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STRENGTHENING INDIA'S PUBLIC HEALTH SYSTEM: AN ASSESSMENT OF NATIONAL HEALTH MISSION AND HEALTH OUTCOMES

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ABSTRACT

Since independence, India have achieved major improvements in many health indicators, but when compares to its counterparts, India seems to be far from satisfactory in many indicators. Government of India introduced major healthcare reforms, particularly the National Rural Health Mission (NRHM) in 2005, later expanded as the National Health Mission (NHM). This paper examines the impact of NHM on various health indicators and compares pre and post NHM period. It evaluates the trends in IMR, MMR, U5MR, and institutional births across Indian states during the pre- and post-NHM periods using the nationally representative data such as NFHS, RBI data base of Indian economy, EPWR-ITS. The findings reveal major improvements in health outcomes after the NHM, particularly in high focus states. However there exists interstate disparities and slower progress in recent years. There is an urgent need of higher investment and policy commitments to achieve universal health coverage in India.

KEYWORDS: *National Health Mission, Public Health, IMR, MMR, Institutional Births.*

1. INTRODUCTION

Since the 1990s, following the publication of Human Development Reports, concern has shifted from income well-being, or command over commodities to being well, or being able to live long and healthy life. In the case of India, the country has made some notable improvements in healthcare since independence. Life expectancy at birth has risen to around 70 years up from 58 years in 1990 and 41 years in 1960. The under-five mortality rate is 37 per 1,000 live births; suggesting that at current trends, India is on track for attaining the 2030 SDG target of 25. Infant, under-five, and maternal mortality rate are all very close to the global average for India's income level. The maternal mortality ratio has improved from 556 per 100,000 live births in 1990 to 130 in 2016. The total fertility rate (TFR) is 2.3, almost at replacement; several states including Andhra Pradesh, Kerala, and Tamil Nadu have TFR rates below replacement level (Table 1). Institutional deliveries and immunization have improved and bridged the rural-urban gap over the years. Despite these achievements, when compare to other countries in the world, India seems to be far from satisfactory in many health indices which are based on the performance of health outcomes. For instance, India ranked 94 out of 107 countries in the Global Hunger Index 2020. Out of 189 countries, India ranked 131 on the Human Development Index 2020. With an HDI value of 0.645, the country is places at the medium human development category. India ranks 60 in the achievement of the Sustainable Development Goals in 2019-20.

India's health scenario is also marked by wide interstate disparities in terms of health infrastructure, workforce, service delivery, and financing. To address the existing health challenges, the government of India has taken important policy initiatives in the last 20 years, especially after the launch of SDGs. The overarching health goal of SDG envisages that every individual is entitled to access to appropriate, adequate, and affordable healthcare throughout their life time (Dwivedi and Gurpur, 2023). Even with the introduction of various initiatives, the healthcare sector in India continuous to face lack of attention in addressing the requirements of its mushrooming population. A critical issue lies in the fact that the healthcare reforms in India often lack continuity with the initial objectives set during their implementation by the ruling political parties. The recognition on investment on health as a crucial element for development and a strategy to gain political support has been visible in many of these healthcare programmes. Drawing from the experience of Chile, it is clear that health reform is an ongoing process rather than a one-time effort. Countries engaged in reforms must process both the capacity and the political will to continually review and revise health policies (World Development Report, 1993). This paper aims to analyse the impact of National Health Mission (NHM) on major health indicators. Sections-2 is on data and methodology used. Section3 gives an overview of NHM. The section-4 examines the impact of NHM and the later section gives a brief summary.

2. DATA AND METHODOLOGY

The period taken for analysis are 1992 to 2022 for all Indian states to understand the pre and post NHM trends of health indicators such as Institutional Births (IB), Under 5 Mortality Rtae (U5MR), Infant Mortality Rate (IMR) and Maternal Mortality Ratio (MMR). The data is availed from various nationally representative data such as NFHS, RBI data base of Indian economy, EPWR-ITS We make use of a descriptive and graphical method to analyse the data. For the sake of the analysis, we classify the states into High focus states (HFS) and Low Focus States (LFS) as classified by NHM.

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3. NATIONAL HEALTH MISSION: A FRAME

The Government of India has launched the National Rural Health Mission (NRHM) in 2005 to carry out the necessary architectural correction in the basic health care delivery system by recognising the importance of health in the process of economic and social development and improving the quality of life of our citizens. It is considered as a key reform in the healthcare sector of India. The mission aims to improve the public health delivery system to enable it to effectively handle increased allocations, strengthen the primary healthcare system, improve maternal and child health, and address communicable and non-communicable diseases (NRHM, 2005). It seeks to provide effective healthcare to rural population especially the poor, marginalised and the disadvantaged groups including women and children. It seeks to improve access to healthcare, enabling community ownership and demand for services, strengthening the public health systems for efficient service delivery, enhancing equity and accountability and promoting decentralization. The mission recognised the need of availability of trained worked force in achieving SDG targets and of UHC by improving health outcomes. With the support of centre government, the mission sought to provide additional ANMs at each sub centres, three nurses at PHCs and an Ayush Doctor along with ASHA workers.

NRHM when conceived in 2005 focused on 18 states, which had poor public health indicators and weak infrastructure. These 18 States included eight north eastern states (Arunachal Pradesh, Assam, Manipur, Mizoram, Meghalaya, Sikkim, Tripura, Nagaland), and eight Empowered Action Group (EAG) states (Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa, Rajasthan, Uttarakhand, and Uttar Pradesh) and Jammu & Kashmir, and Himachal Pradesh. In addition to strengthening the health infrastructure, on the human resources front, Accredited Social Health Activist (ASHA) were appointed at the community level to act as an interface between the community and the public health system to facilitate access to health services (Government of India, 2005).

The mission contained a wide variety of programmes, each with a clear objective and target. The major goals of these programmes were to reduce Infant Mortality Rate (IMR) and Maternal Mortality Rate (MMR), for which the government launched Janani Suraksha Yojana (JSY) in April 2005. The result was phenomenal. IB increased substantially after the launch of Janani Suraksha Yojana from 38.7 per cent in 2005-06 (NFHS 3) to 78.9 per cent in 2015-16 and 88.6 per cent in 2019-20 (NFHS 5) (Factsheet, NFHS 5).

On the recommendations of the Planning Commission, during the twelfth five-year plan (2012-2017) some changes were brought in NRHM which led to the formation of National Health Mission (NHM) in 2013 (Government of India, 2012). It consisted of NRHM, National Urban Health Mission (NUHM), disease control programmes, and non-communicable diseases. NUHM aimed to meet the health needs of the urban population with special focus on the poor and vulnerable, by making available to them essential primary health care services and reducing their out-of-pocket expenses for treatment. It covered all cities or towns with population above 50,000. The Centre State funding pattern was 75:25 for all the states, except North-Eastern states including Sikkim and other special category states of Jammu and Kashmir, Himachal Pradesh, and Uttarakhand where it will be 90:10 (Government of India, 2013).

4. IMPACT OF NHM ON HEALTH INDICATORS

This section analyses the progress of key health indicators in the pre-NRHM and NRHM period.

a. Institutional Births (IB)

Promoting IB was a core strategy for the NRHM. This was achieved by expanding and strengthening facilities on the one hand and by impacting health-seeking behaviour through conditional cash transfer to the family and the facilitator (ASHAs) under the JSY. The improvement in IB was impressive. Figure 1 is about the NFHS data on institutional birth and institutional birth at public facility from 1992-93 to 2019-21. For IB, disaggregated data for rural and urban area is not available. Between 1992-93 to 2019-21, IB increased by around 63 points. In the pre-NRHM period from 1992-93 to 2005-06, institutional delivery was its lowest in India especially in the rural area with an increase of only 9 points in all india level and five-point increase in rural India. More significantly, with the introduction of NRHM in 2005, in a span of eleven years from 2005 to 2015-16, IB went up by 40 per cent points in India. The improvement was the highest in rural areas, around 46 points. Urban area also showed an improvement of around 21 points with 88.7 percent of all pregnant women having IB. But after 2015-16, the growth of IB does not show a similar progress. The growth was only 1.6 point per year when compared to 4 points increase in institutional birth in the previous period of 2005-16. The progress of institutional delivery during the period of 2005-06 to 2019-21 is credited to the JSY under NRHM.

The implementation of JSY also resulted in the progress of institutional birth at public facility. The eligibility of cash assistance is only for those pregnant women who gives birth at government hospitals. This led to higher utilisation of government hospitals for IB. When compared to the early 1990s, where the utilisation of public facility was its lowest both in rural and urban area. But after that there has been a significant jump in the proportion of pregnant women utilizing public health facilities from 18 percent in 2005-06 to 61.9 percent in 2019-21. The same trend can be seen in the rural area, that is, from 14.4 percent to 65.3 percent. Figure 2 and 3 depict the percentage of pregnant women opting for IB and attending public facility in high focus states. Notably, between 2005-06 to 2019-21, there was a significant increase in the IB and utilising public facility for IB in the high focus states compared to the periods from1992-93 to 2005-06.

Within the HFS, states of Bihar, Madhya Pradesh, Uttar Pradesh, Nagaland, Assam, Odisha, Mizoram, Rajasthan, have the lowest institutional birth of below 10 points increase during 1992-93 and 1998-99. In which Meghalaya have a decrease of around 12 points. More interestingly, Arunachal Pradesh have a higher percent of IB during 1992-93 and 1998-99 compares to the states of Bihar, Jharkhand, Uttar Pradesh, Chhattisgarh,

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Madhya Pradesh, Manipur, and Odisha. But after that Arunachal Pradesh experienced a decline in IB of around -2.7 point during the period 1998-99 to 2005-06. Whereas, other states have a better growth in IB, such as, Sikkim, Jharkhand, Himachal Pradesh, Uttarakhand, Madhya Pradesh, Bihar Manipur, Meghalaya, Nagaland, and Odisha showed a positive growth rate ranging from 27.3 to 67.6 percent. Chhattisgarh, Mizoram, and Tripura also showed positive growth rates, although lower compared to the above-mentioned states. The period of 2005-06 to 2015-16 saw a remarkable increase in IB across all states, with some states experiencing an increase of more than 50 per cent points.

During the period 2015-16 to 2019-21, while some states continued to make progress in increasing IB, others experienced slower growth or even stagnation. Most of the states have a growth rate below 10 points, which is even worse than the growth rate of the earlier period from 1998-99 to 2005-06. In which, Mizoram, Meghalaya, Jammu and Kashmir, Odisha, Tripura, Madhya Pradesh experienced a lower growth ranging of below 10 points. Many of these states experienced a very low growth compared to both the previous periods. This indicates a potential deceleration in the efforts to increase the IB and improving maternal and child healthcare. the similar is the trend in utilising the public facility for IB over the periods. Except a small increase in Manipur, all high focus states have declining growth rate during the period 2015-16 to 2019-21 when compared to the previous periods.

In low focus states as well, the NRHM played a substantial role in promoting institutional birth and utilising public facility for IB (figure 4). The period from 2005-06 to 2015-16 shows a significant increase in these states, with most of the states have an increase of 20 points and above except a lower rate in southern states especially Kerala as it has already achieved high institutional birth. By 2019-21, all low focus states were on par with the national average, achieving IB, but at lower rate compared to the previous period.

b. Maternal Mortality Ratio (MMR)

JSY implemented under NHM played a vital role in promoting maternal healthcare and thereby reducing maternal mortality in Indian states. The Figure 5 shows the MMR in India (Per 100, 000) from 1999-01 to 2018-20. It is evident that MMR declined from 327 per 100,000 births in 1991 to 301 in 2001 and further declined to 254 in 2004-06. Moreover, after the implementation of NRHM in 2005, the MMR declined sharply to 122 in 2015-16 and to 97 in 2018-20. Across states, during the period from 1999 to 2004-06, there is a noticeable decline in MMR. Andhra Pradesh, Gujarat, Haryana, Kerala, Maharashtra, Punjab, Tamil Nadu, and West Bengal consistently show decreasing MMR trends. Some states, such as Assam, Bihar, Madhya Pradesh, Odisha, Rajasthan, and Uttar Pradesh, have relatively higher MMRs, although there's a downward trend.

The decline in MMR continues, but at a slower pace in some states during the period from 2006-07 to 2014-15. Notably, Gujarat, Haryana, Kerala, Maharashtra, Punjab, Tamil Nadu, and West Bengal maintain their decreasing MMR trends. Uttar Pradesh, despite having a high MMR, shows a substantial decrease. Assam, Bihar, Madhya Pradesh, Odisha, and Rajasthan also exhibit decreasing MMRs, but the decline is slower compared to the previous period. Telangana emerges as a separate state during this period and shows a decline in MMR.

After 2014, the overall MMR across Indian states continues to decrease, although at a slower rate. States like Andhra Pradesh, Gujarat, Haryana, Karnataka, Maharashtra, Punjab, Tamil Nadu, and West Bengal maintain their decreasing trends. Uttar Pradesh and Rajasthan continue to show declining MMRs, although at a slower pace compared to previous years. Some states like Chhattisgarh, Jharkhand, and Uttarakhand also shows a declining trend MMRs. Telangana shows a substantial decline in MMR since its separation from Andhra Pradesh.

Overall, there's a continued effort towards reducing MMR nationwide. The MMR in Kerala (19) shows a consistent decline over the years. And other major states, namely Tamil Nadu (54), Karnataka (69), Andhra Pradesh (45), and Maharashtra (33) have realized the planned goal of the 12th five-year plan to achieve an MMR of less than 100. But the persistent high MMRs in certain states such as Assam (195), Chattisgarh (137), Bihar (118), Madhya Pradesh (173), Odisha (119), Uttar Pradesh (167) indicates the need for targeted interventions and healthcare improvements.

However, our analysis shows that if one compares the average annual rate reduction of MMR between the pre-NRHM (1999 to 2004) and NRHM period (2005 to 2018-20) period, it shows a consistent decline in the said period (figure 5). When we look it at in detail, there is a decline of -22 percent of MMR during the pre NRHM period; 52 percent decline in 2005-2015; and a decline of 61.8 percent during the period of 2015 to 2018-20. While there were mixed trends in MMR, there is a more consistent pattern of improvement in MMR across most high-focus states from the 2005 onwards, indicating the effectiveness of interventions and efforts in maternal healthcare (Figure 6). The NRHM helped in bringing down MMR through the provisioning for ambulance services and strengthened emergency obstetric services and enhanced utilization of health facilities through JSY incentives and the availability of drugs in public facilities.

c. *Infant Mortality Rate and Under-5 Mortality Rate*

Figure 7 shows the trends in infant mortality rate (IMR) and under 5 mortality rates (U5MR) in India over the period as per the NFHS estimates. Over the three distinct periods from 1992-93 to 2019-21, India has made significant steps in reducing both the Infant Mortality Rate (IMR) and Under-5 Mortality Rate (U5MR), indicating substantial improvements in maternal and child healthcare and overall well-being in the country.

During the period from1992-93 to 2005-06, there was a remarkable decline in both IMR and U5MR. The IMR decreased from 78.5 to 57, marking a 27.71 percent decline, while the U5MR decreased from 109.3 to 74.3, reflecting a 32.02 percent decline. The positive trend in reducing IMR and U5MR continued during the period from 2005-06 to 2015-16, The IMR declined from 57 to 41, representing a 28.07 percent decline, while the U5MR decreased from 74.3 to 50, indicating a 32.54 percent decline. This shows substantial advancements in healthcare infrastructure, access to services, and the adequate

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maternal and child healthcare and timely immunisation and addressing the malnutrition in the country brought by NRHM especially for the high focus states. After 2015-16, the progress in IMR and U5MR continued but at a slower rate. The decline was only around 14 percent for IMR and 16.2 percent for U5MR.

Considering the High focus states, here is a general trend of decline in both IMR and U5MR across most of the High Focus States during the period 1992-93 to 2005-06 (Figure 9 and 110. States like Arunachal Pradesh, Assam, Bihar, Jharkhand, Madhya Pradesh, and Uttar Pradesh had relatively high IMR and U5MR at the beginning of the period, but they showed notable improvements during this period. Mizoram, Nagaland, and Tripura, which started with lower mortality rates, also experienced declines, albeit with fluctuations. The trend of decline in IMR and U5MR continued across most HFS during 2005-06 to 2015-16. Bihar, Jharkhand, Madhya Pradesh, Rajasthan, and Uttar Pradesh, which historically had higher mortality rates, continued to make progress in reducing IMR and U5MR. Mizoram, Nagaland, and Tripura, which had lower rates to begin with, also experienced continued declines during this period. After 2015-16, IMR declined in HFS at a slower rate. Bihar, Madhya Pradesh, Jharkhand does not show a significant decline but stands more or less in a stagnant position. Similar is the trend in poorer states with regard to under five mortality rates as well. Tripura showed a surprising a rise in U5MR compared to the previous period.

NRHM played a pivotal role in reducing IMR and U5MR in Indian states by focusing on strengthening healthcare infrastructure, expanding maternal and child health services, promoting immunization programs, empowering community health workers, improving nutrition, and implementing robust monitoring and evaluation mechanisms during the period 2005-06 to 2015-16. However, continued efforts and investments are needed to sustain these gains and achieve further reductions in the mortality rates.

CONCLUSION

NHM played an important role in the strengthening of Indian health system, particularly in improving the maternal and child health outcomes. The analysis shows a substantial improvement in Institutional births, antenatal care, the reduction of MMR, U5MR and IMR after the launch of NHM. The contribution of ASHA workers, JSY Programme, expansion of infrastructure played a crucial role for achieving this improvement. However, interstate disparities persists and slower improvements in recent years indicate the need for higher investment in healthcare and stronger infrastructure and sustained policy commitment to achieve universal healthcare in India.

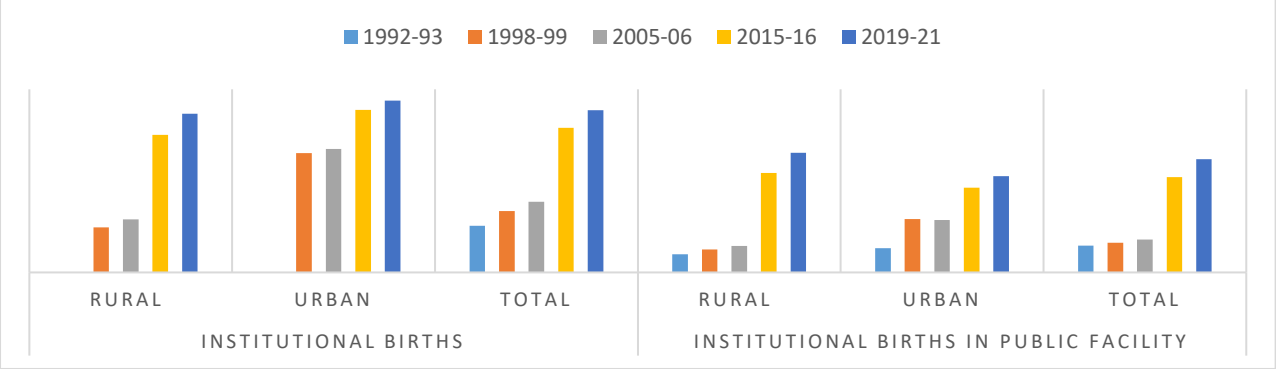
TABLE AND FIGURES

Table 1: Health Outcomes: India and its Neighbouring Countries

Country	Population (million)	Fertility (Children per women)	Life Expectancy(years)	Under Five Mortality Rate (per 1000 live births)	Maternal Mortality (per 1lakh births)	Child Stunting(%)
Bangladesh	167	2.1	72	30	173	36
Brazil	210	1.7	75	14	60	7
China	1400	1.7	76	9	29	8
India	1352	2.2	69	37	130	38
Indonesia	267	2.3	71	25	177	36
Malaysia	33	2	76	8	29	21
Russia	147	1.8	72	7	17	5
South Africa	59	2.4	64	34	119	27
Sri Lanka	22	2.2	77	7	36	17
Thailand	68	1.5	77	9	37	11
Vietnam	95	2	75	21	43	25

Source: Fifteenth Finance Commission, Main Report, 2020

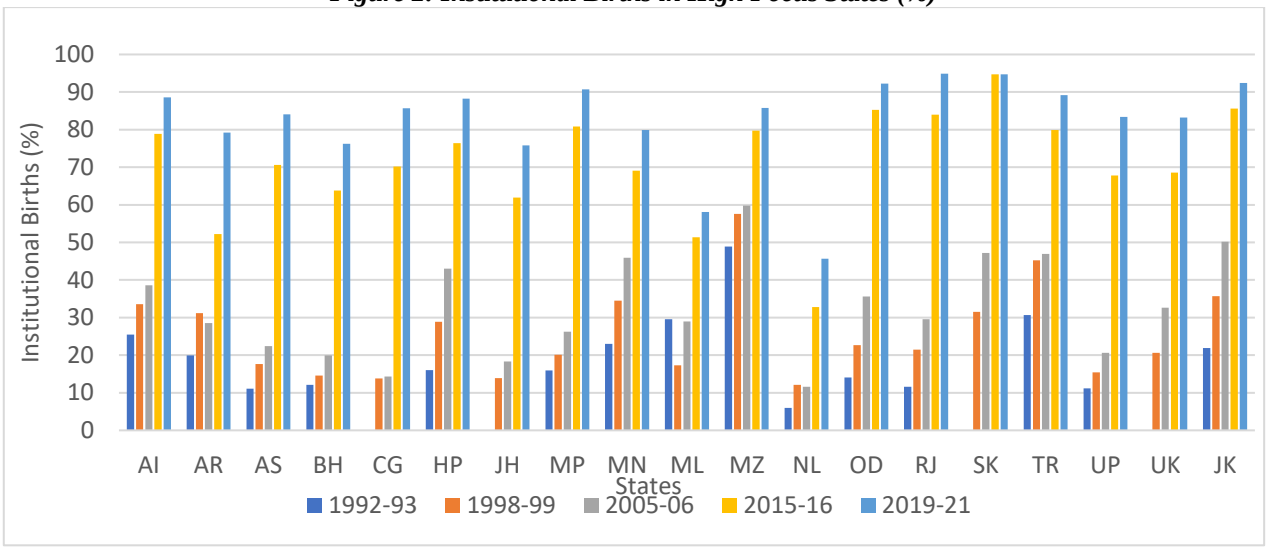
Figure 1: Institutional Births in India (%)



Source: Various rounds of NFHS: India Fact sheet

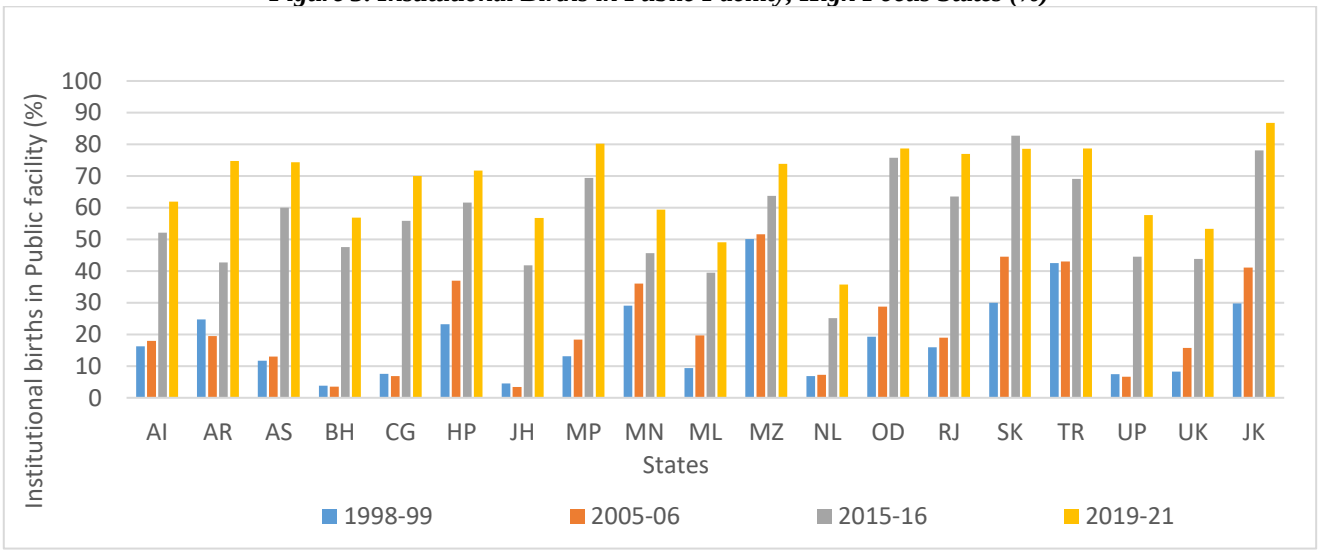
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Figure 2: Institutional Births in High Focus States (%)



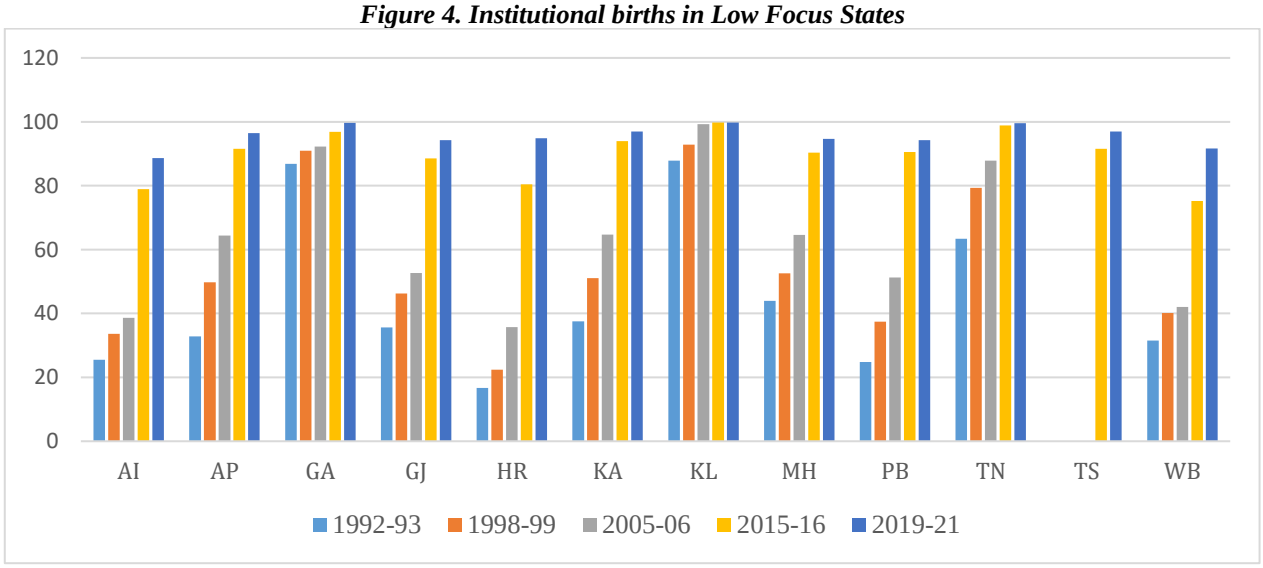
Source: Various rounds of NFHS: India Fact sheet

Figure 3. Institutional Births in Public Facility, High Focus States (%)



Source: Various rounds of NFHS: India Fact sheet

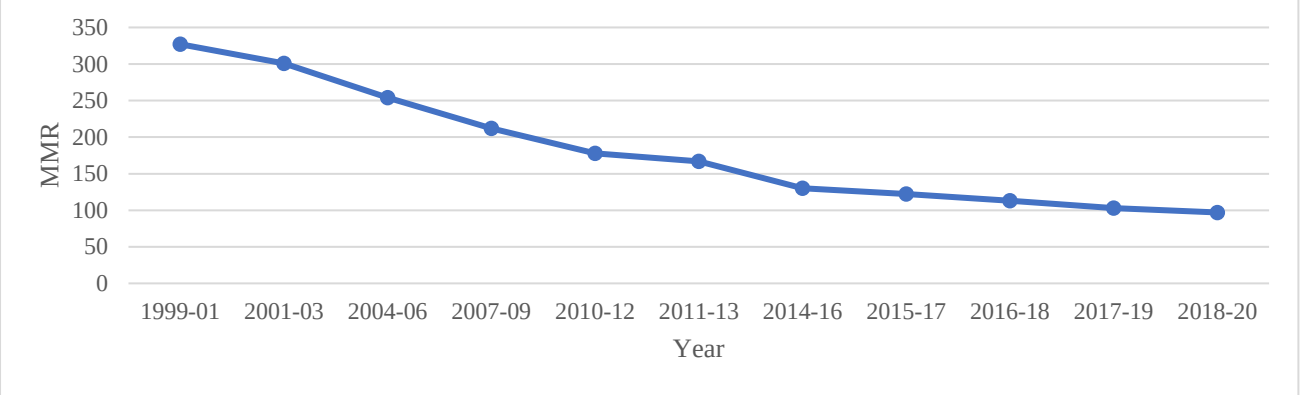
Figure 4. Institutional births in Low Focus States



Source: Various rounds of NFHS: India Fact sheet

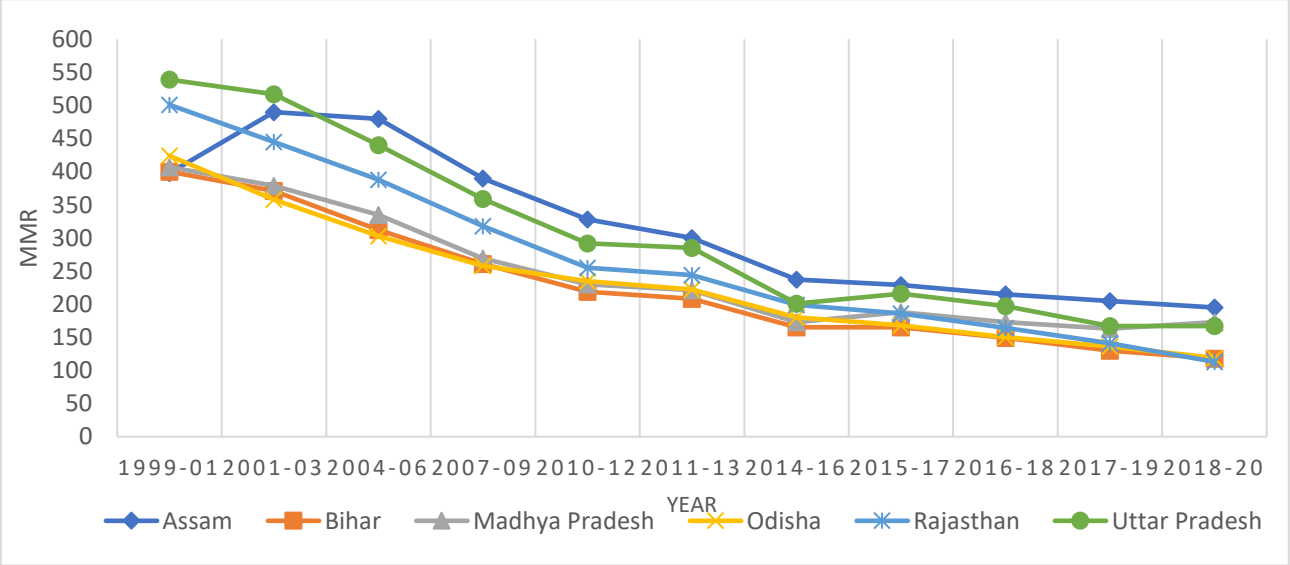
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Figure 5: Maternal Mortality Ratio in India (Per 100, 000), 1999-01 to 2018-20



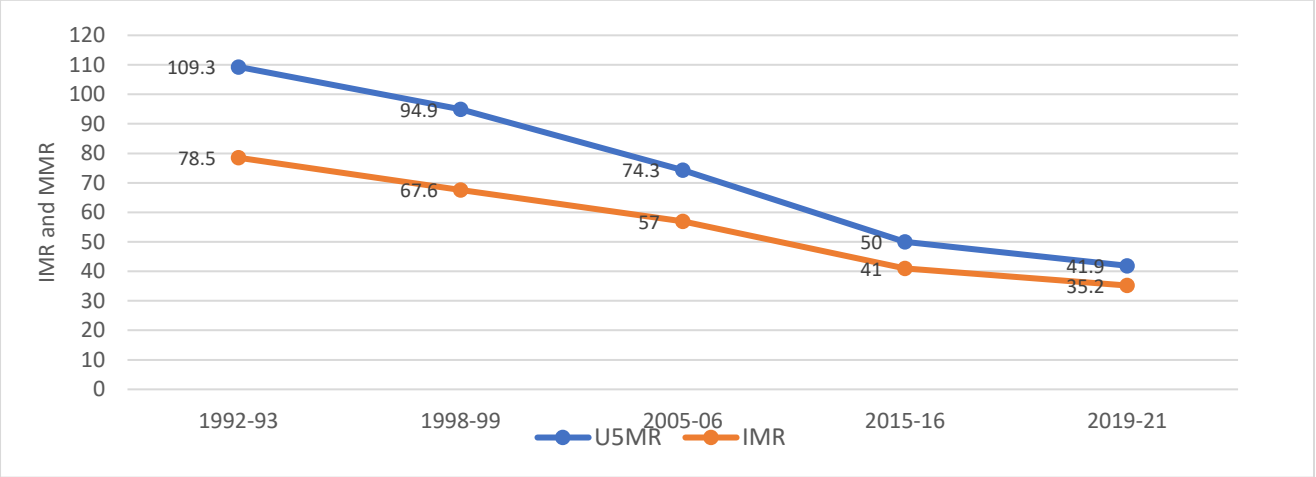
Source: Database of Indian Economy, RBI

Figure 6: Maternal Mortality Ratio in High Focus States, 1999-01 to 2018-20



Source: Database of Indian Economy, RBI

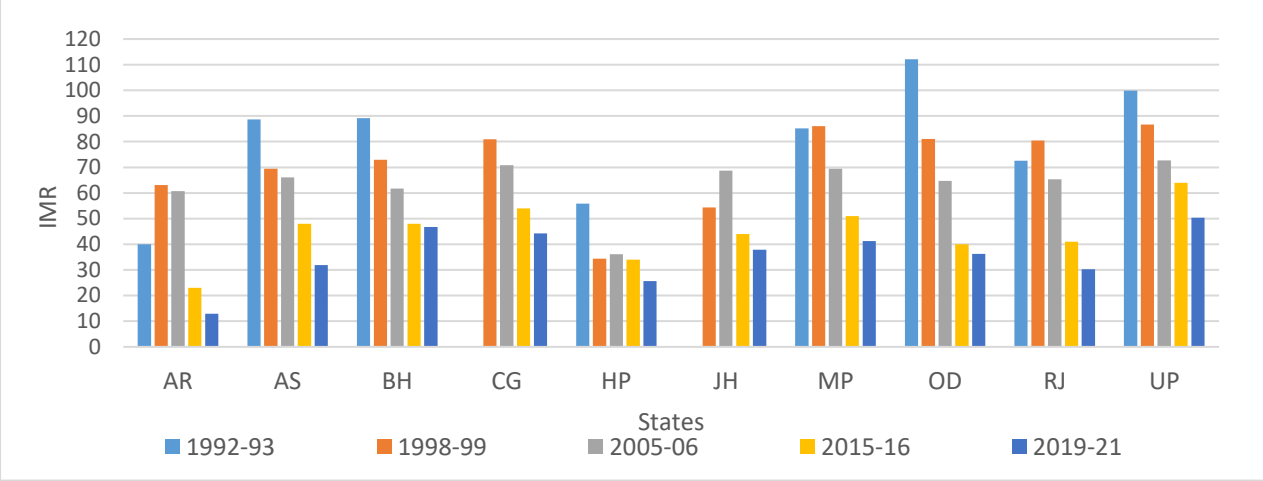
Figure 7: Trend of IMR in India: 2004-2020



Source: Compiled from EPWRF-ITS

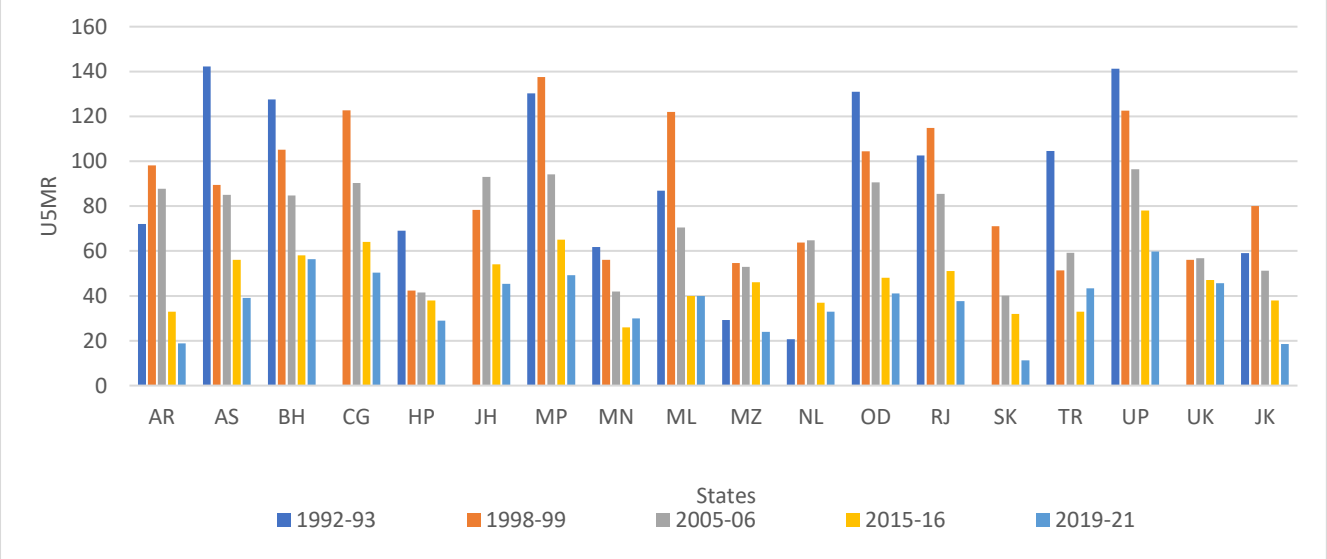
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Figure 9: IMR in High Focus States



Source: Various rounds of NFHS: India Fact sheet

Figure 10: U5MR in High Focus States in India (Per 1000)



Source: Various rounds of NFHS: India Fact sheet, Database of Indian Economy, RBI, EPWRF-ITS.

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