PUNE INTERNATIONAL CENTRE

Evaluating Maternal and Child Health Disparities and Programme Impact Across Tribal Areas in Five Indian States

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Abstract

This study evaluates the disparities in maternal and child health (MCH) across tribal population densities in the five Indian states that were selected for their largest number of Scheduled Tribe (ST) populations. These states are Gujarat, Madhya Pradesh, Maharashtra, Odisha, and Rajasthan. Districts were categorised based on the proportion of ST residents in each district into low tribal density (0–25%), medium tribal density (26–50%), and high tribal density (>50%). This study uses a quantitative secondary research method. For the data analysis, 19 indicators were chosen from the National Family Health Survey-5 (NFHS-5) and Health Management Information System (HMIS) data across 4 themes: children's health and nutrition, maternal health and nutrition, access to water and sanitation, and out-of-pocket expenditure (OOPE). According to research, high-density districts perform poorer than low-density ones. In Odisha, for example, the infant mortality rate (IMR) in High-Tribal Density Population (HTDP) areas is higher (33 deaths per 1,000 live births) than in Low-Tribal Density Population (LTDP) areas; and the Maternal Mortality Ratio (MMR) is 172 in HTDP areas versus 104 in LTDP areas per 100,000 live births (13). Disparities in child malnutrition, antenatal care coverage, institutional deliveries, and sanitary facilities remain substantial. This study also reviewed state-specific and national programmes and linked them to the research findings. Finally, it outlines policy recommendations based on Indian and international best practices, focusing on the use of technology, counselling, awareness campaigns, and the integration of indigenous and modern medicines. Furthermore, two Key Performance Indicator (KPI) tables have been drawn out, each concentrating on maternal and child health, with a focus on policy recommendations to carry out thorough impact assessments in the future to enhance MCH outcomes across tribal areas.

Keywords: Healthcare integration, maternal and child health, out-of-pocket expenditure, policy recommendations, social innovation, tribal health disparities, water and sanitation.

List of Abbreviations

AB-PMJAY	Ayushman Bharat – Pradhan Mantri Jan Arogya Yojana
ANC	Antenatal Care
ANM	Auxiliary Nurse Midwife
ASHA	Accredited Social Health Activists
BPL	Below Poverty Line
BSBY	Bhamashah Swasthya Bima Yojana
BSKY	Biju Swasthya Kalyan Yojana
CHC	Community Health Centre
CHWs	Community Health Workers
CMCHIS	Chief Minister's Comprehensive Health Insurance Scheme
DHIS	District Health Information Software
FHS	Family Health Strategy
HMIS	Health Management Information System
HTDP	High-Tribal Density Population
ICDS	Integrated Child Development Services
IFA	Iron-Folic Acid
IMR	Infant Mortality Rate/Ratio
JSY	Janani Suraksha Yojana
JSY	Janani Suraksha Yojana
KPI	Key Performance Indicator
LTDP	Low-Tribal Density Population
MA	Mukhyamantri Amrutam
MCH	Maternal and Child Health
MJPJAY	Mahatma Jyotirao Phule Jan Arogya Yojana
MMR	Maternal Mortality Rate/Ratio

MMU	Mobile Medical Unit
MPTHM	Madhya Pradesh Tribal Health Mission
MTDP	Medium-Tribal Density Population
NFHS	National Family Health Survey
NICU	Neonatal Intensive Care Unit
NRDWP	National Rural Drinking Water Programme
NRHM	National Rural Health Mission
NTHM	National Tribal Health Mission
OOPE	Out-of-Pocket Expenditure
OTHM	Odisha Tribal Health Mission
PCTS	Pregnancy, Child Tracking & Health Services Management System
PHCs	Primary Health Centres
PMMVY	Pradhan Mantri Matru Vandana Yojana
RMNCH+A	Reproductive, Maternal, Newborn, Child, and Adolescent Health
SEARCH	Society for Education, Action and Research in Community Health
SBM	Swachh Bharat Mission
SDG	Sustainable Development Goal
SC	Sub-Centre
ST	Scheduled Tribes
TSP	Tribal Sub-Plan
UNICEF	United Nations Children's Fund

Chapter 1: Introduction

India is the world's fifth-largest economy and one of the fastest-developing nations (Udit Misra, September 4, 2022). However, since many communities are still underserved, inclusive growth is essential to their progress towards becoming a developed nation. One of these underprivileged communities are tribal communities, which are identified as Scheduled Tribes (STs) under Article 342 of the Indian Constitution. They face significant socioeconomic and health challenges. As per the 2011 Census, Scheduled Tribes comprise 8.6% of India's total population. Historically, they have preserved biodiversity and upheld traditional lifestyles by coexisting peacefully with nature. Their geographic isolation, however, has resulted in socioeconomic marginalisation and limited access to vital healthcare services (Rout, 2014).

Although our Constitution permits tribal people to live according to their traditions, the Government of India's democratic welfare commitment requires state intervention to provide access to modern healthcare, education, and livelihoods. Hence, the development of tribal-dominated regions and tribal people remains an enigma. The situation is further compounded by the fact that notions of economic development have led to the large-scale displacement of tribal populations for the construction of large dams, the destruction of forests and the disturbance of tribal areas in order to obtain minerals.

Additionally, tribal regions lag behind rural areas in terms of economic development when measured by modern measures of human progress because they are isolated and often inaccessible; tribal languages are different from official state languages, making education more difficult; and, lastly, because the tribal way of life excludes institutions like hospitals, businesses, schools, and colleges. Furthermore, it becomes even more difficult to modernise and mainstream for tribal people when they choose to voluntarily distance themselves from their traditional culture and way of life. Enormous sensitivity and sensitisation are constantly required at all levels of bureaucracy, as well as institutions and agencies that are in the fray for bringing modern development to tribals. The important question is whether the choice was made voluntarily and whether all tribal members have access to development. When critically examining the effects of government programmes on tribal people, the aforementioned viewpoint must be kept in mind.

As discussed above, tribal communities still lag behind non-tribal populations in important health indicators like maternal and child health, despite India's efforts to improve healthcare outcomes. ST populations continue to have high rates of maternal mortality, under-five mortality, and malnutrition (Subramanian & Joe, 2023). For instance, over 40% of ST children are stunted or

underweight (Akkiraju, 2022; Subramanian & Joe, 2023), and tribal areas have substantially higher maternal mortality rates than non-tribal areas. In order to fulfil India's commitment to inclusive and sustainable development and to achieve equitable health outcomes, these disparities must be addressed.

These health disparities and the necessity for targeted policy interventions have been highlighted by Akkiraju (2022) and Subramanian & Joe (2023). These studies, however, emphasised upon quantitative analyses and were unable to establish a causal link between systemic factors and health outcomes. Furthermore, the effect of social initiatives, like government welfare programmes, on enhancing health outcomes in tribal areas was not investigated. The inability to classify tribal population density by district makes it even more difficult to identify unique differences in various settings.

Since Gujarat, Madhya Pradesh, Maharashtra, Odisha, and Rajasthan have the highest absolute numbers of tribal people, this study aims to bridge these gaps by investigating maternal and child health outcomes among tribal communities in these five states. Table 1.1 summarises the corresponding number of tribal populations in the selected states as per the 2011 Census. Appendix A, which divides districts into three tribal population density categories (low, medium, and high) and provides the names of the districts under each density category, allows us to further examine the distribution of ST populations across districts in the selected states. In contrast to states like Mizoram (94.4%) and Nagaland (86.5%), where the majority of the population belongs to tribal communities, the selected five states for this study showcase diversity in tribal population proportions across both the states and districts. There is a reduced need for distinct, focused programmes in states with a tribal majority population because the government can create and implement social welfare policies that naturally address the needs of tribal populations. This diversity makes it more difficult to compare systemic barriers to healthcare delivery, health outcomes, and gaps in the implementation of welfare programmes.

	Number of ST Population as per Census 2011
Gujarat	8,917,174
Madhya Pradesh	15,316,784
Maharashtra	10,510,213
Odisha	9,590,756
Rajasthan	9,238,534

Table 1.1: State-wise ST population as per Census (2011)

Based on the percentage of tribal populations in each district, districts within the chosen states are divided into three categories to improve the depth of this analysis: Low-Tribal Density (0–25%), Medium-Tribal Density (25–50%), and High-Tribal Density (>50%), as shown in Table 1.2. This study attempts to establish causal-effect relationships, assess the efficacy of welfare schemes, and identify systemic gaps by combining this categorisation with insights from authentic data sources (e.g., NFHS-5, HMIS, and State Abstract Reports) and existing literature. Finally, the study will offer practical recommendations to reduce inequalities and enhance health outcomes for tribal communities in India.

States	Low-Tribal Density	Medium-Tribal Density	High-Tribal Density	Total Districts
Gujarat	**24**	**3**	**6**	**33**
Madhya Pradesh	**33**	**13**	**5**	**51**
Maharashtra	**31**	**4**	**1**	**36**
Odisha	**16**	**6**	**8**	**30**
Rajasthan	**27**	**3**	**3**	**33**

Table 1.2: Distribution of Districts by Tribal Population Density across Five States

Note: By allowing district-by-district comparisons of health indicators across different densities of tribal populations, this classification will identify disparities that impact health outcomes in these states or districts.

Chapter 2: Research Objectives and Questions

The purpose of this study is to identify health disparities and then assess how social innovations and government welfare programmes have affected the health outcomes of India's tribal communities. The various identified disparities that impact the health outcomes of tribal populations will be addressed through the following objectives:

1. Investigate how maternal and child health (MCH) outcomes differ across LTDP, MTDP, and HTDP districts in the selected five states.

2. Examine the perceptions of tribal communities regarding modern healthcare and the degree of integration of indigenous practices with modern healthcare.

3. Identify systemic factors that influence the impact of welfare schemes and programmes and assess their effectiveness in enhancing tribal health outcomes.

4. Highlight evidence-based best practices, both Indian and global and recommend them to enhance MCH outcomes in tribal communities.

The study is guided by the following core questions to address the above objectives.

1. Do the disparities in maternal and child health (MCH) outcomes in LTDP, MTDP, and HTDP areas across the selected five states exist?

2. What attitudes and behaviours do tribal communities have about indigenous and modern healthcare?

3. What systemic factors affect the effectiveness of welfare programmes in meeting the health needs of tribal people?

4. Which best practices can enhance MCH outcomes among tribal communities?

The following indicators were used in this study's analysis of NFHS-5 and HMIS data:

1. Children's Health and Nutrition

- Average of Infant Mortality Ratio (IMR)
- Average of Children aged 12-23 months fully vaccinated based on information from either vaccination card or mother's recall (%)
- Average of Children under 5 years who are stunted (height for age)
- Average of Children under 5 years who are wasted (weight for height)

- Average of Children under 5 years who are severely wasted (weight for height)
- Average of Children under 5 years who are underweight (weight for age)
- Average of Children under 5 years who are overweight (weight for height)
- Average of Children aged 6-59 months who are anaemic (<11.0 g/dl)

2. Maternal Health and Nutrition

- Average of Maternal Mortality Ratio (MMR)
- Average of Mothers who had at least 4 antenatal care visits (for last birth in the 5 years before the survey)
- Average of Mothers who consumed iron folic acid for 180 days or more when they were pregnant (for the last birth in the 5 years before the survey)
- Average of Institutional births (in the 5 years before the survey)
- Average of Institutional births in public facilities (in the 5 years before the survey)
- Average of non-pregnant women aged 15-49 years who are anaemic (<12.0 g/dl)
- Average of Pregnant women aged 15-49 years who are anaemic (<11.0 g/dl)
- Average of all women aged 15-49 years who are anaemic (%)

3. Access to Water and Sanitation Facilities

- Average of the Population living in households with an improved drinking-water source
- Average of the Population living in households that use an improved sanitation facility

4. Out-of-Pocket Expenditure (OOPE)

- Average of Average out-of-pocket expenditure (Rs) per delivery in a public health facility (for the last birth in the 5 years before the survey).

Chapter 3: Research Methodology

The study evaluates tribal health outcomes in the selected five Indian states using a secondary research methodology. The four key steps in the research methodology are as follows.

1. Data Categorization: Using information from the Census of India (2011) and State Statistical Abstract Reports (especially Gujarat, due to data inconsistencies that resulted from the increase in the number of districts after the Census), districts in the selected states are grouped according to the percentage of the Scheduled Tribe (ST) population. The three categories used to group districts are as follows.

- Low-Tribal Density Population (LTDP): Districts with 0–25% ST population
- Medium-Tribal Density Population (MTDP): Districts with 25–50% ST population
- High-Tribal Density Population (HTDP): Districts with >50% ST population

Appendix A contains the names of the districts in each of the aforementioned three categories across the chosen five states, while Table 1.2 lists the number of districts in each of the aforementioned three categories across the chosen five states.

2. Identification of Data Sources: The study uses several governmental data sources as follows.

- The Health Management Information System (HMIS) has been referred to for information on key indicators for the 2019–20 financial year, such as the overall number of recorded live births, maternal deaths, and infant deaths. The IMR and MMR have been calculated using these three indicators.
- Data from the National Family Health Survey-5 (NFHS-5) has been collected for each district in the selected five states, covering 17 indicators other than IMR and MMR.
- State Statistical Abstract Reports: These have given district-specific demographic information, such as the district's percentage of ST population.
- State Government Portals: These were used to identify the current welfare programmes and initiatives, programmes or initiatives specifically designed for tribal communities.

3. Data Analysis: Microsoft Excel was used to analyse the data. The average for 19 indicators has been calculated for LTDP, MTDP, and HTDP districts across the selected five states to identify the health disparities. Four thematic graphs have been developed for the visual representation of disparities: Child Health and Nutrition, Maternal Health and Nutrition, Water and Sanitation Access, and Out-of-Pocket Expenditure (OOPE).

4. Review of Best Practices: This step aims to identify successful health interventions in tribal areas by conducting a systematic review of existing literature, government reports, news articles, and case studies. The study evaluates both qualitative and quantitative sources to support its research hypothesis, find replicable and scalable best practices, and provide evidence-based insights for policy recommendations.

Chapter 4: Results and Discussion

4.1 Introduction

The intricate interactions between maternal and child healthcare services, nutritional status, financial barriers, and sanitation infrastructure can be used to determine the health outcomes of tribal populations. Disparities still persist despite major government and international organisation interventions, particularly in HTDP areas. These areas face increased financial burdens, adverse nutritional indicators, poor sanitation, and higher infant and maternal mortality than LTDP areas, where infrastructure is relatively better, but out-of-pocket costs are still high. This chapter evaluates four interconnected topics: maternal health and nutrition, child health and nutrition, access to safe water and sanitation, and the cost of maternal healthcare. These trends are illustrated with stacked column charts (Figures 1.1, 1.3, 1.5, and 1.7) and comparative charts (Figures 1.2, 1.4, 1.6, and 1.8) that lists the number of indicators that need to be addressed.

4.2 Children's Health and Nutrition

Child health and nutrition disparities among tribal density categories (LTDP, MTDP, and HTDP) provide important insights into the systemic barriers impacting maternal and child healthcare services. When compared across states, the unique intrastate disparities in anaemia prevalence, infant mortality, immunisation coverage, and malnutrition indicators portray a more comprehensive picture of the structural gaps in tribal health outcomes.

4.2.1 Infant Mortality and Immunization Coverage

According to NFHS-5 (2021), India's infant mortality ratio (IMR) is 35 per 1,000 live births on average. All tribal density categories exhibit notable variations in IMR, revealing an uneven allocation of neonatal healthcare services. The disparity is especially pronounced in Odisha, where the IMR in HTDP regions (33 per 1,000 live births) is more than twice as high as that of LTDP (13), indicating serious deficiencies in obstetric procedures and neonatal care. Maharashtra also shows a sharp disparity, with HTDP reporting an IMR of 20 and LTDP reporting 10. This highlights the difficulties high-density tribal populations face in accessing healthcare.

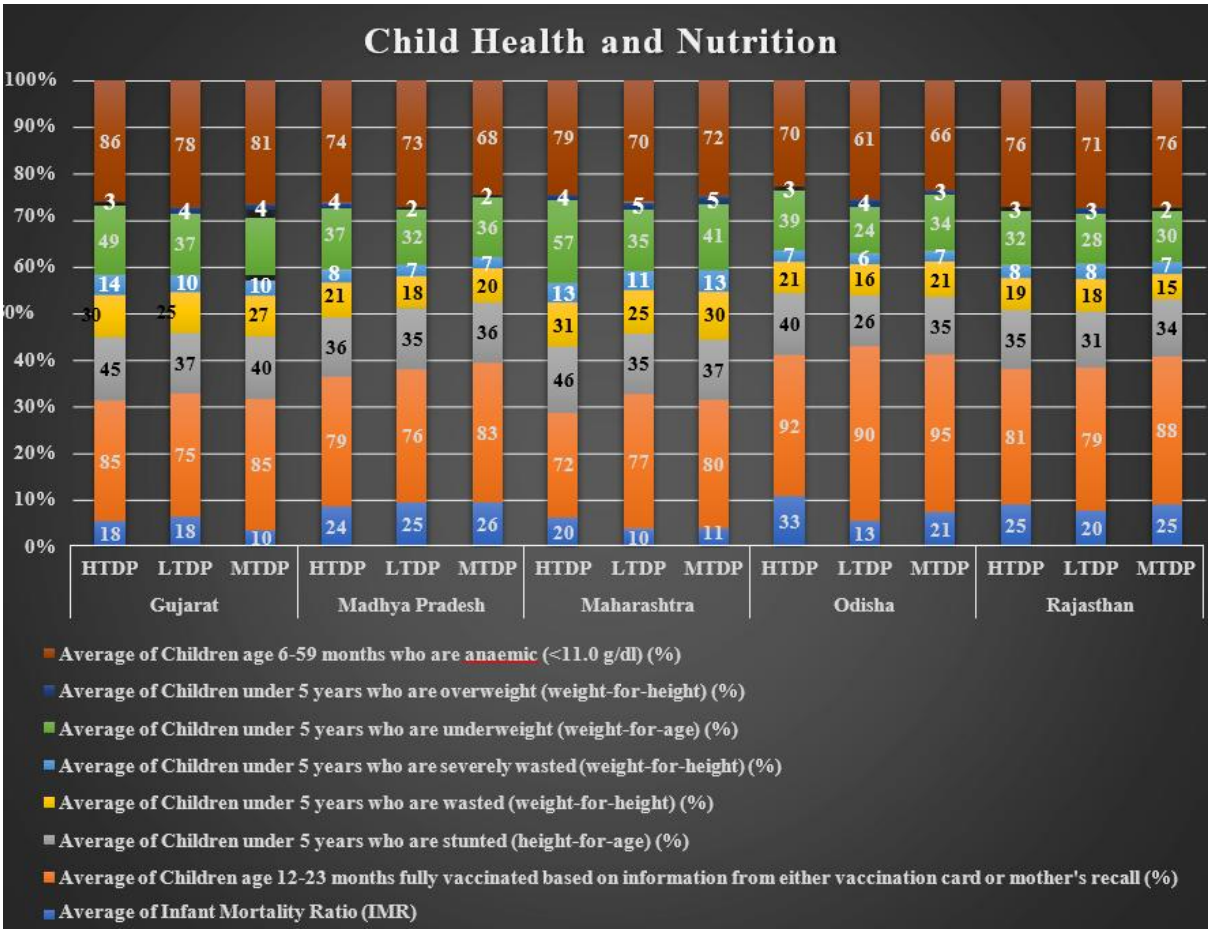

Fig. 1.1: Children's Health and Nutritional Status across categories in five states

Gujarat exhibits a distinct pattern, with MTDP reporting a significantly lower IMR of 10, while HTDP and LTDP report an IMR of 18. This implies that both high- and low-density areas face unique challenges. For instance, in HTDP districts, geographical isolation limits access to strengthened health systems, while in LTDP districts, immunisation interventions may not have received as much priority. MTDP districts may have benefited from a more balanced distribution of healthcare resources.

Immunisation coverage also shows a slightly different trend. According to NFHS-5 (2021), 76% of children between the ages of 12 and 23 months are fully immunised nationwide. Odisha's MTDP regions have achieved 95% coverage, followed closely by HTDP (92%) and LTDP (90%). On the other hand, Maharashtra's HTDP regions (72%) fall short of its MTDP (80%) and LTDP (77%), suggesting a possible deficiency in accessibility and outreach. Furthermore, Gujarat's LTDP regions (75%) fall short of HTDP (85%) and MTDP (85%), indicating that LTDP districts need targeted interventions for high vaccination coverage.

4.2.2 Inadequate Growth and Malnutrition

In the majority of selected states, HTDP regions are disproportionately affected by stunting, wasting, severe wasting, and underweight prevalence, making malnutrition one of the most urgent issues.

- **Stunting (Height-for-Age):** NFHS-5 (2021) reports the national average for stunting as 36%. With HTDP regions having 40% stunting rates as compared to LTDP (26%) and MTDP (35%), Odisha has the greatest intrastate disparity. This implies that high-density tribal areas might have high rates of chronic malnutrition and food insecurity. The same pattern is seen in Gujarat (HTDP: 45%, LTDP: 37%) and Rajasthan (HTDP: 35%, LTDP: 31%), while HTDP regions in Maharashtra (46%) exhibit significantly higher stunting than LTDP regions (35%).
- **Wasting (Weight-for-Height):** The national average for wasting in children under five is 19% (NFHS-5, 2021). Acute malnutrition is remarkably prevalent in the HTDP regions of Maharashtra (31%), Gujarat (30%), and Odisha (21%), all of which have wasting rates that are 5% to 7% higher than LTDP rates and the national benchmark. Concerning patterns are also seen in MTDP regions, especially in Gujarat (27%) and Maharashtra (30%), underscoring the ongoing prevalence of acute undernutrition across all tribal densities.
- **Severe Wasting:** Among children under five, the national average for severe wasting is 8% (NFHS-5, 2021). The prevalence of severe wasting varies significantly by state. Maharashtra reports the second-highest prevalence (13%), and Gujarat's HTDP regions report the highest prevalence (14%), which is higher than the national average. Although the HTDP rates in Odisha and Rajasthan are comparatively lower (7% and 8%, respectively), differences still exist across tribal densities. These results highlight the urgent necessity for focused nutritional interventions in high-burden areas.
- **Underweight (Weight-for-Age):** According to the NFHS-5 (2021), 32% of children under the age of five are underweight nationwide. It is an alarming situation that 57% of children in Maharashtra's HTDP regions are underweight, compared to 35% in LTDP and 41% in MTDP, exceeding the national benchmark. Significant nutritional deficiencies are also highlighted by Gujarat's HTDP, which reports an underweight prevalence of 49%, as opposed to 37% for LTDP and 46% for MTDP. Although the absolute numbers are lower, Odisha exhibits a similar pattern (HTDP: 39%, LTDP: 24%).

- **Overweight (Weight-for-Height):** For children under five, the national average for overweight is 3.4% (NFHS-5, 2021). In contrast to undernutrition, the prevalence of overweight is low in all states (between 2% and 5%), with little variation across tribal density categories. This consistency shows that among these tribal populations, being overweight is currently not a major concern.

4.2.3 Anaemia and Micronutrient Deficiencies in Children

Among children aged 6 to 59 months, the national average for anaemia is 67% (NFHS-5, 2021). Over 70% of children in all states suffer from childhood anaemia, with some areas having a prevalence of over 80%. This is a major concern in tribal areas. Severe micronutrient deficiencies are evident in Gujarat's HTDP regions, which report the highest anaemia prevalence (86%), followed by MTDP (81%) and LTDP (78%). Although Odisha (HTDP: 70%, LTDP: 61%) and Rajasthan (HTDP: 76%, LTDP: 71%) show comparable intrastate disparities, Maharashtra's HTDP regions (79%) also experience noticeably higher anaemia rates than LTDP (70%).

4.2.4 Inter-State Comparison of Child Health Indicators

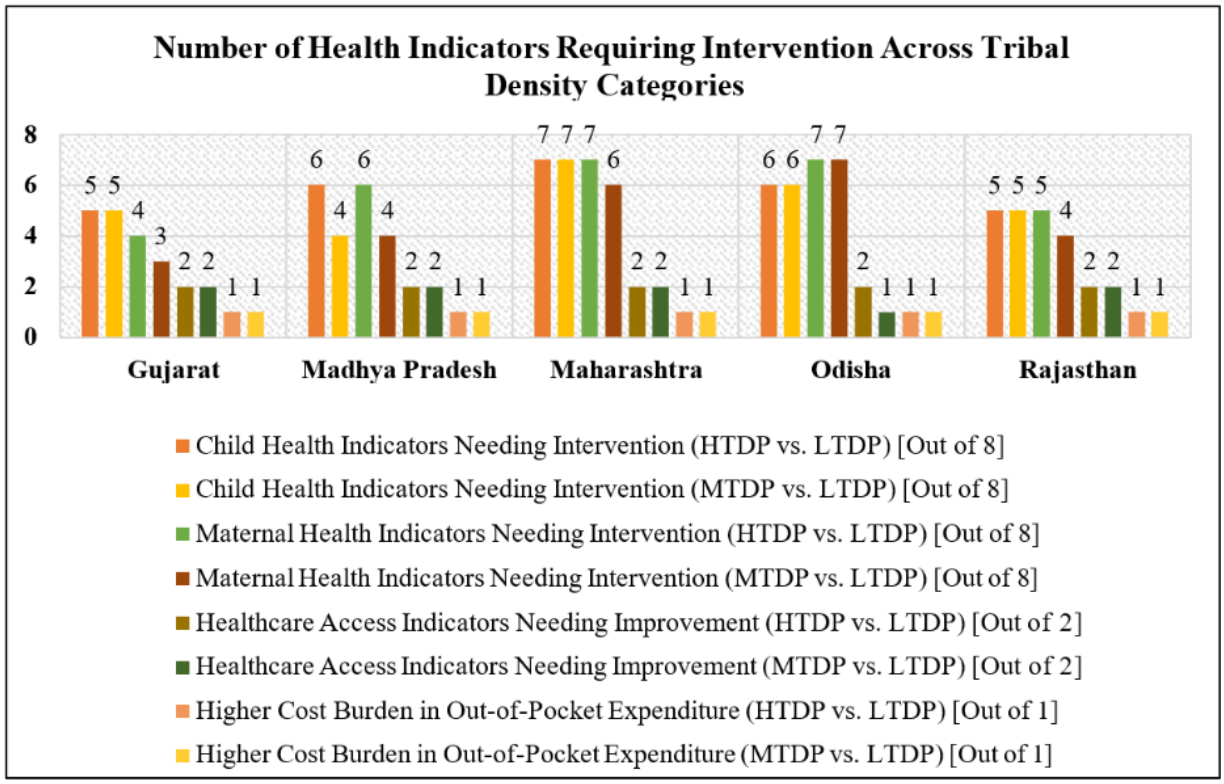

Fig. 1.2: Number of Child Health Indicators Requiring Intervention

When comparing states, the greatest intrastate differences in the prevalence of stunting, wasting, and underweight are found in Maharashtra and Odisha. Maharashtra is also the state with the

highest underweight burden (57% in HTDP), while the highest rates of severe wasting (14%) and anaemia (86%), respectively, are reported in the Gujarat region.

Referring to Fig. 1.2, Maharashtra has seven out of eight child health indicators that need immediate attention, while Odisha has six out of eight. These statistics demonstrate the high rate of malnutrition and healthcare disparities in these states, underscoring the necessity of focused interventions to mitigate the combined consequences of micronutrient deficiencies and undernutrition in HTDP areas.

4.3. Maternal Health and Nutrition

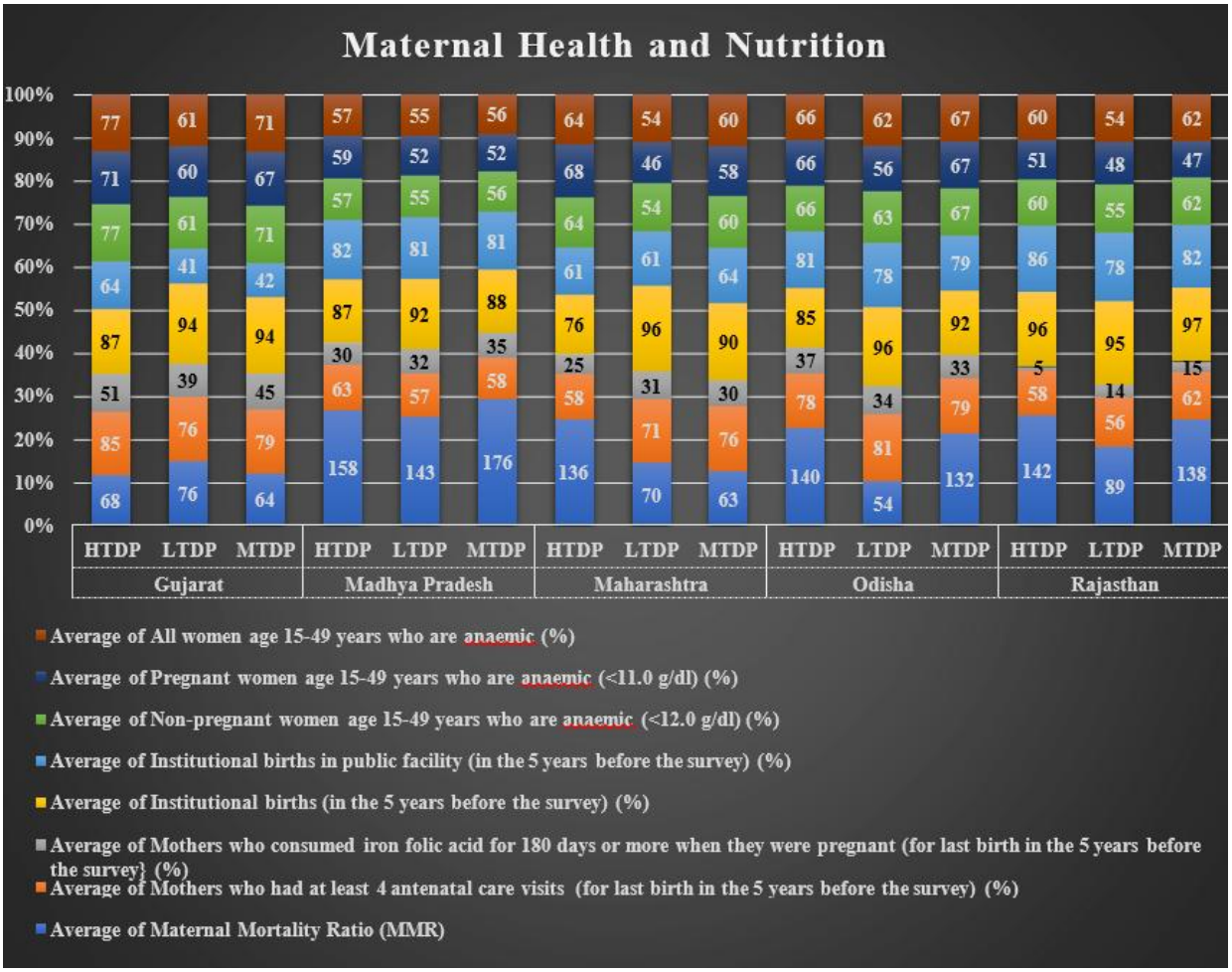

Fig. 1.3: Maternal Health and Nutritional Status across categories in five states

Anaemia prevalence, institutional deliveries, maternal nutrition, and access to prenatal care are all significantly impacting maternal health outcomes across tribal density categories (LTDP, MTDP, and HTDP). Significant intrastate disparities are evident in Fig. 1.3. These disparities, when compared across states, highlight significant gaps in tribal women's access to healthcare.

4.3.1 Maternal Mortality and Antenatal Care Coverage

The Maternal Mortality Ratio (MMR) exhibits significant variation across tribal density categories, revealing inequalities in skilled birth attendance and emergency obstetric care. According to the Sample Registration System (2021), the Maternal Mortality Ratio (MMR) in India is 88 per 100,000 live births. In Maharashtra's HTDP regions, the MMR reports 136, which is almost twice as high as in LTDP regions, 70. In Odisha, the disparity is much greater, with MMR in HTDP regions (140) being almost three times that of LTDP regions (54). Madhya Pradesh has the highest MMR with 158 and 143 for HTDP and LTDP regions, respectively. Significant disparities can also be seen in Rajasthan, where the MMR for HTDP regions is 142, while that of LTDP regions is 89.

Significant intra-state differences can also be seen in Antenatal Care (ANC) coverage, which is determined by the proportion of mothers who receive at least four ANC visits. According to NFHS-5 (2021), 58% of mothers in India receive at least four antenatal care visits. The ANC coverage in Gujarat is higher in HTDP regions (85%) than in LTDP regions (76%), with MTDP regions (79%) falling in the middle. This suggests that outreach is relatively even across tribal density categories. However, ANC coverage in Maharashtra is significantly lower in HTDP regions (58%) compared to LTDP regions (71%), with MTDP regions showing the best performance at 76%. This suggests that medium-density areas might be benefiting from a more equitable distribution of services.

There is less variation in Madhya Pradesh, where MTDP regions match the state average of 58% and ANC coverage ranges narrowly between 57% (LTDP) and 63% (HTDP). In Odisha, LTDP areas are marginally higher (81%) than HTDP (78%), while MTDP regions (79%) are close to the overall average (80%). Similar to Maharashtra, Rajasthan shows a trend where MTDP regions (62%) outperform both LTDP (56%) and HTDP (58%) regions. These trends imply that MTDP areas in some states, especially Maharashtra and Rajasthan, might have better access to maternal healthcare services than both low- and high-density tribal areas. This could be because of more advantageous resource allocation and geographic accessibility.

4.3.2 Institutional Deliveries and Iron-Folic Acid Supplementation

An institutional delivery is any birth that takes place in a health facility, whether it be public or private. The national average for institutional births in India is 89% (NFHS-5, 2021). In Maharashtra, the HTDP regions have the lowest percentage of institutional deliveries (76%), while the LTDP and MTDP regions have 96% and 90%, respectively. With MTDP at 92%, institutional delivery rates in Odisha are likewise lower in HTDP regions (85%) than in LTDP

regions (96%). The institutional delivery rates of Gujarat's HTDP (87%) are lower than those of the LTDP and MTDP (94%). Smaller disparities are seen in Madhya Pradesh, where HTDP is 87%, LTDP is 92%, and MTDP is 88%. The institutional delivery rates in Rajasthan remain consistently high, at 97% in MTDP, 95% in LTDP, and 96% in HTDP. Therefore, there are noticeable differences between the various categories of tribal density in institutional births.

The percentage of institutional births in public facilities in India is 62% on average (NFHS-5, 2021). Additionally, the differences are more noticeable when examining deliveries in public health facilities across states. In Gujarat, HTDP regions account for the largest percentage of deliveries in public facilities (64%), followed by LTDP regions (41%) and MTDP regions (42%). With HTDP at 81%, LTDP at 78%, and MTDP at 79%, public facility births in Odisha are comparable across categories. In comparison to LTDP (78%) and MTDP (82%), HTDP in Rajasthan exhibits a higher reliance on public facilities (86%). In all categories, Madhya Pradesh has continuously high public facility birth rates (81–82%), whereas Maharashtra has comparable HTDP and LTDP rates (61%) and somewhat higher MTDP rates (64%).

While all states maintain low levels of iron-folic acid (IFA) consumption during pregnancy, the national average for mothers in India who have been taking iron-folic acid (IFA) for 180 days or longer is 26% (NFHS, 2021). Just 5% of mothers in Rajasthan's HTDP regions consume IFA, compared to 14% in LTDP and 15% in MTDP. The HTDP in Maharashtra is 25%, which is marginally below the MTDP (30%) and lower than the LTDP (31%). With LTDP at 32%, Madhya Pradesh's HTDP and MTDP percentages range from 30% to 35%. IFA supplementation is greatest in Gujarat's HTDP regions (51%), followed by LTDP (39%) and MTDP (45%). Similar trends can be seen in Odisha, where HTDP is 37%, LTDP is 34%, and MTDP is 33%. Therefore, HTDP regions in Gujarat and Odisha exhibit higher IFA adherence, while Maharashtra, Madhya Pradesh, and Rajasthan exhibit lower IFA adherence.

4.3.3 The Prevalence of Anaemia in Women

Across all tribal density categories, anaemia continues to be a serious maternal health concern for both pregnant and non-pregnant women. The differences between the LTDP, MTDP, and HTDP regions highlight systemic nutritional deficiencies that need to be specifically addressed.

Anaemia prevalence among non-pregnant women aged 15–49 years is still high, and the highest burden is consistently observed in HTDP regions. Anaemia rates among non-pregnant women in Gujarat are higher in HTDP regions (77%), MTDP regions (71%), and LTDP regions (61%). Similar trends are seen in Maharashtra, where the prevalence of anaemia is 64% in HTDP

regions, 60% in MTDP, and 54% in LTDP. This pattern is also observed in Odisha and Rajasthan, underscoring the vulnerability of women in HTDP areas to iron deficiency.

Anaemia is still a major issue for pregnant women, furthering the risks to the health of the mother. In Maharashtra, anaemia affects 68% of pregnant women in HTDP regions, compared to 46% in LTDP regions and 58% in MTDP regions. The prevalence is similarly high in Gujarat and Odisha, where the HTDP regions have anaemia rates of 71% and 66%, respectively. Although the numbers are relatively lower, Rajasthan shows a significant difference, with 48% of pregnant women in LTDP regions and 51% in HTDP regions affected.

Overall, the prevalence of anaemia among all women between the ages of 15 and 49 is still significantly high in all tribal density categories. The highest burden is continuously observed in HTDP regions; critical levels are reported in Gujarat (77%), Maharashtra (64%), Odisha (66%), and Rajasthan (60%).

According to NFHS-5 (2021), the national prevalence of anaemia in India is 57% among non-pregnant women, 52% among pregnant women, and 57% among all women. The HTDP regions of Maharashtra (64%, 68%, and 64%) and Gujarat (77% non-pregnant, 71% pregnant, and 77% all women) surpass these national averages, indicating serious nutritional deficiencies. HTDP regions in Rajasthan (60%, 51%, and 60%) and Odisha (66%, 66%, and 66%) also exhibit higher rates of anaemia, whereas Madhya Pradesh stays closer to the national average, suggesting moderate risk across all tribal density categories. The data highlights the critical need for all-encompassing nutritional interventions, especially in high-density tribal populations where the prevalence of anaemia is still a problem.

4.3.4 Inter-State Comparison of Maternal Health Indicators

There are notable differences in maternal health when comparing states. The two states with the highest intrastate discrepancies in maternal health indicators are Maharashtra and Odisha. In seven of the eight indicators, Maharashtra needs to take immediate action in both the HTDP vs. LTDP and MTDP vs. LTDP categories. Following closely behind, Odisha requires intervention in seven of the eight indicators across both comparisons of tribal densities.

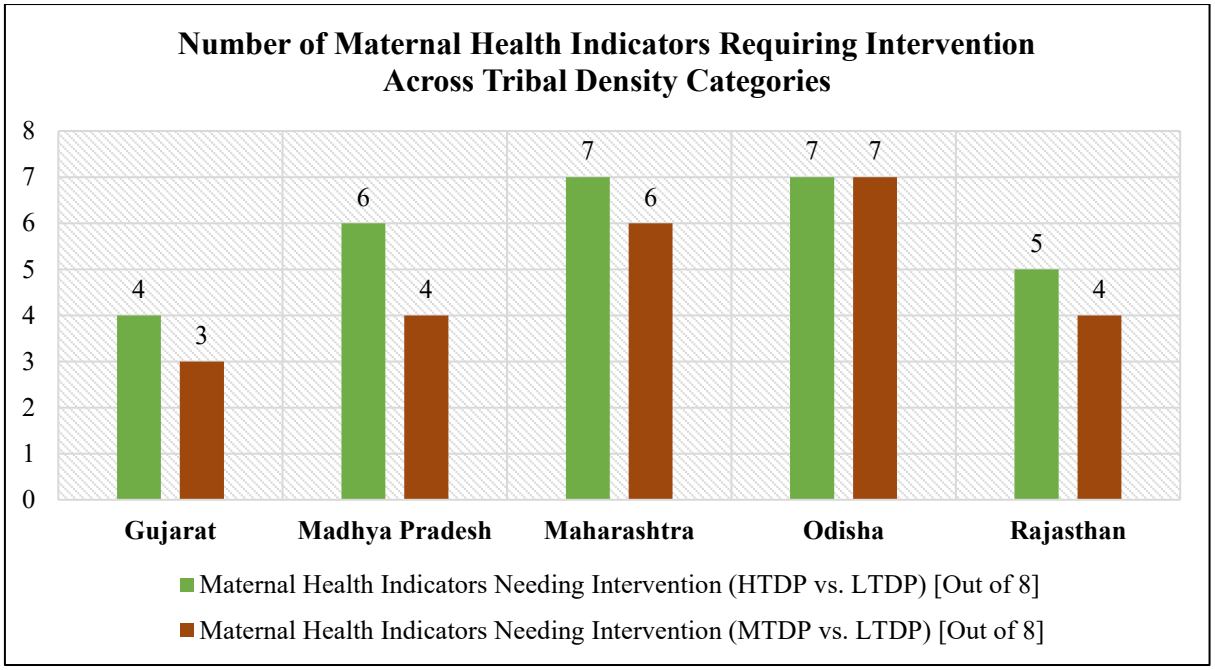

Fig. 1.4: Number of Maternal Health Indicators Requiring Intervention

Referring to Fig. 1.4, Gujarat and Rajasthan show less significant but still noticeable differences, especially in the prevalence of anaemia, ANC coverage, and IFA supplementation. In Madhya Pradesh, there are significant gaps in antenatal care and MMR, especially in HTDP areas, highlighting improved maternal health initiatives. These results highlight the pressing need for focused maternal health interventions, especially in tribal areas with high densities where rates of MMR, ANC coverage, and IFA consumption are still extremely low.

4.4 Access to Water and Sanitation Facilities

In tribal populations, where the lack of infrastructure can increase the risk of illness, access to better drinking water and sanitary facilities is especially important for overall health outcomes. and health disparities. Despite the comparatively high availability of clean drinking water in all states, there are still large gaps in the infrastructure for sanitation, especially in HTDP areas.

4.4.1 Access to Improved Drinking Water

In India, 96% of households have an improved source of drinking water (NFHS-5, 2021). As shown in Fig. 1.5, the majority of states report that all tribal density categories have high levels of access to better sources of drinking water. However, there are differences, particularly in Odisha and Madhya Pradesh. Madhya Pradesh's HTDP and MTDP regions have less access (86%) than LTDP regions (90%), suggesting a lack of infrastructure. Likewise, the LTDP and MTDP regions of Odisha report somewhat better access (92%), while the HTDP regions report

the lowest access (86%). Maharashtra, being an exception with HTDP regions (95%), reports somewhat better access than LTDP regions (92%), indicating that water is distributed fairly.

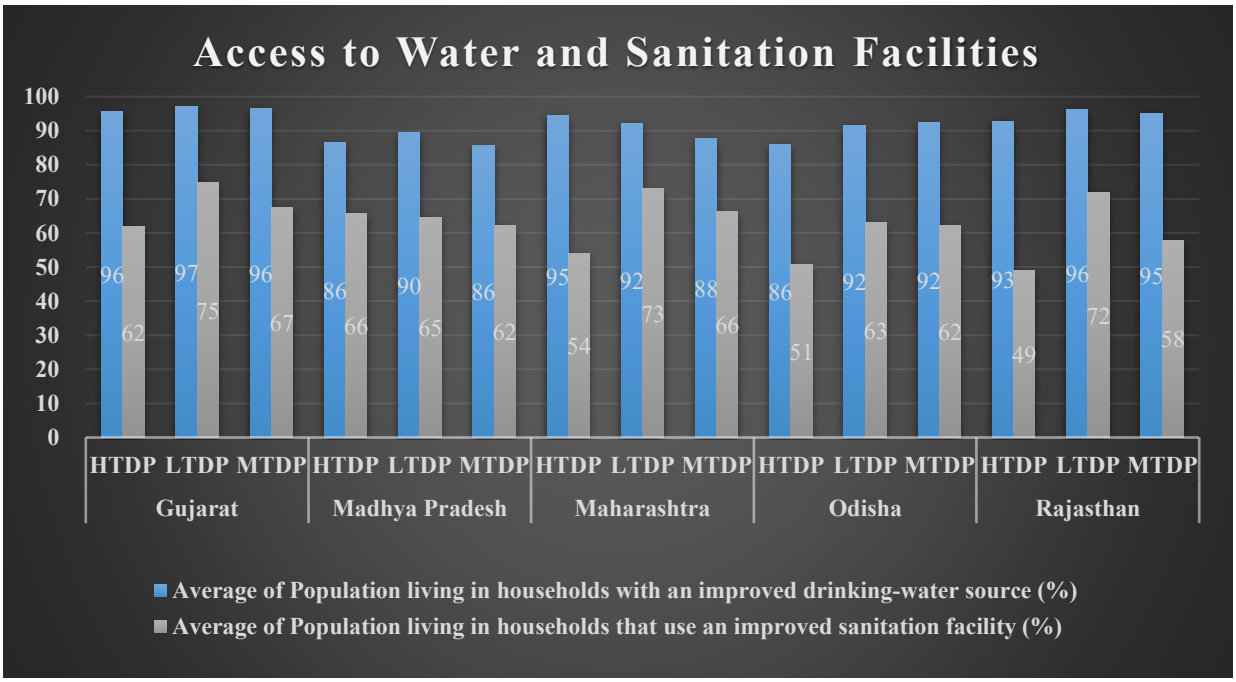

Fig. 1.5: Healthcare Status across categories in five states

Access to safe drinking water is comparatively consistent in Gujarat and Rajasthan, where all tribal density categories continue to have levels above 93%. However, compared to LTDP (97%), access is slightly less in Gujarat's HTDP and MTDP regions (96%). Likewise, HTDP regions in Rajasthan (93%) lag behind LTDP regions (96%) in this regard. Although overall access is still high, bridging regional gaps is crucial to achieving universal coverage.

4.4.2 Infrastructure for Sanitation

70% of households in India use improved sanitation facilities on average (NFHS-5, 2021), and there are notable intrastate differences in access to sanitation. With only 49% sanitation coverage in HTDP regions and 72% in LTDP regions, Rajasthan exhibits the most pronounced disparity. Similar trends are seen in Maharashtra, where HTDP regions report sanitation coverage of 54%, which is much lower than LTDP regions' 73% coverage. There are significant barriers to accessing sanitation in Odisha, as the HTDP regions (51%) lag behind the LTDP regions (63%).

There are noticeable variations between Madhya Pradesh and Gujarat. The sanitation coverage in Madhya Pradesh's HTDP regions is 66%, which is marginally higher than that of LTDP regions (65%) but lower than that of MTDP regions (62%). In Gujarat, on the other hand, HTDP (62%) and MTDP (67%) regions lag behind LTDP regions, which have the highest sanitation

coverage (75%). This suggests that more focused sanitation programmes are required in HTDP and MTDP areas.

4.4.3 Inter-State Comparison of Drinking Water and Sanitation Indicators

According to an interstate comparison, all states, excluding Madhya Pradesh, need to take urgent action regarding drinking water and sanitation indicators for MTDP and HTDP areas. While Gujarat and Odisha do better in terms of water access, they still need to improve their sanitation infrastructure. Maharashtra, Rajasthan, and Madhya Pradesh show notable sanitation gaps.

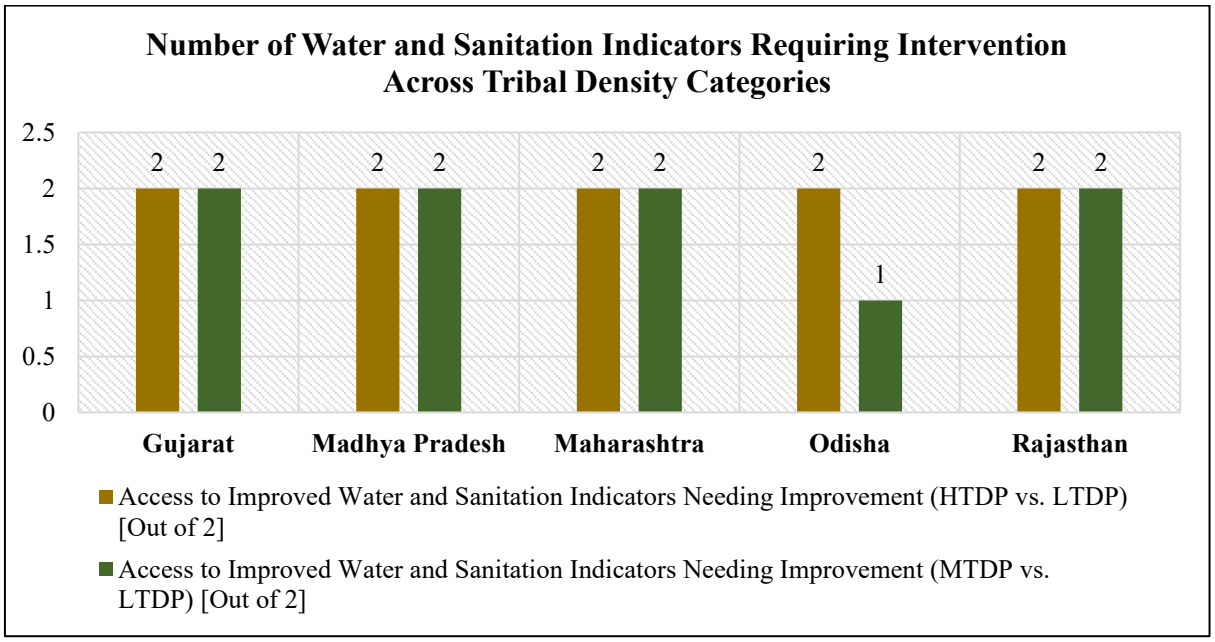

Fig. 1.6: Drinking Water and Sanitation Accessibility Indicators Requiring Intervention

As per Fig. 1.6, at least one of the two indicators in every state needs significant intervention. The most serious sanitation deficiencies are found in Rajasthan and Maharashtra, particularly in HTDP areas. Gujarat and Madhya Pradesh exhibit moderate differences, but they still need focused interventions. Odisha is notable for having consistently low sanitation coverage in all categories, though the differences in HTDP and LTDP are not as noticeable as they are in other states.

These results underline the critical need for more investment in water and sanitation infrastructure, especially in HTDP areas, where inadequate sanitation might raise the risk of waterborne illnesses and can negatively affect health.

4.5 Financial Burden of Maternal Healthcare: Out-of-Pocket Expenditure (OOPE)

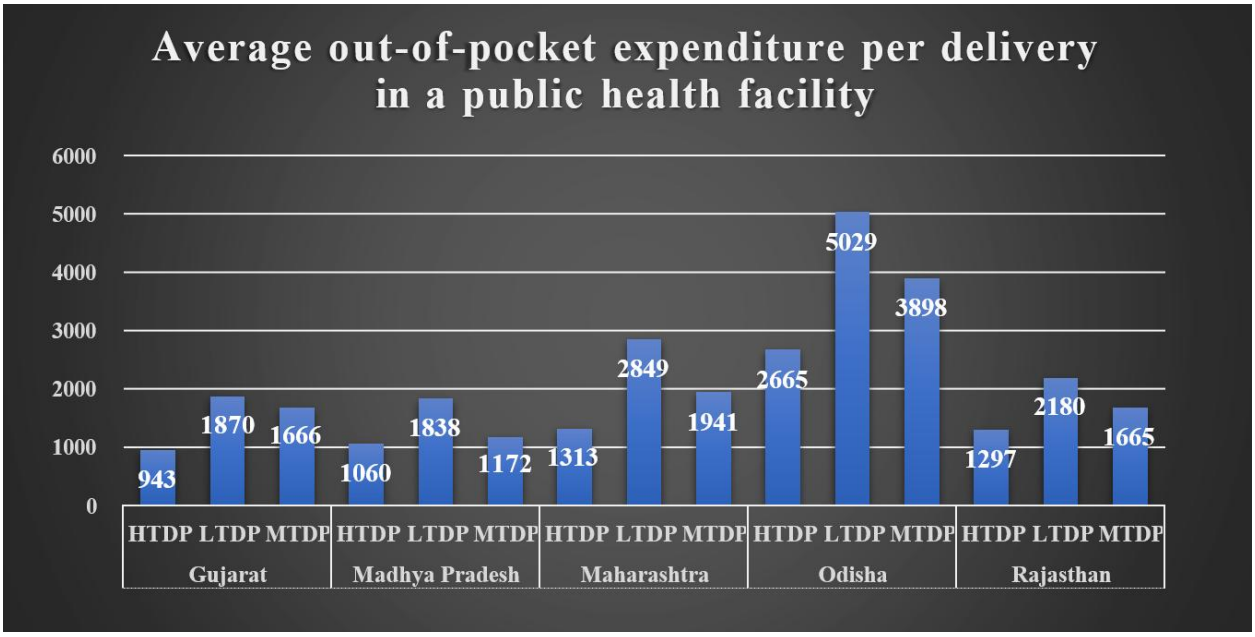

Fig. 1.7: Average out-of-pocket expenditure across categories in five states

According to NFHS-5 (2021), the average out-of-pocket expense (OOPE) in India for a delivery in a public health facility is ₹2,916. As shown in Fig. 1.7, states and tribal density categories have very different out-of-pocket expenditures (OOPE) for deliveries in public health facilities, reflecting the financial strain on households.

The total OOPE in Gujarat is ₹1,683, with the LTDP regions paying the highest price at ₹1,870, while HTDP and MTDP have corresponding costs of ₹943 and ₹1,666. In Madhya Pradesh, LTDP regions incur ₹1,838 compared to ₹1,060 in HTDP and ₹1,172 in MTDP, while the overall OOPE is ₹1,592. The HTDP and MTDP regions report ₹1,313 and ₹1,941, respectively, while Maharashtra has an OOPE of ₹2,849 in the LTDP regions. At ₹4,172, Odisha has the highest overall expenditure, with LTDP regions spending ₹5,029, while HTDP and MTDP spend ₹2,665 and ₹3,898, respectively.

With an overall OOPE of ₹2,053, the LTDP, HTDP, and MTDP regions in Rajasthan face ₹2,180, ₹1,297, and ₹1,665, respectively. Notably, LTDP regions continuously incur the largest financial burden in every state, underscoring the pressing need for focused financial protection policies to lessen OOPE disparities in maternal healthcare.

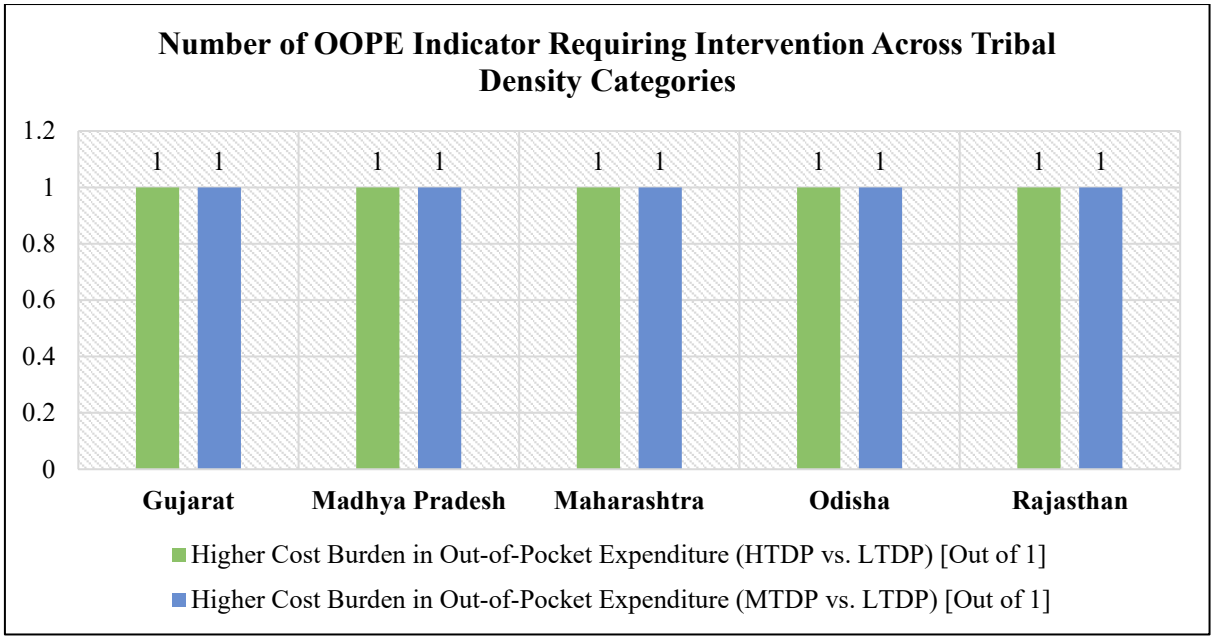

Fig. 1.8: Drinking Water and Sanitation Accessibility Indicators Requiring Intervention

As illustrated in Fig. 1.8, all five states have higher OOPE in both HTDP and MTDP regions than their LTDP counterparts, suggesting that no category is completely free from financial burden. The need for comprehensive solutions that address the deeper structural and cultural barriers influencing healthcare access, in addition to the financial aspect, is highlighted by this uniform pattern across states. These issues are covered in the next chapter on bridging indigenous and modern healthcare systems.

Chapter 5: Bridging Indigenous and Modern Healthcare

5.1 Overview

Tribal administration is guided by the Nehruvian Panchsheel (1952), which emphasizes self-development while maintaining social and cultural institutions. Even though tribal communities share a strong bond with nature, they still face significant health issues, such as endemic diseases like malaria and deficiencies linked to malnutrition, poor hygiene, and a lack of safe drinking water. These health disparities are further exacerbated by cultural beliefs and restricted access to healthcare.

5.2 The National Tribal Health Framework

The National Tribal Policy seeks to integrate modern healthcare with traditional tribal medicine by expanding hospitals in tribal areas, validating traditional remedies, and strengthening allopathy through a three-tiered system of village health workers. Additionally, it strongly emphasises developing indigenous medicines, encouraging the cultivation of medicinal plants, supporting research into tribal health issues, and motivating tribal physicians to work with their communities. It also promotes the elimination of endemic diseases, the training of tribal health guides (community-based health personnel), and the enhancement of healthcare access through region-specific tactics. By recognizing the coexistence of traditional and modern healthcare systems, this approach fosters a community-driven and culturally sensitive health framework (Dr. Marri Channa Reddy Human Resource Development Institute, n.d.).

5.3 Healthcare Challenges in Tribal Communities

5.3.1 Socioeconomic and Geographical Barriers

Tribal communities face unique healthcare challenges due to socioeconomic disparities, language barriers, geographical remoteness, and limited access to healthcare professionals (Deb Roy, Das, & Mondal, 2023). These factors lead to poor health outcomes and greater dependency on traditional medicine.

- **Socioeconomic Disparities:** Many tribal families cannot afford medical bills, which makes poverty a barrier to accessing healthcare.
- **Geographical Remoteness:** Tribal communities often find it challenging to access healthcare facilities due to remote locations.

- **Language Barriers:** Misunderstandings between patients and healthcare professionals result from poor communication.
- **Limited Professionals:** Because few doctors are willing to work in remote areas, the lack of healthcare personnel causes treatment delays.
- **Cultural Sensitivity:** As a significant number of tribal people prefer traditional medicine, it is necessary to maintain a balance between modern and indigenous healthcare approaches.

5.4 Traditional Healthcare Practices

5.4.1 Reliance on Herbal Medicine: In India, tribal communities possess significant knowledge regarding medicinal plants. For instance, about fifty different species of herbs are used by the Raji community in the Kumaon Himalaya to treat a variety of illnesses (Negi & Singh, 2018). Other communities, like the Bhangalis and Nath, use various plants to treat ailments like jaundice and stomachaches.

5.4.2 Magico-Religious Healing: Many tribal groups believe that spirits and ancestral curses are among the supernatural forces responsible for illness. Several rituals and ceremonies are performed to placate these spirits and restore health (Negi & Singh, 2018).

5.4.3 Faith Healing: Tribal healthcare relies heavily on local healers, also referred to as shamans or medicine men. They take a psychosomatic approach to healing, addressing both physical and emotional health issues in their treatments (Negi & Singh, 2018).

5.4.4 Cultural Transmission of Knowledge: The knowledge of traditional healing is transmitted from generation to generation. According to Negi and Singh (2018), women are often the ones who maintain ethnomedical practices, which help to preserve the medical knowledge of the community.

5.4.5 Adaptation to Environment: Since the availability of medicinal plants affects their healthcare practices, tribal health beliefs are strongly linked to environmental conditions (Negi & Singh, 2018).

5.5 The Role of Traditional and Complementary Medicine (T&CM)

5.5.1 Continued Reliance on Traditional Healers: Despite the availability of modern medicine, a significant tribal population still seeks treatment through traditional means. For example, in rural Tamil Nadu, traditional methods are used to treat a variety of ailments, such as

skin disorders and fevers (Mondal, Ghosh, Biswas, & Bhattacharya, 2021). Ocimum sanctum (tulsi) leaves are used by traditional healers in Kancheepuram district to treat respiratory conditions, Phyllanthus amarus whole plant extract is used to treat jaundice, and Azadirachta indica (neem) leaves are used to treat skin infections (Rajadurai, Vidhya, & Ramya, 2012). The aforementioned practices are indicative of a long-standing reliance on ethnomedicinal knowledge that still shapes the way that rural and tribal communities in the state seek healthcare systems.

5.5.2 Health-Seeking Behaviours: Tribal populations' health-seeking behaviours are influenced by cultural and socioeconomic factors. By enhancing health education and accessibility, initiatives such as the National Rural Health Mission have contributed to changing the way people seek medical attention (Mondal et al., 2021).

5.6 Bridging Traditional and Modern Healthcare Systems

5.6.1 Integrating Traditional Healers into Modern Healthcare: The Tribal Health Collaborative (THC) has launched several initiatives to integrate traditional healers (Gram Vaidyas) into the modern healthcare system. The programme enhances disease screening and nutritional practices, as well as healthcare access, by training and certifying these healers (Das Gupta & Das, 2024).

5.6.2 The Transition Among the Santhals of Orissa: The Santhal community serves as an example of a gradual transition from traditional to modern medicine, driven by accessibility, education, and the perceived effectiveness of biomedicine (Sonowal & Praharaj, 2007). Nonetheless, many people continue to seek spiritual and emotional support from traditional healers.

5.7 Tribal Healthcare in Rajasthan: A Case Study

5.7.1 Traditional Healthcare Practices: In Rajasthan, tribal communities have a long history of using ethnomedical practices. The treatments offered by healers like herbalist Jaankar and spiritualist Bhopa are based on cultural beliefs (Bhasin, 2007). Home remedies and other traditional self-care methods continue to be a major part of healthcare.

5.7.2 Modern Healthcare Utilisation: Despite the existence of modern healthcare facilities, tribal communities often consider them a last resort. The low uptake of modern healthcare is caused by barriers such as cultural perceptions, financial constraints, and transportation issues (Bhasin, 2007).

5.8 Challenges in Tribal Healthcare

5.8.1 Diminishing Traditional Knowledge: Both socioeconomic and environmental factors are responsible for the decline of traditional medical practices. Although there are about 25,000 plant-based formulations available, there are still fewer practitioners to share this knowledge (Negi & Azeez, 2021).

5.8.2 Inaccessibility of Modern Healthcare

The following obstacles prevent the tribal communities from accessing modern healthcare:

- **Geographical Isolation:** It is challenging to get to medical facilities in isolated and remote places.
- **Infrastructure Shortage:** According to NHM guidelines, there should be one Sub-Centre (SC) for every 3,000 people, one Primary Health Centre (PHC) for every 20,000, and one Community Health Centre24 × 7 . With a population of over 140 crores in 2024 (Worldometer, 2024), these numbers underscore the ongoing difficulty of providing sufficient coverage in remote tribal areas, despite the implementation of the "time-to-care" standard of a 30-minute walk in a few hilly and desert districts (NHM, 2024).
- **Financial Restraints:** Due to the high out-of-pocket (OOPE) costs associated with healthcare, many tribal families are deterred from seeking prompt medical attention. Nearly 39 million people in India are forced into poverty annually as a result of medical expenses, with OOPE accounting for roughly 62.6% of all health spending (Sriram & Albadrani, 2022). Reducing poverty among vulnerable populations and enhancing healthcare utilisation requires addressing this burden.

5.8.3 Reliance on Unregulated Practitioners

Since modern healthcare is inaccessible and traditional medicine is declining, many tribal people turn to unregulated practitioners, which can be harmful to their health (Negi & Azeez, 2021).

Tribal communities have complex healthcare needs that call for coordinated, culturally aware approaches that strike a balance between traditional wisdom and modern healthcare procedures. The following chapter expands on these observations to assess the effectiveness of ongoing national and state-level initiatives and to pinpoint specific policy initiatives to bridge the remaining gaps.

Chapter 6: Policy Recommendations and Final Conclusions

6.1 Introduction

This study investigates how social innovation programmes affect maternal and child health (MCH) outcomes in India's tribal areas by bridging persistent existing gaps. We aim to address healthcare disparities in high-tribal density (HTDP) areas, which have substantially higher rates of infant and maternal mortality, nutritional deficiencies, poor sanitation, and financial burdens than low-tribal density (LTDP) areas. In this final chapter, we use the selected 19 key health indicators to assess the current performance of both national and state-specific welfare programs in our five key states: Madhya Pradesh, Maharashtra, Odisha, Rajasthan, and Gujarat. These indicators highlight key components of maternal and child health, such as antenatal care, nutrition, water and sanitation, mortality rates, and out-of-pocket expenditure. The chapter is structured as follows: An overview of the data findings and key indicators was outlined first; we then examine current national and state-specific initiatives that are related to these indicators; and lastly, we provide targeted policy interventions that integrate India's best practices as well as global health systems.

6.2 Overview of Key Indicators and Data Summary

Our analysis is based on NFHS-5 data, which includes 19 key indicators that capture the multifaceted nature of maternal and child health outcomes. A comprehensive picture of healthcare across LTDP, MTDP, and HTDP in our selected five states is provided by these indicators. It includes measures of maternal and neonatal mortality, the frequency and quality of antenatal care, institutional delivery rates, immunisation coverage, various nutritional parameters, water & sanitation indicators, and financial burden.

Despite Sustainable Development Goal (SDG)-3.2's goal of zero IMR, our research shows significant differences between HTDP and LTDP regions. The infant mortality rate in Odisha, for example, is 33 per 1,000 live births in HTDP areas and only 13 per 1,000 live births in LTDP regions, indicating serious gaps in neonatal and emergency obstetric care. Likewise, nutritional outcomes are considerably poor in tribal areas, even though SDG 2.2 aims to eradicate all types of malnutrition by 2025. HTDP regions in Maharashtra have a significantly higher prevalence of underweight children (57%), compared to LTDP areas (35%).

Furthermore, there are still notable differences in maternal health outcomes between HTDP and LTDP areas. Madhya Pradesh and Rajasthan reported maternal mortality ratios (MMR) of 158

and 142 per 100,000 live births in HTDP areas, compared to 143 and 89 in LTDP areas, respectively. It shows that maternal mortality is still significantly higher in tribal areas. Additionally, tribal areas usually have lower rates of women receiving the recommended four or more antenatal care (ANC) visits; in Maharashtra, for instance, 71% of women receive ANC visits in LTDP areas, compared to 58% in HTDP areas. The need for focused interventions to ensure safe motherhood and lower maternal mortality in tribal communities is highlighted by these maternal health issues.

Furthermore, the data reveal notable disparities in access to water and sanitation outcomes, with sanitation coverage in Rajasthan's HTDP regions being 49% and 72% in LTDP areas. Additionally, LTDP regions have higher out-of-pocket expenses (OOPE) for maternal healthcare, highlighting financial barriers that worsen overall disparities.

These quantitative findings support our policy recommendations to build a more equitable healthcare system for tribal populations and aid in the subsequent assessment of national and state-specific welfare programmes.

6.3 Review of Existing National Schemes

National health and welfare programmes play a critical role in reducing healthcare disparities between India's tribal and non-tribal populations. Our findings in Chapter 4 demonstrate that High-Tribal Density Population (HTDP) areas consistently lag behind Low-Tribal Density Population (LTDP) areas in critical indicators such as institutional deliveries, ANC visits, immunisation coverage, nutritional status, and financial protection. An overview of each major scheme is provided below, along with performance gaps identified by our research.

1. Janani Suraksha Yojana (JSY): Under the National Health Mission, the Janani Suraksha Yojana (JSY) offers financial assistance to pregnant women from marginalised communities as an initiative to increase ANC coverage and encourage institutional deliveries. There are notable differences between tribal density categories, according to our data. For example, HTDP regions in Maharashtra report an institutional delivery rate of 76%, while those in Odisha report 85% institutional deliveries. HTDP districts in Gujarat report 87% institutional deliveries, while LTDP and MTDP districts report 94%. Additionally, only 41% of deliveries in LTDP areas of Gujarat report relying on public facilities, compared to 64% in HTDP regions. Similar disparities are seen in ANC coverage as well, with 85% coverage in Gujarat's HTDP regions and 76% in LTDP, while only 58% coverage in Maharashtra's HTDP regions and 71% in LTDP (Ministry of Health and Family Welfare, 2022).

2. Pradhan Mantri Matru Vandana Yojana (PMMVY): This initiative supports maternal nutrition by offering financial benefits to pregnant and lactating women and promoting improved iron-folic acid (IFA) supplementation. In HTDP areas, IFA uptake is critically low, as discussed in Chapter 4. For instance, in Rajasthan, 14% of mothers in LTDP regions consume IFA for at least 180 days, while only 5% of mothers in HTDP regions do so. Similar disparities can be observed in Madhya Pradesh and Maharashtra, where medium- density areas have better uptake than HTDP areas (25% in HTDP vs. 31% in LTDP). However, the HTDP regions of Gujarat consume more IFA (51%) than the LTDP regions (39%), indicating regional variations in programme adherence (Government of India, 2021).

3. RMNCH+A (Reproductive, Maternal, Newborn, Child, and Adolescent Health) Programme: The RMNCH+A Programme offers a comprehensive framework for maternal, newborn, child, and adolescent health with the goal of lowering maternal and infant mortality to improve service delivery. Our findings show significant differences: in Odisha, the HTDP regions have an Infant Mortality Rate (IMR) of 33 per 1,000 live births, while the LTDP regions have an IMR of 13; in Maharashtra, the HTDP regions have an IMR of 20 versus 10 in LTDP; and in Gujarat, both HTDP and LTDP regions have an IMR of 18, with medium-density areas doing better. Furthermore, the HTDP regions of Maharashtra have substantially lower ANC coverage, highlighting the challenges in remote tribal areas (NFHS- 5, 2021).

4. Integrated Child Development Services (ICDS) & National Nutrition Mission (POSHAN Abhiyaan): ICDS and POSHAN Abhiyaan work in tandem to improve child nutrition and reduce malnutrition through supplementary feeding, health check-ups, and community mobilisation. Nonetheless, our study shows that HTDP areas have significantly greater rates of malnutrition than LTDP areas. For example, underweight prevalence in Maharashtra is 35% in LTDP regions and 57% in HTDP regions. Similarly, acute malnutrition (wasting) is much more common in HTDP areas across multiple states, and stunting rates in Odisha's HTDP regions reach 40% compared to 26% in LTDP. According to UNICEF (2023), these results demonstrate the ongoing difficulties in providing tribal communities with reliable nutrition services.

5. Mission Indradhanush: Mission Indradhanush aims to raise vaccination rates through focused outreach efforts. Our findings indicate that Maharashtra's HTDP regions have lower immunisation coverage (72% compared to 77% in LTDP), while Odisha's HTDP regions achieve relatively high vaccination rates (92%). In Gujarat, the LTDP regions report 75% coverage, while the HTDP and MTDP regions report 85% coverage. These discrepancies imply that uniform

immunisation efforts in tribal areas are still hampered by logistical challenges and outreach gaps (World Health Organization, 2023).

6. Swachh Bharat Mission (SBM): The main goal of the SBM is to increase access to better sanitation facilities to eradicate open defecation and improve sanitation. Our findings show significant differences: in Rajasthan, HTDP regions have 49% sanitation coverage compared to 72% in LTDP; Maharashtra has 54% HTDP coverage compared to 73% LTDP coverage; and Odisha has 51% (HTDP) vs. 63% LTDP coverage. Although Gujarat displays more uniform access, HTDP regions (62%) still lag behind LTDP (75%) & MTDP (67%) regions, emphasising infrastructural shortcomings.

7. National Rural Drinking Water Programme (NRDWP): The NRDWP is responsible for ensuring that rural areas have access to sufficient and safe drinking water. Although overall access is high, our research indicates that HTDP regions in Madhya Pradesh and Odisha have somewhat lower access (about 86%) than LTDP regions (90–92%). However, Maharashtra and Gujarat exhibit a more equitable distribution across regions.

8. Ayushman Bharat – Pradhan Mantri Jan Arogya Yojana (AB-PMJAY): The goal of AB-PMJAY is to lower out-of-pocket expenditure (OOPE) by offering health insurance to those who are economically disadvantaged. According to our findings, OOPE for maternal healthcare is substantially greater in LTDP regions than in HTDP regions. In Odisha, for instance, the OOPE per delivery is significantly higher in LTDP (Rs. 5029) areas compared to MTDP (Rs. 3898) and HTDP (Rs. 2665) areas.

9. Tribal Sub-Plan (TSP) and National Tribal Health Mission (NTHM): TSP and NTHM are especially designed to improve infrastructure and service delivery in order to address the particular healthcare issues faced by tribal populations. However, our research consistently implies that HTDP regions continue to have poorer maternal and child health outcomes than LTDP areas, suggesting that these programmes need to be improved and targeted interventions need to be implemented (Deb Roy, Das, & Mondal, 2023).

Each of the aforementioned programmes is essential to the national endeavour to lessen regional healthcare disparities. However, as our results in Chapter 4 show, these interventions vary by tribal density, with HTDP areas continuously encountering greater difficulties.

6.4 Review of State-Specific Schemes

Along with national programmes, several Indian states have launched focused initiatives to improve maternal and child health outcomes, which are closely related to our 19 key indicators. Our findings from Chapter 4 show that there are still differences between areas with High-Tribal Density Populations (HTDP), Medium-Tribal Densities (MTDP), and Low-Tribal Densities (LTDP). The main state-specific programmes implemented by Gujarat, Madhya Pradesh, Maharashtra, Odisha, and Rajasthan are examined below.

6.4.1 Gujarat:

- **Mukhyamantri Matrushakti Yojana:** This programme, which primarily targets rural and tribal areas, gives pregnant and nursing women take-home nutrition kits. The goal of the intervention is to lower anaemia and malnutrition during the first 1,000 days of a child's life, which is a critical period for cognitive and physical development.
- **Mamta Abhiyan/Mamta Diwas:** It is a monthly village-level event that offers antenatal exams, vaccinations, and other health services such as nutrition counselling at Anganwadi centers to mothers and children. These counselling sessions are essential in tribal and remote areas where regular access to healthcare might be limited.
- **Mukhyamantri Amrutam (MA) & MA Vatsalya Yojana:** These are all-inclusive health insurance programmes that give BPL (Below Poverty Line) and other vulnerable groups, such as tribal communities, cashless access to tertiary healthcare. They remove financial barriers to essential health services by covering neonatal critical care, maternal complications, and other pediatric treatments.
- **Khilkhilat Initiative:** The Khilkhilat Initiative was launched in 2012 and provides specialised ambulances that are outfitted to transport mothers and newborns safely. In addition to providing timely postnatal care, this programme offers a platform for community education on vaccination and childcare practices.

6.4.2 Madhya Pradesh:

- **Madhya Pradesh Tribal Health Mission (MPTHM):** It aims to improve primary health facilities, expand outreach services, and train local healthcare professionals in order to fortify the healthcare system in tribal areas. It seeks to incorporate community involvement in order to guarantee that remote areas have access to necessary maternal and child health services.
- **Mukhyamantri Shramik Sewa Prasuti Sahayata Yojna:** This programme encourages institutional deliveries and lowers maternal mortality by giving pregnant women from

labourer families financial support. Its goal is to minimise the financial hurdles that frequently keep vulnerable women from getting access to high-quality medical care.

- **Sardar Vallabh Bhai Patel Nishulk Aushadhi Vitaran Yojna:** This programme, which aims to lower out-of-pocket expenditure costs and enhance health outcomes, guarantees the free distribution of necessary medications to expectant mothers and children. It facilitates effective pharmaceutical supply chain management throughout the state.
- **Deen Dayal Antyodaya Upchar Yojna:** The programme provides low-income families with free medical care, including emergency obstetric care and pediatric or other medical services. It is essential to meet tribal communities' larger healthcare needs.

6.4.3 Maharashtra:

- **Rajmata Jijau Mother-Child Health & Nutrition Mission:** This mission emphasises early nutritional interventions and routine health check-ups to target the crucial first 1,000 days, from conception to a child's second birthday. It uses extensive community-based programmes to lower child malnutrition and enhance maternal health in general.
- **Vatsalya Programme:** Introduced in 2024, the Vatsalya Programme encourages exclusive and immediate breastfeeding, appropriate supplemental feeding, and systematic growth monitoring while integrating a range of maternal and childcare services. Its goal is to improve maternal and child health outcomes by providing services in a coordinated manner.
- **Mahatma Jyotirao Phule Jan Arogya Yojana (MJPJAY):** MJPJAY ensures that even remote areas receive essential healthcare services by offering cashless, high-quality secondary and tertiary care through affiliated hospitals. The programme's main goals are to improve health equity and lower financial barriers.
- **Manav Vikas Mission:** This mission concurrently addresses health, education, and income generation to increase the Human Development Index in underdeveloped districts. It promotes socioeconomic development in underprivileged areas, which indirectly improves maternal and child health outcomes.

6.4.4 Odisha:

- **Odisha Tribal Health Mission:** It aims to improve community engagement, improve service delivery, and upgrade health facilities in order to address the particular health issues that tribal areas face. Its main goal is to bridge the gap in healthcare access between urban and rural areas.

- **Biju Swasthya Kalyan Yojana (BSKY):** It provides all-inclusive health coverage to tribal communities and other vulnerable groups in an effort to lower maternal and infant mortality. The programme uses an integrated insurance model to prioritise access to high-quality healthcare services.
- **MAMATA Scheme:** It is a conditional cash transfer programme that offers pregnant and lactating women financial incentives to enhance their nutritional status and promote routine health examinations. It is essential for lowering the nutritional deficiencies observed in tribal areas.

6.4.5 Rajasthan:

- **Rajasthan Tribal Health Policy**: The goal of this policy is to improve healthcare services and infrastructure, particularly in tribal areas. It seeks to enhance the health of mothers and children by ensuring medical facilities are staffed and equipped to satisfy regional demands.
- **Bhamashah Swasthya Bima Yojana (BSBY):** It aims to lower out-of-pocket expenditure by offering health insurance for people in need of medical care and those who are economically disadvantaged. The programme plays a key role in addressing the financial burden in areas with tribal populations.

6.4.6 Comparative Evaluation

Comparing these state-specific plans with our research findings in Chapter 4 shows significant differences between HTDP, MTDP, and LTDP regions. In Maharashtra, for instance, our data indicate that, in comparison to LTDP regions, HTDP regions need to address seven out of eight maternal health indicators and seven out of eight child health indicators. Likewise, Odisha also identifies seven maternal health and six child health indicators that require intervention in

HTDP areas, indicating issues like low institutional delivery rates and high infant mortality rates (IMR). Although overall institutional delivery rates in Rajasthan and Gujarat are comparatively higher, there are still notable disparities in ANC coverage, IFA supplementation, and nutritional outcomes. Despite exhibiting coordinated efforts through various programmes, Madhya Pradesh also exhibits significant differences in the quality of services provided to tribal and non-tribal areas. These comparisons highlight the need for regular monitoring, evaluation, and targeted evidence-based policy changes at the state level to bridge these disparities.

6.5 Policy Recommendations

This section provides a comprehensive, evidence-based set of policy recommendations which aims to improve MCH outcomes in India's tribal areas, based on our research findings from Chapters 4 and 5. These policy recommendations will improve intersectoral coordination, guide future research, and address disparities across LTDP, MTDP, and HTDP areas by strengthening national programmes, tailoring state-specific interventions, and incorporating best practices from both local and global contexts. A roadmap for phased implementation is suggested to guarantee systematic rollout with continuous and effective monitoring.

6.5.1 Recommendations for National Schemes

- **Strengthening Maternal and Child Health Programmes:** It is necessary to revise national initiatives like Pradhan Mantri Matru Vandana Yojana (PMMVY) and Janani Suraksha Yojana (JSY) to prioritise MTDP and HTDP areas in respective states. The implementation of Accredited Social Health Activists (ASHAs) and Auxiliary Nurse Midwives (ANMs) in remote tribal areas can greatly increase ANC and institutional delivery rates. District-level data can be used to allocate resources in a targeted manner (Ministry of Health and Family Welfare, 2022). Furthermore, ICDS and POSHAN Abhiyaan should be scaled up to incorporate community-based nutrition education that is culturally sensitive and incorporates indigenous dietary practices to improve programme acceptance (UNICEF, 2023).
- **Improving Financial Protection:** Ayushman Bharat— Pradhan Mantri Jan Arogya Yojana (AB-PMJAY) can be strengthened by conducting pilot tests of community-specific insurance models. For instance, Tamil Nadu integrated PMJAY and the Chief Minister's Comprehensive Health Insurance Scheme (CMCHIS) in 2018 as an initiative to improve low-income households' financial stability. The hybrid model provided coverage for secondary and tertiary care, including maternal health services, up to ₹5 lakh annually, lowering out-of-pocket costs (Government of Tamil Nadu, 2022). Other states can adopt this model for tribal regions to address the financial challenges faced by the tribal communities.
- **Enhancing Technological Integration:** mHealth solutions can facilitate real-time tracking of ANC, postnatal care, and immunisation services. For example, Rajasthan's digital health programmes, such as Pregnancy, Child Tracking & Health Services Management System (PCTS) and the Khushi Baby project, enhance maternal and child

health by facilitating real-time tracking of vaccinations, prenatal care, and postnatal care. These systems improve service delivery and data accuracy, especially in tribal areas (Government of Rajasthan, 2025). To ensure long-term sustainability, local health workers should receive targeted training on these digital platforms.

6.5.2 Role of Non-Governmental Organisations (NGOs) and Private Initiatives

In remote and tribal areas, a number of private and non-governmental partners have shown scalable methods for enhancing maternal and child health. *By integrating with government systems, Khushi Baby's digital platform, which consists of a wearable token and a mobile app, has been utilised to improve community-level tracking of vaccinations and pregnancies (Khushi Baby, n.d.; Ducharme & Savanur, 2023).* According to Bang et al. (1999), the SEARCH Home-Based Newborn Care (HBNC) model in Gadchiroli reduced neonatal mortality by more than 60% by training village health workers, or "Arogya Doots," to provide neonatal care and treat sepsis.

Similarly, Karuna Trust's public-private partnership model has guaranteed ongoing drug supplies and staffing in PHCs located in underprivileged blocks (Karuna Trust, n.d.). According to Banerjee, Duflo, Glennerster, and Kothari's (2010) thorough evaluation of Seva Mandir's immunisation camp model in rural Udaipur, consistent camps and minor incentives significantly increased coverage. More recently, IHAT's Project MANCH in Shahdol, Madhya Pradesh, has improved high-risk pregnancy tracking and ANC/PNC follow-up in areas with a high tribal density (India Health Action Trust, n.d.).

Three consistent features in these models are worth scaling. According to Khushi Baby (n.d.), Karuna Trust (n.d.), and Seva Mandir (2018), the first step is to empower local community health workers with regular outreach schedules. The second step is to use basic digital tools for real-time tracking and referrals that connect with government registries. The third step is to establish PPP or NGO-managed PHCs in under-resourced HTDP districts to guarantee ongoing staffing and supplies.

By allocating resources specifically for HTDP and MTDP regions, policymakers can incorporate these evidence-based NGO and PPP models into state NHM rollouts, guaranteeing that those successful digital and community-based innovations are expanded alongside government initiatives (Bang et al., 1999; Khushi Baby, n.d.; Karuna Trust, n.d.; Seva Mandir, 2018).

6.5.3 State-Specific Policy Interventions

State governments must design and implement interventions that address local challenges. Our research findings, complemented by local case studies, support the following recommendations:

1. Gujarat:

- Integrate mobile healthcare units to provide cashless tertiary care and antenatal services directly in HTDP and MTDP blocks; the Mukhyamantri Amrutam (MA) & MA Vatsalya Yojana can be expanded, overcoming geographic barriers.
- Scale up the Mamta Abhiyan by providing Anganwadi and ASHA workers with culturally sensitive nutritional education counselling with a focus on the first 1,000 days in tribal areas.
- Increase the accessibility of ambulance services by expanding and culturally educating the Khilkhilat ambulance network to increase early neonatal follow-ups and postnatal referrals, as well as immunisation outreach, especially in MTDP and HTDP areas.

2. Madhya Pradesh:

- Integration of indigenous and modern healthcare practices should be done under the Madhya Pradesh Tribal Health Mission (MPTHM). In Madhya Pradesh's tribal areas, specifically in Shahdol district, Project MANCH, for example, was started in 2021 with the goal of enhancing maternal, newborn, and child health outcomes. Between 2015– 16 and 2019–21, the project elevated the coverage of antenatal care (ANC) from 65% to 98.6% and four or more ANC visits from 22% to 57.4% by strengthening community health systems and building capacity (India Health Action Trust, n.d.).
- Service delivery can be strengthened by increasing funding and improving logistics for Sardar Vallabhbhai Patel Nishulk Aushadhi Vitaran Yojna and Mukhyamantri Shramik Sewa Prasuti Sahayata Yojna to address delays in tribal areas.
- The implementation of capacity-building training modules for community midwives in MTDP and HTDP zones through digital platforms can be done to improve the early identification of high-risk pregnancies.

3. Maharashtra:

- Incorporate digital health monitoring tools to track maternal and child health progress in real-time, building on the Rajmata Jijau Mother-Child Health & Nutrition Mission's success.
- To improve institutional delivery rates, the Vatsalya programme should be expanded with a focus on increasing institutional deliveries and clear performance metrics.
- It is recommended that public-private partnerships should be strengthened under MJPJAY for the purpose of providing Neonatal Intensive Care Unit (NICU) services and high-quality maternal surgeries to the HTDP and MTDP areas. The National Rural Health Mission (NRHM) launched the Mobile Medical Unit (MMU) in Gadchiroli, Maharashtra, which provides vital maternity and pediatric healthcare services to isolated tribal communities. This initiative has resulted in better health outcomes regarding access to antenatal and pediatric care (National Health Mission, Government of India, n.d.).
- Furthermore, in Gadchiroli, the Society for Education, Action and Research in Community Health (SEARCH) runs innovative community-based initiatives. Neonatal monitoring, home-based maternal and newborn care, training village health workers (also known as "Arogya Doots"), and mobile medical services are some of these initiatives that have greatly decreased infant and neonatal mortality rates in tribal villages while increasing access to culturally appropriate healthcare (SEARCH, n.d.).

4. Odisha:

- Integrating maternal nutrition services into the Biju Swasthya Kalyan Yojana (BSKY) and the Odisha Tribal Health Mission (OTHM) can enhance maternal and infant health outcomes in tribal areas by ensuring comprehensive nutritional support alongside existing healthcare initiatives.
- Conditional cash transfers can be incorporated into the MAMATA Scheme to guarantee regular health checkups and nutritional assessments, especially in tribal areas with high infant mortality and malnutrition rates. This will improve the overall maternal and child health outcomes.
- The successful expansion of the Arogya+ Mobile Health Unit network into isolated tribal regions will improve access to vital maternal and child health services for underprivileged communities, resulting in improved healthcare outcomes.

- The Maa Gruha initiative by the Government of Odisha provides maternity waiting homes near health facilities in tribal areas. In Sundargarh district, over 6,000 women accessed shelter, nutrition, and obstetric care in 2022, leading to increased institutional deliveries and improved neonatal outcomes (Department of Health and Family Welfare, Government of Odisha, n.d.).

5. Rajasthan:

- As per the Rajasthan Tribal Health Policy, funding digital reporting systems and infrastructure improvements in tribal areas will enhance the provision of healthcare services and enable ongoing monitoring, guaranteeing greater accessibility and effectiveness.
- The strengthening of frontline healthcare networks through training ASHAs in data entry and client follow-up will enable the scaling up of successful models like Khushi Baby and PCTS, improving maternal and child health outcomes and adherence to recommended ANC schedules.
- The Bhamashah Swasthya Bima Yojana (BSBY) can be expanded to include outpatient and preventive services, ensuring comprehensive maternal and child healthcare in tribal areas.

6.5.4 Best Practices across India and the World

It is essential to incorporate effective models from both Indian and international contexts in order to improve tribal healthcare.

- **Chhattisgarh-Mitanin Programme:** This programme has enhanced access to primary healthcare, especially in remote and tribal areas like Dantewada, by training local women to work as community health workers. It is acknowledged by the Chhattisgarh government for enhancing maternal and child health outcomes throughout the state (Department of Health and Family Welfare, Govt. of Chhattisgarh, n.d.).
- **Jharkhand—Tribal Health Initiatives:** This initiative has encouraged the incorporation of culturally familiar practices, such as the use of traditional herbal remedies, into its public health initiatives in districts like Gumla (Chaudhuri, Ghosh, Oraon, & Sinha, 2021). These programmes seek to increase tribal communities' trust and access to healthcare.

- **Telangana—KCR Kits Programme:** The Telangana government launched the KCR Kits Programme to enable safe deliveries and early postnatal care by providing mothers and newborns with necessary supplies. It has enhanced maternal health outcomes and increased the number of institutional deliveries throughout the state, including in districts like Adilabad (Government of Telangana, n.d.).
- **Brazil-Community Health Hubs:** The Family Health Strategy (FHS) in Brazil, which was started in 1994, uses community health workers (CHWs) to provide primary healthcare services, particularly in underprivileged areas. According to Wade et al. (2016), this model has greatly improved health outcomes by expanding access to care and encouraging community involvement.
- **Africa-Digital Monitoring Systems Platform (DHIS2):** The open-source District Health Information Software 2 (DHIS2) platform is used for managing health data all over the world. The World Health Organization's Regional Office in Africa switched to DHIS2 in order to improve surveillance of vaccine-preventable diseases. This resulted in better data quality and prompt interventions (Adegoke et al., 2024). Implementing DHIS2 in tribal healthcare settings can help with evidence-based decision-making and real-time monitoring.
- **New Zealand-Whānau Ora model:** Whānau Ora is a New Zealand programme that integrates formal healthcare services with indigenous values to empower families to take charge of their health and well-being journeys (Te Puni Kōkiri, 2022). This strategy has improved service uptake and deepened trust in Māori communities. Tribal populations can benefit from improved healthcare delivery through the adoption of comparable intercultural models.

6.5.5 Cross-Sector Monitoring and Coordination

Coordinated efforts across sectors are necessary for effective interventions:

- **Monitoring Committees:** Form Tribal Health Monitoring Committees at the district level with representatives from the government, tribal leaders, and medical professionals. These committees should monitor progress through quarterly reviews and use specific performance metrics (e.g., ANC attendance, institutional delivery rates, immunisation coverage, and OOPE reduction).

- **Integrated Digital Data Systems:** Create centralised online platforms for gathering and analysing data in real time, allowing the departments of sanitation, education, nutrition, and health to work together more easily.
- **Multi-Sectoral Collaboration:** Encourage collaborations between governmental agencies and non-governmental organisations to carry out all-encompassing interventions that tackle the complex factors influencing tribal health.

6.5.6 Maternal and Child Health KPI Tables

The following KPI tables are developed to evaluate the qualitative and quantitative aspects of maternal and child health outcomes and interventions in tribal areas. These indicators are purposefully designed to go beyond metrics related to service utilisation, taking into account culturally sensitive care, community involvement, and service continuity—important aspects that are frequently overlooked in traditional health evaluations. The purpose of this framework is to guide focused policy interventions and act as a useful instrument for regular monitoring and research investigation in various tribal contexts. It will also help in the impact assessment of targeted policy interventions and initiatives on maternal and child health (MCH) outcomes over time.

Sr. No.	Variables and Indicators	Response (Yes/No)
1	**Access to Culturally Sensitive Healthcare**	
	Traditional birth attendants' (TBAs') involvement	
	Positive Community perceptions of modern maternal healthcare	
2	**Integration of Indigenous and Modern Practices**	
	Availability of Indigenous practices within PHCs	
	Community Acceptance of modern maternal health practices	
3	**Community Involvement and Health Awareness**	
	Participation in maternal health awareness campaigns	
	Involvement in maternal nutrition programmes	
4	**Continuity of Maternal Care**	
	No. of follow-up visits by ASHA workers post-delivery	
	Maternal check-ups within 48 hours after delivery	
5	**Maternal Health Literacy**	
	Awareness of pregnancy risk factors during pregnancy	
	Awareness of birth preparedness measures	
6	**Access to Emergency Obstetric Care**	
	Availability of public transport to healthcare facilities	
	Awareness of community-based emergency response measures	
7	**Maternal Health Outcomes**	
	Maternal satisfaction with maternal healthcare services	
	Reduction in maternal mortality rate	
8	**Monitoring and Feedback Mechanisms**	
	Use of maternal health tracking cards	
	Regular community feedback sessions	
9	**Safety and Hygiene During Delivery**	
	Clean and safe birthing environment	
	Availability of postnatal care kits	
10	**Social and Family Support**	
	Involvement of family in maternal health practices	
	Support from community health groups	

Table 1.3: Table of KPIs for Tribal Communities' Maternal Health

Sr. No.	Variables and Indicators	Response (Yes/No)
1	**Nutrition in Early Childhood**	
	Exclusive breastfeeding for the first six months after birth	
	Introduction of complementary feeding on time	
2	**Monitoring of Children's Growth**	
	Monitoring by CHWs at regular time intervals	
	Regular tracking of children's weight, height, and MUAC	
3	**Immunisation Coverage**	
	Completed immunisations as per national guidelines	
	Timeliness of vaccination delivery	
4	**Handling Childhood Illnesses**	
	Treating common childhood illnesses on time	
	Access to ORS and other necessary medications	
5	**Education and Awareness of Child Health**	
	Awareness among caregivers of child's nutrition and hygiene practices	
	Awareness among caregivers about early symptoms of common illnesses of children	
6	**Practices for Child Safety and Hygiene**	
	Handwashing habits among children and caregivers	
	Ensuring a clean and safe play environment	
7	**Participation in Community Health Programmes**	
	Participation in village health and nutrition initiatives	
	Participation in child health awareness initiatives	
8	**Impact on Health Outcomes**	
	Declining rates of morbidity and mortality among children	
	Improvement in nutritional standards (weight/height for-age)	
9	**Social Assistance for Child Health**	
	Anganwadi workers' participation in health monitoring	
	Participation of families in nutrition and child care programmes	

Table 1.4: Table of KPIs for Tribal Communities' Child Health

Chapter 7: Conclusion

This study shows high disparities in maternal and child health outcomes across tribal districts in selected five states, with high-density tribal areas (HTDP) consistently performing poorer on indicators—high malnutrition, higher infant and maternal mortality rates, low antenatal care visits and institutional delivery coverage, and moderate access to water and sanitation conditions— as compared to low-density tribal areas (LTDP). Furthermore, the cost of maternal healthcare is frequently higher for households in LTDP regions, highlighting disparities in affordability and access. These research findings also demonstrate that tribal healthcare is situated at the nexus of modernity and tradition, where cultural customs are still deeply ingrained but access to modern healthcare systems is frequently impeded by financial constraints, lack of infrastructure, and remote location.

These findings highlight the inadequacies of the social innovation programmes that are currently in place when applied consistently, as well as the necessity of disaggregated, density-based analysis in order to prioritise and address the most vulnerable communities and tailor interventions accordingly.

An integrated policy framework is necessary to build on this evidence. This framework should include steps to advance state-specific innovations (mobile health units, culturally sensitive nutritional counselling, digital monitoring platforms), strengthen national programs (AB-PMJAY, ICDS/POSHAN, JSY, PMMVY), and guarantee the systematic and respectful integration of traditional healers into the health system. Cross-sectoral coordination, community-led monitoring, and real-time data tracking systems will be crucial for maintaining accountability and implementing dynamic strategy modifications. Policymakers can reduce these persistent gaps and promote sustainable improvements in tribal health outcomes by integrating cultural sensitivity into service delivery and allocating resources as efficiently as possible based on tribal density.

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Appendix A

States	Names of districts with 0-25% ST Population	Names of Districts with 25-50 % ST Population	Names of Districts with >50 % ST Population
Gujarat	Ahmadabad, Amreli, Anand, Banas Kantha, Bhavnagar, Gandhinagar, Jamnagar, Junagadh, Kachchh, Kheda, Mahesana, Panch Mahals, Patan, Porbandar, Rajkot, Sabar Kantha, Surat, Surendranagar, Vadodara, Botad (Ahmadabad, Bhavnagar), Morbi (Rajkot, Surendranagar, Jamnagar), Devbhumi Dwarka (Jamnagar), Arvalli (Sabar Kantha), Gir Somnath (Junagadh)	Bharuch, Navsari, Mahisagar (Kheda, Panch Mahals)	Dohad, Narmada, Tapi, The Dangs, Valsad, Chhota Udaipur (Vadodara)
Madhya Pradesh	Ashoknagar, Balaghat, Bhind, Bhopal, Chhatarpur, Damoh, Datia, Dewas, Guna, Gwalior, Harda, Indore, Jabalpur, Mandsaur, Morena, Narsimhapur, Neemuch, Panna, Raisen, Rajgarh, Ratlam, Rewa, Sagar, Satna, Sehore, Shajapur, Sheopur, Shivpuri, Tikamgarh, Ujjain, Umaria, Vidisha, Agar Malwa	Anuppur, Betul, Burhanpur, Chhindwara, Hoshangabad, Jhabua, Katni, Khandwa (East Nimar), Mandla, Seoni, Shahdol, Sidhi,	Alirajpur, Barwani, Dhar, Dindori, Khargone (West Nimar)

		Singrauli	
Maharashtra	Ahmadnagar, Akola, Amravati, Aurangabad, Bhandara, Bid, Buldana, Chandrapur, Gondiya, Hingoli, Jalgaon, Jalna, Kolhapur, Latur, Mumbai, Mumbai Suburban, Nagpur, Nanded, Osmanabad, Parbhani, Pune, Raigarh, Ratnagiri, Sangli, Satara, Sindhudurg, Solapur, Thane, Wardha, Washim, Yavatmal	Dhule, Palghar, Gadchiroli, Nashik	Nandurbar
Odisha	Anugul, Balangir, Baleshwar, Bargarh, Baudh, Bhadrak, Cuttack, Dhenkanal, Ganjam, Jagatsinghapur, Jajapur, Kendrapara, Khordha, Nayagarh, Subarnapur, Puri	Debagarh, Jharsuguda, Kalahandi, Kendujhar, Nuapada, Sambalpur	Gajapati, Kandhamal, Koraput, Malkangiri, Mayurbhanj, Nabarangapur, Rayagada, Sundargarh

Rajasthan	Ajmer, Alwar, Baran, Barmer, Bharatpur, Bhilwara, Bikaner, Bundi, Chittaurgarh, Churu, Dhaulpur, Ganganagar, Hanumangarh, Jaipur, Jaisalmer, Jalor, Jhalawar, Jhunjhunun, Jodhpur, Karauli, Kota, Nagaur, Pali, Rajsamand, Sawai Madhopur, Sikar, Tonk	Dausa, Sirohi, Udaipur	Banswara, Dungarpur, Pratapgarh

About the Author

Bhramar Mhaiskar is a development sector professional currently working as an Analyst at the Quality Council of India (QCI-NABET). In his present role, he is leading education-focused data initiatives across 145 municipal schools, directly impacting over 50,000 students. His work involves designing assessment tools, conducting field evaluations, analysing performance data, and supporting government stakeholders in improving school-level learning outcomes.

He holds a master's degree in public policy and governance from TISS Hyderabad and a B.Tech. in Chemical Engineering from VIT, Pune. Having grown up in a village in Maharashtra and studied in Zilla Parishad and semi-English schools, he has gained a grounded understanding of how geography, caste, class, gender, and culture shape access to opportunity. His professional experiences span public education, juvenile justice, tribal development, NGO assessments, and climate-linked projects, with work ranging from field studies to policy design.

Bhramar is committed to working at the intersection of data, policy, and equity. His values of discipline, honesty, and empathy guide his approach. He believes that when policies are shaped keeping in mind voices from the ground, it can bring lasting change in people's lives.

About the Mentor:

Ms. Juthika Patankar, an IAS officer of the 1988 batch allotted to the Uttar Pradesh cadre, retired as Secretary, Government of India, Central Information Commission. She has served at different levels in various departments of the Government of India and the state government of Uttar Pradesh, including the Ministry of Skill Development and Entrepreneurship, Atomic Energy, Tribal Affairs, Culture, Rural Development, Animal Husbandry, and Health. During the course of her government service, she acquired a Diploma in Public Administration from the Ecole Nationale d'Administration, Strasbourg, France.

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