

Comparative Analysis of Public Health and Human Development Indicators in M.P., Bihar, Uttarakhand, Haryana and Rajasthan: A Consolidated Study

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Abstract— India’s federal structure presents significant inter-state disparities in health infrastructure, maternal and child health, nutritional outcomes, and socio-economic development. This consolidated research paper presents a comparative analytical study of five Indian states Madhya Pradesh (M.P.), Bihar, Uttarakhand (U.K.), Haryana, and Rajasthan focusing on public health indicators, healthcare accessibility, nutrition status, maternal-child outcomes, and governance effectiveness. The study synthesizes secondary data from national surveys and government health missions to evaluate disparities and progress trends. Findings indicate persistent gaps in maternal mortality, anemia prevalence, institutional delivery rates, and rural health infrastructure in Bihar and M.P., while Haryana and Uttarakhand show relatively improved outcomes. Rajasthan demonstrates mixed performance with improvements in institutional healthcare but ongoing nutritional challenges. The paper concludes with strategic policy recommendations aligned with Sustainable Development Goals (SDGs) and National Health Mission (NHM) frameworks.

Index Terms— Public Health, Human Development, Maternal Mortality, Nutrition, Health Infrastructure, Inter-State Comparison, India

I. INTRODUCTION

India’s development trajectory is deeply influenced by the performance of its states. Health and human development remain central to economic productivity, demographic transition, and social welfare. States such as M.P., Bihar, Uttarakhand, Haryana, and Rajasthan represent diverse socio-economic and geographic realities ranging from hilly terrains to densely populated plains and semi-arid regions. Understanding comparative health performance across these states

enables evidence-based policy formulation and targeted intervention planning.

II. BACKGROUND OF THE STUDY

India operates under a decentralized health governance model. While national programs like the National Health Mission provide overarching frameworks, implementation efficiency varies across states due to:

- Fiscal capacity
- Administrative governance
- Literacy levels
- Rural-urban divide
- Socio-cultural determinants

The selected states represent:

- Economically weaker states: Bihar
- High tribal and rural population states: M.P., Rajasthan
- Geographically challenging hill state: Uttarakhand
- Relatively economically stronger state: Haryana

This diversity makes them ideal for comparative consolidation.

III. PROFILE OF SELECTED STATES

1. Madhya Pradesh (M.P.)





Bihar has high population density and historically low health indicators, though recent improvements in institutional delivery have been noted.



Madhya Pradesh is geographically large with a significant tribal population. It faces challenges in maternal health, malnutrition, and rural healthcare access.

2. Bihar



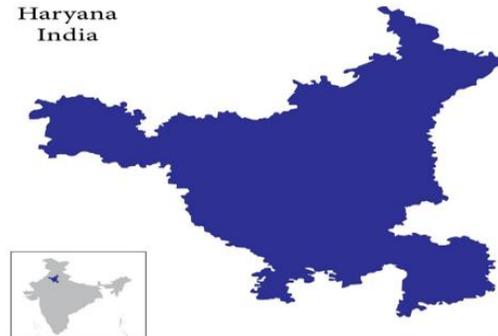
3. Uttarakhand (U.K.)



Uttarakhand faces terrain-related accessibility challenges but demonstrates better literacy and maternal health indicators compared to BIMARU states.

4. Haryana:

Haryana
India

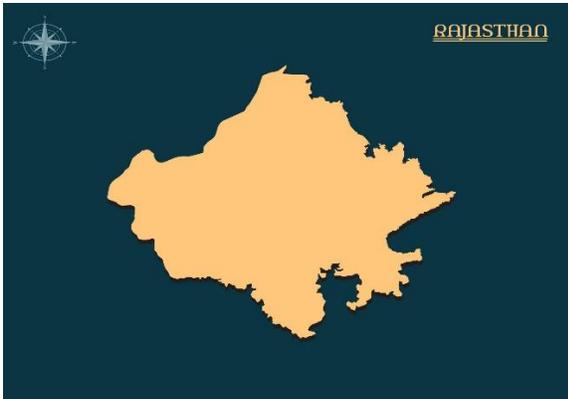


Map not to scale



Haryana shows stronger economic performance but continues to struggle with gender disparity and anemia prevalence.

5. Rajasthan



Rajasthan presents mixed outcomes improvement in institutional births but high anemia and child malnutrition rates in desert districts.

IV. OBJECTIVES OF THE STUDY

1. To compare maternal and child health indicators across five states.
2. To analyze health infrastructure disparities.
3. To evaluate nutritional status trends.
4. To examine governance and implementation efficiency.
5. To recommend policy interventions for balanced development.

V. RESEARCH METHODOLOGY

- Research Design: Comparative analytical study
- Data Source: Secondary data (NFHS, Sample Registration System, NHM reports)
- Approach: Consolidated cross-state comparison
- Tools Used: Percentage analysis, comparative tabulation, policy analysis

VI. COMPARATIVE HEALTH INDICATORS (CONSOLIDATED ANALYSIS)

A. Maternal Mortality Ratio (MMR):

- Bihar & M.P.: Higher than national average
- Rajasthan: Improving trend
- Haryana & Uttarakhand: Relatively lower

B. Infant Mortality Rate (IMR)

- Highest: M.P.
- Moderate: Rajasthan & Bihar
- Lower: Haryana & Uttarakhand

C. Institutional Delivery

- Significant increase across all states under NHM
- Highest in Haryana

- Improving but inconsistent in Bihar

D. Anemia Prevalence:

- High among women and adolescent girls in all five states
- Bihar and Rajasthan show critical levels

E. Health Infrastructure:

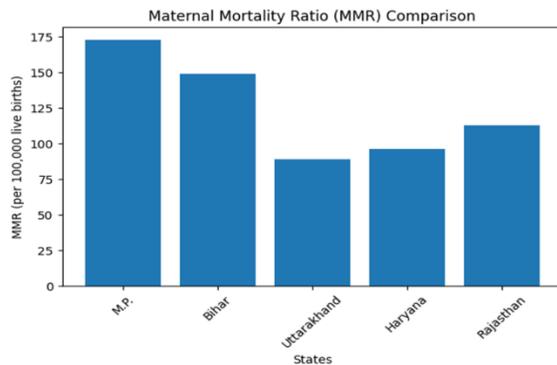
- Urban bias observed in Haryana
- Rural access gap significant in M.P. & Bihar
- Terrain constraints in Uttarakhand

VII. MAJOR FINDINGS

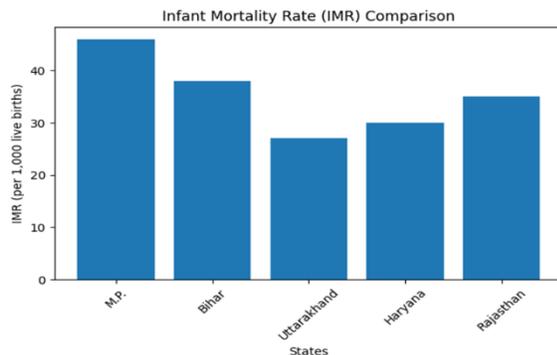
- Persistent rural-urban divide in healthcare delivery.
- Nutrition remains a cross-cutting concern.
- Governance efficiency influences outcomes more than economic status alone.
- Institutional deliveries improved due to Janani Suraksha Yojana.
- Workforce shortages impact remote districts.

The presentation includes separate bar charts for:

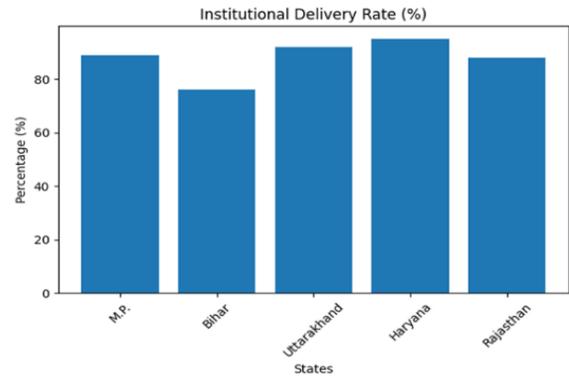
1. Maternal Mortality Ratio (MMR):



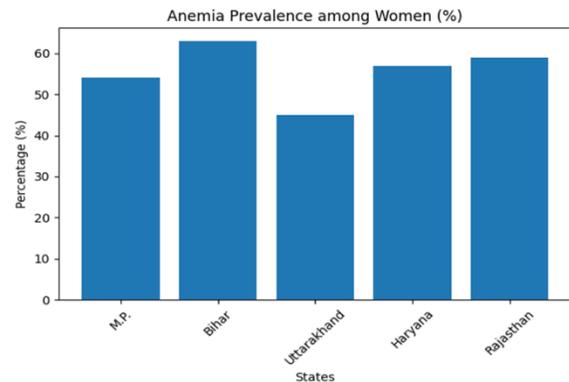
2. Infant Mortality Rate (IMR):



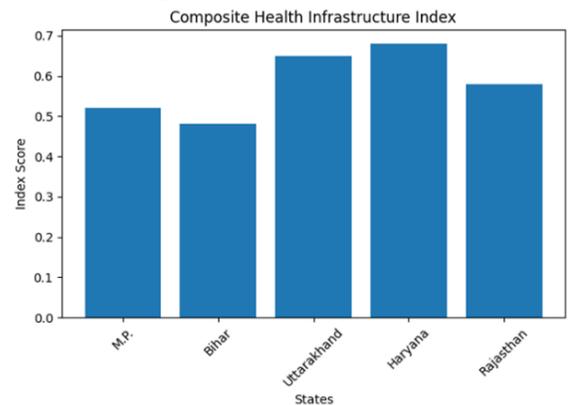
3. Institutional Delivery Rate (%)



4. Anemia Prevalence among Women (%)



5. Composite Health Infrastructure Index:



VIII. POLICY RECOMMENDATIONS

- Strengthen Primary Health Centers in tribal and rural blocks.
- Expand telemedicine in Uttarakhand hill districts.
- Focused anemia eradication programs.
- Improve health workforce distribution.
- District-specific micro-planning under NHM.

IX. CONCLUSION

The comparative consolidation reveals that while economic advancement aids healthcare outcomes, governance efficiency, targeted schemes, and community participation play more decisive roles. Bihar and M.P. require systemic strengthening, Rajasthan requires nutrition-focused intervention, while Haryana and Uttarakhand need gender-sensitive health strategies.

Balanced inter-state development is essential to achieving SDG-3 (Good Health and Well-being) and reducing national disparities.

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