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DEMOGRAPHIC TRANSITION IN INDIA: AN ANALYSIS OF VITAL STATISTICS TRENDS WITH SPECIAL FOCUS ON EAG STATES AND THE NORTH EASTERN REGION (NER).

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Abstract:

"Without reliable statistics, development planning is blind" – Alfred Sauvy (French Demographer).

Vital statistics from the Civil Registration System (CRS), Sample Registration System (SRS), and National Family Health Survey (NFHS) are essential for evidence-based public health and demographic planning. These systems provide reliable data on key indicators such as Infant Mortality Rate (IMR), Maternal Mortality Ratio (MMR), Neonatal Mortality Rate (NMR), fertility, literacy, population density, migration, and causes of death. Amid ongoing demographic transition—marked by declining fertility and mortality and shifting population structures—these indicators are vital for understanding epidemiological changes and population dynamics.

Health planners, researchers, and national and international agencies, including the Ministry of Health and Family Welfare, Ministry of Women and Child Development, NITI Aayog, World Bank, UNICEF, UNESCO, and WHO, rely on this data to design, implement, and monitor programs addressing maternal and child health, nutrition, gender equality, and disease control.

Vital statistics also play a crucial role in tracking progress toward global development frameworks such as the Millennium Development Goals (MDGs) and Sustainable Development Goals (SDGs), while supporting India's long-term vision of Viksit Bharat 2047. Strengthening CRS, SRS, and NFHS systems ensures accurate, complete, and timely reporting, enabling effective monitoring of demographic indicators, identification of public health priorities, and evidence-based policy formulation.

In summary, robust vital statistics are indispensable for managing demographic transitions, guiding health interventions, and advancing sustainable development, thereby maximizing the benefits of India's demographic dividend.

Keywords: Birth rate, Death Rate, Life expectancy& Sex ratio at Birth.

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Introduction:

Vital statistics generated through the Civil Registration System (CRS) and Sample Registration System (SRS) of the Office of the Registrar General of India (ORGI) constitute the foundation for evidence-based planning and public health decision-making in India. These systems provide reliable information on key demographic indicators such as birth rate, death rate, infant mortality rate (IMR), maternal mortality ratio (MMR), sex ratio at birth (SRB), life expectancy, and causes of death, enabling comprehensive assessment of population dynamics and health outcomes across states and regions. Particular emphasis has been placed on the Empowered Action Group (EAG) and North-Eastern Region (NER) states, which historically exhibited higher fertility and mortality levels and therefore required focused policy attention and targeted health interventions.

Over the past decade, India has witnessed remarkable improvements in maternal and child health indicators. The findings from the Special Bulletin on Maternal Mortality in India, 2021–23, indicate sustained reductions in maternal mortality due to expanded institutional deliveries, improved antenatal care, and strengthened referral systems under national health programs. Similarly, the decline in infant and child mortality levels reflects improvements in immunization coverage, neonatal care, and nutritional support services. The Sex Ratio at Birth (SRB) derived from CRS data also shows gradual improvement, indicating positive shifts toward gender equity and increased awareness regarding the value of the girl child.

Life expectancy estimates based on quinquennial data for the period 2019–2023 demonstrate continued increases in survival years, reflecting enhanced access to healthcare services, better sanitation facilities, and improvements in socio-economic conditions. At the same time, the Cause of Death Statistics (SRS) for 2021–2023 provide valuable insights into the changing epidemiological pattern in India, highlighting the growing importance of non-communicable diseases along with the continued burden of communicable diseases in certain regions. These data serve as critical tools for designing targeted disease control programs and prioritizing healthcare resources.

The National Health Mission (NHM) has played a pivotal role in strengthening healthcare delivery systems across the country. State and Union Territory-wise central allocations, releases, and expenditures under NHM from F.Y. 2013–14 to 2025–26 demonstrate

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sustained government commitment toward improving rural and urban healthcare infrastructure, expanding human resources, and enhancing service delivery mechanisms. Special emphasis has been placed on underserved regions, particularly EAG and NER states, to reduce regional disparities in health outcomes.

India is currently experiencing significant demographic transformation characterized by declining fertility rates, decreasing mortality levels, and increasing life expectancy—key features of the Demographic Transition process. These changes indicate a shift from high birth and death rates toward lower fertility and improved survival, ultimately leading to population stabilization. Such demographic changes are closely aligned with national development priorities and contribute to improved human capital formation and economic productivity.

These demographic improvements are also closely linked with India's long-term national vision of Viksit Bharat 2047, which emphasizes inclusive growth, improved health outcomes, gender equality, and sustainable development. The integration of demographic indicators from CRS, SRS, NHM, and related statistical systems provides a comprehensive framework for monitoring progress toward national and global commitments, including the Sustainable Development Goals (SDGs). Overall, the availability of robust and reliable demographic data enables policymakers, planners, and researchers to assess trends, identify disparities, and formulate targeted interventions for achieving equitable and sustainable population health outcomes across all regions of India.

Objectives:

1. To examine recent trends in key vital statistics indicators using CRS and SRS data.
2. To assess regional variations in demographic and health indicators across EAG and NER states.
3. To analyse maternal and child health outcomes and causes of death based on recent ORGI publications (2021–2023).
4. To evaluate the contribution of NHM initiatives toward demographic transition and national development goals including SDGs and Viksit Bharat 2047.

Hypothesis:

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1. There is a significant improvement in key vital statistics indicators such as Birth Rate, Death Rate, IMR, and MMR in recent years across India.
2. Significant regional disparities exist in demographic and health indicators between EAG and NER states and other regions.
3. Maternal and child health outcomes have improved significantly due to strengthened healthcare services and interventions.
4. National Health Mission (NHM) initiatives have contributed significantly to demographic transition and improved population health indicators.

Methodology and Data collections:

1. Data Collection: Secondary data were collected from established sources such as the Civil Registration System (CRS), Sample Registration System (SRS), and National Family Health Survey (NFHS). 2. Methodology: The collected data were compiled and analysed to study demographic trends and key health indicators to support evidence-based planning and policy formulation**.**

Table: 1

Sl. No	District	Birth Rate Total	Birth Rate Rural	Birth Rate Urban	Death Rate Total	Death Rate Rural	Death Rate Urban	Natural Growth Rate Total	Natural Growth Rate Rural	Natural Growth Rate Urban	IMR Total	IMR Rural	IMR Urban
INDIA		18.4	20.3	14.9	6.4	6.8	5.7	12	13.4	9.2	25	28	18
North Eastern Region (NER)													
1	AP	16.6	17.1	14.6	5.5	5.8	4.6	11.1	11.3	10	20	22	8
2	Manipur	13	13.3	12.4	4.5	4.3	4.7	8.5	8.9	7.7	3	4	1
3	Meghalaya	22.7	24.8	13.2	5.5	5.4	5.8	17.3	19.4	7.4	34	36	23
4	Mizoram	14.2	16.8	11.5	5.9	5.2	6.7	8.2	11.7	4.8	13	12	14
5	Nagaland	13.6	13.9	13	5.5	5.6	5.2	8.1	8.3	7.7	10	8	13
6	Sikkim	14.7	13.2	16.9	4.8	5.1	4.5	9.9	8.2	12.4	6	9	3
7	Tripura	15.3	15.7	14.2	6.2	6	6.6	9.1	9.7	7.7	15	16	13
8	Assam	19.8	21	13.4	6.2	6.3	5.6	13.6	14.6	7.8	30	32	15
Empowered Action Group (EAG)													
1	Bihar	25.8	26.5	20.9	6.1	6.1	5.8	19.7	20.4	15	23	23	24
2	Chhattisgarh	22.3	24.1	16.6	8.3	8.6	7.4	14	15.6	9.2	37	39	29
3	Jharkhand	20.6	22	16.3	6.3	6.5	5.6	14.3	15.6	10.7	29	31	21
4	MP	22.5	24.4	17.5	6.8	7.1	6	15.8	17.3	11.4	37	39	30
5	Odisha	16	16.9	12.1	7.7	8	6.1	8.4	8.9	6.1	30	31	23
6	Rajasthan	22.9	23.9	20.1	5.9	6	5.6	16.9	17.8	14.4	29	31	23
7	UP	23.6	24.7	20.5	6.5	6.7	5.9	17.1	17.9	14.6	37	39	27

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8	Uttarakhand	16.9	17.6	15.1	6.1	6.3	5.6	10.7	11.2	9.5	20	21	19

Source: SRS Bulletin – 2023. (ORGI)

Chart: 1

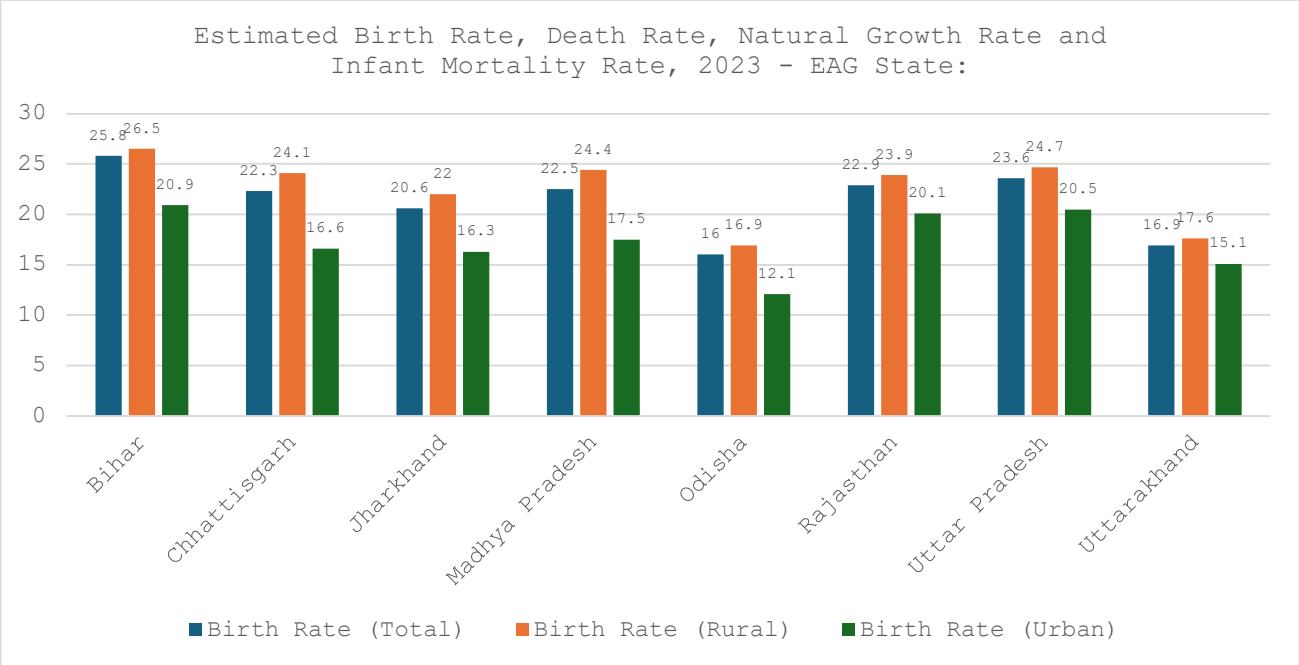
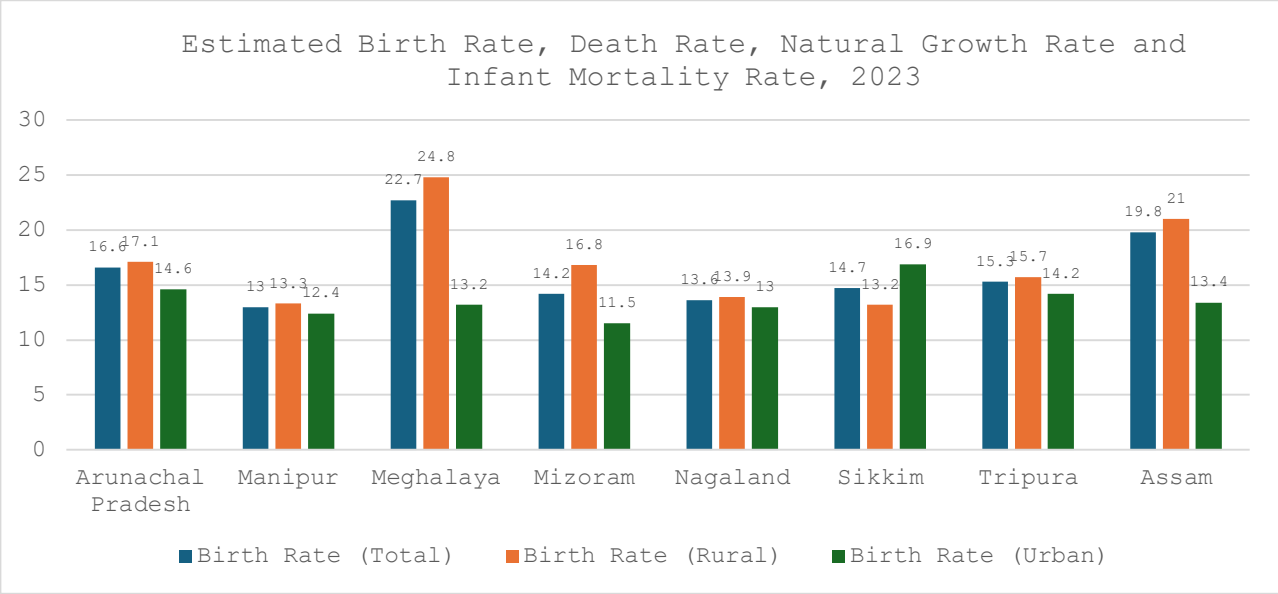


Chart: 2



Estimated Birth Rate, Death Rate, Natural Growth Rate and Infant Mortality Rate, 2023

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The latest SRS Bulletin for 2023 reveal a complex demographic landscape across India, as reflected by the birth rate, death rate, natural growth rate, and infant mortality rate (IMR), shows considerable regional variation between the North-Eastern Region (NER), the Empowered Action Group (EAG) states, and the national average. At the national level, India records a birth rate of 20.3 per 1,000 population, with rural areas (14.9) exhibiting higher fertility than urban areas (6.4). The national death rate stands at 6.8, yielding a natural growth rate of 13.4 per 1,000 population, while the overall IMR is 28, with rural IMR (18) higher than urban IMR (10), reflecting disparities in child survival between rural and urban settings.

In the North-Eastern Region, states like Meghalaya (22.7) and Assam (19.8) record higher birth rates compared to the regional average, whereas Manipur (13.0) and Nagaland (13.6) show relatively low fertility levels. Death rates across NER states range between 4.5 (Manipur) and 6.2 (Tripura), with corresponding natural growth rates highest in Meghalaya (17.3) and lowest in Nagaland (8.1). Infant mortality also varies widely; Meghalaya (34) and Assam (30) report high IMR, while Manipur (3) and Sikkim (6) show comparatively better child survival, reflecting differences in healthcare access, nutrition, and maternal care.

The EAG states, traditionally characterized by high fertility and mortality, continue to display elevated birth and natural growth rates. Bihar (25.8) and Uttar Pradesh (23.6) record the highest birth rates, while Odisha (16.0) and Uttarakhand (16.9) are comparatively lower. Death rates vary from 5.9 (Rajasthan) to 8.3 (Chhattisgarh), with natural growth rates highest in Bihar (19.7) and lowest in Odisha (8.4). The infant mortality burden is also concentrated in EAG states, with Chhattisgarh (37), MP (37), and Uttar Pradesh (37) reporting the highest IMR, indicating persistent challenges in maternal and child health despite national progress.

Overall, the data highlights persistent regional disparities: NER states show wide variation due to geographic and socio-economic factors, while EAG states continue to lag in child survival and population stabilization compared to the national average. The higher rural IMR across most states underscores the need for targeted interventions in maternal and child healthcare, improved nutrition, and expansion of healthcare services in underserved areas. These demographic indicators provide critical insights for policy planning under NHM and national development initiatives, emphasizing equitable access to health services and accelerated progress toward Sustainable Development Goals (SDGs) and the vision of Viksit Bharat 2047.

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Table: 2: Expectation of life at birth by Sex and Residence, India and bigger States 2019-2023:

India & Bigger States	Total (T)	Total (M)	Total (F)	Rural (T)	Rural (M)	Rural (F)	Urban (T)	Urban (M)	Urban (F)
India*	70.3	68.5	72.5	69.1	67.1	71.4	73.1	71.4	75
Andhra Pradesh	70.7	68.5	73.3	69.8	67.4	72.5	72.8	71	74.9
Assam	68.6	66.9	70.7	67.7	66	69.9	73.5	72.1	75.1
Bihar	69.3	68.9	69.7	69	68.5	69.4	71.5	71.4	71.5
Chhattisgarh	64.6	62.4	67.1	64.1	62	66.3	66.4	63.7	69.7
Delhi	74.2	72.3	76.8	72.1	68.6	76.6	74.3	72.4	76.8
Gujarat	70.4	67.6	73.9	68.6	65.2	72.9	72.7	70.6	75.2
Haryana	68.8	65.9	72.2	67.9	64.8	71.8	70.1	67.8	72.9
Himachal Pradesh	74.4	71	78.1	74.2	70.6	78.1	76.1	74.6	77.9
Jammu & Kashmir	74.4	73.4	75.5	73.4	72.6	74.3	76.7	75.6	78
Jharkhand	69.5	68.7	70.5	68.8	67.9	69.8	71.5	70.8	72.4
Karnataka	70	67.8	72.4	68.5	65.5	71.8	72.6	71.9	73.4
Kerala	75.1	71.9	78.4	75.7	72.5	78.9	74.6	71.4	77.8
Madhya Pradesh	67.6	65.4	70.3	66.8	64.5	69.4	70.5	68.2	73
Maharashtra	72.8	70.7	75.2	71.3	68.9	74	75	73.3	77
Odisha	70.5	69.4	71.8	70.2	69.1	71.5	72.1	70.7	73.5
Punjab	70.8	68.8	73.1	69.2	66.9	72	73.2	72	74.7
Rajasthan	70.4	67.8	73.3	69.7	67	72.7	72.7	70.3	75.5
Tamil Nadu	73.4	71.4	75.6	70.3	67.8	73.1	76.3	74.8	77.9
Telangana	70.8	68.6	73.2	69.8	67	72.9	71.9	70.7	73.5
Uttar Pradesh	68	66.5	69.8	67.4	65.8	69.3	70.1	68.7	71.6
Uttarakhand	71.3	68.1	74.8	71.4	67.8	75.3	71	68.8	73.4
West Bengal	72.5	71.1	74	71.4	69.9	73.1	74.8	73.5	73.5

Source: Sample registration System, Abridged Life Tables 2019-23 - (ORGI)

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Table :2 presents the estimates of life expectancy at birth by sex and residence for larger States and Union Territories during 2019–23. At the national level, the average life expectancy at birth is 70.3 years, ranging from 64.6 years in Chhattisgarh to 75.1 years in Kerala. In nearly all States and UTs, females consistently have higher life expectancy than males, both in rural and urban areas. In rural areas, Kerala records the highest life expectancy for both males and females, while in urban areas, Jammu & Kashmir shows the highest figures. Conversely, Chhattisgarh reports the lowest life expectancy in both rural and urban regions for males and females during 2019–23.

Table: 3: Expectation of life at age 1 by Sex and Residence, India - 1970-75 to 2019-23:

Expectation of life at birth by Sex and Residence, India - 1970-75 to 2019-23										
Period	Mid-Year	Total	Total: Male	Total: Female	Rural: Total	Rural: Male	Rural: Female	Urban: Total	Urban: Male	Urban: Female
1970-75	1973	49.7	50.5	49	48	48.9	47.1	58.9	58.8	59.2
1976-80	1978	52.3	52.5	52.1	50.6	51	50.3	60.1	59.6	60.8
1981-85	1983	55.4	55.4	55.7	53.7	54	53.6	62.8	61.6	64.1
1986-90	1988	57.7	57.7	58.1	56.1	56.1	56.2	63.4	62	64.9
1987-91	1989	58.3	58.1	58.6	56.8	56.7	56.9	63.8	62.3	65.3
1988-92	1990	58.7	58.6	59	57.4	57.2	57.4	64.1	62.8	65.5
1989-93	1991	59.4	59	59.7	58	57.9	58.1	64.9	63.5	66.3
1990-94	1992	60	59.4	60.4	58.6	58.2	58.7	65.4	64.1	66.7
1991-95	1993	60.3	59.7	60.9	58.9	58.5	59.3	65.9	64.5	67.3
1992-96	1994	60.7	60.1	61.4	59.4	58.9	59.8	66.3	64.9	67.7
1993-97	1995	61.1	60.4	61.8	59.9	59.3	60.2	66.6	65.1	68
1994-98	1996	61.4	60.6	62.2	60.1	59.5	60.5	66.8	65.3	68.2
1995-99	1997	61.5	60.8	62.3	60.3	59.7	60.9	66.4	65.1	67.9
1996-00	1998	61.9	61.2	62.7	60.7	60.1	61.3	66.7	65.4	68.3
1997-01	1999	62.3	61.4	63.3	61.1	60.3	61.9	67.1	65.7	68.7
1998-02	2000	62.9	61.9	64	61.6	60.7	62.5	67.6	66.1	69.2
1999-03	2001	63.4	62.3	64.6	62.2	61.1	63.2	68	66.5	69.7
2000-04	2002	63.9	62.8	65.2	62.7	61.6	63.8	68.4	66.9	70
2001-05	2003	64.3	63.1	65.6	63	61.9	64.2	68.6	67.2	70.3
2002-06	2004	64.7	63.5	66.1	63.5	62.3	64.7	68.9	67.4	70.6
2003-07	2005	65	63.7	66.5	63.8	62.6	65.2	69	67.5	70.7
2004-08	2006	65.4	64	66.9	64.2	62.9	65.7	69	67.5	70.8
2005-09	2007	65.7	64.3	67.2	64.5	63.2	66	69.2	67.6	71
2006-10	2008	66.1	64.6	67.7	64.9	63.5	66.5	69.6	68	71.4
2007-11	2009	66.5	64.9	68.2	65.3	63.8	67	70.1	68.4	71.9
2008-12	2010	67	65.4	68.8	65.8	64.2	67.6	70.6	69	72.4
2009-13	2011	67.5	65.8	69.3	66.3	64.6	68.1	71.2	69.6	73
2010-14	2012	67.9	66.4	69.6	66.7	65.1	68.4	71.5	70	73.2
2011-15	2013	68.3	66.9	70	67.1	65.6	68.7	71.9	70.5	73.5
2012-16	2014	68.7	67.4	70.2	67.4	66	68.9	72.2	70.9	73.5

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2013-17	2015	69	67.8	70.4	67.7	66.4	69	72.4	71.2	73.7
2014-18	2016	69.4	68.2	70.7	68	66.7	69.3	72.6	71.5	73.8
2015-19	2017	69.7	68.4	71.1	68.3	66.9	69.7	73	71.8	74.2
2016-20	2018	70	68.6	71.4	68.6	67.2	70.1	73.2	71.9	74.5
2017-21	2019	69.8	68.2	71.6	68.5	66.8	70.3	72.9	71.4	74.6
2018-22	2020	69.9	68.2	71.9	68.6	66.8	70.7	72.9	71.3	74.7
2019-23	2021	70.3	68.5	72.5	69.1	67.1	71.4	73.1	71.4	75

Source: Sample registration System, Abridged Life Tables 2019-23 - (ORGI)

Chart: 3

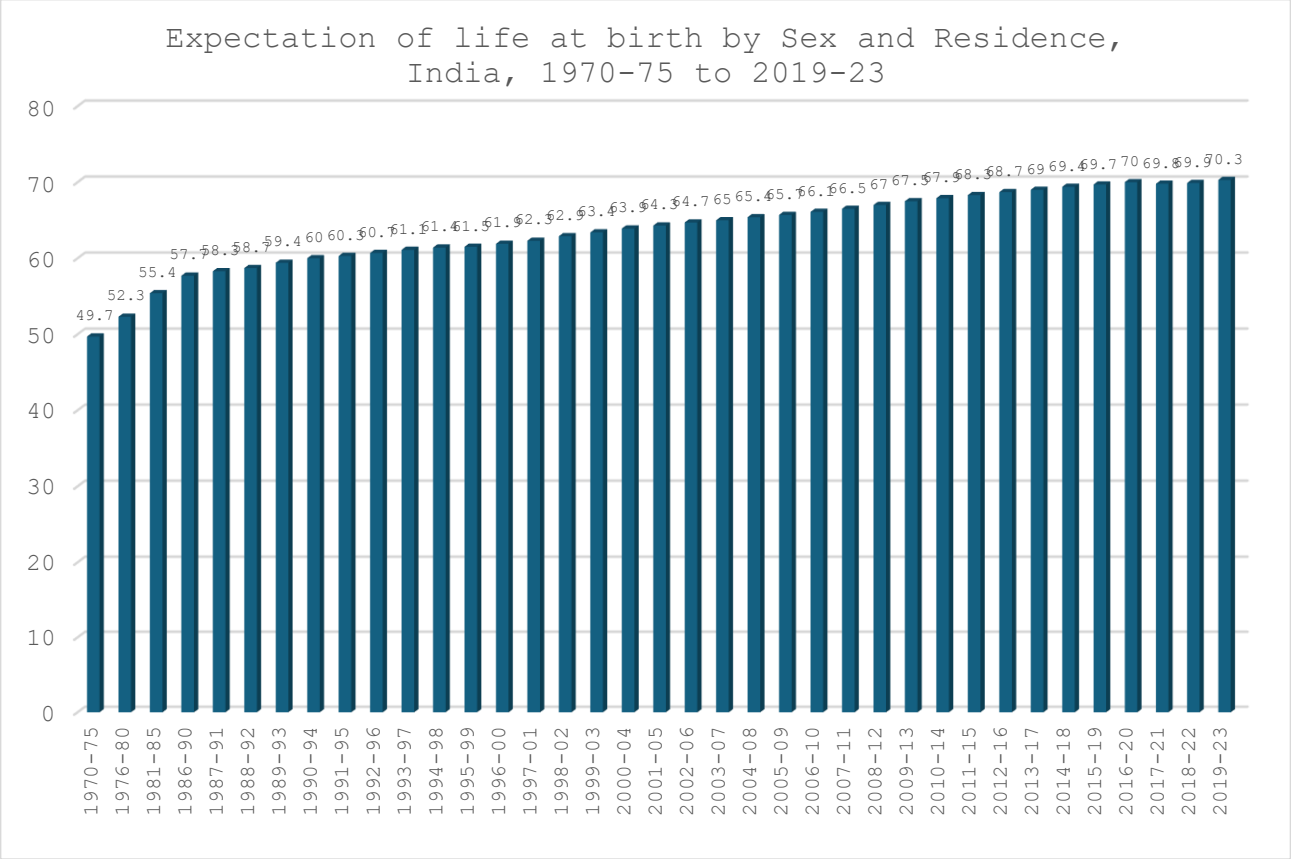

Table: 3 State that Life expectancy at birth in India has shown a steady and significant improvement over the past five decades, reflecting advancements in healthcare services, nutrition, sanitation, and socio-economic development. According to the Sample Registration System (SRS) Abridged Life Tables, the national life expectancy increased from 49.7 years during 1970–75 to 70.3 years in 2019–23, indicating a gain of more than 20 years over the period. A consistent gender advantage in survival is observed throughout the period, with females recording higher life expectancy than males. In 2019–23, female life expectancy reached 72.5 years, compared to 68.5 years for males, reflecting improved maternal healthcare,

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better child survival, and increased female longevity. This gender gap has gradually widened over time, highlighting sustained improvements in women's health outcomes.

Significant rural–urban differences are also evident in life expectancy trends. Urban populations consistently recorded higher life expectancy than rural populations throughout the period. In 2019–23, life expectancy in urban areas was 73.1 years, compared to 69.1 years in rural areas, indicating disparities in healthcare access, living standards, and socio-economic conditions. However, rural life expectancy has shown steady improvement over the years, narrowing the gap with urban populations. Overall, the long-term rise in life expectancy demonstrates India's progress through the demographic transition, characterized by declining mortality and improved survival rates. Despite notable improvements, the persistence of gender and rural–urban differentials highlight the need for continued investments in healthcare infrastructure, nutrition, and public health programs to ensure equitable gains in longevity across all population groups.

Table 4: Expectation of life at birth by Sex- EAG State:

Name of the States	Total (T)	Total (M)	Total (F)	Rural (T)	Rural (M)	Rural (F)	Urban (T)	Urban (M)	Urban (F)
Assam	68.6	66.9	70.7	67.7	66	69.9	73.5	72.1	75.1
Bihar	69.3	68.9	69.7	69	68.5	69.4	71.5	71.4	71.5
Chhattisgarh	64.6	62.4	67.1	64.1	62	66.3	66.4	63.7	69.7
Jharkhand	69.5	68.7	70.5	68.8	67.9	69.8	71.5	70.8	72.4
Madhya Pradesh	67.6	65.4	70.3	66.8	64.5	69.4	70.5	68.2	73
Odisha	70.5	69.4	71.8	70.2	69.1	71.5	72.1	70.7	73.5
Rajasthan	70.4	67.8	73.3	69.7	67	72.7	72.7	70.3	75.5
Uttar Pradesh	68	66.5	69.8	67.4	65.8	69.3	70.1	68.7	71.6
Uttarakhand	71.3	68.1	74.8	71.4	67.8	75.3	71	68.8	73.4

Chart: 4

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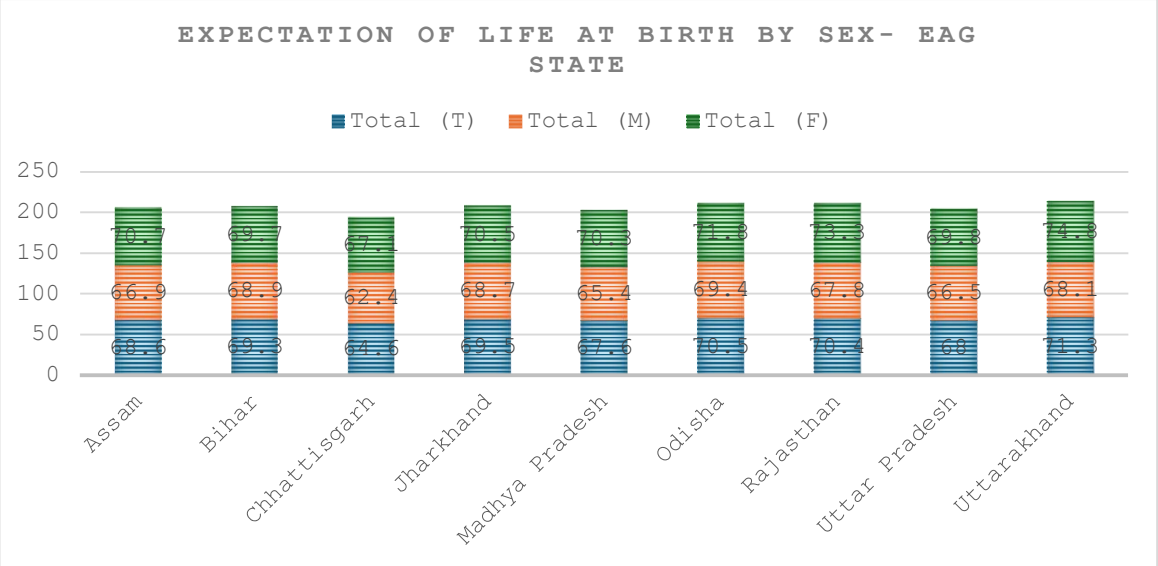

The life expectancy at birth in selected states shows noticeable variation across total, rural, and urban populations. Among the listed states, Uttarakhand recorded the highest total life expectancy at 71.3 years, followed by Odisha at 70.5 years and Rajasthan at 70.4 years, while Chhattisgarh reported the lowest at 64.6 years. In general, female life expectancy exceeded male life expectancy across all states, reflecting better survival rates among females. Rural areas typically showed slightly lower life expectancy compared to urban areas, highlighting disparities in access to healthcare, nutrition, and living conditions. Urban populations consistently demonstrated higher life expectancy levels, with Assam showing a notable urban life expectancy of 73.5 years and Rajasthan reaching 72.7 years. States such as Madhya Pradesh and Uttar Pradesh exhibited moderate life expectancy levels but still lagged behind higher-performing states like Uttarakhand. Overall, the data indicates persistent rural–urban and gender differences in life expectancy, emphasizing the need for targeted public health interventions and improved socio-economic conditions to reduce regional disparities and enhance longevity across these states.

Table 5:

State	Life Expectancy at Birth (Years)
Assam	71.6
Arunachal Pradesh	74.2
Manipur	74
Meghalaya	74.4
Mizoram	74.9
Nagaland	84.1
Tripura	71.1
Sikkim	83

Source: NFHS 4 (2015-2016)

Chart: 5

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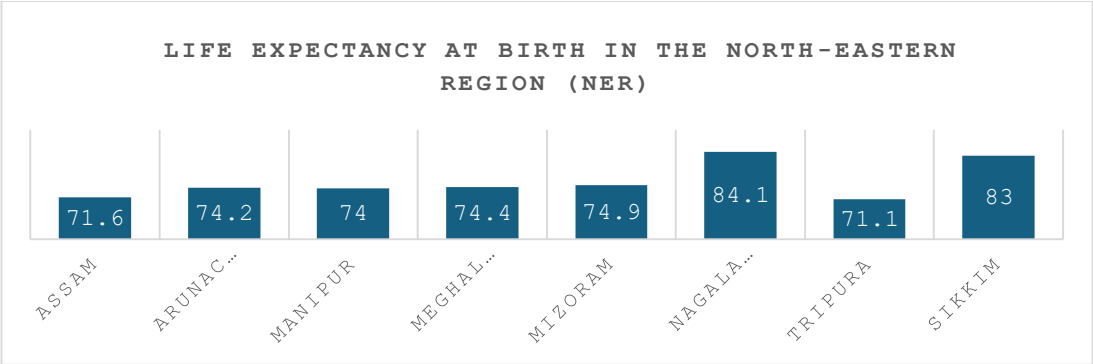

The life expectancy at birth in the North-Eastern Region (NER) of India demonstrates moderate to relatively high survival levels compared to several other parts of the country. Among the NER states, Mizoram (74.9 years) and Meghalaya (74.4 years) show comparatively higher life expectancy levels, while Assam (71.6 years) and Tripura (71.1 years) record relatively lower values within the region. States such as Arunachal Pradesh (74.2 years) and Manipur (74.0 years) also exhibit favourable longevity patterns, reflecting improvements in healthcare services and socio-economic conditions. In some model-based estimates, smaller states such as Nagaland (84.1 years) and Sikkim (83.0 years) report higher life expectancy levels, although such values may vary due to differences in population size and estimation methods. Overall, the life expectancy trends in the North-Eastern states indicate gradual improvements in mortality conditions, though disparities remain due to variations in healthcare accessibility, infrastructure, and geographic challenges.

Table 6: Maternal Mortality Ratio (MMR)Maternal Mortality Rate India, EAG STATE:2021-23

India & Major States	MMR	Maternal Mortality Rate
INDIA	**88**	**5**
Assam	110	6
Bihar	104	10
Jharkhand	54	4
Madhya Pradesh	142	12
Chhattisgarh	146	10
Odisha	153	9
Rajasthan	86	7
Uttar Pradesh	141	12
Uttarakhand	91	5

Source: Special Bulletin On Maternal Mortality In India2021-23: (ORGI)

Chart: 6

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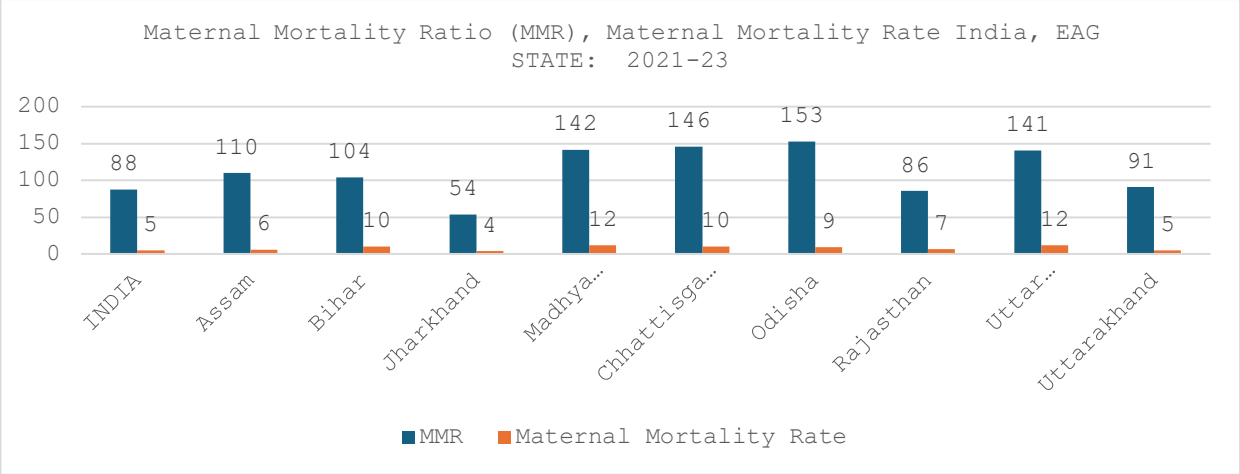

Maternal mortality remains a significant public health concern in the North-Eastern Region of India, although notable progress has been observed in recent years. Among the eight North-Eastern states, Assam is the only state with regularly published independent Maternal Mortality Ratio (MMR) estimates, reporting 167 maternal deaths per 100,000 live births during the period 2019–21, reflecting a substantial decline from earlier levels. Other states such as Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Tripura, and Sikkim are generally grouped under special category regions due to smaller population sizes, and separate state-wise MMR estimates are often not available. Overall, the declining trend in maternal mortality in the region indicates improvements in institutional deliveries, antenatal care services, and access to maternal health facilities, although disparities persist due to geographic isolation and limited healthcare infrastructure in hilly and remote areas.

The latest SRS data for 2023 highlights a critical cluster of states where the Under-5 Mortality Rate (U5MR) significantly exceeds the national average of 29. These "high-burden" regions, primarily in central and northern India, present a challenging landscape for public health intervention.

Table: 7

India & Bigger States/UTs	Total (T)	Total (M)	Total (F)	Rural (T)	Rural (M)	Rural (F)	Urban (T)	Urban (M)	Urban (F)
Assam	33	34	33	35	36	35	16	17	15
Bihar	27	26	28	27	26	28	26	26	26
Chhattisgarh	41	40	43	43	41	46	33	38	28
Jharkhand	32	33	31	34	35	33	23	21	24
Madhya Pradesh	44	42	47	46	43	49	37	37	37
Odisha	35	36	34	36	38	35	25	25	26
Rajasthan	34	32	37	36	33	40	27	27	28
Uttar Pradesh	42	43	40	45	47	43	30	31	29

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Uttarakhand	23	22	23	23	22	24	21	23	19

Chart: 7

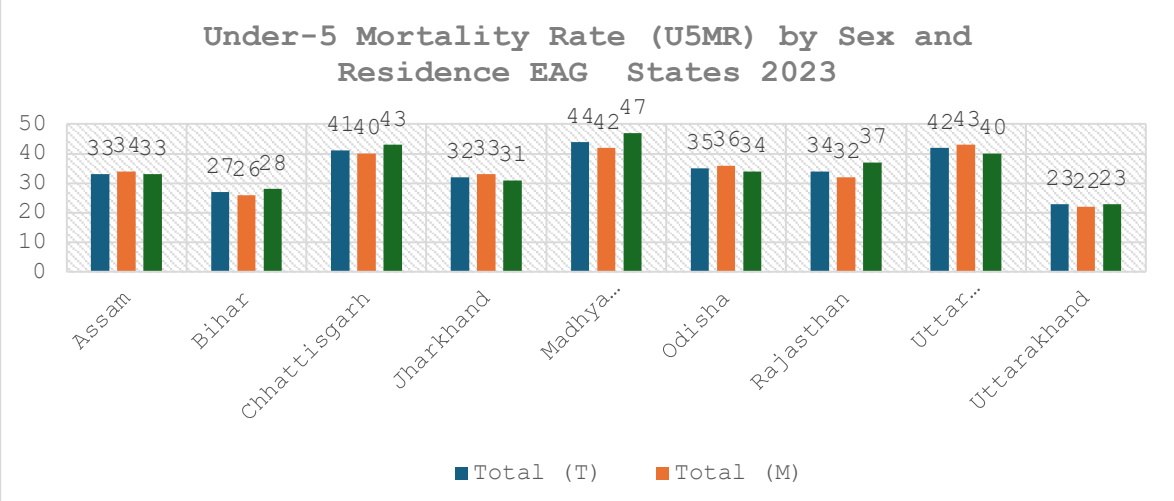
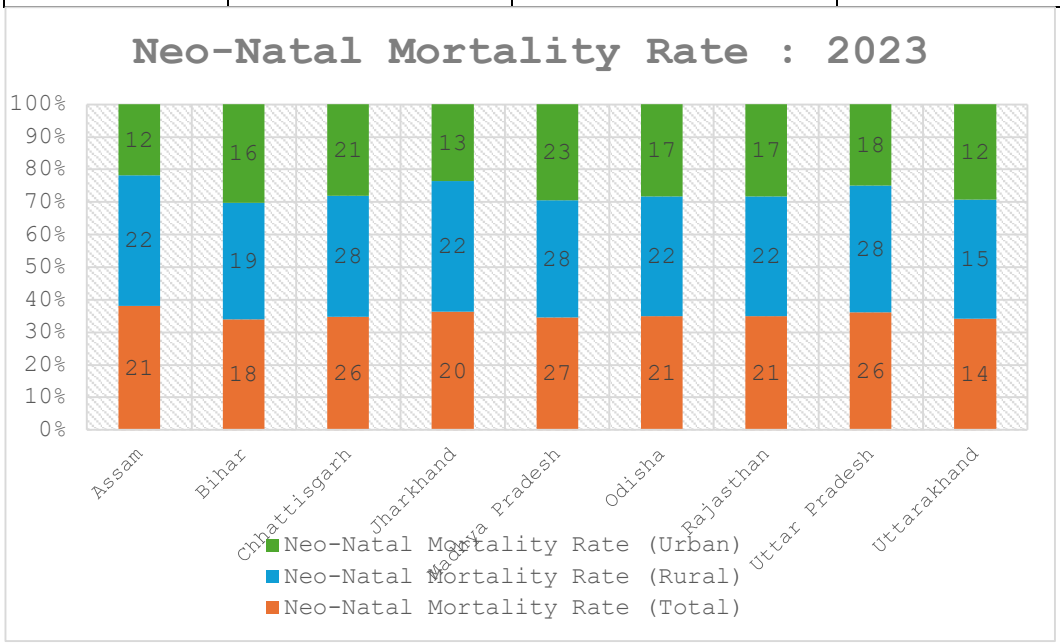


Table 8:

India and Bigger States/UTs	Neo-Natal Mortality Rate (Total)	Neo-Natal Mortality Rate (Rural)	Neo-Natal Mortality Rate (Urban)
Assam	21	22	12
Bihar	18	19	16
Chhattisgarh	26	28	21
Jharkhand	20	22	13
Madhya Pradesh	27	28	23
Odisha	21	22	17
Rajasthan	21	22	17
Uttar Pradesh	26	28	18
Uttarakhand	14	15	12



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Source: SRS Statistical Report - 2023

Table 9 : Top 10 causes of death in EAG states & Assam: 2021-2023

Rank	Cause of Death	% Proportion (Person)
1	Cardiovascular diseases	26.1
2	Respiratory infections	10.2
3	Fever of unknown origin	6.2
4	Respiratory diseases	6.2
5	Digestive diseases	5.8
6	Malignant and other Neoplasms	5.5
7	Perinatal conditions	4.3
8	Unintentional injuries: Other Than Motor Vehicle Accidents	4.1
9	Diarrhoeal diseases	3.5
10	Ill-defined/All other symptoms, signs and abnormal findings	9
	All Other remaining causes	19.1

Source: Causes of Death statistics 2021-2023

Analysis of Mortality Patterns and Leading Causes of Death in EAG States and Assam (2021–2023)

The recent demographic and health surveillance data for the Empowered Action Group (EAG) States and Assam reveals a complex epidemiological transition, where non-communicable diseases now coexist with significant burdens from infectious and perinatal conditions. A primary concern identified in the 2023 mortality indicators is the high Neo-Natal Mortality Rate (NMR), which reaches a peak of 28 per 1,000 live births in the rural sectors of Madhya Pradesh, Chhattisgarh, and Uttar Pradesh. This rural-urban disparity is a critical focal point, as neo-natal deaths consistently account for over 70% of total infant mortality in several states, highlighting a vital need for enhanced specialized care within the first 28 days of life.

Chart 9:

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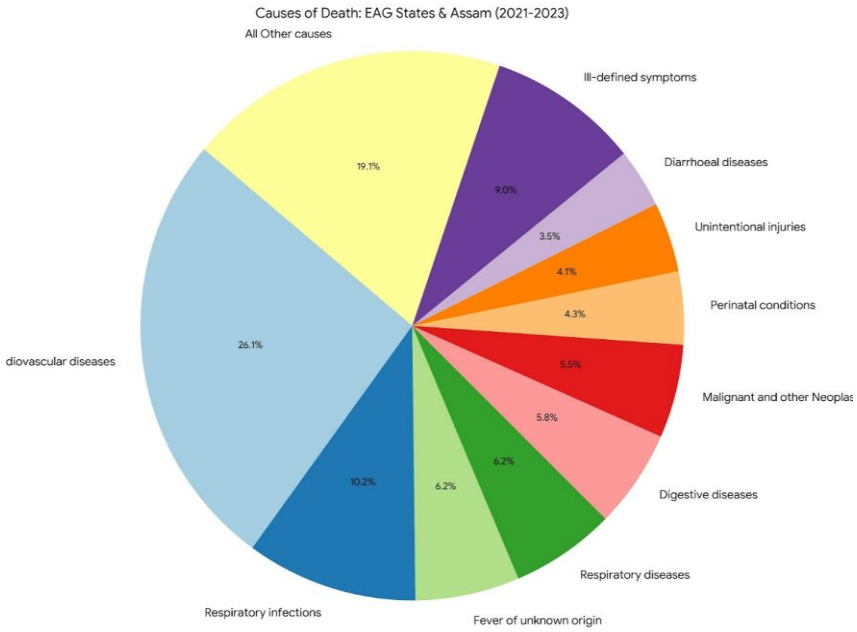

Table : 10 : State/UT wise Central Allocation, Central Release and Expenditure under NHM from F.Y. 2013-14 to F.Y. 2025-26

Sl. No.	States	2013-14 Release	2014-15 Release	2015-16 Release	2016-17 Release	2017-18 Release	2018-19 Release	2019-20 Release	2020-21 Release	2021-22 Release	2022-23 Release	2023-24 Release	2024-25 Release	2025-26 Release
EAG														
1	Assam	1096.52	898.15	997.59	1046.09	1392.66	1381.51	1749.24	1807.48	1955.93	1981.83	2257.06	2076.25	1155.91
2	Bihar	1259.04	1296.02	1269.67	1040.59	1557.4	1409.78	1510.68	1814.63	1748.76	1586.57	2032.95	2367.18	1290.43
3	Chattisgarh	370.52	512.13	423.31	586.97	825.76	875.1	816.07	979.41	969.61	1195.08	875.8	969.11	291.66
4	Jharkhand	413.24	384.15	423.93	454.16	735.99	616.23	830.63	602.8	640.18	810.3	958.06	964.31	561.22
5	Madhya Pradesh	915.58	1203.94	1156.95	1496.75	1698.56	1668.09	1728.73	2377.14	2295.66	2582.1	2545.68	2430.91	1422.94
6	Orissa	622.16	687.6	669.77	728.58	1216.22	749.57	1475.14	1617.63	1263.07	1284.69	1901.77	1919.79	1154.08
7	Rajasthan	965.09	1168.46	1329.48	1234.18	1615.29	1667	1781.83	2000.58	1924.95	1460.8	2785.46	2398.62	1198.46
8	Uttar Pradesh	3208.49	2653.83	2964.93	3314.75	3967.46	3886.7	4749.05	3772.95	3235.46	5133.59	4928.14	5853.43	2569.98
9	Uttarakhand	249.92	278.38	282.56	265.53	354.85	297.18	384.83	583.25	553.47	505.01	711.33	604.05	380.52
NER														
1	Arunachal Pradesh	79.33	140.75	163.8	160.6	261.7	216.92	185.95	243.04	188.53	233.82	404.55	388.86	148.81
2	Manipur	89.65	129.58	115.19	79.07	163.05	147.09	185.65	189.49	95.59	61.4	169.12	279.16	65.49
3	Meghalaya	126.7	107.86	107.5	161.13	189.02	145.06	141.17	202.63	282.46	261.56	261.39	297.95	89.65
4	Mizoram	77.8	104.369	95.26	80.88	126.95	118.36	127.24	103.73	93.82	111.82	134.42	159.96	38.17
5	Nagaland	101.23	118.09	106.37	95.92	134.86	132.11	123.23	188.21	126.66	91.38	184.84	204.47	89.99
6	Sikkim	46.25	52.2	41.54	41.72	55.4	45.22	53.55	70.13	51.86	73.3	68.17	81.67	25.13
7	Tripura	141.14	126.29	138.71	125.76	158.99	186.52	239.47	225.91	217.95	231.9	264.31	268.67	157.34

Source: Ministry of Health and family welfare

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Chart : 10

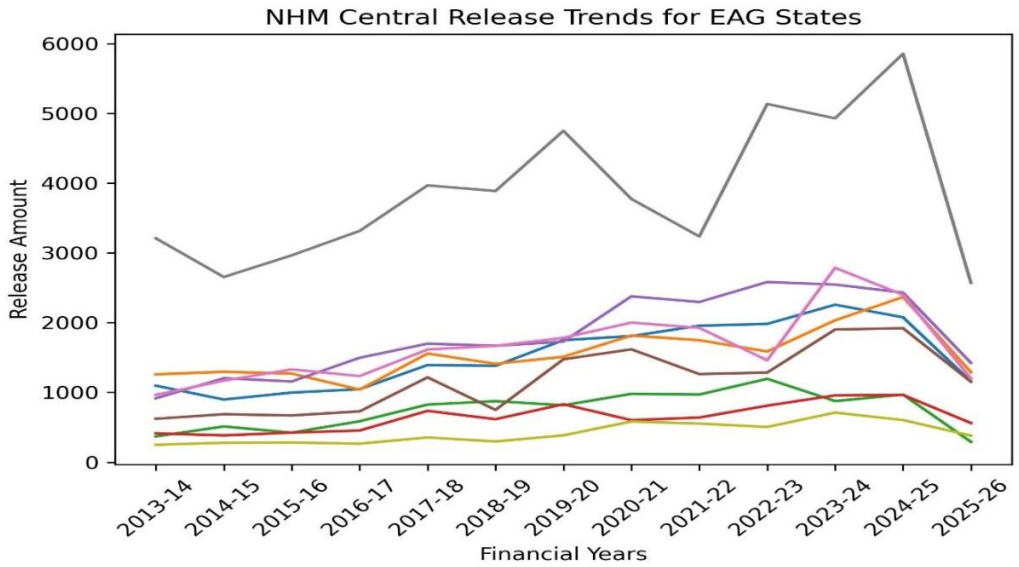
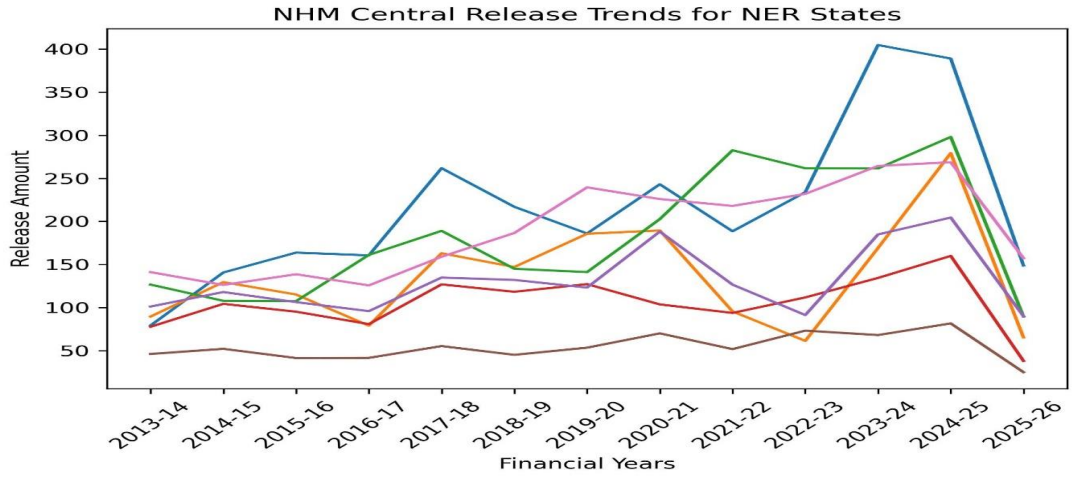


Chart: 11



Among the EAG states, Uttar Pradesh consistently received the highest central releases throughout the study period. Funding increased significantly from about ₹3208.49 crore in 2013–14 to a peak of ₹5853.43 crore in 2024–25, reflecting strong prioritization due to its large population and extensive healthcare needs. However, a decline was observed in 2025–26, possibly due to phased allocations or financial adjustments.

Madhya Pradesh, Rajasthan, and Bihar also recorded notable increases in funding over the years. Madhya Pradesh, in particular, showed steady growth, with allocations crossing ₹2500 crore during 2022–23 and 2023–24, indicating sustained investment in strengthening

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public health infrastructure. States such as Assam, Odisha, and Jharkhand demonstrated moderate but steady growth, suggesting balanced allocation strategies based on regional demands. In contrast, Uttarakhand consistently received relatively lower allocations, mainly due to its smaller population size.

In the North Eastern Region (NER), funding patterns indicate targeted support to geographically challenging and remote states. Arunachal Pradesh showed significant growth, with releases increasing from ₹79.33 crore in 2013–14 to over ₹400 crore in 2023–24, highlighting focused investments in improving healthcare accessibility and infrastructure.

Similarly, Meghalaya and Tripura exhibited steady growth trends throughout the period, reflecting continuous support for health system strengthening. On the other hand, Sikkim maintained comparatively lower allocations, consistent with its smaller population and relatively lower healthcare burden. States such as Manipur, Nagaland, and Mizoram showed moderate year-to-year variations, suggesting flexible funding approaches tailored to specific programmatic and regional requirement.

Table 11: Sex Ratio at Birth 2014 to 2024

Sl No.	State	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
EAG											
1	Assam	902	885	888	921	904	903	956	863	933	960
2	Bihar	868	870	837	0	0	0	964	908	891	900
3	Chhattisgarh	934	938	980	968	934	931	940	949	965	960
4	Jharkhand	886	879	863	0	0	0	948	955	925	899
5	Madhya Pradesh	908	904	909	0	902	905	921	934	921	948
6	Odisha	880	866	858	930	928	947	941	933	937	926
7	Rajasthan	799	794	806	931	949	916	952	905	933	945
8	Uttar Pradesh	881	877	885	0	0	0	0	995	945	926
9	Uttarakhand	865	862	825	929	956	960	954	975	933	926
NER											
1	Arunachal Pradesh	993	895	964	1047	1084	1024	1011	997	1036	1085
2	Manipur	684	686	0	0	757	934	880	974	922	924
3	Meghalaya	968	975	0	937	942	927	922	960	972	956
4	Mizoram	963	973	964	964	964	975	954	958	959	911
5	Nagaland	860	897	967	948	965	1001	953	962	1068	1007
6	Sikkim	968	973	999	0	0	0	0	0	0	0

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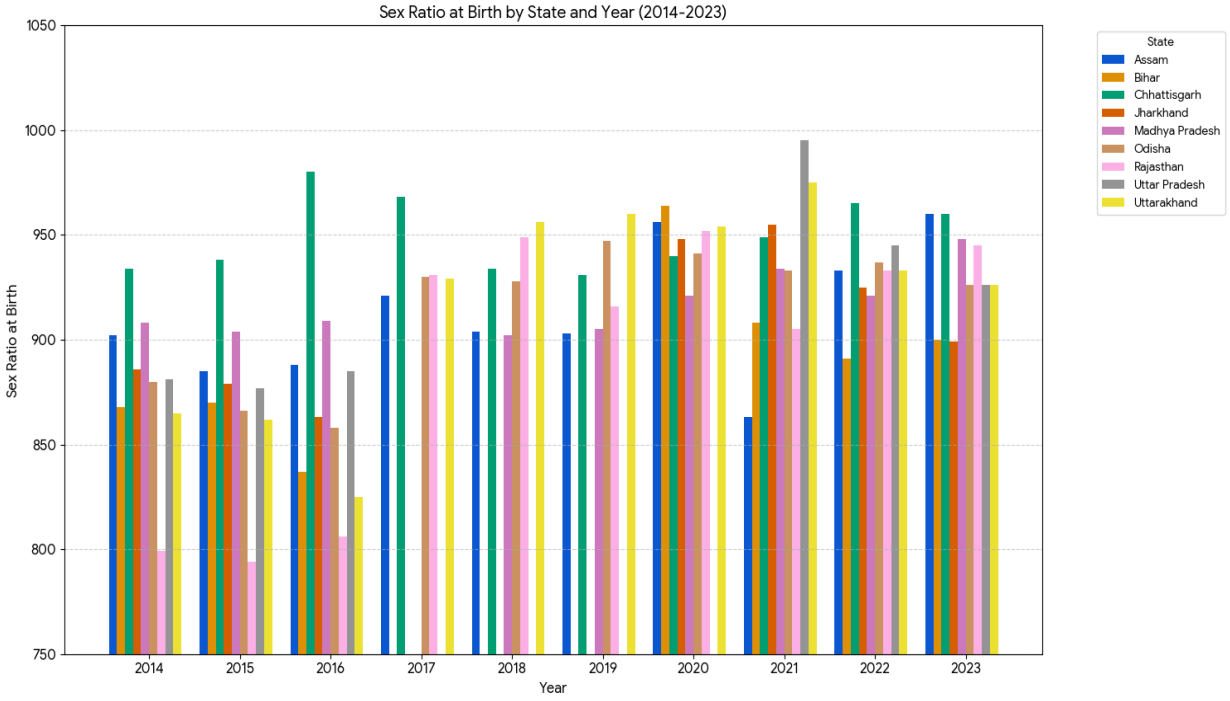
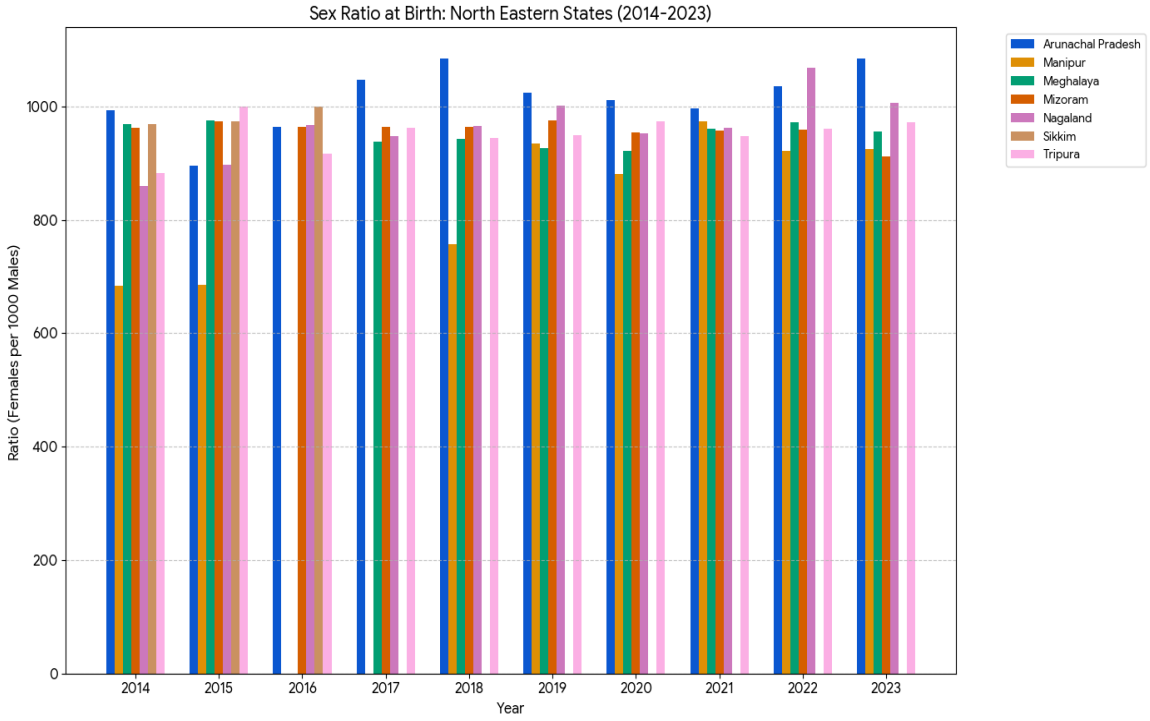
7	Tripura	882	1000	917	962	945	949	974	948	960	972

Source: Vital Statistics of India based on the Civil Registration System for the year 2023.

Chart: 11 & 12





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The comparative analysis of trends across EAG (Empowered Action Group) and NER (North Eastern Region**)** states during 2014–2023 highlights clear differences in performance levels, continuity, and recovery patterns. Among the EAG states, several states experienced temporary zero reporting years, particularly Bihar, Jharkhand, and Uttar Pradesh, indicating interruptions in data availability or implementation during the mid-period years. Despite these gaps, most EAG states demonstrated recovery and improvement after 2020**,** with Chhattisgarh, Rajasthan, and Madhya Pradesh showing steady progress and relatively strong performance in recent years**.** Assam and Uttarakhand maintained consistent moderate-to-high values throughout the period, while Odisha remained stable with minor fluctuations. Overall, EAG states displayed a pattern of initial variability followed by gradual stabilization and improvement in later years.

In contrast, NER states exhibited comparatively higher values and stronger consistency across the years, although a few states also showed temporary zero values in certain periods**.** Arunachal Pradesh consistently remained the highest-performing state, recording values above 1000 in multiple years, indicating sustained strong performance. Nagaland and Tripura demonstrated steady growth and stable performance across the period, while Meghalaya and Mizoram maintained relatively consistent trends with limited variation. Manipur showed significant long-term improvement from lower initial values to stable performance levels in recent years. However, Sikkim reported values only in the initial years, followed by zero values, limiting long-term comparative analysis.

Overall, the comparative assessment suggests that while EAG states experienced greater variability and interruptions during the middle years, they showed notable recovery and improvement in the later period. NER states, on the other hand, maintained relatively higher and more stable performance throughout the decade. The post-2020 period reflects a broader upward trend across both regions, indicating strengthened reporting mechanisms, improved program implementation, and enhanced institutional capacity, while emphasizing the need for consistent data continuity to ensure reliable long-term monitoring.

Conclusion

The analysis of vital statistics and health indicators clearly demonstrates India’s steady progress in demographic transition, characterized by declining mortality, rising life expectancy,

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and gradual improvements in maternal and child health outcomes. Despite these achievements, notable regional disparities persist, particularly in the Empowered Action Group (EAG) and North Eastern Region (NER) states, where higher fertility, infant mortality, and maternal health challenges continue to demand focused attention.

The observed trends in central releases under the National Health Mission (NHM) reflect sustained governmental commitment toward strengthening healthcare delivery systems, especially in high-priority and geographically challenging regions. Increased financial support to states with larger populations and greater health burdens indicates a targeted approach aimed at reducing regional imbalances and improving healthcare accessibility.

Overall, strengthening the quality, completeness, and utilization of vital statistics systems such as CRS, SRS, and NFHS remains essential for evidence-based planning and effective policy formulation. Continued investment in public health infrastructure, maternal and child health services, and rural healthcare delivery will be crucial for reducing inequalities, enhancing population health outcomes, and achieving national and global development goals, including the Sustainable Development Goals (SDGs) and the vision of Viksit Bharat 2047.

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