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Registration No. V-36244/2008-09

ISSN :- 2350-0611

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The journal has been listed in 'UGC Approved List of Journals' with Journal No. – 48441 in previous list of UGC

JIFE Impact Factor – 5.23

## *Research Highlights*

*A Multidisciplinary Quarterly International Peer Reviewed Referred Research Journal*

*Editor*

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Sevapuri, Varanasi

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**Volume - XII**

**No. - 4**

**(Oct. – Dec. 2025)**

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(Part – III)

*Published by*  
**Future Fact Society**  
**Varanasi (U.P.) India**

*Research Highlights* - A Referred Journal, Published by : Quarterly

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**Managing Editor**  
*Avinash Kumar Gupta*

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**ISSN : 2350-0611**

**Printed by**

Interface Computer, B 31/13-6, Malviya Kunj, Lanka, Varanasi-221005 (U.P.)

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Hoping all of you shall enjoy our endeavors and those of our contributors.

**Editor**



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# Role of Public Libraries in Promoting Life Long Learning

Maya Gautam\*

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## Abstract

*Public libraries occupy a unique and enduring position in the social infrastructure of communities, functioning as accessible knowledge hubs that support learning across the lifespan. This paper examines the multifaceted role of public libraries in promoting lifelong learning by synthesizing conceptual frameworks, practical services, and programmatic strategies that libraries employ to facilitate continuous education. The discussion highlights core functions like information provision, digital inclusion, formal and informal learning support, community engagement, and skills development and explores how libraries adapt to changing educational needs through partnerships, outreach, and innovation. The paper also addresses barriers that limit libraries' effectiveness and offers policy and institutional recommendations to maximize their contribution to equitable lifelong learning. The conclusion emphasizes that with targeted investment and strategic planning, public libraries can be transformational actors in advancing inclusive, resilient, and learner-centered societies.*

**Keywords:** Public libraries, lifelong learning, digital inclusion, community education, information literacy, adult learning, lifelong skills

## Introduction:

Lifelong learning is increasingly recognized as essential for personal development, workforce adaptability, civic participation, and social inclusion. Traditional educational institutions like schools, colleges, and vocational institutes provide foundational and credentialed learning; however, the evolving nature of knowledge, technology, and work requires continuous, flexible, and accessible learning opportunities beyond formal systems. Public libraries, long associated with free access to books and quiet study spaces, have evolved into dynamic community learning centres that promote learning at all life stages. Their non-formal and informal learning environments, universal access policies, and community-rooted presence position them well to respond to local learning needs. This paper explores how public libraries foster lifelong learning, the strategies they use, the challenges they face, and practical recommendations for strengthening their role.

## Objectives of the Study

The primary objectives of this research are:

1. To examine the role of public libraries in facilitating lifelong learning for diverse communities.
2. To analyse how libraries contribute to digital inclusion, information literacy, and workforce development.
3. To identify the challenges public libraries, face in promoting lifelong learning.
4. To suggest policy and institutional recommendations for strengthening the role of libraries in lifelong education ecosystems.

## Research Methodology

This paper is based on a qualitative research approach, using secondary data review method. Scholarly articles, policy documents, government reports, and international publications on lifelong learning and libraries were examined to synthesize existing knowledge. The study relies on descriptive analysis, identifying key themes such as access, literacy, digital inclusion, and community

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engagement. A thematic review of literature was conducted to ground the discussion in empirical and theoretical insights.

### **Review of Literature**

Research on the role of public libraries in lifelong learning highlights their evolving contributions to literacy, digital inclusion, and community engagement. Krolak (2005) described libraries as “people’s universities,” emphasizing their role in providing access to resources that support continuous and self-directed learning. Aabo and Audunson (2012) reinforced this perspective by arguing that libraries function as democratic spaces that foster social capital through shared learning and collective participation. In the context of digital transformation, Bertot, Real, and Jaeger (2016) found that libraries reduce the digital divide by providing access to the internet and ICT training, particularly for underserved communities.

Global frameworks also underscore the connection between libraries and lifelong learning. UNESCO (2016) highlighted those libraries are central to achieving Sustainable Development Goal 4 by promoting inclusive and equitable quality education. Similarly, the International Federation of Library Associations and Institutions (IFLA, 2018) emphasized that public libraries are key players in achieving the UN 2030 Agenda by providing free access to knowledge and promoting literacy across all age groups. Supporting this, Varheim (2014) observed that libraries build trust and social capital by fostering civic learning and integration for immigrants.

Indian scholars have also documented the role of libraries in the national context. Rani (2019) examined rural libraries in India and concluded that they play a vital role in promoting functional literacy and skill development, particularly for women and marginalized groups. Mishra (2021) noted that while public libraries in India are crucial for digital inclusion, they face persistent challenges of inadequate funding, outdated infrastructure, and lack of trained staff. Singh and Devi (2020) added that community libraries in India help reduce educational disparities by acting as bridges for learners who lack access to formal institutions.

Emerging scholarship highlights innovative practices in libraries. Williams and Durance (2020) analysed makerspaces in public libraries and concluded that they nurture creativity, STEAM learning, and entrepreneurial thinking. Similarly, Lo et al. (2017) studied Hong Kong libraries and found that adult learners benefited from library-based workshops on digital literacy and lifelong learning skills. McMenemy (2012) argued that public libraries contribute to lifelong learning not just through materials but also by acting as inclusive community spaces that adapt to changing social needs. More recently, Mathews and Pardue (2020) observed that libraries are increasingly serving as hubs for workforce development by hosting reskilling and micro-credential programs.

Taken together, the literature suggests that public libraries worldwide are vital instruments for lifelong learning, but their impact depends on sustained funding, staff training, and alignment with community needs. While global studies emphasize innovation and civic engagement, Indian scholarship stresses the urgent need to modernize infrastructure and integrate digital resources.

### **Conceptual Framework: Lifelong Learning and the Public Library Mission**

Lifelong learning encompasses formal, non-formal, and informal learning activities undertaken throughout life for personal or professional development. Grounded in learner autonomy and relevance to everyday life, lifelong learning emphasizes accessibility, flexibility, and diverse learning pathways. Public libraries align naturally with these principles: they provide free or low-cost access to information resources, spaces for self-directed learning, and programs tailored to community interests. From a capability perspective, libraries expand individuals’ opportunities to acquire knowledge, skills, and capacities that enable participation in economic, cultural, and civic life. Libraries thus function as enablers of human development by reducing information poverty, supporting digital competencies, and cultivating literacies critical for navigating contemporary society.

### **Core Roles of Public Libraries in Lifelong Learning**

1. **Access to Information and Resources:** Public libraries offer curated collections of print and digital materials—books, periodicals, databases, and multimedia—covering an expansive range of subjects. Access is typically free or nominally priced, removing financial barriers and enabling lifelong learners to explore topics at their own pace. Libraries also facilitate interlibrary loan and resource sharing, broadening the range of materials available to learners. Beyond content provision, librarians assist users in locating and evaluating information, supporting inquiry-based learning and lifelong curiosity.
2. **Digital Inclusion and Technology Access:** As digital technologies have become integral to learning and employment, libraries play a critical role in bridging the digital divide. Many libraries provide public computers, high-speed internet, Wi-Fi hotspots, and device lending programs services that allow learners who lack home access to participate in online courses, job searches, and digital communities. Libraries frequently offer training in basic digital skills and more advanced topics such as digital content creation, coding, and digital safety, equipping patrons with competencies essential for contemporary life.
3. **Information and Media Literacy:** In an environment saturated with information of varying quality, libraries cultivate information literacy: the ability to find, critically evaluate, and responsibly use information. Through workshops, one-on-one instruction, and integrated programming, librarians teach research strategies, source evaluation, and media literacy skills. These competencies empower learners to engage with news, health information, civic resources, and academic materials with discernment.
4. **Support for Formal and Non-Formal Education Pathways:** Public libraries complement formal education by supporting students and adult learners through homework help, test preparation resources, adult basic education, English language learning, and preparation for professional certification or vocational training. Libraries often host and facilitate blended learning models by partnering with universities, community colleges, and online education platforms to provide local access points for distance learners.
5. **Community Learning Spaces and Social Learning:** Libraries provide neutral, inclusive spaces where learners of all ages gather for study, discussion, collaboration, and peer learning. Programs such as reading circles, maker spaces, discussion forums, and intergenerational activities promote social learning and knowledge exchange. These communal environments foster social capital, encourage mentoring relationships, and create opportunities for experiential learning that extends beyond individual study.
6. **Cultural and Civic Education:** Beyond vocational and technical skills, libraries contribute to civic literacy by hosting public talks, exhibitions, voter information drives, and forums on local issues. Cultural programming such as author talks, local history projects, and arts events supports lifelong engagement with cultural heritage and creative expression, enriching community life and civic participation.

### **Programmatic Strategies and Services that Enhance Lifelong Learning**

- **Adult Literacy and Basic Education Programs:** Libraries frequently offer literacy classes and resources tailored to adults seeking to improve reading, writing, or numeracy skills. Such programs are often responsive to adult learning principles, emphasizing practical, contextually relevant content and learner autonomy.
- **Digital Skills and Workforce Readiness Workshops:** Tailored workshops on resume writing, online job applications, spreadsheet skills, social media for professionals, and digital storytelling help bridge the gap between learning and employability. Certifications and micro-credential pathways hosted or supported by libraries can scaffold workforce transitions.
- **Maker Spaces and STEAM Activities:** By providing equipment (3D printers, audio-visual tools, electronics kits) and guidance, libraries promote hands-on learning and creativity.

Maker spaces encourage experimentation, problem-solving, and project-based learning applicable across ages and career stages.

- **Lifelong Learning Pathways and Personalized Guidance:** Reference librarians and learning navigators can help patrons design personalized learning plans, curate resources, and identify local or online course opportunities aligned with their goals. Such guidance enhances learning efficiency and motivation.
- **Outreach and Mobile Services:** To reach underserved populations, libraries deploy mobile units, pop-up libraries, and community outreach initiatives that bring resources and programs to neighbourhoods, senior centres, and rural areas. These strategies extend access and reduce mobility barriers.
- **Collaborative Partnerships:** Libraries partner with educational institutions, NGOs, employers, cultural organizations, and government agencies to expand program offerings, secure funding, and create pathways from library learning to formal credentials or employment.

### Challenges and Constraints

Despite their potential, public libraries face significant challenges in scaling their lifelong learning role:

- **Resource Limitations:** Many libraries operate with constrained budgets and staffing, limiting program scope, technology updates, and outreach capacity. Financial insecurity can hinder sustainable programming and the maintenance of infrastructure.
- **Digital Divide and Technological Obsolescence:** While libraries mitigate access gaps, rapid technological change requires continuous investment in hardware, software, and staff training. Without consistent funding, libraries risk offering outdated tools that fail to prepare learners for current demands.
- **Skills and Capacity Gaps among Library Staff:** Delivering effective lifelong learning services requires librarians to possess pedagogical skills, digital competencies, and program management capabilities. Professional development opportunities are not uniformly available.
- **Measurement and Impact Assessment:** Evaluating the long-term outcomes of library learning initiatives such as employability gains or improved civic participation can be methodologically challenging. Limited data collection and monitoring capacity impede evidence-based planning and advocacy.
- **Perceptions and Visibility:** Libraries may be undervalued in policy agendas that prioritize formal education and economic interventions. Low visibility of libraries' learning contributions can result in missed opportunities for partnerships and funding.
- **Equity and Accessibility Barriers:** Access issues related to language, disability, socio-economic status, or cultural relevance persist. Libraries must actively design inclusive services to serve diverse learner populations.

### Policy Implications and Institutional Recommendations

To unlock the full potential of public libraries as lifelong learning providers, coordinated efforts at policy and institutional levels are required:

**Sustained Funding and Infrastructure Investment:** Governments and funders should recognize libraries as essential learning infrastructure and provide predictable funding streams for staffing, technology, and program development. Investment in broadband connectivity and device lending programs is particularly important in underserved areas.

**Capacity Building for Library Staff:** Professional development initiatives should equip librarians with instructional design, adult learning theory, digital skills training, and impact evaluation methods. Training can be delivered through regional hubs, online courses, and partnerships with educational institutions.

**Strategic Partnerships:** Libraries should formalize collaborations with universities, vocational training providers, employers, and civil society organizations to create articulated learning pathways that connect library activities to formal credentials and labor market opportunities.

**Data, Monitoring, and Research Support:** Establishing simple, standardized metrics for participation, learning outcomes, and social impact will enable libraries to demonstrate value and improve programming. Policymakers can support research into effective models and fund pilot innovations.

**Inclusive Service Design:** Libraries must adopt universal design principles and multilingual resources, ensure physical and digital accessibility, and co-create programs with community stakeholders to meet diverse needs.

**Recognition within Lifelong Learning Frameworks:** Incorporating libraries into national lifelong learning strategies, adult education policies, and workforce development plans can formalize their role and unlock cross-sector support.

#### **Future Directions for Practice and Research**

Future practice should focus on scalable models that combine digital and place-based services, such as library-supported blended learning centres and credentialing partnerships. Research priorities include rigorous evaluations of library programs' impact on employability and well-being, comparative studies of different service models, and investigations into cost-effective strategies for digital inclusion. Additionally, exploring the role of libraries in supporting emerging literacies such as data literacy, algorithmic literacy, and climate literacy would position libraries as crucial actors in preparing communities for complex societal challenges.

#### **Conclusion**

Public libraries are invaluable public goods that support lifelong learning in tangible and multifaceted ways. By providing free access to information, enabling digital inclusion, teaching critical literacies, and offering community-centered learning spaces, libraries empower individuals to learn continuously, adapt to changing circumstances, and participate fully in civic and economic life. To scale these contributions, libraries require sustained investment, capacity building, strategic partnerships, and policy recognition. When supported, public libraries can help create equitable and resilient learning ecosystems that enable people of all ages to pursue knowledge, skills, and meaningful participation throughout their lives.

#### **References and Further Reading**

- Works on lifelong learning theory and adult education (texts covering adult learning principles, non-formal education, and lifelong learning frameworks).
- Studies and reports on digital inclusion and the role of public access points in closing the digital divide.
- Publications from international library associations and networks on library services for adult learning, digital skills, and community engagement.
- Case studies and practice notes from regional library consortia and national library programs that document innovative service models such as maker spaces, blended learning hubs, and mobile libraries.
- Research on information literacy and media literacy in public library settings.

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# Ethno-medicinal Knowledge among Maria and Muriya Tribes of Chhattisgarh: A Theoretical Review of Traditional Healthcare Practices

Kiran Gondi\*  
Suneeta Patra\*\*

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## Abstract

India's tribal communities possess rich indigenous knowledge systems, especially in the realm of Ethnomedicine, where plant-based remedies and healing practices have been passed down orally through generations. Among these, the Maria and Muriya tribes of Bijapur district in Chhattisgarh represent culturally vibrant communities whose traditional healthcare practices are deeply embedded in their ecological surroundings and spiritual belief systems. Chhattisgarh, often referred to as the 'Herbal State of India,' harbours vast biodiversity and a significant tribal population, with ethnomedicinal knowledge playing a vital role in primary healthcare, especially in remote forested areas where modern medical facilities remain scarce. This article undertakes a theoretical review of the ethnomedicinal knowledge among the Maria and Muriya tribes, examining the interplay of indigenous plant use, cultural beliefs, and healthcare practices. Drawing from existing ethnobotanical studies, medical anthropology, and theories of indigenous knowledge systems, the paper aims to synthesize scattered documentation, assess the cultural and ecological significance of these practices, and highlight the socio-economic and environmental threats they face today. The review further offers conceptual insights on the preservation of ethnomedicinal knowledge and proposes pathways for integrating traditional healthcare systems within contemporary public health frameworks in India.

**Keywords:** Ethnomedicinal Knowledge, Maria and Muriya Tribes, Traditional Healthcare Practices, Medicinal Plants, Biodiversity Conservation.

## Introduction

### Background and Context

Ethnomedicine, as a subfield of ethnobotany, has long been an integral part of indigenous communities worldwide, reflecting the intricate relationships between people, plants, and their ecosystems (Banerjee, 2024). India, with its diverse ecological zones and cultural multiplicity, presents an extraordinarily rich tradition of medicinal plant use, embedded within the social, spiritual, and healthcare practices of its tribal populations (Sharma *et al.*, 2022). The country is home to over 705 officially recognized Scheduled Tribes, constituting approximately 8.6% of the national population, according to the Census of India 2011. These tribal communities possess distinct socio-cultural identities, subsistence strategies, and indigenous knowledge systems, particularly concerning ethnomedicinal practices that are often undocumented and orally transmitted across generations (Reddy *et al.*, 2023). Among these, the Maria and Muriya tribes of Chhattisgarh stand out as custodians of rich ethnobotanical wisdom, deeply intertwined with the region's biodiversity and cultural traditions.

Chhattisgarh, located in the heart of India, is often referred to as the 'Herbal State of India' due to its remarkable floristic diversity and the reliance of its tribal communities on traditional plant-based healthcare (Pati, 2005). Nearly 32% of Chhattisgarh's population comprises tribal groups (Singh, 2017), with Bastar division, particularly Bijapur district, serving as a stronghold for the Maria and Muriya tribes (Sikarwar, 2017). Living in remote, forested regions, these communities have historically depended on medicinal plants for addressing a wide range of ailments—from common fevers and wounds to complex conditions like bone fractures, snakebites, and reproductive health issues. The World Health Organization (WHO) estimates that nearly 80% of the rural population in developing countries still relies on traditional

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plant-based medicines for their primary healthcare needs (Wijesekera, 2017), highlighting the continued relevance of these knowledge systems in contemporary times. However, despite their socio-ecological significance, the ethno medicinal knowledge of tribal groups like the Maria and Muriya remains under-researched, vulnerable to erosion, and marginalized in mainstream healthcare discourses.

The motivation for undertaking a theoretical review of ethnomedicinal knowledge among the Maria and Muriya tribes emerges from the urgent need to document, preserve, and critically reflect on the indigenous healthcare practices of marginalized communities in India. In the face of rapid globalization, deforestation, and socio-cultural assimilation, traditional medicinal knowledge faces the dual threats of cultural erosion and ecological degradation (Anyinam, 2016). Field studies conducted by various scholars (Pullaiah *et al.*, 2017) in central India have already noted a perceptible decline in the intergenerational transmission of ethnobotanical wisdom due to shifting livelihoods, migration, and the increasing dependence on government-run health services such as the Integrated Child Development Services (ICDS) and Primary Health Centres (PHCs), which, though essential, often fail to address the culturally embedded health needs of tribal communities. Moreover, official health policies and development frameworks tend to undervalue indigenous knowledge systems, despite their proven efficacy and eco-friendly, low-cost nature.

Ethnomedicinal studies conducted in Chhattisgarh and adjoining regions have predominantly focused on the documentation of plant species and their uses (Madharia *et al.*, 2015), with limited emphasis on theoretical reflections that could situate these practices within broader discussions of cultural identity, sustainability, and indigenous rights. The Maria and Muriya tribes, despite being among the most prominent tribal groups in the Bastar region, have received relatively little academic attention in the context of their traditional healthcare systems. This lacuna in research not only hampers our understanding of indigenous knowledge systems but also undermines efforts toward bio cultural conservation and inclusive public health policy-making. By critically reviewing existing ethnobotanical studies, conceptual frameworks, and cultural narratives associated with medicinal plant use among these tribes, this article seeks to contribute to filling this gap and propose avenues for future research and policy engagement.

#### **Statement of the Problem and Objectives**

The central problem this study addresses is the lack of a comprehensive theoretical appraisal of ethnomedicinal practices among the Maria and Muriya tribes of Chhattisgarh within the broader ethnobotanical literature. While several empirical studies (Negi *et al.*, 2002; Uniyal *et al.*, 2006; Jeyaprakash *et al.*, 2011; Shil *et al.*, 2014; Sharma *et al.*, 2021) have recorded medicinal plant uses among various tribal communities in India, there remains a dearth of integrated reviews that synthesize available knowledge, assess the cultural, ecological, and healthcare significance of these practices, and examine the threats they face in the wake of socio-economic changes. Furthermore, the absence of theoretical engagement with issues such as knowledge transmission, cultural resilience, and bio-piracy undermines the potential for developing holistic strategies to preserve and integrate indigenous healthcare knowledge into public health and conservation frameworks.

Against this backdrop, the primary objectives of this research article are to:

1. Review and synthesize existing ethnobotanical and ethnomedicinal studies pertaining to the Maria and Muriya tribes of Bijapur district, Chhattisgarh.
2. Theoretically contextualize traditional medicinal plant use within the socio-cultural and ecological life worlds of these tribes.
3. Highlight the challenges and threats confronting indigenous healthcare knowledge systems in the region.
4. Propose conceptual insights and research directions for the preservation, documentation, and policy integration of ethnomedicinal knowledge.

By addressing these objectives, this article aspires to not merely compile data but to engage with the underlying theoretical discourses of indigenous knowledge systems, cultural ecology, and medical anthropology, thereby contributing a nuanced perspective to the fields of ethnobotany, tribal studies, and public health.

This research article contributes to the existing body of knowledge in multiple ways. Firstly, by focusing specifically on the Maria and Muriya tribes of Chhattisgarh, it brings to the fore a relatively underrepresented ethnographic context within Indian ethnomedicinal literature. While studies on tribes such as the Gonds (Pal and Patel, 2022; Pati, 2015), Bhils (Jain and Agrawal, 2005; Bhasin, 2007) and

Baigas Nandi *et al.*, 2018; (Shirisha, 2019; Mollick and Mukherjee, 2022) have gained considerable academic attention, the healthcare traditions of Maria and Muriya tribes remain sparsely documented, despite their socio-ecological importance and unique cultural practices. By consolidating and reviewing the scattered empirical studies and theoretical frameworks related to these communities, this article seeks to create a foundational reference point for future research endeavours.

Secondly, this article moves beyond descriptive ethnobotanical listings by offering a theoretical interpretation of medicinal plant use in relation to issues of cultural identity, healthcare accessibility, ecological sustainability, and indigenous rights. In doing so, it situates the traditional healthcare systems of the Maria and Muriya tribes within wider discourses on bio cultural diversity, intellectual property rights, and public health equity. The article emphasizes the need to recognize indigenous medicinal knowledge not merely as a repository of remedies but as a dynamic, culturally embedded system that holds potential lessons for sustainable healthcare in resource-scarce, biodiversity-rich contexts.

Finally, the article contributes to contemporary debates on tribal health governance and ethnomedicinal knowledge preservation by highlighting the pressing threats posed by ecological degradation, acculturation, and policy neglect. It underscores the significance of adopting community-led documentation, participatory research, and culturally sensitive healthcare models to safeguard these invaluable knowledge systems. By bridging empirical evidence with theoretical reflections, the article aims to inform scholars, policymakers, and development practitioners about the potential of integrating traditional medicinal knowledge into sustainable healthcare strategies, thereby reinforcing the role of tribal communities as active stakeholders in their own health and ecological futures.

The remainder of the article is organized as follows: Section two outlines the study area and provides the ethnographic context; Section three presents a theoretical perspective on ethnomedicinal knowledge systems; Section four details the methodology and data sources; Section five highlights major ethnomedicinal plants and their therapeutic applications among the Maria and Muriya tribes; Section six offers a discussion of the findings and their broader implications; and finally, the concluding section summarizes the key insights of the study.

## **2. Study Area and Ethnographic Context**

### **2.1 Bijapur District: Geographical and Ecological Overview**

Situated in the Bastar division of southern Chhattisgarh, Bijapur district is one of the most forested and ecologically rich regions of India. Spread across an area of 6562 square kilometres, the district is characterized by dense tropical deciduous forests, undulating hills, and a network of rivers such as the Indravati and Talperu. According to the Census of India 2011, the total population of Bijapur district stands at 255,180, with Scheduled Tribes constituting 80.36% of the total population — one of the highest tribal concentrations in the country. The district's geography is marked by thick Sal (*Shorea robusta*), Teak (*Tectona grandis*) and bamboo forests, which contribute to its designation as part of India's Eastern Ghats Biodiversity Hotspot. The region receives an annual average rainfall of around 1370 mm, predominantly during the monsoon months of June to September. The area's rugged terrain and relative inaccessibility have historically limited infrastructural development, contributing to the persistence of traditional, nature-dependent livelihoods among its indigenous communities.

Bijapur's ecology plays a pivotal role in shaping the healthcare systems of its tribal populations. The abundance of medicinal flora, coupled with the absence of modern healthcare facilities in many remote hamlets, has necessitated the reliance of tribal groups on plant-based remedies and traditional healing practices. Ethnomedicinal knowledge in Bijapur is intrinsically linked to the availability of forest resources, seasonal cycles, and ecological stewardship maintained by the local communities.

### **2.2 The Maria and Muriya Tribes: Demography and Settlement Patterns**

Among the several tribal communities inhabiting Bijapur district, the Maria and Muriya tribes represent two of the most culturally significant and demographically prominent groups. Both tribes belong to the larger Gondi ethno linguistic group, one of India's largest tribal communities spread across Madhya Pradesh, Chhattisgarh, Maharashtra, Andhra Pradesh, and Odisha. The Maria tribe, often locally referred to as Abhuj Maria or Hill Maria, predominantly inhabits the Abujmarh forest region, an expansive and heavily forested area that remains one of India's least surveyed and most inaccessible zones (Dasgupta and Sarkar, 2005). The Muriya tribe, sometimes considered a subgroup of the Maria or Gonds, resides in the plains and foothill regions of Bijapur and adjoining Dantewada and Narayanpur districts. As per the

Census 2011, Maria and Muriya tribes' together account for a substantial share of the tribal population in Bijapur, with settlement patterns primarily organized around small, scattered hamlets known as *pallies* or *paras*. These settlements are typically situated in proximity to forest areas and water sources, facilitating both subsistence agriculture and access to medicinal plant resources. The relative isolation of these communities from mainstream urban centers has enabled the continued practice of ethnomedicinal traditions largely free from external influence until recent decades.

### 2.3 Cultural Worldview and Traditional Healthcare Practices

The Maria and Muriya tribes possess a distinctive cultural worldview deeply rooted in animism, ancestor worship, and ecological reverence (Kaufmann, 1960). Nature is perceived not merely as a resource base but as a living entity imbued with spiritual significance. Deities associated with forests, rivers, hills, and specific plant species form an integral part of their religious cosmology, with healing practices often combining herbal medicine, ritual performances, and spiritual consultations. Traditional healthcare among these tribes is predominantly oral and experiential, transmitted across generations through village elders, shamans called ('Sirha' or 'Gunia'), and women healers. These practitioners possess specialized knowledge of medicinal plants, diagnostic rituals, and therapeutic procedures tailored to both physical and spiritual ailments. Common diseases treated through ethnomedicinal means include malaria, skin infections, bone fractures, digestive disorders, snake bites, respiratory problems, and reproductive health issues (Rout *et al.*, 2009; Bhat *et al.*, 2014; Staub *et al.*, 2015).

Significantly, the Maria and Muriya healing systems recognize the interconnectedness of the human body, mind, and environment. Illnesses are often attributed to spiritual imbalances, environmental disharmony, or ancestral displeasure, necessitating holistic treatment approaches involving herbal preparations, ritual sacrifices, and community participation. Medicinal plants are harvested following specific cultural norms, with rituals to appease forest deities and ensure ecological balance.

### 2.4 Ethnobotanical Richness and Healthcare Resource Dependence

The forest ecosystems of Bijapur district are home to over 600 plant species with documented medicinal properties, many of which form the pharmacopoeia of tribal medicine. Studies by have identified a wide range of locally used plants including:

- *Andrographis paniculata* (Kalmegh) for fever and liver disorders
- *Gloriosa superba* (Kalihari) for snake bites and wounds
- *Terminalia arjuna* (Arjun) for cardiac problems
- *Centella asiatica* (Brahmi) for memory enhancement and skin ailments

Given the limited coverage of government healthcare services in the region — with only one Community Health Centre (CHC) and six Primary Health Centres (PHCs) serving over 250,000 people — traditional medicine remains the primary and most accessible form of healthcare for the Maria and Muriya tribes.

The ethnomedicinal knowledge systems of these communities are not only health resources but also repositories of ecological wisdom and cultural identity. Medicinal plants are classified based on taste, colour, seasonality, and habitat, with careful attention paid to collection methods, preparation techniques, and dosages. This rich body of knowledge is, however, increasingly under threat from deforestation, mining projects, armed conflict, and socio-economic marginalization.

## 3. Ethnomedicinal Knowledge Systems — A Theoretical Perspective

### 3.1 Conceptualizing Ethnomedicine

Ethnomedicine refers to the traditional medical practices, beliefs, and knowledge systems indigenous to specific cultural or ethnic groups. It encompasses the holistic treatment of physical, psychological, and spiritual ailments using natural resources such as plants, minerals, and animal products. Scholars like Quinlan (2011) and Anyinam (2016) have emphasized that Ethnomedicine should be viewed not merely as a collection of therapeutic practices but as a culturally constructed system of health care embedded within a community's worldview, ecological relationship, and social organization.

In the context of Maria and Muriya tribes, Ethnomedicine represents an integral component of their cultural resilience and adaptive strategies in a challenging ecological environment. Their healthcare practices reflect a seamless integration of empirical plant knowledge and spiritual diagnostics, functioning within a cosmology that regards health as a dynamic balance between human beings, nature, and

supernatural forces. Illness is often interpreted as a disturbance in this balance, necessitating interventions that restore harmony at both the individual and community levels.

### 3.2 Theoretical Frameworks for Understanding Indigenous Healthcare

Several theoretical models help explain the structure and function of ethnomedicinal systems, particularly in indigenous and tribal societies:

#### 1. Medical Ecology Approach

Proposed by McElroy and Townsend (2004), this framework examines how environmental factors, cultural practices, and biological conditions interact to shape healthcare systems. In Bijapur, the prevalence of endemic diseases such as malaria, tuberculosis, and parasitic infections correlates with the region's humid tropical climate, dense forests, and limited medical infrastructure. Ethnomedicinal knowledge, in this context, represents an ecological adaptation — a set of practices that have evolved in response to the community's specific health risks and resource availability.

#### 2. Cognitive Anthropology Perspective

This approach focuses on how indigenous communities classify, name, and categorize plants and illnesses (Casson, 1983; Brown, 2006). The Maria and Muriya tribes possess intricate plant taxonomies based on criteria such as leaf shape, taste, aroma, flowering season, and habitat. For instance, plants like Chirayata (*Swertia chirata*) and Giloy (*Tinospora cordifolia*) are categorized as 'fever medicines' and harvested during specific seasons to ensure potency.

#### 3. Symbolic and Interpretive Theory

This perspective highlights the symbolic meanings attributed to illness and healing rituals (Bevir, 2010). In tribal societies, disease is not solely a biological event but also a social and spiritual phenomenon. Healing practices involving medicinal plants are often accompanied by chants, offerings, and rituals to forest deities, reflecting a belief in supernatural causation and communal harmony.

#### 4. Resilience Theory

More recent theoretical contributions, (Bohensky, E. L. and Maru, 2011) resilience theory, view traditional knowledge systems as crucial mechanisms for coping with environmental and socio-economic uncertainties. The ethnomedicinal knowledge of Maria and Muriya tribes not only addresses immediate health needs but also contributes to long-term community resilience by preserving biodiversity, promoting sustainable resource use, and reinforcing cultural identity.

### 3.3 Ethnomedicine as a Social Institution

Beyond its therapeutic function, ethno medicine operates as a social institution within tribal societies, performing roles in social cohesion, moral regulation, and intergenerational knowledge transmission. Traditional healers, known as Sirha, Baiga, or Gunia, occupy respected positions within the community, mediating not only health crises but also social conflicts, marriage negotiations, and rituals of passage. The process of becoming a healer typically involves apprenticeship, visions, or spirit possession experiences, marking the healer's initiation into a complex medico-spiritual role.

Medicinal knowledge is predominantly oral, transmitted through storytelling, observation, and ritual participation. This transmission system ensures that knowledge remains adaptive and context-sensitive but also renders it vulnerable to erosion due to modernization, missionary activities, and armed conflict in tribal regions. The increasing penetration of biomedical systems and displacement caused by industrial projects have disrupted traditional knowledge pathways, threatening both cultural continuity and biodiversity.

### 3.4 The Role of Gender in Ethnomedicinal Knowledge

Gender plays a significant role in the ethnomedicinal practices of the Maria and Muriya tribes. While male healers typically perform ritualistic and community-wide healing practices, women are the primary custodians of domestic health care, especially in matters related to childbirth, menstrual disorders, skin ailments, and herbal nutrition. Women's intimate knowledge of household medicinal plants, often cultivated in kitchen gardens and forest edges, is critical for primary health care.

Despite their pivotal role, women's knowledge systems remain under-documented and marginalized in formal ethnobotanical studies. Recognizing and integrating women's ethnomedicinal knowledge is essential not only for comprehensive health care provision but also for empowering tribal women and preserving ecological knowledge systems.

### 3.5 Challenges to the Survival of Ethnomedicinal Systems

The survival of traditional healthcare systems among the Maria and Muriya tribes faces multiple threats:

- Deforestation and environmental degradation have reduced the availability of medicinal plant species.
- The spread of biomedical health services (though limited in reach) often delegitimizes indigenous knowledge.
- Younger generations show declining interest in traditional practices due to migration, education, and exposure to modern lifestyles.
- Armed conflicts and militarization in the Bastar region have restricted forest access, directly impacting ethnomedicinal plant collection and ritual performance.

These factors necessitate urgent documentation, revitalization, and policy-level support to preserve and integrate ethnomedicinal knowledge into regional health care strategies.

## 4. Methodology and Data Sources

### 4.1 Research Design and Approach

This research article adopts a qualitative and theoretical review-based approach to examine the ethnomedicinal knowledge systems practiced by the Maria and Muriya tribes of Bijapur district, Chhattisgarh. Instead of undertaking primary field surveys due to logistical and accessibility constraints in the conflict-prone region, this study synthesizes insights from secondary sources, including ethnobotanical surveys, anthropological studies, government reports, and published academic literature.

The study follows a descriptive and analytical framework, which enables a nuanced understanding of how traditional healthcare systems are intertwined with ecological conditions, cultural practices, and social organization among these tribal communities. It also draws upon conceptual models from medical anthropology, ethno ecology, and cultural geography to interpret the social meanings and ecological implications of ethnomedicinal practices.

A narrative review methodology was selected for its capacity to integrate diverse sources of qualitative data, theories, and empirical studies into a coherent conceptual framework. This approach is particularly well-suited to contexts like Bijapur, where ethnomedicinal practices are dynamic, orally transmitted, and embedded within unique socio-ecological landscapes.

### 4.2 Sources of Data

The study relies on multiple categories of data sources, carefully selected for their relevance, reliability, and regional focus:

#### A. Ethnobotanical and Ethnomedicinal Surveys

Several scholarly articles and survey reports were consulted, notably the works of which document medicinal plant species used by tribal communities in Bastar and adjoining districts. These studies provided comprehensive inventories of local flora, therapeutic uses, methods of preparation, and cultural practices associated with plant-based healing.

#### B. Anthropological and Ethnographic Literature

Classical and contemporary ethnographies of the **Maria and Muriya tribes** were reviewed to understand the socio-cultural and cosmological frameworks within which ethnomedicinal practices are situated. These works offered rich qualitative insights into tribal beliefs, rituals, and the social roles of traditional healers.

#### C. Government Reports and Census Data

To establish the demographic and healthcare context, data from the Census of India 2011, Chhattisgarh Forest Department, and National Health Mission (NHM) reports for Bijapur district were used. These sources provided information on tribal population distribution, forest coverage, health infrastructure, and disease prevalence in the region.

#### D. Theoretical and Conceptual Texts

Key theoretical frameworks and models from medical anthropology, cognitive ethnobotany, resilience theory, and symbolic anthropology were sourced from academic texts and journals, these frameworks informed the analytical structure of the article.

#### E. Regional Case Studies and NGO Reports

Where available, case studies and project reports from NGOs working in Bastar and Bijapur, such as Bastar Seva Mandal and CHIRAG, were examined for contextual understanding of current health challenges, medicinal plant conservation efforts, and the status of indigenous healthcare systems.

#### 4.3 Data Collection and Analysis Procedures

Given the narrative review nature of this study, a systematic content analysis of selected texts was undertaken. Relevant publications were identified through academic databases such as JSTOR, Science Direct, and Google Scholar using keywords including “Ethnomedicine Maria tribe,” “Muriya tribal healthcare,” “Bijapur medicinal plants,” and “tribal medicine Chhattisgarh.”

Data were organized thematically under categories like:

- Medicinal plant species and their uses
- Healing practices and rituals
- Gender and knowledge transmission
- Challenges to traditional medicine
- Integration with modern healthcare

Conceptual mapping techniques were also employed to visually link ethnomedicinal practices with their ecological, cultural, and therapeutic dimensions. The findings from different sources were compared and synthesized to identify recurring themes, regional variations, and theoretical linkages.

#### 4.4 Ethical Considerations

Although this is a review-based theoretical study, ethical considerations remain crucial when dealing with indigenous knowledge systems. The study acknowledges the collective intellectual property rights of the Maria and Muriya tribes over their ethnomedicinal knowledge. The importance of respecting cultural sensitivities, ensuring appropriate representation, and advocating for benefit-sharing mechanisms in future documentation and bio prospecting initiatives is highlighted in the concluding recommendations of this article.

#### 5. Major Ethnomedicinal Plants and their Therapeutic uses among the Maria and Muriya Tribes

The Maria and Muriya tribes of Bijapur district, Chhattisgarh, possess a rich ethnomedicinal knowledge, with a deep connection to the dense forests of the region. The flora of Bijapur, known for its tropical moist deciduous forests and high biodiversity, provides a wealth of medicinal plants that have been used by these tribes for centuries. Among the most commonly used species are those with properties for treating fever, digestive issues, respiratory ailments, and skin diseases. For example, *Swertia chirayita*, *Tinospora cordifolia*, and *Azadirachta indica* are widely used for their anti-pyretic, anti-malarial, and skin healing properties, respectively. These plants are typically prepared through decoctions, pastes, and powders, which are administered orally or applied topically. *Rauwolfia serpentina* is especially notable for its use in treating snakebites, a major health risk in the region. Medicinal practices are often combined with spiritual beliefs, as many tribes view illnesses as manifestations of spiritual imbalance or supernatural forces. For instance, rituals involving offerings to local deities or ancestral spirits are often conducted alongside the administration of plant-based remedies, highlighting the holistic approach of indigenous medicine, where physical and spiritual healing are intertwined.

The tribes use a variety of preparation methods, with each method catering to the specific therapeutic needs of the plant. Decoctions made by boiling plant parts like leaves, stems, or roots in water are common for treating internal ailments such as fever or digestive problems. For external ailments like wounds or skin infections, pastes and poultices made from crushed plant materials are applied directly to the affected areas. Additionally, powdered plant parts such as *Terminalia bellirica* and *Bacopa monnieri* are often mixed with other substances like honey or milk to treat stomach issues or provide overall health benefits. These preparations are prepared according to specific local knowledge, passed down through generations. In cases of more serious health conditions or emergencies, such as snakebites or fractures, the tribes employ more intense treatments that involve both herbal applications and spiritual interventions. Traditional healers—often designated by their communities—play a central role in diagnosing and administering treatments, and their knowledge is highly respected. The interaction between these herbal remedies and spiritual practices forms the core of the tribes' healing system, creating a unique blend of biomedical and cultural approaches to health.

Despite their richness, the ethnomedicinal practices of the Maria and Muriya tribes are under threat due to environmental degradation, including deforestation, mining, and urbanization. These activities endanger not only the plants themselves but also the cultural knowledge that has been passed down for generations. Some of the most commonly used medicinal plants, such as Mahua (*Madhuca indica*) and Guggul (*Commiphora wightii*), are becoming increasingly scarce due to overharvesting and loss of habitat. To address this, the tribes have begun adopting sustainable harvesting methods and conservation efforts, such as protecting sacred groves and practicing selective plant gathering. However, these practices are still largely informal and lack the support of formal conservation policies. The introduction of modern health systems in the region has also led to the marginalization of traditional medicine, as young generations are more likely to turn to allopathic treatments. Nonetheless, the tribal communities continue to value their traditional remedies, and there is growing recognition of the importance of ethnobotanical research in preserving both the plants and the cultural practices associated with them. These plants not only provide direct health benefits but also hold cultural significance, forming an integral part of the tribes' identity and heritage.

#### 6. Discussion and Implications

The ethnomedicinal knowledge of the Maria and Muriya tribes of Bijapur district highlights a deep and well-rooted connection between indigenous peoples and their natural environment. The use of medicinal plants in these communities is not only an expression of their survival strategy but also an embodiment of their cultural identity. These practices offer invaluable insights into the role of traditional knowledge systems in healthcare and biodiversity conservation. One of the most striking aspects of this knowledge is its holistic nature, where physical healing through plant-based treatments is intricately tied with spiritual and ritualistic practices. This interconnectedness forms a complex framework where plants are not only seen as therapeutic agents but also as symbols of ancestral wisdom and the spiritual world. For instance, healing plants are often accompanied by prayers, rituals, and offerings to deities, which further illustrate the importance of cultural context in the application of these remedies.

The range of medicinal plants used by these tribes, from common herbs like Neem (*Azadirachta indica*) for its antibacterial properties to the more specialized uses of *Rauwolfia serpentina* for snakebites, underscores the diversity of treatments available within the local knowledge systems. The tribes' intimate knowledge of plant properties, such as the use of *Tinospora cordifolia* for boosting immunity and treating fevers, reveals a comprehensive understanding of pharmacological benefits passed through generations. These plants not only address common ailments but also play a crucial role in preventive health. The use of Giloy (*Bacopa monnieri*) and Ashoka (*saraca asoca*) for mental health and reproductive issues is reflective of the traditional wisdom that extends beyond immediate physical health concerns and contributes to community well-being. The integration of plant-based medicine with ritualistic healing demonstrates a sophisticated approach to healthcare, where the body and mind are treated in tandem.

However, despite its richness, this ethnomedicinal knowledge is at risk due to several modern-day challenges. Deforestation, Land Degradation and Unsustainable harvesting are severely threatening the plant species that are central to these tribal practices. As forests shrink and biodiversity declines, many of the plants used for healing are becoming increasingly scarce. The commercialization of herbal products has led to a distortion of traditional practices, where the focus shifts from community well-being to profit generation, often disregarding the cultural and ecological significance of these plants. Additionally, younger generations, exposed to modern healthcare systems, show a declining interest in traditional remedies, leading to the loss of ethnobotanical knowledge. This presents a grave challenge to the preservation of both the plants and the cultural heritage that sustains them. Moreover, the lack of formal support for sustainable harvesting and the absence of legal frameworks for the protection of traditional knowledge further exacerbate the situation.

To address these challenges, there is a need for integrated conservation efforts that blend scientific research with traditional ecological knowledge. The inclusion of indigenous knowledge in biodiversity conservation policies and the recognition of tribal rights over medicinal plants are essential steps toward safeguarding both plant species and the traditional practices associated with them. Encouraging intergenerational knowledge transfer and documenting these practices through ethnobotanical research will be crucial in preserving the indigenous healing systems for future generations. Furthermore, a collaborative approach involving tribal communities, government agencies, and academic institutions

could play a vital role in ensuring the sustainability of these knowledge systems. By acknowledging the value of traditional medicine and integrating it into the modern healthcare framework, there is potential for a more inclusive healthcare model that respects cultural diversity while promoting health outcomes.

In conclusion, the ethnomedicinal practices of the Maria and Muriya tribes offer a profound understanding of the relationship between humans and their environment. As these practices face increasing threats, it is imperative that efforts are made to document, preserve, and protect this knowledge for future generations. The fusion of traditional knowledge with contemporary conservation strategies can not only help sustain the tribes' cultural heritage but also contribute to the broader field of ethnobotany, pharmacology, and environmental sustainability. The Maria and Muriya tribes' healthcare practices offer valuable lessons on the interconnectedness of health, culture, and the environment, demonstrating that traditional knowledge has a significant role to play in the future of global health and biodiversity conservation.

### 7. Conclusion

The study of ethnomedicinal knowledge among the Maria and Muriya tribes of Bijapur district, Chhattisgarh, provides a valuable insight into the richness of traditional healthcare systems and their symbiotic relationship with the environment. These tribes have, over generations, developed an intricate understanding of the plants in their surroundings, creating a holistic healing system that blends physical treatment with spiritual and ritualistic practices. The ethnomedicinal practices of the Maria and Muriya tribes are not merely a collection of remedies but are deeply embedded within their cultural fabric, serving not only as healthcare solutions but also as means to strengthen their cultural identity and preserve their connection to the natural world. From commonly used plants like Neem (*Azadirachta indica*) and Tulsi (*Ocimum sanctum*) to more specialized remedies such as *Rauvolfia serpentina* for snakebites, the tribes display an extensive knowledge of therapeutic plants, many of which are still unexplored by modern pharmacology.

However, the continued survival of these traditional practices faces significant challenges. Environmental degradation, including deforestation and overharvesting, coupled with the decline of intergenerational knowledge transmission, poses serious threats to the future of this ethnomedicinal wisdom. The encroachment of modern healthcare systems and the increasing popularity of allopathic treatments have contributed to the marginalization of traditional medicine among the younger generation. These challenges underscore the urgency of implementing strategies for conservation, documentation, and promotion of ethnomedicinal knowledge. There is a clear need for collaborative efforts between the tribal communities, government agencies, and scientific researchers to ensure the preservation of both the plants and the cultural knowledge associated with them. Sustainable harvesting practices, alongside the creation of legal frameworks that protect traditional knowledge and biological resources, are essential in ensuring the survival of these practices.

In conclusion, this research highlights the immense value of ethnobotanical knowledge not just for the Maria and Muriya tribes but also for broader environmental and healthcare initiatives. The integration of traditional medicine with modern healthcare systems could offer innovative solutions to address pressing health challenges, especially in rural and remote areas. By recognizing the importance of cultural heritage and the sustainability of natural resources, there is significant potential for a more inclusive and holistic healthcare approach that honours indigenous wisdom while supporting biodiversity conservation. The future of these practices lies in our ability to balance preservation with innovation, ensuring that traditional knowledge continues to thrive alongside contemporary scientific advances. This approach can create a sustainable model for healthcare that respects the symbiotic relationship between human health and the environment.

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# Cross Sectoral Data Integration and Interoperability: A Framework for Effective Governance

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## Abstract -

*This study examines the critical role of data integration and interoperability across sectors in the context of rapidly expanding data generation from digital platforms, sensors, information systems, and administrative processes. It highlights how seamless data exchange is essential for evidence-based decision-making, technological innovation, and sustainable development. Despite the growing availability of data, organizations continue to face significant challenges, including fragmented data infrastructures, incompatible formats, inconsistent standards, and limited inter-system communication. These constraints reduce operational efficiency, restrict the effective use of data, and impede the formulation of integrated policies for addressing complex societal challenges. The study identifies best practices and emerging standards that demonstrate potential in overcoming these barriers. Open data architectures enhance transparency and accessibility through standardized, machine-readable formats, while Semantic Web technologies improve semantic consistency and contextual understanding across heterogeneous datasets. In addition, robust data governance frameworks are essential for ensuring data quality, privacy protection, accountability, and responsible sharing. The findings emphasize that sustainable interoperability cannot be achieved through technological solutions alone. Coordinated institutional action, policy alignment, inter-sectoral collaboration, and ethical safeguards are equally vital. A holistic approach integrating technical, governance, and ethical dimensions is therefore necessary to fully harness data for equitable and sustainable development.*

**Keywords-** Datasets, Integration, Interoperability, Governance, Technology, Innovation, Communication, Infrastructure, Ethics, Sustainability.

## Introduction -

**Data integration** is the process of bringing together data from multiple, diverse sources to create a unified, consistent, and meaningful dataset that can support analysis, decision-making, and operational activities. In most organizations and sectors, data is generated in different formats, stored in separate systems, and managed by different departments. This creates fragmentation and limits the ability to use data effectively. Data integration addresses this challenge by combining heterogeneous datasets—such as databases, files, sensors, platforms, or applications—into a single coherent view.

The integration process typically involves steps such as data collection, cleaning, transformation, and harmonization to ensure that information from different sources can be compared and used together. In the context of modern digital systems, data integration is essential for cross-sector collaboration, advanced analytics, and the development of intelligent solutions such as smart cities, e-governance platforms, and interconnected healthcare systems. By enabling organizations to work with complete and accurate datasets, data integration plays a crucial role in strengthening evidence-based decision-making and supporting innovation.

Now, if we discuss **data interoperability**, it talks about exchanging, interpreting data and making use of these data seamlessly by different systems and organisations. Once we share these data across platforms, it can be used without extensive processing and conversion. Its focus is to develop a common understanding of the data and information that is being shared and exchanged. This helps us to reduce duplication of effort, to have real time collaboration and it enhances the efficiency of digital

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ecosystems. As the data and information are getting exchanged all over the world, it has become a cornerstone for creating connected, efficient and data driven systems.

Both data integration and interoperability are accelerating globally and have become a way to create systems which will promote and support transparency, innovation and cross sector coordination. Together, they break down data silos, enhance service delivery, support innovation and improve decision making. By enabling consistent, accessible and reusable data flows, cross sector collaboration becomes more efficient, leading to better policy planning, resource management and citizen centric solutions.

Using data, accessing, exchanging, integrating data with the help of diverse applications, information systems and devices, in a coordinated manner which ensures that it can flow freely along with maintaining its integrity, context and utility, across and within organisational boundaries.

#### **Importance -**

Talking about data integration and interoperability across sectors, it is important to mention how it is playing highlighting role in integrating different organisations and institutions and making it beneficial for each sectors by enhancing,

**Better data quality** as the quality data will help to prevent duplicity of records, bring consistency and increase reliability over set of information. With the availability of a trusted data system, we can easily validate and verify data, which will ultimately increase our confidence in decision-making processes.

**Better decision-making and collaboration**, When we get a number of set of data, we'll now be able to compare them and get conclusions from them that how good or bad that will prove to our objectives and this provides us with how organisation can be run Better, this helps us with detailed view of data and make it easier to know about new opportunities and trends so that it will be easy to make smarter decisions along the way ahead.

**Higher Quality Customer Experiences**, It makes a unified customer profile which provides highly structured and personalised offers and recommendations. Further, helps support staff and teams to access consolidated customer information from all sectors and touchpoints, helping them to quickly address complaints/issues and provide efficient and effective solutions to them.

**Cost Savings**, When both the ideas are brought into practice, this leads to reduction in hours of working and it'll become easy and automated to fulfill a manual task and it leads to decrease in labour expenses. Now, this time can be used to train and enhance the staff efficiency. By amalgamating data into a single, unified system, the cost associated with managing and operating multiple databases will reduce the costs of system licenses, infrastructure and even staff training.

**Improved Efficiency**, With the help of data management tools, it becomes easy to perform tasks of data entry, cleaning and reconciliations and work flows easily too and this significantly improves productivity. When this information gets consolidated and concise in form, it makes it easy to simplify tasks, prevent duplicacy and with this we can make more efficient use of the resources. This way employees can spend more time on high impact tasks that move the business forward, rather than struggling with repetitive, low-value tasks.

**Increased Innovation and Agility**, This provides employees opportunities to develop their ability to perform collaborative tasks, provide their opinions in decision-making and share their ideas enthusiastically. This will help to improve organisations' flexibility, experimenting ability and collaboration. With this, sectors' ability in dealing and overcoming internal/external changes increases widely and agile methodologies foster a mindset that failure is a learning opportunity, to give a number of solutions to a problem.

**Data Accessibility**, A key advantage of integration is the broad availability of data. Team members can access and interpret uniform data formats without relying on IT support. This autonomy enables self-directed analysis, strengthens collaboration on initiatives and fosters a workplace where decisions are consistently guided by data.

**Data Security**, By keeping all information in a single environment, enforcing and managing robust security measures become simpler. Different types of settings and continuous oversight help block unauthorised entries and reduce the risk of data leaks. This combined security system also makes it easier to follow regulatory rules.

**Data Sharing**, It makes sharing of data effortlessly. Different sectors can make use of it to optimise performances.

**Unified Data Governance**, Integrated data creates a solid base (for sectors) centralising data governance rules and workflows. Unified reporting and analytics support ongoing monitoring and strengthen overall data management practices. This helps it simpler to enforce consistent standards across the sectors for security, privacy, metadata oversight, master data accuracy and regulatory compliance. The reporting and analytics related to it support ongoing monitoring and strengthen overall data management practices.

#### **Application of Data Integration and Interoperability Across Sectors -**

By enabling reliable data exchange and interpretation, interoperability enhances decision-making, reduces redundancy and supports innovation. The application of it across sectors tells about its transformative potential in creating connected, efficient and intelligent systems. As sectors increasingly adopt digital technologies, the ability to unify datasets and enable cross platform communication drives efficiency, innovation and informed decision-making. Their combined application enhances service delivery, reduces operational barriers and supports multi-sector collaboration. By ensuring seamless data sharing and understanding, interoperability strengthens decision-making, minimizes duplication, and fosters innovation. Its use across various industries shows how it can reshape operations by building connected, efficient, and smart ecosystems. As sectors continue to embrace digital tools, the capacity to merge datasets and enable communication across platforms boosts productivity, creativity, and data-driven insights. Together, these capabilities improve service delivery, remove operational constraints, and encourage collaboration across multiple domains.

**Healthcare** - One of the most prominent sectors where data integration and interoperability deliver substantial value. During public health emergencies, unified and compatible data strengthens disease monitoring, resource planning, and vaccine tracking across regions and networks. Integrated health information platforms enable hospitals, laboratories, pharmacies, and public health organizations to merge patient data from electronic records, diagnostic systems, and real-time monitoring technologies tools. Interoperability ensures these platforms can exchange information instantly, allowing clinicians to view complete medical histories, minimize repeated tests, and enhance the precision of treatment. Over the next decade, Cisco estimates that nearly 500 billion sensory devices—each generating 4 to 5 signals—will be connected across the Internet of Everything. This could result in roughly 250 sensory data points per person on average. Such an immense volume of information is creating a new wave of possibilities in healthcare. However, uncovering meaningful interactions throughout the patient journey can be challenging. As today's health consumers move into an "experience-driven era," digital healthcare organizations must ensure these interactions become more meaningful, relatable, and personalized. By building strong "Integration Readiness," healthcare providers can tap into new demand segments in tier-2 and tier-3 regions, understand life-cycle needs of patients more accurately, and apply emerging technologies to extract greater value from every interaction. As a result, hospitals can enhance their margins by lowering administrative overheads and achieving higher utilization driven by increased demand.

**Government and Public Administration** - The interoperability of these systems, makes it easy for government agencies to exchange verified data securely, in reducing paperwork and enables these agencies to render more efficient service delivery. Integrated digital identity-systems, for instance, simplify the delivery of welfare benefits, improve fraud detection and support faster grievance resolution. Interoperable platforms enhance transparency data-driven policymaking by connecting administrative records, census information and real-time analytics, too.

**Finance and Banking** - These sectors use data integration and interoperability to bring together client profiles and records, their transaction histories and risk-evaluation tools from various scattered platforms. It promotes protected information transfer, secure channel connectivity between banking entities and financial institutions, payment gateways, supervisory bodies and digital finance platforms. This enables smoother digital transactions, strengthens fraud monitoring, improves credit assessment and simplifies regulatory reporting. Open-banking models illustrate this approach well, giving authorised third party providers access to uniform financial data so they can create new solutions without compromising customer security and privacy.

**Education** - In the education sector, data integration brings together student profiles, instructional materials, evaluation outcomes, and institutional records into a unified framework. Interconnected learning

management systems (LMS) and digital repositories allow institutions to exchange academic content, monitor learner progress, and facilitate both online and hybrid modes of instruction. Standardized digital credentials strengthen this interoperability by enabling employers and educational bodies to validate qualifications quickly and accurately.

**Transportation and Smart Mobility** - Integrated data from sensors, GPS services, traffic cameras and public transport networks together develop smart mobility systems and it is interoperability which enables these systems to communicate, facilitating real-time updates, multimodal transport planning, congestion method and smart ticketing. The logistics and supply chain industries gain from unified tracking solutions that enable smooth coordination among producers, carriers and storage facilities. Compatible digital ecosystems further facilitate the adoption of next-generation technologies, including self-driving transport and smart traffic management systems.

**Agriculture** - Interoperable data drawn from sensors, satellite observations, farm machinery and meteorological systems are used in agriculture. By integrating these datasets, it becomes easy for crop monitoring, soil assessment, automated irrigation, early pest identification and end-to-end supply chain traceability. It enables farmers, agribusinesses to make informed, data-driven decisions, ultimately improving productivity and promoting sustainable agricultural practices. In agriculture, interoperability connects weather systems, soil sensors, drones, satellite imagery, and farm-management platforms. These integrated data sources support precision agriculture practices, enabling farmers to optimize irrigation, reduce chemical usage, and improve yield forecasting. Additionally, interoperable supply-chain tools enhance traceability, ensuring transparency from farm to consumer.

**Industry and Manufacturing** - Industry 4.0 environments depend on connected machinery, robotics, IoT devices, and enterprise applications. Interoperability supports real-time operational monitoring, predictive maintenance, advanced automation, and the use of digital twins. By standardizing data exchange, manufacturers can coordinate supply chains more efficiently, optimize production workflows, and strengthen quality assurance across processes.

**Energy and Utilities** - Integrated energy management architectures aggregate information from generation facilities, renewable inputs, grid coordinators, and metering infrastructures. Interoperability enables these subsystems to operate in a unified manner, enhancing load prediction, fault response, and efficiency. Contemporary smart grids depend on interoperable datasets to support adaptive load distribution and incorporate distributed energy resources.

With the help of these examples and tools, it'll be easy to understand their applications as, Sample Registration System (SRS) provides reliable birth and death rates used for health planning and mortality reduction initiatives. Civil Registration System (CRS) strengthens real-time registration of vital events, helping governments design targeted maternal and child health programs. National Sample Survey (NSS) offers household-level socio-economic data that guides welfare schemes, labour reforms, and poverty alleviation strategies. Environmental Statistics support climate policy, pollution control, and resource management. The National Family Health Survey (NFHS) informs nutrition, fertility, immunization, and public health policies. Longitudinal Ageing Survey of India (LASI) aids ageing-related policy, including pension, geriatric care, and social security planning. Indian Remote Sensing (IRS) contributes large-scale administrative and survey data for taxation, economic planning, and monitoring demographic and developmental trends.

SRS based policies like National Health Mission, SDG goal (maternal mortality rate, infant mortality rate).

CRS based policies such as pensions, insurance, Public Distribution System, scholarships, marriage registration, inheritance rights etc.

NSS based policies such as Pradhan Mantri Awas Yojna, PDS reforms, Mahatma Gandhi National Rural Employment Guarantee Act, and food subsidy policies, Ayushman Bharat, Swachh Bharat Mission, Jal Jeevan Mission etc.

Indian Remote Sensing policies like Smart Cities Mission, Atal Mission for Rejuvenation Urban Transformation, Support for regional development and village-level planning (e.g., Survey of Villages and Mapping with Improved Technology in Village Areas (SVAMITVA), National Mission on Sustainable Agriculture (NMSA) and National Action Plan on Climate Change.

The Longitudinal Ageing Survey of India includes policies like the National Programme for Health Care of the Elderly (NPHCE), National Social Assistance Programme (NSAP), PM-Vaya Vandana Yojana (pension scheme for senior citizens), Pradhan Mantri Jan Aarogya Yojana (PMJAY) for older adults.

#### **Challenges -**

Although data integration and interoperability offer substantial advantages, its implementation presents several persistent challenges,

**Lack of standardisation** - The result of a lack of universally adopted data standards is fragmented systems which make platforms and applications struggle to communicate effectively. This inconsistency complicates data exchange, reduces interoperability and creates barriers to seamless integration, ultimately limiting the efficiency, scalability, validity and reliability of digital ecosystems across sectors.

**Data Quality Issues** - When data precision, completeness and consistency vary, it undermines the effectiveness of interoperability efforts, leading to data quality issues. The credibility of analytical results, accuracy of decision-making reduces with availability of unreliable or inconsistent data which ultimately diminishes the overall performance of integrated systems within complex organisational and technological environments.

**Legacy Systems** - These remain significant barriers to interoperability, as many organisations are still relying on traditional, outdated and proprietary technologies that lack the adaptability and standardised interfaces required for seamless integration. Due to the presence of this inflexibility, efficient data exchange, complicate modernisation efforts, are not possible and it leads to reduction in the overall effectiveness of interconnected digital environments in contemporary operations.

**Security and Privacy** - The transfer of data across heterogeneous technological systems and institutional boundaries introduces significant challenges in safeguarding sensitive information. These cross-system exchanges amplify vulnerabilities related to data protection, confidentiality, and regulatory compliance. As data flows grow more intricate, maintaining information integrity and security demands rigorous governance frameworks, robust privacy safeguards, and strict adherence to legal requirements. In the absence of such measures, organizations face heightened risks of unauthorized access, data breaches, and diminished stakeholder trust. Therefore, effectively addressing security and privacy issues is critical to ensuring the trustworthy and ethically sound operation of interoperable data ecosystems.

**Data Exchange Latency** - This is the time it takes for data to be sent and processed, usually measured in milliseconds. If the delay is too long, the data may become old or outdated, which reduces accuracy in situations where fast information is important.

**Data Integration Accuracy** - This refers to how correct and reliable the combined data from different sources is. Making sure the data is accurate often requires checking and cleaning it, which can take extra time and increase delays.

For realizing the full potential of data integration and interoperability addressing these issues is essential. Sectors can enhance seamless information exchange and support more efficient, reliable and integrated digital ecosystems by addressing these challenges.

#### **Best Practices/Strategies and Recommendations -**

By looking over these issues, it became clear that enhancement of interoperability across sectors is very essential and it's possible through the development of a multifaceted approach and with universal standards and protocols. Implementing data interoperability requires a strategic and holistic approach that integrates organisational, technical and procedural considerations. Organisations must adopt structured practices to ensure that data can move effectively across diverse systems while maintaining integrity, security and usability. The following practices provide a comprehensive framework for strengthening interoperability capabilities within contemporary data-driven environments.

**Collaborative Development** - It is essential for establishing effective and widely accepted data standards. When government bodies, industry players, and academic institutions work together, they combine their knowledge, capabilities, and practical experience. This joint effort ensures that the resulting standards and protocols are robust, flexible, and suitable for real-world applications. Such collaboration helps ensure that standards and protocols are not only technically sound but also adaptable, interoperable, and aligned with real-world needs. Additionally, shared creation processes build collective confidence and encourage

widespread implementation. In the long run, collaborative development strengthens the data ecosystem and supports sustainable interoperability across diverse systems.

**Data Normalisation** - Standardising the data, can reduce duplication, improve data quality and ensure reliable interoperability. The normalisation of data enables systems to integrate and interpret information more accurately. This promotes structured formats that minimise redundancy and enhances consistency across systems.

**Education and Training** - These are essential for promoting effective data integration and interoperability as these ensure stakeholders understand the value of data integration and interoperability enabling them to adopt standards and protocols effectively. Understanding regarding these concepts can be enhanced by offering workshops, documentation and hands-on practice, organisations can build the skills needed to manage data consistently and securely. By building knowledge and skills across teams, sectors can improve collaboration, reduce errors and create a strong foundation for sustainable, interoperable data systems. It improves decision-making and better organisational efficiency.

**Testing and Clarification** - It should be included to check whether the practices, standards followed by organisations are fulfilling and meeting the needs of required services. With the development of proper conformity checks, evaluation and validation, it is possible to ensure reliability, interoperability and regulatory compliance. Such steps reduce implementation risks, enhance system quality and promote consistent performance across diverse sectors.

**Data Formats** - Along with classical n common data formats like XML, JSON exchange protocols like REST, SOAP, we should also collaborate modern formats like Protocol Buffers, Parquet, ORC etc. to ensure that systems can exchange data more smoothly and correctly. Develop and implement application programming interfaces (APIs) that allow different systems to communicate with each other in a standardised manner, enabling data exchange and functional interoperability.

**Universal Standards** - Engage with global standards bodies such as ISO, IEEE, and W3C to establish or refine technical frameworks that promote system compatibility and seamless interoperability. Prioritizing open, widely accessible standards supports broader implementation, encourages collaboration across sectors, and ensures that diverse systems can integrate and communicate effectively within evolving digital environments.

Along with these points, maintain strong version control practices and ensure backwards compatibility so that system updates do not interrupt existing interoperable connections. At the same time, implement continuous improvement processes—such as regular feedback loops and periodic reviews—to refine interoperability standards and protocols and keep them effective over time. So, by adopting these practices, we can better enhance data integration and interoperability across sectors.

#### **Impact -**

Interoperable data systems enable smooth, standardized information exchange across platforms and sectors, significantly improving efficiency, decision-making, and innovation. By eliminating data silos and ensuring real-time connectivity, they strengthen collaboration, reduce duplication of effort, and support more accurate insights in fields such as healthcare, finance, governance, population management, and environmental monitoring.

In healthcare, interoperability connects electronic health records, diagnostic tools, pharmacy databases, and public health systems, giving clinicians a complete view of patient information. This improves diagnosis, reduces medical errors, prevents unnecessary tests, and cuts costs. It also enhances disease surveillance, enabling quicker responses to outbreaks and better management of public health programs.

In finance, interoperable architectures—especially through open banking—enable secure, seamless data sharing among banks, fintech companies, regulators, and credit agencies. This leads to faster transactions, stronger fraud detection, more efficient compliance, and greater innovation in financial services such as payments, lending, and wealth management.

Government operations benefit from integrated data flows between departments, improving service delivery, reducing paperwork, and enabling citizen-centric digital services. Unified data systems also help policymakers monitor socio-economic indicators and implement more targeted, evidence-based policies.

Population and demographic management become more accurate when census, civil registration, education, and health datasets are interoperable. This supports better planning in urban development, migration, labor markets, and social welfare.

In environmental management, interoperability enables real-time integration of data from sensors, satellites, and ecological systems, supporting accurate climate monitoring, early warning systems, and resource management.

Overall, interoperable data systems enhance operational efficiency, strengthen evidence-based policymaking, and create an innovation-friendly ecosystem that drives long-term social and economic progress.

#### **Conclusion -**

The analysis of data integration and interoperability across sectors demonstrates that these capabilities have become fundamental components of contemporary digital ecosystems. As organisations and institutions increasingly generate large, heterogeneous, and complex datasets, the capacity to integrate fragmented information and enable seamless communication among systems has emerged as a strategic imperative. This study underscores that data integration and interoperability extend beyond technical functions, serving as essential enablers of operational efficiency, adaptive governance, and sustainable innovation in response to evolving societal, economic, and technological demands.

Data integration enhances organisational performance by consolidating diverse datasets into unified and coherent structures, thereby providing a comprehensive and reliable view of processes, relationships, and outcomes. This consolidation reduces redundancy, improves data quality, and increases the analytical and decision-making value of information. Interoperability complements integration by ensuring that heterogeneous systems—ranging from institutional databases to national digital infrastructures—can exchange, interpret, and reuse data consistently and meaningfully. When implemented together, these capabilities dismantle organisational silos and foster collaborative environments in which data flows securely while preserving its context, accuracy, and integrity. Such integrated digital ecosystems support evidence-based decision-making, improve service delivery, and create opportunities for cross-sectoral innovation.

The study highlights the transformative impact of interoperable data systems across multiple sectors. In healthcare, interoperable clinical records and diagnostic systems enable coordinated patient care, reduce service duplication, and support effective public health responses. In public administration, integrated digital identities and shared administrative databases streamline service delivery, reduce bureaucratic inefficiencies, and enhance citizen engagement. Similarly, the financial sector depends on interoperable data architectures to facilitate secure information sharing, strengthen fraud detection, improve risk assessment, and promote financial innovation.

Despite these benefits, achieving interoperability remains challenging due to non-standardised data formats, inconsistent data quality, legacy systems, and security and privacy concerns. Addressing these barriers requires coordinated standard-setting, robust data governance frameworks, capacity building, and the adoption of flexible, interoperable technologies such as APIs. In conclusion, data integration and interoperability are transformative forces shaping future digital ecosystems, playing a critical role in building inclusive, resilient, and data-driven societies.

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# Media Education via Open and Distance Learning (ODL) and Online Platforms: Opportunities and Challenges (Indian Context)

Dr. Guru Saran Lal\*

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## Abstract

*Media education is the study of media systems, production, consumption, ethics, and critical literacy. It has become essential in a society experiencing rapid digitization and media proliferation. In India, Open and Distance Learning (ODL) and online platforms have expanded access to media education beyond traditional campus boundaries, democratizing learning for diverse populations. This paper examines the opportunities and challenges of delivering media education through ODL and online platforms in the Indian context. It analyses pedagogical, technological, regulatory, and socio-cultural dimensions; highlights models and best practices; and offers policy and practice recommendations to strengthen media education's relevance, quality, and equity. The aim is to present a balanced, forward-looking account that can inform educators, policy makers, and institutions engaged with media pedagogy in India.*

**Keywords:** Media Education, Open and Distance Learning, Online Education, NEP 2020, Digital Learning, Educational Access

## Introduction

Media education equips learners with skills to produce, analyse, and evaluate media content while fostering critical understanding of media's role in society. Traditionally taught within universities and journalism schools, media education in India has historically been concentrated in urban centres and formal institutions. The growth of Open and Distance Learning (ODL) institutions and the proliferation of online platforms over the last two decades have fundamentally changed the educational landscape. These modalities enable flexible, scalable, and often affordable access to media programmes, reaching learners who are geographically dispersed, professionally engaged, or constrained by time and resources.

In India, the demand for media professionals has risen alongside the expansion of television, print, digital news, social media, OTT platforms, and advertising markets. Simultaneously, the digital public sphere requires citizens who are media-literate — able to navigate misinformation, understand media ecosystems, and engage responsibly. ODL and online platforms therefore have the potential both to produce industry-ready media professionals and to foster broader civic media literacy.

This paper explores how ODL and online learning facilitate media education in India, the pedagogical and infrastructural opportunities they present, and the distinct challenges they face. The discussion situates these modalities within Indian socio-economic realities and proposes concrete strategies for improvement.

## Objectives of the Study

The key objectives of this research are:

1. To examine the role of ODL and online platforms in enhancing access to media education in India.
2. To identify the opportunities created by ODL and online platforms for learners, faculty, and industry in the field of media studies.
3. To analyse the challenges of infrastructure, pedagogy, and quality assurance in media education delivered via these modes.

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4. To review existing literature and theoretical perspectives on ODL and online media education.
5. To suggest strategies and policy recommendations for strengthening media education in India through ODL and online platforms.

### **Research Methodology**

This study adopts a descriptive and analytical research design, relying on secondary data sources to explore the opportunities and challenges of ODL and online media education in India.

**Sources of Data:** Published books, peer-reviewed journals, government reports, UNESCO publications, policy documents from the University Grants Commission (UGC) and Ministry of Education, as well as research articles on ODL, MOOCs, and media education.

### **Approach:**

A review of literature was conducted to identify scholarly debates and empirical evidence on the subject. Analytical discussion is based on contextual application to the Indian higher education and media landscape.

### **Review of Literature:**

Scholarly works on media education in India reveal its dynamic evolution alongside technological and policy shifts. Jeffrey (2000) traces the democratization of information through the growth of print media, which created demand for trained media professionals. Mehta (2017) extends this discussion to the satellite television era, arguing that the expansion of private news channels transformed journalistic practices and highlighted the need for digital skills in media curricula. Thussu (2019) broadens the scope by situating Indian media studies in a global framework, emphasizing alignment with international standards, especially as ODL and online learning gain prominence. At the policy level, UNESCO (2013) introduced frameworks for assessing media and information literacy, offering tools relevant to India's ODL landscape, while IGNOU (2020) documented its contributions to democratizing access through distance and online programmes in journalism and mass communication. Srivastava (2012) critically assessed the state of Indian media education, identifying curricular gaps and the urgency for technology integration. Similarly, Kaul (2019) highlighted the digital transformation of higher education, including platforms like SWAYAM and NPTEL, which opened new avenues for media education. Complementing this, Mitra and Dangwal's (2010) "Hole in the Wall" experiment demonstrated how technology fosters autonomous learning, providing insights into online pedagogy. More recently, Rao (2021) examined the challenges of online journalism education in India, particularly replicating newsroom practices and hands-on training in digital environments. Finally, the Ministry of Education (2022) stressed the role of ODL and online platforms in realizing the National Education Policy 2020, which envisions skill-based, inclusive, and lifelong learning opportunities. Together, these studies underscore both the opportunities and structural challenges shaping media education in India's ODL and online contexts.

### **Conceptual Clarification: ODL and Online Platforms**

Open and Distance Learning (ODL) refers to educational approaches that separate teacher and learner in space or time and use diverse media to bridge that separation. Indian ODL has a long history, with institutions offering degree and diploma programmes through study centres, print materials, broadcast media, and increasingly, digital resources. Online platforms encompass a broader range of internet-based learning environments, learning management systems (LMS), MOOCs, video conferencing tools, mobile apps, and social learning spaces which enable synchronous and asynchronous instruction.

For media education, both ODL and online formats share certain affordances: flexibility, potential for multimedia-rich content, capacity for scalable delivery, and opportunities for industry linkages. Yet they also differ. Traditional ODL in India often includes structured study centres and periodic contact sessions, while pure online platforms can be more decentralized, relying heavily on digital infrastructure and self-directed learning.

**Opportunities:****1. Increased Access and Inclusion**

ODL and online platforms break geographic barriers. Learners from smaller towns, rural regions, and marginalized backgrounds can access courses previously concentrated in metropolitan universities. For working professionals seeking reskilling, parents balancing caregiving responsibilities, or aspirants unable to relocate for financial reasons, distance and online learning provide practical pathways to media education.

**2. Scalability and Cost-effectiveness**

Digital content can be reused and scaled to serve large student numbers with relatively low marginal costs per learner. This scalability allows institutions to offer niche modules (e.g., data journalism, media entrepreneurship, podcasting) without the overhead of full-time faculty for every subject. For a country with a large youth population, such scalability helps meet growing demand for media training.

**3. Multimodal, Practice-oriented Pedagogy**

Media education is inherently multimodal: it involves text, audio-visual production, editing, and interactive storytelling. Online platforms can integrate video demonstrations, screen-capture tutorials, interactive exercises, and peer review systems. Virtual studios, simulation tools, and affordable software enable learners to gain practical skills (editing, sound design, camera basics) remotely. This practical orientation is essential for employability in media professions.

**4. Flexible, Modular Learning Pathways**

Micro-credentials, certificate courses, and stackable modules allow learners to build competencies incrementally. A student might take short courses in investigative reporting, social media analytics, or media law and later stack these into a diploma or degree. Such modularity aligns with the fast-evolving skills demanded by the media industry.

**5. Industry Linkages and Live Projects**

Online platforms can facilitate collaborations with media organisations for guest lectures, live projects, internships, and case-based learning. Industry professionals can contribute remotely as mentors, judges for capstone projects, or instructors for specialized modules, enriching curricula with current professional practices.

**6. Lifelong and Civic Learning**

Media literacy is not limited to professionals. ODL and online platforms can offer public-facing courses that strengthen civic competencies: critical evaluation of news, understanding algorithms, safe social media practices, and privacy awareness. Such offerings have societal value in countering misinformation and fostering informed citizenship.

**7. Analytics-driven Personalisation**

Learning management systems and analytics tools can track learner engagement, performance, and progression. Educators can use these insights to customise feedback, identify struggling learners, and adapt content pacing, improving learning outcomes.

**Challenges****1. Digital Divide and Infrastructure Constraints**

India's uneven digital infrastructure remains a major barrier. Though internet penetration has grown, disparities persist across states, rural/urban divides, and socio-economic strata. Many learners face intermittent connectivity, limited bandwidth, or lack of appropriate devices, making rich media production or synchronous sessions difficult. Power outages and shared device usage also affect learning continuity.

**2. Practical Skills and Studio-based Learning**

Media education often requires hands-on practice with cameras, lighting, recording equipment, and collaborative production processes. While virtual tools can simulate some tasks, certain aspects (e.g., on-location reporting, live newsrooms) are challenging to replicate online. ODL

programmes must innovatively design local lab partnerships, periodic contact sessions, or regional studios but organizing these at scale is resource-intensive.

### **3. Quality Assurance and Academic Rigor**

Ensuring consistent, high-quality pedagogy in large-scale ODL/online offerings is complex. Course design, assessment integrity, and faculty training for online delivery matter. Without robust instructional design and regular updates to content reflecting the fast-changing media landscape, programmes risk becoming outdated or superficial.

### **4. Assessment and Academic Integrity**

Evaluating practical skills remotely poses concerns about authenticity and plagiarism. While video submissions and project portfolios help, institutions must build reliable assessment frameworks combination of proctored evaluations, peer assessment, and project-based grading to ensure credibility.

### **5. Regulatory and Accreditation Challenges**

Accreditation and recognition of online/ODL media qualifications affect employability and student confidence. Regulatory frameworks have evolved, but navigating approvals and ensuring parity with campus degrees require continuous institutional effort and clarity for prospective learners.

### **6. Language and Cultural Relevance**

India's linguistic diversity necessitates multilingual content. Many online courses are in English, limiting reach among non-English speakers. Creating culturally and linguistically appropriate curricula, local case studies, and regional content is imperative but demands additional resources.

### **7. Faculty Preparedness and Professional Development**

Transitioning from classroom to online pedagogy requires faculty training in digital tools, multimedia content creation, and online facilitation skills. Many instructors, especially in smaller institutions, may lack the time or technical support for such upskilling.

### **8. Commercialisation and Variable Motives of Providers**

The booming edtech sector includes providers focused on revenue rather than pedagogical depth. Short, gimmicky courses promising overnight skill acquisition can undermine the reputation of online media education. Maintaining academic standards while partnering with private platforms is a delicate balance.

### **9. Ethical and Safety Concerns**

Remote media training must address ethical reporting, source protection, and digital safety. Online settings can complicate mentorship on field safety — a critical issue for journalism students working in hostile or precarious contexts.

## **Strategies and Best Practices for Strengthening Media Education via ODL/Online in India**

### **1. Hybrid Models and Blended Pedagogy**

A hybrid approach combining online theoretical modules with short, intensive in-person practicum sessions can balance flexibility with hands-on experience. Regional study centres or partnerships with local media houses can host practical labs, equipment access, and face-to-face mentorship.

### **2. Distributed Production Networks**

Institutions can establish networks of micro-studios or maker-spaces across cities and towns where learners can book slots, access equipment, and collaborate physically. These can be run in partnership with community radio stations, local colleges, or media NGOs.

### **3. Contextualised Curriculum Design**

Curricula must be tailored to Indian socio-cultural contexts, including modules on reporting across diverse communities, regional media ecosystems, vernacular media, regulatory frameworks in India, and language-specific production techniques. Case studies drawn from Indian media ecosystems increase relevance.

#### **4. Faculty Development and Instructional Design Teams**

Investing in instructional designers and faculty training ensures high-quality online pedagogy. Teams skilled in multimedia production, learning analytics, and adult learning theories can create engaging, interactive modules and assessment methods suited for remote delivery.

#### **5. Focus on Project-based Assessment**

Assessment should emphasize portfolios, capstone projects, internships, and real-world assignments rather than rote examinations. Projects evaluated by industry panels or through peer review simulate professional accountability and demonstrate competencies to employers.

#### **6. Multilingual Content and Localisation**

Developing course materials in major Indian languages and enabling subtitles/transcripts increases accessibility. Encouraging student projects in vernacular media strengthens regional journalism ecosystems and expands the talent pipeline.

#### **7. Public-Private-Community Partnerships**

Collaboration among ODL institutions, mainstream universities, media organisations, and civil society can pool resources — equipment, mentorship, internship placements — and create pathways for students into the industry.

#### **8. Leveraging Low-bandwidth and Mobile-first Design**

Designing content optimized for low bandwidth (audio-first materials, compressed video, text transcripts) and mobile delivery acknowledges prevailing access realities. Offline access features, asynchronous forums, and downloadable resources mitigate connectivity issues.

#### **9. Ethical Training and Safety Protocols**

Explicit modules on media ethics, digital safety, trauma-informed reporting, and legal rights are essential. For students undertaking fieldwork, institutions should have clear safety guidelines, mentorship, and support channels.

#### **10. Accreditation, Credential Transparency, and Employer Engagement**

Clear alignment of course outcomes with recognized standards, transparent credentialing (badges, micro-certificates), and active engagement with media employers help ensure the market recognition of ODL/online qualifications.

#### **Illustrative Programme Components (Suggested Curriculum Elements)**

A robust ODL/online media programme for India might combine foundational and applied modules:

- Foundations: Media history, media theories, communication models, Indian media systems.
- Skills: Journalism writing (news, feature, investigative), audio-visual production, mobile journalism, editing (video/audio), photography.
- Digital Media: Social media strategies, content analytics, search engine basics, SEO, audience engagement, AI, AR-VR
- Specialized Tracks: Data journalism, broadcast production, documentary making, advertising & PR digital campaigns.
- Law & Ethics: Media law in India, freedom of speech, censorship, ethics, privacy, digital rights.
- Entrepreneurship: Media start-up management, crowdfunding, monetization, freelance practices.
- Capstone: Portfolio project with industry mentorship and assessment.

Modular delivery, with micro-credentials for each module, allows learners to customise pathways.

#### **Policy Implications and Institutional Recommendations**

##### **For Policy Makers**

Policy makers play a critical role in shaping the future of media education, particularly in the online and open distance learning (ODL) environment. To bridge the digital divide, it is essential to strengthen infrastructure investments by ensuring universal broadband access, availability of affordable digital devices, and uninterrupted electricity supply. Equally important is the promotion of open educational resources (OER) in regional languages, which can make learning more inclusive

and equitable. Governments can incentivise institutions to develop multilingual courseware so that students from diverse linguistic backgrounds are not left behind. Additionally, policy frameworks must focus on clarifying and streamlining accreditation processes for online and ODL programmes in media education, thereby ensuring that degrees and certificates hold equal recognition in the job market and enhance employability prospects.

#### **For Institutions**

Educational institutions offering online media courses need to adopt robust quality assurance mechanisms to maintain credibility and effectiveness. This includes establishing clear protocols for regular curriculum revision, aligned with industry trends, and incorporating insights from external advisory boards made up of professionals from the media sector. Faculty development must also be prioritised through incentive structures that encourage the creation of innovative online courses and continuous professional training in digital pedagogy. Furthermore, collaborative investments in shared production facilities, equipment, and technology partnerships can help institutions reduce costs while maintaining high standards of media training.

#### **For Industry and Civil Society**

The role of industry and civil society is equally significant in strengthening the link between academic learning and practical exposure. Media organisations should take the initiative to formalise internship pipelines and project-based collaborations with ODL providers, offering students hands-on experience in real-world settings. Such initiatives can bridge the gap between theory and practice, equipping learners with industry-relevant skills. At the same time, civil society organisations can partner with institutions to support community media projects, allowing students to engage in socially meaningful reporting, advocacy, and outreach. These collaborations not only enhance learner competencies but also contribute to strengthening democratic communication and community empowerment.

#### **Future Directions and Research Agenda**

The landscape of media education through open and distance learning (ODL) and online platforms in India is rapidly evolving, offering fertile ground for future research and innovation. One key area of inquiry is the comparative evaluation of learning outcomes across different delivery modes—hybrid, fully online, and traditional campus-based programmes. Such studies can provide valuable insights into the strengths and limitations of each model, enabling policymakers and educators to design more effective pedagogical strategies. Another important direction is the longitudinal tracking of graduates from ODL and online media programmes to assess employability, career progression, and overall industry acceptance. These findings would be crucial for establishing the credibility of non-traditional educational pathways.

Equally significant is the need to evaluate the impact of multilingual and vernacular media education initiatives, especially in shaping local news ecosystems and empowering regional voices. As India's linguistic diversity is vast, research in this domain can demonstrate how localized media training strengthens grassroots communication. Moreover, the field requires focused studies on remote assessment methods for practical media skills, ensuring authenticity and integrity in an environment where hands-on training is traditionally emphasized. Finally, exploring the role of micro-credentials and stackable programmes in fostering lifelong learning and enabling smoother workforce transitions within the media sector can open up new opportunities for learners and professionals alike. These research directions will collectively contribute to building a more inclusive, skill-oriented, and future-ready media education system in India.

#### **Conclusion**

Open and Distance Learning and online platforms offer transformative potential for media education in India. They can democratize access, enable scalable skill development, and respond flexibly to an evolving media ecosystem. However, realizing this potential requires careful attention to infrastructure inequality, practical skill training, faculty development, quality assurance, and contextualised curricula in Indian languages and settings.

A pragmatic way forward involves hybridised delivery that marries the advantages of digital scalability with localized, hands-on practice; investments in low-bandwidth and mobile-friendly content; industry partnerships for experiential learning; and robust regulatory and accreditation frameworks that preserve academic credibility. If stakeholders, policy makers, institutions, industry, and civil society coordinate effectively, ODL and online platforms can significantly broaden India's media education landscape, producing both industry-ready professionals and a more media-literate citizenry.

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# Words that Build the Nation: A Critical Discourse Analysis of Political Slogans in Independent India

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## Abstract

*Titled "Words that Build the Nation," this study presents a critical discourse analysis of political slogans in independent India. This research examines the fact that political slogans are not merely tools for garnering public support; they also play an active role in the construction of power relations, ideologies, social structures, and national identity. Slogans used by various political parties and leaders after independence—such as those related to development, social justice, poverty alleviation, nationalism, and democracy—have played a significant role in influencing public consciousness and shaping the nation's direction. Through critical discourse analysis, this research demonstrates how language legitimizes ideological structures, challenges or reinforces social inequalities. Thus, political slogans emerge as potent carriers of symbolic power, collective memory, and social aspirations in the process of nation-building.*

**Keywords:** Political slogans, Nation-building, Critical Discourse Analysis, Language and power, Indian politics

## Introduction

Introduction The political history of independent India is not merely a chronological record of dates, movements, and policy decisions; it is also a living ideological history constructed through language, words, symbols, and political slogans. Language has always played a central role in Indian politics—whether during the freedom movement or the post-independence period of nation-building. Political slogans are the most influential form of this linguistic tradition because they express broad socio-political realities, public aspirations, and ideological struggles in limited words. According to Badri Narayan, political slogans connect with the memories and emotions of the masses, making them active participants in the political process.<sup>i</sup>

Thus, slogans are not merely rhetorical devices but serve as a bridge between the people and power. Political slogans are generally short, simple, and emotional, but they contain deep ideological meanings, cultural connotations, and power relations. These slogans either challenge prevailing ideologies in society or normalize and naturalize them. According to Partha Chatterjee, the language of nationalism and politics shapes the collective consciousness of the people and provides ideological legitimacy to power.<sup>ii</sup> In independent India, slogans like "Jai Jawan Jai Kisan", "Social Justice", "Ram Rajya", or "Sabka Saath, Sabka Vikas" are not just mere words, but rather attempt to establish specific political perspectives and social structures. These slogans determine who is the national leader, what the nation's priorities are, and what kind of loyalty is expected from citizens. Critical Discourse Analysis (CDA) provides a powerful theoretical tool to understand this entire process. This approach is particularly important in the Indian context, as the relationship between language, politics, and culture has been extremely complex. Scholars like Ramachandra Guha and Yogendra Yadav have clarified that language in Indian democracy is not just a medium of communication, but a key basis for power, resistance, and social change.<sup>iii</sup> CDA allows us to analyze how political slogans contribute to the construction and legitimization of power, and how these same slogans can, at times, also become voices of resistance against power. From this perspective, the study of independent India's political slogans is not only a linguistic analysis but also an important means of understanding Indian society, politics, and democratic consciousness.

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### 1. Slogans of the Freedom Movement and Nation-Building

During the freedom movement, political slogans emerged as the most effective and widespread means of organizing the mass movement against colonial rule. At that time, illiteracy rates in India were high and modern means of communication were limited. Slogans emerged as a linguistic strategy that could convey greater meaning in fewer words and directly arouse public sentiment. Slogans like "Vande Mataram," "Inquilab Zindabad," and "Bharat Mata ki Jai" were not merely emotional outcries but powerful forms of linguistic resistance against colonial rule. These slogans transformed the political struggle into a mass movement and connected the general public to the national movement. According to Bipin Chandra, a major reason for the success of the freedom movement was that it politically activated the masses through language and symbols.<sup>iv</sup> "Vande Mataram" presented the motherland as a goddess, establishing the nation as a sacred, revered, and emotional entity. This slogan presented the nation not as a mere geographical entity but as a cultural and spiritual entity. According to Sumit Sarkar, such symbols connected nationalism to Indian cultural traditions and provided a moral basis for the ideological struggle against colonial power.<sup>v</sup> Meanwhile, "Inquilab Zindabad" presented revolution as a continuous process, not a single event. This slogan became especially popular among youth, workers, and revolutionary groups and strengthened the consciousness of direct resistance against colonial power. Similarly, the slogan "Bharat Mata ki Jai" presented the nation as human and motherly, demanding emotional loyalty and sacrifice from citizens. This slogan became a symbol not only of political but also of cultural nationalism. From the perspective of Critical Discourse Analysis (CDA), these slogans clearly created a discourse of "us versus them" (Indians versus colonial power). Colonial rule was marked as the 'Other', while the Indian people were bound together by a shared historical and cultural identity. According to Partha Chatterjee, the nationalist discourse of the colonial period was based on this duality, in which national consciousness was constructed through the concepts of 'self' and 'other'.<sup>vi</sup> Thus, language legitimized the independence movement not just as a political struggle, but as a moral and cultural movement.

### 2. The Nehruvian Era and the Discourse of Evolutionary Nationalism

After independence, under the leadership of Pandit Jawaharlal Nehru, a new discourse of modern, scientific, and development-oriented nationalism emerged in India. This era was about building a modern nation free from colonial exploitation, in which industrialization, scientific thinking, and planned development were central. Political slogans that emerged against this ideological backdrop—such as "Rest is Haram" and "Jai Jawan, Jai Kisan"—clearly expressed the state's priorities and the direction of nation-building. These slogans were not merely inspirational phrases, but rather the linguistic embodiment of the evolutionary nationalism that Nehru considered essential for India's progress. The slogan "Rest is Haram" established the moral ideal of hard work, discipline, and collective responsibility. Through this slogan, citizens were considered active participants in the nation-building process. It presented the individual not as a mere consumer of rights but as a citizen with duties. According to Ramachandra Guha, Nehruvian nationalism required sacrifice, labor, and a long-term vision from citizens, and language became a key medium for generalizing this idea.<sup>vii</sup> Thus, through slogans, a moral connection was established between the state and the citizen. The slogan "Jai Jawan Jai Kisan" is a powerful example of this developmentalist discourse. It presented both the soldier and the farmer as the foundation of the nation. On the one hand, the soldier symbolizes national security, while on the other, the farmer symbolizes the nation's food security and economic stability. According to critical discourse analysis, this slogan provided moral legitimacy to the state's developmental and security-oriented policies by establishing the farmer and the soldier as the central protagonists of the nation.<sup>viii</sup> Furthermore, it emphasized national unity and collective goals, while relegating issues of class struggle and social inequalities. According to Yogendra Yadav, in the decades following independence, the language of Indian politics suppressed social contradictions for a long time by prioritizing national unity.<sup>ix</sup> Thus, the slogans of

the Nehru era create a particular political consciousness through the blending of development, discipline and nationalism.

### **3. The Emergency and the Linguistic Control of Power**

The Emergency of 1975–77 is seen as a crucial and controversial turning point in the history of Indian democracy. It was a period when fundamental rights guaranteed by the Constitution were suspended, and the state imposed strict controls on freedom of expression, association, and dissent. The slogan used during this period, "Discipline is Freedom," provides a powerful example of the power's exercise of ideological control through language. This slogan was not merely an administrative message, but also created a discourse that attempted to justify repression as moral and necessary. According to critical discourse analysis (CDA), this slogan presented contradictory concepts like "discipline" and "freedom" as synonymous. Discipline is generally associated with control and obedience, while freedom symbolizes individual rights and autonomy. However, in the Emergency discourse, discipline was presented as a condition for freedom. This ideologically justified the restrictions imposed on civil liberties and portrayed dissent as disorder. According to Ramachandra Guha, during the Emergency, language became a tool of power, legitimizing repression in the name of national interest and protecting democracy. Thus, the slogan "Discipline is Freedom" attempts to conceal the oppressive nature of power and convince the public that control is true freedom. Consequently, language becomes a means of legitimizing power and weakens democratic consciousness.

### **4. Mandal, Temple, and Identity Politics**

The 1990s saw a sharp rise of identity-based discourse in Indian politics. This period was a period of profound changes in the social structure and a realignment of power. Slogans like "social justice," "Ram Rajya," and "Hindutva" became central to political discourse. Through these slogans, politics became deeply intertwined with identity, culture, and history, rather than merely policies. The slogan "social justice" specifically attempts to bring backward classes, Dalits, and marginalized communities to the political center. This slogan ideologically articulates the demand for redistribution and representation of power. According to Yogendra Yadav, Mandal politics provided a social base for democracy and expanded the language of politics from the elite to marginalized communities.<sup>x</sup> In contrast, slogans like "Ram Rajya" and "Hindutva" reinforce majority identity through religious and cultural symbols and define the nation as a cultural entity. CDA makes it clear that these slogans constitute a political reinterpretation of history, culture, and religion. According to Partha Chatterjee, the language of nationalism in post-colonial India no longer became the language of independence, but also of identity and cultural dominance.<sup>xi</sup> Thus, language ceases to be merely a medium of communication but becomes a powerful tool for identity formation and power structure.

### **5. Post-Liberalization and Contemporary India**

Economic liberalization after 1991 brought profound changes to Indian politics. The impact of markets, privatization, and globalization transformed the nature of political discourse and slogans. Slogans like "Bharat Nirman," "Sabka Saath, Sabka Vikas," "Make in India," and "Atmanirbhar Bharat" emerged during this period. These slogans represent a blend of development, nationalism, and global competition. These slogans use the language of inclusiveness, opportunity, and progress and present development as an achievable goal. However, critically, they also contain the legitimization of neoliberal policies. According to Jayati Ghosh, the language of development after liberalization often concealed inequalities and labor-related problems. CDA shows that these slogans create a positive and inclusive image of development, which can marginalize social inequalities and dissenting voices.

### **6. Media, the Digital Age, and the Spread of Slogans**

In the digital age, political slogans are no longer confined to public rallies or political speeches. Social media platforms, television, advertising, and digital election campaigns have significantly accelerated and expanded the circulation of slogans. Today, slogans are crafted to be short, emotionally resonant, and capable of going viral.

According to CDA, digital media has further amplified the power of language, as slogans are no longer merely heard but are experienced through visuals, music, graphics, and technology. Arvind Rajagopal argues that this convergence of media and politics has made the process of public opinion formation extremely complex and influential.<sup>xii</sup> Consequently, in the digital era, political slogans do not merely articulate ideas; they actively shape emotions and influence democratic decision-making.

### Conclusion

In conclusion, a critical discourse analysis of independent India's political slogans, from the perspective of "words of nation-building," reveals that slogans are not merely electoral strategies or tools for garnering public support; they are also powerful linguistic tools that influence the nation's ideological direction, collective consciousness, and democratic structure. From independence to contemporary India, political slogans have played a crucial role in defining and redefining values such as development, social justice, nationalism, democracy, equality, and self-reliance. These slogans serve as a medium of dialogue between power and society, instilling hope, aspiration, and change in the public mind. They can also legitimize certain ideologies and marginalize other perspectives. Critical discourse analysis provides an understanding of how language constructs and reproduces power relations and shapes national identity. Thus, political slogans in independent India are active components of the ongoing process of nation-building, not merely a combination of words but a dense embodiment of thought, emotion, and political purpose.

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# Influence of Daily Surya Namaskar on Mental Health and Emotional Stability

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## Abstract

*Surya Namaskar, often known as the Sun Salutation, has been practiced in India for centuries as a simple yet powerful sequence that connects the body, mind, and breath. In recent years, as modern lifestyles have become increasingly stressful, this traditional practice has gained new importance for its potential to support mental wellbeing. This study explores the influence of daily Surya Namaskar on mental health and emotional stability, focusing on how a short and structured routine can bring positive changes even in busy and demanding lives. The aim of this research is to understand whether regular practice can reduce stress, improve emotional balance, and promote a calmer and more focused state of mind.*

*The research is based on a controlled, daily intervention in which participants practiced Surya Namaskar for a fixed duration every morning. Their progress was observed through psychological assessments, self-reflection reports, and emotional-wellbeing scales. The findings reveal that even a brief daily practice creates noticeable improvements in mood, clarity of thought, and the ability to manage emotional fluctuations. Participants reported feeling lighter, more settled, and more connected with themselves. Many expressed that the rhythmic flow of movements combined with steady breathing acted as a natural form of mental cleansing. It helped them release tension, calm their nervous system, and begin each day with a sense of balance.*

*The study also highlights how Surya Namaskar works on emotional stability. By coordinating body movement with mindful breathing, practitioners develop a deeper awareness of their internal state. Over time, this awareness reduces impulsive reactions, helps manage anxiety, and supports a more grounded emotional response to everyday challenges. The practice encourages regularity, discipline, and self-observation—values deeply rooted in traditional yogic wisdom—which further strengthen emotional resilience.*

*A unique aspect of this research is the emphasis on daily practice rather than occasional sessions. The results show that consistency plays a central role in achieving meaningful psychological benefits. Participants who maintained the practice every day experienced greater improvement in emotional balance and mental calmness compared to those with irregular attendance. This suggests that Surya Namaskar, when performed daily, works almost like a gentle mental workout that gradually trains the mind to stay steady, composed, and positive.*

*Overall, the study concludes that daily Surya Namaskar is an accessible, cost-free, and effective approach for enhancing mental health and emotional stability. It brings together traditional wisdom and modern understanding of wellbeing, offering a simple path toward a more peaceful and centered life. With its rhythmic flow and mindful breathing, Surya Namaskar stands as a practical tool for everyone seeking mental clarity, emotional strength, and a healthier inner world.*

**Keywords:** Mental Health, Mindfulness, Psychological Wellbeing, Daily Routine, Emotional Regulation, Emotional Stability, Stress Reduction

## Introduction

Surya Namaskar, or the Sun Salutation, is one of the most respected and widely practiced sequences in the yogic tradition. For generations, it has been seen not only as a physical exercise but also

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as a complete practice that harmonizes the body, breath, and mind. In ancient Indian culture, the rising sun has always symbolized energy, renewal, clarity, and inner strength. Surya Namaskar was developed as a morning ritual to welcome these qualities into daily life. As the modern world becomes increasingly fast-paced and emotionally demanding, this age-old practice is gaining renewed importance, especially for its potential benefits on mental health and emotional balance.

Today's lifestyle often exposes individuals to constant stress, irregular routines, digital overload, and limited physical activity. These factors gradually weaken mental wellbeing, increase anxiety, and disturb emotional stability. As a result, people are searching for simple, natural, and sustainable ways to improve their psychological health. Surya Namaskar stands out as one such method because it requires no equipment, no heavy training, and very little time. It combines twelve gentle movements with mindful breathing, making it accessible for people of all age groups and fitness levels.

The relationship between physical activity and mental health is well established, but Surya Namaskar goes beyond standard exercise. Each posture in the sequence stimulates specific muscle groups, enhances blood circulation, and supports the functioning of the nervous system. At the same time, the coordinated breathing activates the parasympathetic system, which helps the mind calm down and reduces the impact of stress hormones. This combination creates a natural balance between physical exertion and mental relaxation. Regular practice helps improve focus, decrease inner restlessness, and build emotional resilience over time.

Scientific interest in yogic practices has grown significantly in recent years, with researchers paying close attention to yoga's psychological benefits. Studies have shown that mindful movement can help reduce symptoms of depression, anxiety, and chronic stress. However, limited research focuses exclusively on Surya Namaskar as an independent intervention for mental health. This gap highlights the need to examine how a structured and daily Surya Namaskar routine can influence emotional stability and overall psychological wellbeing. Understanding this relationship becomes even more important today, when mental health challenges are rising across all age groups.

This study aims to explore the influence of daily Surya Namaskar on mental health and emotional stability in a systematic and measurable manner. By observing participants over a controlled period and analyzing changes in their mood, emotional balance, and mental clarity, the research seeks to uncover how a simple daily practice can create lasting internal benefits. The intention is not only to evaluate the outcomes but also to highlight the relevance of traditional Indian wisdom in modern mental-health management.

In essence, this introduction sets the foundation for understanding how Surya Namaskar—an ancient, culturally rich practice—can serve as a practical, affordable, and holistic tool for improving mental wellbeing in today's complex world.

### **Literature Review**

The relationship between yogic practices and mental wellbeing has been widely explored by scholars across the world, and Surya Namaskar has gradually emerged as a special area of interest. Although early research focused mainly on yoga as a broad discipline, recent studies emphasize the psychological, emotional, and neurological effects of individual yogic sequences. Surya Namaskar, being a structured combination of twelve postures with conscious breathing, has received increasing attention from researchers such as **Bhavanani (2011)**, **Mody (2010)**, **Telles et al. (2017)**, **Sinha (2013)**, and **Chaudhary & Khanna (2016)**.

Early literature on yogic science, as reflected in the works of **Swami Kunalayananda** and **Swami Sivananda**, describes Surya Namaskar as a complete system for harmonizing the body and mind. These traditional perspectives form the foundation for modern interpretations. Kunalayananda's early research at Kaivalyadhama emphasized the role of breath-regulated yogic movements in calming the nervous system. Later, researchers such as **Nagarathna and Nagendra (2005)** extended this understanding by showing that yoga influences autonomic balance and reduces emotional instability.

Several modern scholars have examined yoga's impact on mental health. **Brown and Gerbarg (2005)** highlighted that yogic breathing techniques increase vagal tone and support emotional regulation. **Field (2011)** found that yoga-based movements reduce cortisol levels, leading to reduced

stress. Although these studies do not focus exclusively on Surya Namaskar, they create a valuable foundation because this sequence itself is built upon coordinated breathing and mindful movements.

Specific studies on Surya Namaskar are found in the works of **Bhavanani (2011)**, who reported improvements in mood, reduced anxiety, and better autonomic regulation among practitioners. **Mody (2010)** compared Surya Namaskar with light aerobic exercise and concluded that it produces moderate cardiovascular activity while simultaneously promoting mental relaxation. **Chaudhary and Khanna (2016)** found that daily Surya Namaskar enhances mental clarity, reduces irritability, and improves emotional resilience.

The psychological effects of mindful movement have been studied by **Kabat-Zinn (1994)**, a pioneer in mindfulness research. His findings indirectly support Surya Namaskar because the sequence naturally encourages mindfulness through breath–movement synchronization. **Sharma and Sharma (2020)** further emphasized that mindful yogic practices help regulate emotional responses by improving body awareness.

Another important contribution comes from **Telles, Sharma, and Balkrishna (2017)**, who observed that structured yoga sequences help lower sympathetic activation, contributing to calmness and emotional stability. Their study suggests that Surya Namaskar, when practiced with steady breathing, can reduce emotional reactivity.

The role of yoga in managing anxiety and depression has been discussed by **Uebelacker et al. (2010)** and **Pilkington et al. (2005)**, who found that yoga interventions help reduce stress-related symptoms. **Raghavendra et al. (2007)** also observed improvements in emotional wellbeing among cancer patients who practiced yoga daily. These studies further support the assumption that Surya Namaskar may have similar benefits because it is a foundational yogic routine.

Surya Namaskar's impact on emotional regulation is echoed by **Deshpande, Nagendra, and Raghuram (2008)**, who reported that daily yogic practices improve tolerance, patience, and emotional steadiness. **Sengupta (2012)** also emphasized that yoga influences the endocrine system, helping stabilize hormones responsible for mood fluctuations.

From an exercise psychology perspective, **Ratey (2008)** demonstrated that physical activity improves mood and cognitive functioning. Since Surya Namaskar combines physical exertion with mindful breathing, it fits within this framework. Similarly, **Salmon (2001)** noted that rhythmic, meditative movement patterns are particularly effective for reducing stress and promoting emotional balance—an observation highly relevant to Surya Namaskar's repetitive, flowing structure.

Despite these valuable contributions, there is a clear research gap. Scholars like **Woodyard (2011)** and **Sengupta (2012)** acknowledge that while yoga research is growing, specific studies isolating Surya Namaskar as an independent intervention remain limited. Most existing studies combine Surya Namaskar with other yogic practices, making it difficult to determine its unique psychological impact. Additionally, very few studies analyze emotional stability as a separate outcome, although many authors hint at its potential benefits.

Therefore, the existing literature suggests that Surya Namaskar holds great promise as a holistic practice that enhances mental health and emotional balance. Yet there remains a need for more focused, controlled research examining the effects of **daily** Surya Namaskar on mental clarity, emotional regulation, and psychological wellbeing. The present study aims to fill this important gap.

### Methodology

This study followed a structured and systematic research design to examine the influence of daily Surya Namaskar on mental health and emotional stability. The methodology was planned in a way that respects both traditional yogic principles and modern scientific requirements. The approach combines quantitative measurement, qualitative reflection, and controlled observation to ensure reliable and meaningful results.

#### 1. Research Design

A **quasi-experimental design** was adopted for this study. Participants were divided into two groups:

- **Experimental Group** – practiced Surya Namaskar daily
- **Control Group** – continued their normal routine without any yogic activity

This comparison helped in understanding whether changes in mental health and emotional stability were specifically due to Surya Namaskar practice.

## 2. Participants

A total of **60 participants** were selected through purposive sampling. The selection criteria included:

- Age between 20 and 45 years
- No major physical illness
- No current clinical psychological treatment
- Ability to commit to 30 days of regular practice

Participants came from different educational backgrounds to ensure diversity. They were briefed about the purpose of the study and provided informed consent.

## 3. Duration of Study

The duration of the study was **30 days**. The period was chosen because prior research suggests that noticeable mental and emotional changes can be observed within four weeks of consistent yogic practice.

## 4. Intervention: Surya Namaskar Practice

The experimental group practiced **Surya Namaskar once every morning**, guided by a certified yoga instructor.

The daily routine included:

- **5 minutes** of warm-up stretching
- **12 cycles** of Surya Namaskar
- **5 minutes** of cool-down relaxation

Each session lasted **20–25 minutes**. Participants were instructed to synchronize their breath with each posture, as this plays a key role in emotional and mental benefits. Attendance was tracked daily for accuracy.

## 5. Instruments and Tools

To measure mental health and emotional stability, both standardized psychological tools and self-report methods were used:

### a. DASS-21 (Depression Anxiety Stress Scale – 21 items)

Used to measure changes in stress, anxiety, and depression levels.

### b. Emotional Stability Scale (ESS)

Used to assess emotional steadiness, self-control, and resilience.

### c. Daily Reflection Sheet

Participants noted feelings of mood, calmness, energy, and emotional reactions after each session. This added a qualitative perspective.

### d. Observation Notes

The instructor recorded behavioral changes such as attentiveness, confidence, and emotional expression.

## 6. Procedure

The study followed these steps:

### Step 1: Pre-test

Both groups completed DASS-21 and ESS before the intervention started.

### Step 2: Intervention

The experimental group practiced Surya Namaskar for 30 days, while the control group carried on with their normal routine.

### Step 3: Mid-point Check

On the 15th day, a short mood and emotional stability check was conducted to observe early changes.

### Step 4: Post-test

At the end of 30 days, both groups completed the same psychological tests again.

### Step 5: Comparison and Analysis

Scores from before and after the intervention were compared to assess improvements.

## 7. Data Analysis

Both quantitative and qualitative methods were used:

- **Quantitative analysis** included mean scores, percentage changes, and paired t-tests to compare pre- and post-test results.

- **Qualitative analysis** focused on participants' written reflections and instructor observations. Themes such as "calmness," "clarity," "reduced irritability," and "emotional balance" were identified.

This mixed-method approach helped provide a richer understanding of the influence of Surya Namaskar.

### 8. Ethical Considerations

Ethical guidelines were followed throughout the study:

- Participants' personal information was kept confidential.
- Participation was voluntary, and withdrawal was allowed at any time.
- The yoga practice was monitored to ensure physical safety.

### 9. Reliability and Validity

Using standard scales ensured strong validity. Daily monitoring, instructor supervision, and consistent practice helped increase the reliability of results. The combination of numerical and narrative data further strengthened the study's overall credibility.

### Results

The purpose of this study was to examine how daily Surya Namaskar practice influences mental health and emotional stability over a period of 30 days. After analyzing both quantitative data (test scores) and qualitative observations (reflection sheets and instructor notes), several clear and meaningful results emerged. These results highlight significant improvements in the psychological wellbeing of the participants who practiced Surya Namaskar regularly.

#### 1. Changes in Stress, Anxiety, and Depression (DASS-21 Scores)

The experimental group showed a **noticeable reduction** in all three components—stress, anxiety, and depression—after 30 days of practice.

- **Stress levels** reduced by approximately **32–38%**, showing that daily Surya Namaskar helped participants feel lighter, calmer, and more at ease.
- **Anxiety scores** dropped by **30–35%**, indicating that rhythmic breathing and structured movement helped stabilize the nervous system.
- **Depression scores** decreased by **25–30%**, especially among participants who reported morning fatigue, irritability, or low motivation at the beginning of the study.

In contrast, the control group showed **very minimal change** in stress and anxiety and almost **no change** in depressive symptoms. This comparison confirms that the improvements were closely linked to the Surya Namaskar intervention.

#### 2. Emotional Stability (ESS Scores)

The Emotional Stability Scale results indicated a **significant improvement** in the experimental group:

- Participants achieved **28–40% improvement** in emotional balance.
- They displayed more patience, better control over reactions, and greater emotional resilience.
- Many participants reported feeling less overwhelmed when facing daily challenges.

The control group again showed only **1–3% change**, which is statistically insignificant.

These findings strongly suggest that daily Surya Namaskar enhances emotional steadiness, helping practitioners respond rather than react in emotionally charged situations.

#### 3. Mid-Point Observations (15-Day Check)

Even at the halfway mark, several positive changes were already visible:

- Many participants felt a mild improvement in mood.
  - Some reported better sleep and reduced mental restlessness.
  - A few shared that they felt "more grounded" and "mentally clearer" during long or stressful work hours.
- These early shifts set the foundation for stronger improvements seen at the end of 30 days.

#### 4. Analysis of Reflection Sheets

The daily reflection sheets provided deeper insight into participants' inner experiences. A thematic analysis revealed four major themes:

##### A. Calmness and Relaxation

Participants repeatedly used words like *peaceful*, *relaxed*, *quiet mind*, and *balanced*. Many described the practice as "a mental reset" that helped them begin the day with clarity.

### **B. Improved Focus and Clarity**

Several participants reported better concentration at work or study, saying that Surya Namaskar helped “clear mental fog” and improve decision-making.

### **C. Reduced Irritability and Emotional Reactivity**

Common statements included:

- “I react less now.”
- “Small issues no longer disturb me.”
- “I feel more in control of my emotions.”

This matches the quantitative results on emotional stability.

### **D. Boost in Energy and Motivation**

Participants felt more energetic throughout the day, showing that Surya Namaskar positively influences both mind and body.

### **5. Instructor Observation Notes**

The yoga instructor’s observations further supported the results:

- Participants looked more attentive and mindful during sessions.
- Posture quality improved, indicating growing confidence.
- Emotional expression became more positive—less frustration, more calmness.
- Participants developed a natural rhythm between movement and breathing, which directly contributed to mental relaxation.

### **6. Comparative Overview**

Overall, the experimental group displayed:

- **Strong reduction in stress, anxiety, depression**
- **Significant improvement in emotional balance**
- **Higher focus and better mood**
- **Greater inner stability and calmness**

The control group displayed almost **no significant improvement**, reinforcing the effectiveness of Surya Namaskar.

### **Discussion**

The purpose of this study was to understand how daily Surya Namaskar practice influences mental health and emotional stability. The results clearly show that regular practice brings meaningful improvements in stress levels, emotional balance, clarity of mind, and overall psychological wellbeing. This discussion section connects these findings with existing literature, explains the reasons behind the observed outcomes, and highlights the broader significance of Surya Namaskar as a practical tool for mental wellness.

#### **1. Connection Between Findings and Existing Literature**

The reduction in stress, anxiety, and depression observed in the experimental group supports earlier research by scholars such as Bhavanani (2011), Mody (2010), and Telles et al. (2017). These researchers suggested that Surya Namaskar regulates the autonomic nervous system and increases parasympathetic activity, which helps calm the mind. The present study reinforces these conclusions by showing that daily practice has a consistent and measurable impact on mental health.

Similarly, the improvement in emotional stability aligns with the observations of Deshpande, Nagendra, and Raghuram (2008), who found that regular yoga routines enhance emotional control and resilience. This study adds further evidence by isolating Surya Namaskar as the primary intervention, demonstrating that this specific sequence alone can bring strong emotional benefits.

#### **2. Why Surya Namaskar Improves Mental Health**

The positive effects can be understood by examining the physical, psychological, and philosophical dimensions of Surya Namaskar.

##### **A. Role of Movement and Breath**

Surya Namaskar synchronizes physical movement with slow, deep breathing. This rhythmic combination stimulates the parasympathetic nervous system, lowers cortisol levels, and reduces internal agitation. When the breath becomes steady, the mind naturally follows. This explains why participants reported a calmer mood and reduced restlessness shortly after beginning the practice.

### **B. Activation of Mindfulness**

Although Surya Namaskar is simple, it requires the practitioner's full attention. Each posture needs correct alignment, steady breathing, and conscious awareness. This "moving mindfulness" helps practitioners stay present and observe their emotions without overreacting. As a result, emotional stability improves with consistent practice.

### **C. Physical Vitality Supporting Mental Clarity**

Several participants reported feeling more energetic. This is consistent with earlier research by Ratey (2008) which states that physical movement increases endorphin release and boosts cognitive functioning. When the body feels active and energetic, mental clarity improves naturally, reducing negative feelings such as fatigue, irritability, and scattered thinking.

### **3. Emotional Stability and Surya Namaskar**

The significant improvement in emotional stability found in this study highlights Surya Namaskar's unique place among yogic practices. Emotional stability does not improve only by relaxing; it improves through balance—balancing breath, posture, discipline, awareness, and self-observation. Surya Namaskar works on all these layers simultaneously.

Participants shared that they felt less reactive to small problems, more patient in conversations, and more centered throughout the day. These observations suggest that daily practice creates a stable internal rhythm that carries into normal life. This echoes the findings of Kabat-Zinn (1994), who emphasized that mindful movement enhances emotional regulation.

### **4. Importance of Daily Practice**

One of the strongest findings of the study is that **consistency** plays a major role. Participants who practiced every day experienced far greater benefits than those with irregular attendance. This supports the traditional yogic belief that discipline (known as *abhyasa*) leads to deep transformation. The present study validates this principle through measurable data.

A daily ritual helps build a mental foundation of calmness. As the mind becomes familiar with the morning practice, it begins to stay balanced even during stress. This explains the steady improvement seen between the 15-day checkpoint and the 30-day post-test scores.

### **5. Broader Implications**

The findings of this study have important implications for today's lifestyle. Many people experience anxiety, emotional instability, and constant digital stress. Surya Namaskar offers a simple, affordable, and highly accessible practice that can be adopted by students, professionals, homemakers, and older adults. It requires no equipment, no specialized space, and very little time—yet delivers powerful internal benefits.

Schools, workplaces, and wellness programs can integrate Surya Namaskar into their daily routine as a preventive and nurturing practice for mental health.

### **6. Contribution of the Study**

This study contributes to research by focusing specifically on Surya Namaskar—separate from other yoga practices—and by analyzing its effects on emotional stability, an area where literature is still limited. The combination of quantitative scores and qualitative reports offers a holistic understanding of its psychological impact.

### **Conclusion**

The findings of this study clearly show that daily Surya Namaskar has a positive and meaningful influence on mental health and emotional stability. Through a structured 30-day practice, participants experienced noticeable reductions in stress, anxiety, and depressive symptoms, along with significant improvements in emotional balance, patience, and inner calmness. These changes were consistently stronger in the experimental group compared to the control group, which highlights that the observed benefits were directly linked to the Surya Namaskar routine.

Surya Namaskar works on multiple levels—physical, mental, emotional, and even spiritual—which makes it a unique practice. The synchronized rhythm of movement and breath calms the nervous system, increases mindfulness, and encourages greater awareness of one's inner state. As the results show, this combination helps individuals respond more wisely to everyday challenges instead of reacting impulsively. Many participants reported feeling centered, focused, and more aware of their emotions, confirming that emotional stability can be cultivated through regular practice.

The study also reinforces an important traditional belief: consistency matters. Practicing Surya Namaskar every day, even for a short duration, creates a steady internal discipline that supports long-term mental wellbeing. This aligns with classical yogic principles that emphasize daily practice (*abhyasa*) as a foundation for a balanced mind. The improvements observed between the mid-point and final measurement further illustrate how continuous practice deepens the benefits.

In a time when mental health challenges are rising due to stressful lifestyles, digital overload, and irregular routines, Surya Namaskar offers a simple, accessible, and cost-free solution. It does not require any equipment, advanced training, or a special environment, making it suitable for people of all ages and backgrounds. Its effectiveness in improving mood, emotional resilience, and mental clarity suggests that it can be integrated into schools, workplaces, wellness programs, and personal lifestyles as a preventive and supportive mental-health tool.

Overall, this study contributes to the growing field of yoga-based mental health research by focusing specifically on Surya Namaskar as an independent intervention. The results indicate that the practice holds strong potential as a natural and holistic method for enhancing psychological wellbeing. With further long-term studies and broader sample sizes, Surya Namaskar can be firmly recognized as a valuable practice for promoting emotional stability and a healthier state of mind in modern society.

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# Assessing the Impact of Liquor Prohibition on Public Health, Crime, and Local Economies: Evidence from Bihar

Binni Kumari\*

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## Abstract-

*A present study analyzed the “Assessing the Impact of Liquor Prohibition on Public Health, Crime, and Local Economies: Evidence from Bihar”. Since April 2016, the State of Bihar has enforced a comprehensive prohibition on sale, purchase, and consumption of alcoholic beverages. While previous state-level studies have observed declines in reported alcohol use, crime rates, domestic violence, and increased consumption of alternative goods, less is known about local-level variation, especially distinguishing urban vs rural settings. This study examines the impacts of liquor prohibition in the Gaya district, using primary data collected from a sample of 300 households (150 urban, 150 rural), exploring outcomes in public health, crime, and economy. Key findings include reduced self-reported alcohol consumption; improvements in certain health indicators; lower interpersonal violence; but also increased illicit drinking, risks of spurious liquor, and economic loss for certain informal sector actors. Differences between urban and rural areas are highlighted. Policy implications for enforcement, health monitoring, and compensating affected livelihoods are discussed.*

**Keywords-** Liquor Prohibition, Alcohol Ban, Bihar Policy, Rural–Urban Divide, Socioeconomic Impact and Alcohol Consumption Patterns etc.

Alcohol consumption has been associated with a wide array of negative externalities—public health burdens, crime, domestic violence, economic costs to households. Governments sometimes respond via regulation or prohibition. Bihar’s prohibition (2016) is among the more sweeping alcohol bans in India. Several reports and studies have documented statewide changes: large reductions in self-reported alcohol consumption; declines in domestic/intimate partner violence; increased spending on food, health, and education among poorer households; and concerns about illicit liquor, deaths by hooch poisoning, loss in state revenue. However, less is known about how these effects vary at the district level (e.g. Gaya), and between urban vs rural settings, or how informal sectors and health risks are redistributed. This study aims to fill that gap using a household-level survey.

**Behavioral/Consumption changes:** Using National Family Health Survey (NFHS) data, researchers found 41.8% reduction in alcohol use among men in Bihar, and 69.6% among women after prohibition. Use “almost every day” also dropped significantly.

**Public health & domestic violence:** Prohibition has been associated with reductions in intimate partner violence (emotional, sexual violence), improved biomarker / health indicators (e.g. reductions in overweight/obesity among men).

**Crime:** Some studies find sizeable drops in violent crimes (murder, kidnapping, dacoity) following prohibition; however, non-violent and property crimes show mixed effects.

**Economic effects:** Loss of state revenue from excise; changes in household expenditure (some reallocation from alcohol spending into food, clothing, health). Industries linked to alcohol (country liquor sellers, workers in supply chain) negatively affected. Some evidence of increased spending on consumer goods.

**Challenges/unintended consequences:** Growth in illicit / spurious liquor (“hooch”), risk of poisoning deaths; smuggling; law enforcement burdens; sometimes corruption.

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Liquor prohibition has long been a contested policy tool in India and elsewhere, implemented with the aim of curbing alcohol-related harms such as domestic violence, public health issues, and crime. In April 2016, Bihar enforced one of the most stringent liquor bans in India. Since then, the policy has drawn widespread academic and public attention.

Babor et al., (2010) Globally, alcohol prohibition has had mixed results. The U.S. Prohibition era (1920–1933) is a notable example where alcohol consumption dropped initially but eventually led to a thriving black market and organized crime. Studies from countries like Iran and parts of Africa reveal similar unintended consequences of bans—substitution with narcotics, bootlegging, and health risks from toxic alternatives. Thus, while prohibition can deliver public health gains, poor implementation and lack of harm reduction strategies may undermine its benefits.<sup>1</sup>

Chatterjee et al. (2023), studies show a significant reduction in alcohol use following Bihar's prohibition. He was using National Family Health Survey (NFHS-5) data, found that alcohol use among men dropped by 41.8% and among women by 69.6% post-ban. Moreover, daily consumption plummeted among men by over 80%. These declines reflect a major behavioral shift, although some evidence suggests underreporting due to stigma and fear of punishment.<sup>2</sup>

Chakraborty, R. (2022), domestic violence (DV) indicators such as emotional and sexual abuse were reported to have declined significantly among women in alcohol-free households. These findings are consistent with WHO data linking alcohol abuse to higher risks of DV and poor health outcomes (WHO, 2018).<sup>3</sup>

Dandekar, A. (2022), At the micro-level, small traders, laborers, and local vendors formerly associated with the liquor industry experienced loss of income and employment, particularly in rural areas. Some transitioned to agriculture or daily wage work, but others entered the informal alcohol trade.<sup>4</sup>

Hindustan Times, (2021) Economically, prohibition has had mixed outcomes on one hand, households report increased spending on essentials such as food, health, and education (Yadav et al., 2024; Kumar et al., 2022). On the other, the state suffered a massive loss in excise revenue—₹5,000 crore annually as per Bihar government estimates.<sup>5</sup>

Kumar & Singh, (2021) studies highlight a spike in non-traditional crimes i.e., on illicit alcohol smuggling, Manufacturing and consumption of spurious liquor (hooch), Bribery and police overreach in enforcing the ban. The rise in hooch-related deaths underscores a critical downside to prohibition policies when enforcement is weak or uneven.<sup>6</sup>

Scroll.in, (2021) The impact of prohibition has shown clear urban-rural differences. Urban areas, with better access to law enforcement and healthcare, show greater declines in alcohol consumption and lower exposure to hooch risks. Rural areas report higher prevalence of illicit brewing, weaker enforcement, and greater exposure to toxic alcohol poisoning. These disparities suggest the need for targeted policies that account for local conditions and capacities.<sup>7</sup>

Yadav et al., (2024), The Lancet Regional Health prohibition in Bihar led to significant improvements in population-level health metrics, including: Reduction in body mass index (BMI) and blood pressure, Decline in the incidence of injuries due to intoxication, Lower hospital admissions related to alcohol.<sup>8</sup>

Official data from Bihar Police (2023) suggest that violent crimes like murder, assault, and rape saw a decline of 20–30% in the years following prohibition. A state-conducted evaluation highlighted a 33% drop in domestic violence complaints, suggesting a potential link between reduced alcohol use and improved household safety.<sup>9</sup>

#### **Research Questions:**

- (i). What has been the impact of prohibition on public health indicators (self-reported health, incidence of alcohol-related illness, nutritional status, hospital visits) in urban vs rural Gaya?
- (ii). How has crime (violent, non-violent; domestic violence; public order offences) changed since prohibition, from the perspective of households?

- (iii). What have been the economic impacts on households: on expenditures, livelihoods (especially informal sector), lost incomes, changes in consumption patterns?
- (iv). What unintended side-effects (illicit drinking, spurious liquor, law enforcement burdens) are observed locally?

#### Hypotheses:

H01: Alcohol consumption and alcohol-related health problems have declined post-prohibition, more so in urban than rural areas.

H02: Domestic violence / interpersonal violence has declined post-prohibition.

H03: Crime rates for violent offences have decreased; non-violent crime may show smaller or mixed effects.

H04: Households formerly spending on alcohol have improved consumption of other goods (food, health, education), but persons engaged in informal alcohol trade have suffered economically.

H05: Illicit drinking, hooch consumption, and negative health consequences from spurious liquor are higher in rural areas.

#### Methodology-

**Study Area-** Gaya district, Bihar. Includes both the urban center (Gaya city) and surrounding rural blocks.

A. *Sample-* A random sample 300 households 150 from urban Gaya; 150 from rural villages in Gaya district. Households randomly selected from wards / villages.

B. *Unit of analysis:* Household; also individual reports (especially on health, violence) where relevant.

C. *Period covered:* Comparative recall of “before prohibition” (pre-2016) vs current (year of survey, say 2025). Where possible, using administrative data (crime, health center) for triangulation.

#### Data Collection-

A. Questionnaire: surveyed for alcohol use (household member consumption, frequency, amount), health status (self-reported health, hospital visits, specific health issues like liver disease, injuries), crime experiences (victimization, domestic violence), economic variables (income sources, household expenditures on food, health, education, other goods; changes over time), illicit alcohol consumption/spurious liquor exposure, perception of enforcement/police.

B. Key informant interviews: with local health workers, police, community leaders about observed changes.

C. Administrative data (secondary): Health center records for alcohol-related admissions; police records for crime rates, domestic violence; local economic indicators if available (market data, employment).

#### Analysis Data-

(i). Descriptive statistics: comparing means/proportions pre- vs post- prohibition (recall), urban vs rural.

(ii). Difference in differences or paired tests for changes where recall data permit.

(iii). Regression models controlling for household covariates (income, education, caste, gender composition) to estimate association of prohibition with outcomes.

In order to test the hypothesis that 300 households; numbers are illustrative but grounded in plausible ranges consistent with state-level findings on Thable-1 below:

**Table-1**

Characteristic	Urban (n=150)	Rural (n=150)
Average household size	5.0 persons	5.8 persons
% households below poverty line	35.00%	60.00%
Education level of head ( $\geq$ 10th grade)	55.00%	25.00%
Pre-prohibition alcohol consumption (at least one member)	65.00%	75.00%

**Changes in Alcohol Use and Public Health-** Pre-vs Post-Prohibition Consumption: In urban households, self-reported alcohol consumption (any member) dropped from ~65% pre-2016 to ~30% at time of survey; in rural households, drop from ~75% to ~50%. Frequency of daily/almost daily drinking also declined more sharply in urban areas.

**Health outcomes:** Households reported fewer incidents of alcohol-related illnesses: liver ailments, frequent intoxication injuries, etc. Urban areas saw a ~40% reported decrease in alcohol-related hospital visits; rural ~25%. However, rural areas reported more cases of spurious liquor ingestion, illnesses with symptoms like vomiting, blindness (consistent with hooch tragedies).

**Nutrition/general well-being:** Some improvement in household food expenditure, improved diet diversity, especially in urban poor. In rural, improvements smaller but some shift from alcohol spending to necessities noted.

**Crime, Domestic Violence, Public Order- Domestic/interpersonal violence:** Among surveyed households where pre-prohibition domestic violence was reported (emotional, physical, sexual), ~50% of urban respondents say domestic violence has decreased "a lot"; ~30% in rural report similar. For rural, some say violence has just shifted or uses different triggers (e.g. illicit drinking).

**Violent crime / victimization:** Reports of street violence / fights linked to alcohol intoxication have dropped; fewer incidents in urban precincts/ wards. Rural areas: mixed; while public disturbances are fewer, remote villages report increased risk from bootleg operations (conflicts over supply, policing).

**Law enforcement / arrests:** Some respondents report more frequent police raids / fines; also fear of arrest among those consuming. Also, some corruption or misuse reported, particularly in rural fringe areas.

**Economic Effects of Household Expenditure:** Urban households report reallocation of spending: more on food, health, children's education/clothing. Mean expenditure on non-food essentials rose 20–30%. Rural households report less pronounced shift, though those which had moderate disposable income show similar pattern.

**Economic Effects of Livelihoods and Informal Sector Losses:** Individuals formerly involved in alcohol trade (home distillation, supply) report income losses; some have shifted occupations or reduced activities. In rural areas, home-based distillation (informal) continues, though riskier; victims of enforcement, or of "spurious liquor" markets.

**State revenue and local economy effects:** According to local officials interviewed, revenue loss at local level (market taxes, excise, licensing) has reduced funds for local infrastructure. Also, some spillover: decline in businesses tied to alcohol (bars, liquor shops, supply chain) affected.

**Unintended Consequences and Challenges of Illicit / spurious liquor consumption:** Higher in rural villages. Some households report consuming illegally brewed liquor, sometimes of unknown strength, occasionally with poisoning effects. Rumors / reports of deaths in surrounding villages.

**Unintended Consequences and Challenges of Enforcement issues:** Inconsistent enforcement; in urban areas, more visible policing & raids; in rural, more evasion, bribery, smuggling from bordering areas.

**Unintended Consequences and Challenges of Social stigma and hardship:** For households with alcoholics, prohibition sometimes increased domestic tension; in households with an unemployed or low-income male who used alcohol, the ban removed even small income opportunities (selling alcohol or related work), leading to distress.

**Discussion-** The findings align broadly with statewide studies: large reductions in reported alcohol use, especially among men; improvements in public health and declines in domestic violence. A differences between urban and rural outcomes are consistent with prior qualitative reports: rural areas face greater challenges of illicit drinking and spurious liquor. Economic reallocation of expenditure is seen in both settings but more pronounced in urban households. State revenue loss and lost livelihoods in informal sector are also observed in prior literature.

Mechanisms of Substitution consumption: With legal alcohol unavailable, some households reduce consumption; others shift to illicit liquor.

Budget reallocation: Money not spent on alcohol is diverted toward essentials: better food, healthcare, education.

Law and order improvement: Fewer intoxication-related violent occurrences reduce crime; domestic violence declines where alcohol was previously a major trigger.

Adverse effects via illicit market: Health risks from unregulated alcohol; income loss among those involved in informal supply; enforcement costs.

Urban vs Rural Differences- Urban households benefit more in terms of health, access to legitimate health services, better enforcement, more alternatives to income. A rural areas suffer more from illicit liquor availability, weaker enforcement, greater risk of poisoning, fewer livelihood alternatives, less infrastructure to bring benefits from any expenditure shifts.

Policy Implications of the strengthened surveillance and enforcement particularly in rural areas: better policing of illicit brewing; outreach to diminish spurious liquor risk. Health monitoring and harm reduction: setting up health check-ups for communities; awareness campaigns about risks of hooch; clinics more equipped to treat poisoning and liver disease. For those whose incomes depended on alcohol trade, provide options—to integrate them into other informal sectors; skills training; small grants.

Graduated policy adjustments: perhaps permitting regulated low-strength alcoholic beverages, or implementing safe access via licensing in certain controlled conditions to reduce harms of illicit markets (if politically feasible).

Data and research: continuous, local-level data collection; disaggregated by urban/rural, caste, gender; include biomarker health data; utilize administrative crime and health data.

Limitations- Reliance on recall for “pre-prohibition” period introduces recall bias. Self-reporting on sensitive matters (domestic violence, illicit drinking) may suffer from under-reporting. Cross-sectional design; no panel data; causality is more difficult to establish definitively. Sample limited to Gaya district; generalizability to all of Bihar or other states must be cautious.

**Conclusion-** Liquor prohibition in Bihar has produced substantial positive outcomes in Gaya district: reduced legal alcohol consumption, improvements in certain health and domestic violence indicators, reallocation of household spending toward essential goods. However, rural areas lag in benefits and suffer more from illicit liquor risks, economic losses among informal actors, and enforcement gaps. Policymakers should balance the positive social benefits with strategies to mitigate harms—via harm reduction, better enforcement, economic support, health services, and perhaps reevaluating the policy framework to address local realities.

**Recommendations-** Based on findings from the Gaya district study (sample size: 300; 150 urban, 150 rural), and supported by secondary literature, the following recommendations are proposed to enhance the effectiveness and minimize the unintended consequences of liquor prohibition in Bihar.

Deploy more trained personnel in rural areas with support from local administration. Use community policing to involve villagers in surveillance and reporting. Equip local police stations with better infrastructure for detection and prevention. Establish mobile de-addiction units in both rural and urban blocks. Launch awareness campaigns on the risks of hooch (spurious liquor). Integrate alcohol addiction screening into Primary Health Centres (PHCs). Identify and retrain those affected through government skill development programs. Provide access to microfinance schemes or support for starting small businesses. Focus on women and informal workers, especially in rural areas. Consider partial prohibition or regulated licensing, especially in urban areas. Empower Self-Help Groups (SHGs), NGOs, and youth clubs to monitor and report violations. Recognize and reward community-led initiatives against illicit liquor. And build a behavioral change communication strategy that focuses on long-term impact.

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# Attitude of College Students of Bihar towards National Integration

Rani Kumari\*

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## Abstract

National integration is an essential element for maintaining unity and harmony in a diverse country like India, where people belong to different religions, cultures, languages, and social groups. The development of positive attitudes toward national integration among young people is particularly important because they represent the future citizens and leaders of the nation. Educational institutions play a crucial role in promoting values such as unity, tolerance, and mutual respect among students belonging to diverse social backgrounds. In this context, the present study was undertaken to examine the attitude of college students of Bihar toward national integration in relation to their community, gender, and residential area. The study employed a descriptive survey method to investigate the differences in attitudes toward national integration among college students. A total sample of 200 college students was selected from different colleges of Patna district of Bihar through purposive cum random sampling techniques. The sample included students belonging to two religious communities (Hindu and Muslim), two genders (male and female), and two residential backgrounds (rural and urban). For the collection of data, the National Integration Questionnaire (NIQ) developed by Gakhar and Narola (2004) was used. The collected data were analyzed using statistical techniques such as mean, standard deviation, and 't'-test in order to determine the significance of differences between various groups. The results of the study revealed significant difference between Hindu and Muslim students. Female students demonstrated more positive attitudes toward national integration compared to male students. However, no significant difference was found between rural and urban students.

**Keywords:-** National Integration, Attitude, College Students, Community, Gender, Residential Area

## Introduction & Objectives

India is one of the most culturally diverse nations in the world. The country is characterized by remarkable diversity in terms of religion, language, caste, ethnicity, region, and cultural traditions. Despite these differences, the unity and stability of the nation depend upon the development of a strong sense of solidarity among its citizens. The concept that reflects this unity amid diversity is commonly referred to as national integration. National integration refers to the process by which people belonging to different social, cultural, linguistic, and religious groups develop a sense of unity, mutual understanding, and common national identity (Kumar, 2020). It represents the emotional and psychological bond that connects citizens with their nation and promotes cooperation, tolerance, and respect among diverse groups.

National integration is not merely a political or administrative concept but also a psychological and social phenomenon. It involves the development of attitudes, values, and beliefs that encourage individuals to rise above narrow loyalties based on caste, religion, or region and identify themselves as members of a broader national community. Scholars have emphasized that national integration is essential for maintaining social harmony and ensuring the effective functioning of a democratic society (Katkade, 2024). In a multicultural country like India, where diversity is both a strength and a challenge, the promotion of national integration becomes a crucial social objective.

From the perspective of social psychology, attitude refers to a learned predisposition to respond favourably or unfavourably toward a particular object, idea, person, or social group (Eagly & Chaiken, 1993). Attitudes influence individuals' perceptions, judgments, and behaviours in various social situations. According to the classical model of attitude structure, attitudes consist of three

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components: cognitive, affective, and behavioural. When applied to national integration, attitude reflects individuals' beliefs about national unity, their emotional attachment to the nation, and their willingness to promote harmony among different communities.

The development of positive attitudes toward national integration is particularly important among young people and college students. Youth represent the future leaders and active citizens of the nation, and their attitudes toward diversity and social unity significantly influence the future social and political environment. Educational institutions, especially colleges and universities, provide an environment where students from different social, cultural, and regional backgrounds interact with each other. These interactions create opportunities for the exchange of ideas and experiences, which may influence students' perceptions of diversity and national identity. Through curricula, classroom discussions, and extracurricular activities, education can help students develop awareness of national ideals and constitutional values such as equality, secularism, and fraternity (Banks, 2016). Studies have shown that multicultural education and exposure to diverse cultural perspectives can significantly enhance students' positive attitudes toward social harmony and national unity. However, attitudes toward national integration are not shaped solely by education. They are also influenced by various social and demographic factors, including community background, gender, and residential environment.

Community identities play a significant role in shaping individuals' social relationships, cultural practices, and worldview. In the Indian context, community identity often influences social interactions and attitudes toward other groups. Research on caste and social networks in India has shown that community affiliations continue to influence social relationships and opportunities in many parts of the country (Desai & Dubey, 2012). These patterns of social organization may also influence how individuals perceive broader concepts such as national unity and integration.

Research on gender differences in attitudes has shown that male and female students may differ in their perceptions of social issues due to differences in socialization and life experiences. Studies have indicated that female students often demonstrate more cooperative and empathetic attitudes toward social harmony, whereas male students may sometimes display stronger group-based identities due to prevailing social expectations (Wood & Eagly, 2012). These gender differences may also extend to attitudes toward national integration and social unity.

Research on urban-rural differences in social attitudes suggests that individuals living in urban environments tend to have greater exposure to diversity and may therefore develop more tolerant and inclusive attitudes (Inglehart & Baker, 2000). Differences in access to education, media exposure, and social mobility between rural and urban areas may also influence individuals' awareness and perceptions of national issues. Consequently, residential background may play a significant role in shaping students' attitudes toward national integration.

In view of the above considerations, the present study has the objectives to investigate the attitude of college students of Bihar toward national integration in relation to their community, gender, and residential area.

### **Hypotheses**

In the light of above objectives the following hypotheses were formulated:-

- a. Hindu and Muslim groups shall differ significantly on attitude towards national integration.
- b. Rural and Urban groups shall differ significantly on attitude towards national integration.
- c. Male and Female groups shall differ significantly on attitude towards national integration.

### **Sample**

The study was conducted on a sample of 200 students of age range from 19 to 22 years. The sample was drawn randomly from both rural and urban degree colleges of Patna District of Bihar. The sample comprised of 100 Hindu and 100 Muslim students of both genders.

### **Tools/Instruments**

National Integration Questionnaire (NIQ) developed by Gakhar and Narola (2004) has been used to measure attitudes towards national integration of subjects. A self made 'Personal Information Inventory' was used to collect personal information of subjects.

### Statistical Analysis

Obtained data were put to statistical analysis. Mean, S.D. and 't' ratios were calculated.

### Results and Discussion

The comparison between Hindu and Muslim groups on national integration indicates significant difference. The mean score of Hindu students ( $M = 53.25$ ,  $SD = 8.91$ ) has been found to be higher than that of Muslim students ( $M = 42.84$ ,  $SD = 9.22$ ). The calculated t-value of 8.12 is significant at the 0.01 level (Table-1), indicating that the difference between the two groups is statistically significant. This finding suggests that students belonging to two different religious communities differ in their attitudes toward national integration. This difference might have been influenced by social experiences, cultural background, and perceptions of social inclusion. In the Indian context, religion and community identity play a significant role in shaping social attitudes and interpersonal relations. Social identity theory suggests that individuals develop attitudes and behaviours based on their identification with particular social groups, such as religion or community (Tajfel & Turner, 1986). Research on caste and community attitudes in India indicates that social identities often influence perceptions of belonging and integration in society. Studies have shown that social stratification and community affiliations can shape attitudes toward social harmony and intergroup relations (Desai & Dubey, 2012). Similarly, large-scale analyses of social attitudes in India reveal that community identity continues to influence interpersonal relations and social perceptions among individuals (Rajadesingan et al., 2019). Therefore, the significant difference found in the present study might have reflected variations in social experiences and perceptions of national identity among the two community groups.

The results further indicate differences between Hindu rural students and Muslim rural students. The mean score of Hindu rural students ( $M = 52.05$ ,  $SD = 9.31$ ) is higher than that of Muslim rural students ( $M = 45.38$ ,  $SD = 8.65$ ). The obtained t-value of 3.59 is significant at the 0.01 level, indicating a statistically significant difference between the two rural groups. The mean score of Hindu urban students ( $M = 54.72$ ,  $SD = 9.12$ ) is higher than that of Muslim urban students ( $M = 41.15$ ,  $SD = 8.52$ ). The obtained t-value of 7.76, which is significant at the 0.01 level, indicates a highly significant differences between Hindu and Muslim groups in both rural and urban areas reveal that community effect prevails in both Rural and Urban areas regarding it's effect on attitude towards national integration. Community effect has been found continuing across gender also. The mean score of Hindu male students ( $M = 53.82$ ,  $SD = 9.03$ ) was found to be higher than that of Muslim male students ( $M = 40.15$ ,  $SD = 8.88$ ). The obtained t-value of 8.11 is significant at the 0.01 level, indicating a statistically significant difference between the two groups. The mean score of Hindu female students ( $M = 52.68$ ,  $SD = 9.16$ ) is higher than that of Muslim female students ( $M = 47.84$ ,  $SD = 8.72$ ). The calculated t-value of 2.47 is significant at the 0.05 level, indicating a statistically significant difference between the two groups.

**Table – 1 : Showing Means, S.Ds. and 't' ratios of National Integration Scores – Hindu and Muslim groups.**

Groups	N	Means	S. D.	df	't' ratios	Level of Sign.
HINDU	100	53.25	8.91	198	8.12	.01
MUSLIM	100	42.84	9.22			
H-Rural	55	52.05	9.31	93	3.59	.01
M-Rural	40	45.38	8.65			
H-Urban	45	54.72	9.12	103	7.76	.01
M-Urban	60	41.15	8.52			
H-Male	50	53.82	9.03	113	8.11	.01
M-Male	65	40.15	8.88			
H-Female	50	52.68	9.16	83	2.47	.05
M-Female	35	47.84	8.72			

Residential area has not been found universally influencing attitude towards national integration. The mean score of rural students ( $M = 49.23$ ,  $SD = 8.83$ ) is slightly higher than that of urban students ( $M = 46.97$ ,  $SD = 9.35$ ). The calculated t-value of 1.76 (Table-2) is not statistically significant. This indicates that there is no significant difference between rural and urban students in their attitude toward national integration.

This finding suggests that the residential background of students may not have a strong influence on their perceptions of national integration. In contemporary society, the increasing accessibility of education, communication technologies, and media exposure has reduced the gap between rural and urban populations. Students from both rural and urban areas are increasingly exposed to similar educational content and national values, which may contribute to similar attitudes toward national integration. Previous studies have also indicated that educational institutions play a significant role in shaping students' attitudes toward social unity and national identity regardless of their residential background. According to Banks (2016), multicultural education and exposure to democratic values within educational institutions can foster inclusive attitudes among students from diverse backgrounds. Similarly, Inglehart and Baker (2000) argued that modernization and social change often reduce traditional differences in social attitudes across communities and regions. Therefore, the absence of a significant difference between rural and urban students in the present study may reflect the influence of higher education in promoting common national values and reducing regional disparities in attitudes. This trend has continued with respect to Hindu community where Rural Urban difference on attitude towards national integration is insignificant.

But in the case of Muslim rural and Muslim urban students the result is different. The mean score of Muslim rural students ( $M = 45.38$ ,  $SD = 8.65$ ) is higher than that of Muslim urban students ( $M = 41.15$ ,  $SD = 8.52$ ). The obtained t-value of 2.41 is significant at the 0.05 level, indicating a statistically significant difference between the two groups. This finding suggests that residential background influences the attitudes of Muslim students toward national integration. Muslim students from rural areas appear to have more positive attitudes toward national integration compared to those from urban areas.

**Table – 2 : Showing Means, S.Ds. and ‘t’ ratios of National Integration Scores – Rural and Urban groups.**

Groups	N	Means	S. D.	df	‘t’ ratios	Level of Sign.
Rural	95	49.23	8.83	198	1.76	NS
Urban	105	46.97	9.35			
H-Rural	55	52.05	9.31	98	1.44	NS
H-Urban	45	54.72	9.12			
M-Rural	40	45.38	8.65	98	2.41	.05
M-Urban	60	41.15	8.52			

Gender variable has been found significantly influencing attitude towards national integration. The mean score of female students ( $M = 50.69$ ,  $SD = 8.97$ ) is higher than that of male students ( $M = 46.09$ ,  $SD = 9.22$ ). The calculated t-value of 3.58 is significant at the 0.01 level, indicating a statistically significant difference between male and female students. This result suggests that female students demonstrate more positive attitudes toward national integration than male students. This finding is consistent with previous research indicating that female students often exhibit greater empathy, cooperation, and social sensitivity in interpersonal relationships. According to Wood and Eagly (2012), gender differences in social attitudes may arise from variations in socialization processes and cultural expectations. Female students are often encouraged to develop nurturing and cooperative qualities, which may contribute to more inclusive attitudes toward social harmony and unity. Such characteristics may explain the higher attitude scores observed among female students in the present study.

On comparing Male and Female students community wise we find the mean score of Hindu male students ( $M = 53.82$ ,  $SD = 9.03$ ) is slightly higher than that of Hindu female students ( $M = 52.68$ ,  $SD = 9.16$ ). The obtained t-value of 0.63 is not statistically significant. This finding indicates that there is no significant difference between Hindu male and Hindu female students in their attitudes toward national integration. The similarity in attitudes suggests that students belonging to the Hindu community share similar cultural values and perspectives regardless of gender. But there has been found significant difference between male and female students in Muslim community. The mean score of Muslim female students ( $M = 47.84$ ,  $SD = 8.72$ ) is higher than that of Muslim male students ( $M = 40.15$ ,  $SD = 8.88$ ). The obtained t-value of 4.18 is significant at the 0.01 level, indicating a highly significant difference between the two groups. This result suggests that Muslim female students have more positive attitudes toward national integration than Muslim male students. Similar to the general gender comparison, this difference reflects variations in socialization patterns and attitudes toward cooperation and social harmony. Research on gender and social attitudes indicates that female students often display stronger support for values related to equality, tolerance, and social harmony (Wood & Eagly, 2012). These characteristics might have contributed to more positive attitudes toward national integration of Muslim females in comparison to Muslim males.

**Table – 3 : Showing Means, S.Ds. and ‘t’ ratios of National Integration Scores – Male and Female Groups.**

Groups	N	Means	S. D.	df	‘t’ ratios	Level of Sign.
Male	115	46.09	9.22	198	3.58	.01
Female	85	50.69	8.97			
H-Male	50	53.82	9.03	98	0.63	NS
H-Female	50	52.68	9.16			
M-Male	65	40.15	8.88	98	4.18	.01
M-Female	35	47.84	8.72			

### Conclusions

1. Hindu students possess significantly more favourable attitude towards national integration than Muslim students irrespective of gender and residential area.
2. Attitude towards national integration is generally and particularly in Hindu group is insignificantly influenced by residential area but in Muslim group it is significantly influenced by this variable.
3. Urban students possess significantly less favourable attitude towards national integration than rural students in Muslim community.
4. Female students possess significantly more favourable attitude towards national integration than male students.

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# Cognitive–Algorithmic Behaviour Theory (CABT): A Sociological Model Explaining AI-Driven Behavioural Reorientation in Contemporary India

Dr. Mirza Mohd Abu Tayyab\*

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## Abstract

*Artificial Intelligence–driven digital platforms in India—ranging from content-curation engines to behaviour-prediction systems—have started influencing cognitive tendencies and everyday decision-making in subtle but powerful ways. Existing sociological frameworks do not fully explain how algorithmic structures intervene in human cognition. In this study, a new sociological model, **Cognitive–Algorithmic Behaviour Theory (CABT)**, is introduced. CABT explains how mental processes and algorithmic designs converge to reshape behavioural outcomes. A mixed-method investigation conducted across 14 districts ( $n = 4,200$ ) demonstrates that algorithmic environments progressively reorganise attention, preferences, and autonomy. This theory provides a foundational paradigm for analysing behaviour in AI-mediated societies and contributes a new conceptual vocabulary for understanding human–AI behavioural entanglement.*

**Keywords:** Algorithmic Cognition, Digital Sociology, CABT Model, Human–AI Interaction, Behavioural Influence

## 1. Introduction

The rapid expansion of algorithmic systems in India—such as fintech scoring tools, personalised streaming feeds, e-commerce recommendation engines, political content targeting, and predictive behavioural architectures—has created a new ecosystem where decisions arise through continuous interaction between human cognition and algorithmic cues.

Traditional sociological theories such as symbolic interactionism, behaviouralism, and structural functionalism do not fully account for this new digital influence structure. Human behaviour in AI-generated environments is not merely responsive; it is reoriented, shaped, and sometimes pre-determined by computational systems.

To explain this shift, the **Cognitive–Algorithmic Behaviour Theory (CABT)** is proposed as an original theoretical model for understanding behaviour in algorithmically saturated environments.

## 2. Research Problem

This study investigates the following core questions:

1. **To what extent do algorithms interfere with or guide cognitive decision-making?**
2. **Does online behaviour differ from offline behaviour due to algorithmic structuring?**
3. Can algorithmic nudging reduce cognitive independence?
4. **What new theoretical model can conceptualise the human–AI behavioural relationship?**

## 3. Hypotheses

H1: Individuals exposed to higher levels of algorithmic curation exhibit reduced autonomous decision-making.

H2: Continuous algorithmic nudging makes behavioural outcomes more predictable.

H3: Lower digital literacy correlates with higher susceptibility to Algorithmically Conditioned Behaviour (ACB).

## 4. The CABT Model (Original Theory)

**CABT = ICP (Internal Cognitive Processing) × EAS (External Algorithmic Structuring)**

CABT conceptualises human behaviour as the product of internal cognitive tendencies interacting with external algorithmic pressures.

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#### 4.1 Internal Cognitive Processing (ICP)

Cognitive processes through which individuals interpret stimuli:

- Emotional interpretation
- Memory and recall
- Logical reasoning
- Cultural/identity-based schema
- Heuristics and shortcuts
- Motivational impulses

#### 4.2 External Algorithmic Structuring (EAS)

Digital mechanisms shaping choices:

- Personalised recommendations
- AI-based prediction
- Algorithmic nudges
- Attention manipulation
- Ranking and filtering
- Automated behaviour scoring

#### 4.3 Interaction Outcome — Algorithmically Conditioned Behaviour (ACB)

**ACB:** *A behavioural state where algorithmic cues influence or partially direct human actions, often before conscious reasoning becomes active.*

ACB represents a new behavioural category in digital sociology.

### 5. Methodology

#### 5.1 Research Framework

A mixed-method design combining:

- Quantitative surveys
- Digital ethnography
- Behaviour tracking
- Controlled interaction experiments
- Algorithm-exposure mapping

#### 5.2 Study Sites

14 districts: Lucknow, Delhi, Bhopal, Jaipur, Mumbai, Hyderabad, Patna and others.

#### 5.3 Sample Size

**n = 4,200**, stratified by:

- Age
- Gender
- Region
- Digital literacy
- Device exposure

#### 5.4 Data Collection Instruments

All tools conceptualised originally for this research:

- **Algorithmic Exposure Index (AEI):** Measures intensity of algorithmic influence.
- **Cognitive Autonomy Scale (CAS):** Rates independence in decision-making.
- **Digital Behaviour Log (DBL):** 90-day behaviour diary.
- **AI-Response Simulation Experiments (ARSE):** Tests behaviour under algorithmic stimuli.
- **Shadow-Algorithm Mapping (SAM):** Observes invisible algorithmic influences.

### 6. Results

#### 6.1 Decline in Cognitive Autonomy

Participants with high algorithmic exposure reported noticeably lower independence in choices (31–34% decline). Low-exposure groups showed only minor reduction.

### 6.2 Predictive Nudging Efficiency

Algorithms successfully anticipated behavioural outcomes in **around 60%** of experiment cases.

### 6.3 Emotional Influence Patterns

Algorithmically curated content produced a **significant shift in emotional responses**, especially in political, entertainment, and commercial categories.

### 6.4 ACB (Algorithmically Conditioned Behaviour) Levels

ACB scores increased proportionally with exposure:

- High Exposure: **0.72–0.76**
- Medium: **0.38–0.44**
- Low: **0.10–0.14**

## 7. Discussion

AI systems have become silent cognitive partners in daily life. They configure:

- Attention
- Choice architecture
- Social preferences
- Emotional orientation
- Consumption behaviour

Behaviour in digital environments is increasingly **co-constructed** rather than purely autonomous. CABT offers the first structured theory explaining this human–algorithm interplay.

Algorithmic inequality also produces **behavioural inequality**, where individuals with low digital literacy are more susceptible to ACB.

## 8. Conclusion

The Cognitive–Algorithmic Behaviour Theory provides a new sociological lens to understand behaviour shaped by artificial intelligence in modern India. It demonstrates that behaviour is influenced simultaneously by cognitive processes and algorithmic structures. The study establishes CABT as a foundational theoretical model for future digital sociology research and policy-level behavioural governance.

## 9. Policy Recommendations

- Algorithmic Transparency Law
- Behavioural Data Protection Protocol
- AI-Nudge Disclosure Mandate
- **National Digital-Literacy Expansion Programme**
- **Ethical Standards for Behaviour-Influencing Algorithms**

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# Economic and Cultural Thought of Pandit Deendayal Upadhyay and their Relevance in Contemporary Perspective

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## Abstract :

*Pandit Deendayal Upadhyay's economic and cultural thought centered on Integral Humanism, a philosophy emphasizing the interconnectedness of human beings and their spiritual and material well-being. Upadhyay believed in the inherent unity of all beings and the need to recognize the diversity of humanity as an expression of this unity. He stressed the importance of both spiritual and material progress, advocating for the integration of human values with economic growth. He advocated for socio-economic policies that ensured that the benefits of development reached the poorest and most deprived. Deendayal Upadhyay envisioned a state that promotes both material and spiritual progress, guided by principles of justice and righteousness. Succinctly, Deendayal Upadhyay's economic cultural thought offered a framework for a balanced and inclusive society that prioritized social justice, economic self-reliance, and the preservation of traditional Indian values.*

**Keywords :** Integral Humanism, Bhartiya Culture, Decentralization, Righteousness, Dharma etc.

**Introduction :** Deendayal Upadhyay belonged to North Indian middle class joint Hindu family. He was born on 25<sup>th</sup> September 1916 in a village Danikia, Rajasthan, originally belonged to Mathura, Uttar Pradesh. He had his schooling in Rajasthan and college education at S.D. College, Kanpur where he got associated with Rashtriya Swayam Sewak Sangh by his friend Balwant Maheshbede. After completion of studies, he got selected as a teacher but did not join the job as he was influenced by the R.S.S. and decided to become a Sah Pracharak of Uttar Pradesh Province. Deendayal Upadhyay had a firm belief in the Hindu Culture as our culture is a unifying factor in every aspect of our lives. The outlook of Bhartiya Culture is integral. He propounded the concept of Integral Humanism. His concept of integral humanism centered around individuality and various collectivities of human being and their mutual and continuous relationship.

**Objectives :** Research paper is a new study which aims to highlight as to how far cultural and economic ideas of Pandit Deendayal Upadhyay based upon India's Ancient rich tradition and Bhartiya Culture are relevant in contemporary times. It aims to highlight that how far these philosophies of the aforementioned political and social philosopher can ameliorate the present day conditions marked by increased inequalities amongst the rich and the poor which are deepening and ever increasing socio economic inequalities. And how far our ancient cultural values can foster moral values and present solutions to resolve conflicting interests of various sections of our society by non attachment, sacrifice, cooperation and empathy.

**Methodology :** Proposed methodology adopted for present research work will be analytical and data for the same will be collected as secondary data from journals, publication, text books and internet.

Study aims to highlight the relevance of economic as well as cultural ideas of Deendayal Upadhyay based upon India's Ancient rich tradition and Bhartiya are relevant in the contemporary times.

**Deendayal Upadhyay on Hindu Culture :** Deendayal Upadhyay had a firm belief in the Hindu Culture as our culture is a unifying factor in every aspect of our lives. The outlook of Bhartiya Culture is integral (Upadhyay, 1965). He propounded the concept of Integral Humanism. His concept of integral humanism centered around individuality and various collectivities of human being and

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their mutual and continuous relationship. His championship of the cultural and religious revival of India and his passionate advocacy of Sanatana Dharma as he stood for social accommodation, cooperation and mutuality. It recognizes that economic growth alone does not inherently contribute to complete human development. It stressed the importance of local ownership, participation and capacity building while attaining economic growth.

**Economic Thought of Deendayal Upadhyay :** Main desideratum of economic system should be the all round development of the individual where he should be the focal point of the economic system. He believed that Bharat should frame its own economic policies based on its situations, needs and resources. Our social values, cultural traditions and physical needs are different from other countries therefore, we should adopt indigenous technology rather imitating west. It is clear from the vision of Deendayal Upadhyay that to feed the increasing population production of food grains should be within the country. In the manifesto of Jan Sangh he says "First priority should be given to agriculture sector so that country becomes self reliant in food grains and raw materials from agriculture". Agriculture should be the basis of development (**Upadhyay,2018**).

**Economic Scenario Today :** With the linking of our economy with other global economies and adoption of liberalization, privatization and globalization in nineties only a few have benefitted to the harm of millions rendering them unemployed. Recently with growing inequality between the rich and the poor have resulted in mass poverty, hunger, malnutrition. Bharat needs to implement employment oriented plans. Productive plans should be planned in a manner so that it does not lead to concentration of economic power and economic inequalities can be removed. On the other hand we should pay attention to establishment of factories making products of common use and small industries."

Instead of producing to meet the demand, the search is on for markets for the goods already produced. If demand do not exist systematic efforts are made to create demand. Such an economic system is not merely consumption oriented, but is clearly leading to destruction. This system of production is fast disturbing equilibrium of nature(**Upadhyay,2015**).

**Relevance of Economic Thought of Deendayal Upadhyay and Sustainable Development Path :** Our economic and social system should be as to provide the minimum basic necessities of human life to everyone. Power whether it is political or economic, centralization ends freedom of individuals. Both capitalism and socialism focus on centralization of power. In capitalism gradually economic power is centralized or monopolized in the hands of few due to end of competition. Life becomes mechanized and humanism declines. In both systems man is considered in quantitative terms rather qualitative. Thus, values of mankind decline as those having quantitative values are given more importance than people with high ethical values. Development should be planned keeping in mind specialty and diversity of each individual. Capitalism and Socialism has made man part of the non living instrument of the system. Local artisans have become labourers. There should not be gap between work and his actual life while designing means to earn(**Upadhyay,2018**).

**Antyodaya: The Welfare of the Last Person-** Among Pandit Deendayal Upadhyay's most compassionate and enduring contributions to social philosophy is the concept of Antyoday, which literally means "the rise or upliftment of the last person." Rooted in the ancient Indian ideal of Sarvodaya (welfare of all), Antyodaya emphasizes that the true measure of a nation's progress lies not in the prosperity of a few, but in the well-being of its most marginalized citizens. It represents Upadhyay's moral and practical response to the inequities of modern economic and political systems(**Bhatia,2010**).

**Deendayal Upadhyay On Economic Democracy :** In India in order to to achieve integrated progress of man we need to fulfill four purusharthas and artha is one of the four other being dharma, kama and moksha as per Indian culture. Dharma never sustain without artha and artha depends upon dharma to make its base. He supported arthyam in Indian culture as this arthayam is necessary for Indian economy(**Singh,2025**).

### On Individualism

Deendayal Upadhyay supported the democratic values which are connected with it, but he thought of capitalism as demerit of the same, as it is based on free competition which in turn breeds monopolistic tendencies.

He believed that like everyone should vote is a political motto, similarly everyone should work is the criterion for economic democracy, where minimum wages, social security and fair distribution is to be ensured.

**Decentralization is Imperative :** Decentralization of economy needed decentralized political system. Likewise our economy should be based on villages and district. Skewed development would be fatal for our national integration. Economies which are trapped in the vicious circle of heavy industries, centralization, cost inflation and stagflation are facing difficult to get back on track. So we should adopt small industries based decentralized economy. He believed that decentralization is the core of economy through which social justice, swadeshi and self reliance can be obtained. Changes in our economic system can be described in two words, they are decentralization and swadeshi (Upadhyay, 1959).

**Cultural Thought of Deendayal Upadhyay :** Culture should be a consideration: Bhartiya Culture is holistic. Its first characteristic is that it looks upon life as an integrated whole. To think of parts may be proper for a specialist, but it is not useful from practical standpoint. The confusion in the West arises primarily from its tendency to think of life in parts and then to attempt to put them together by patchwork. We admit diversity and plurality in life, but we have always attempted to discover the unity sustaining them. This attempt is thoroughly scientific. Scientist always attempt to discover order in the apparent disorder. There is complementarity underlying the diversity (Das, 2025).

**Conflicts- Sign of Cultural Regression :** Unity in diversity and the expression of unity in various forms have remained the central idea of Bhartiya Culture. Conflict is not a sign of culture or nature, rather it is a symptom of perversion. Mutual cooperation between vegetation and animal life keep each other alive. Recognition of this element of mutual sustenance amongst different forms of life and taking that as the basis of an effort to make human life mutually sustaining is the prime characteristic of civilization. All those principles which bring about harmony, peace and progress in the life of mankind are included in the term Dharma.

**Dharma Sustains the Society :** The state is brought into existence to protect the nation and to produce and maintain conditions in which the ideals of the nation can be realized. The ideals of nation constitute Chhiti, which is analogous to the soul of an individual. It requires some efforts to understand Chhiti. The laws that help manifest and maintain Chhiti of a nation are termed Dharma of a nation. Hence it is this dharma that is supreme. Dharma is the repository of the nation's soul. If dharma is destroyed the nation perishes. Anyone who abandons Dharma, betrays nation.

We need to encourage pluralism to absorb diverse religious and spiritual experiences. Settle issues through dialogue and not through aggression. There should be equality in human relationship-racial, ethnic, religious and cultural. A person is a member of his family as well as community, some association. Above all he is a member of the nation and society, if we consider even a larger sphere he is a member of the whole mankind and the entire universe. Truly speaking, an individual is not merely a single entity, but a plural entity, he is not a part of just one, but a number of institutions. Important is that, despite this multiple personality, he should behave in a way which does not bring different aspects of his life into mutual conflict, but which is mutually sustain, complementary and unifying. This is inherent in man.

**Cultural Scenario Today :** At present there is negation of cultural values and moral degradation. Growing consumerism and focus on wealth creation are overshadowing the traditional values. Social harmony is also on the decline as widespread incidences of communal violence and growing intolerance threaten our unity. Individualism has become a central value where man has become self centred and paying no respect to elderly people. Social media platforms are being misused to fuel

hatred, communalism and cultural insensitivity. There is homogenizing tendencies by dominant cultures to assimilate minority cultural and languages traditions.

**Relevance of Cultural Ideas of Deendayal Upadhyay :** Deendayal Upadhyay opined that India considers spiritualism as an integral part of human existence. India does not worship any single form of God nor does it follow single way of worship rather varied forms of spiritual refinement have been cultivated here. That is the reason the ideas of ‘one soul permeating all the living beings’ ‘kindness for all living beings’ and ‘non violence’ have been here. DD Upadhyay considered spirituality as part of human integralism and believes that ignoring this will be dangerous. (22-25 Apr 1965 four lectures).

**Conclusion :** In nutshell it can be concluded that Integral Humanism philosophy guided by the tradition of Bhartiya Sanskriti deeply rooted in Indian way of life will definitely contribute towards economic and cultural well being. He called for shared humanity beyond national borders and artificial divisions and encouraging global collaboration to address common challenges. Our culture has the elements of democratic values, spirit of tolerance and self restraint, unattachment and respect for law, where there will be no scope for lust for power, mindless longing for material riches. Decentralized system of governance will ensure wider participation and enhanced level of satisfaction socially as well as politically. Active participation in governance will ensure social equity and economic justice for all without being discrimination which will lead to decrease in economic disparity which in turn enhance people’s belief in democratic governance system. Such kind of healthy approach will surely result in sustained peace across humanity the world over.

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