sector collaboration. This review recommends an integrated approach that embeds inclusive pedagogy in teacher training, upgrades infrastructure and assistive resources, and ensures localized

policy enforcement. Strengthening inclusion also involves public awareness, community participation, and the use of regionally tailored digital technologies. Aligning education efforts with broader rural development initiatives in health, nutrition, and livelihoods is essential to achieving equity goals of Sustainable Development Goal 4 (SDG 4).

Future research needs to focus on overcoming existing gaps through research studies that assess the ongoing impacts of inclusive practices along with the efficacy of digital tools for learners with disabilities, comparing policy implementation across states, and exploring how caste, gender, and disability intersect to affect educational access and outcomes. These efforts can help build a robust, evidence-based, and context-sensitive roadmap toward achieving inclusive, equitable, and quality education for all.

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