Kristu Jayanti Journal of Management Sciences **e - ISSN: 2583 - 6080**

2(1), June 2023, 1-13

FERTILITY TRANSITION IN INDIA: AN ANALYSIS

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Abstract

Every government's first responsibility is to ensure the provision of public health services, and as a result, the government has taken action to maintain public health by opening health centres, hospitals, and mobile hospitals as well as by planning large-scale health awareness campaigns. In this essay, the patterns and trends in India's infant and child mortality rates and fertility rate from 1951 to 2023 are examined. the Directorate of Economics and Statistics, Ministry of Home Affairs, Government of India, Vital Statistics Division, books, journals, RBI bulletins, theses, and websites; and the Directorate of Economics and Statistics.

According to the data, India had a death rate of 27.584 per 1000 people in 1951, a 2.050 percent decrease from 1950. India currently has a death rate of 7.416 per 1000 people in 2023, a 0.490 percent decrease from 2022. Similar to this, India had a 1951 infant mortality rate of 186.737 deaths per 1000 live births, a 1.530 percent decrease from 1950. India's infant mortality rate in 2023 is projected to be 26.619 deaths per 1000 live births, a 3.89 percent decrease from 2022. 5.906 babies per woman are delivered in India in 1951, a 0.020 percent decrease from 1950. In India, there will be 2.139 births per woman in 2023, a 0.93 percent decrease from 2022. India's fertility rate fell by 0.92 percent from 2021 to 2022, to 2.159 births per woman. According to the study, between 1950 and 2023, India's mortality and infant mortality rates rose at compound annual growth rates of 6.44 percent and 7.25 percent, respectively, as did its fertility rate. The trend coefficients, which are positive and significant at a 5 percent level, suggest that India's death rate, infant mortality rate, and fertility rate have all increased between 1950 and 2023. The trend coefficient for India's death rate, infant mortality rate, and fertility rate from 1950 to 2023 is 0.077, whereas it is 0.072 for the number of fertility rates. In India, there has been a general decline in death rates throughout time.

Keywords: Public health, infant mortality, life expectancy, inequalities and disparities, deaths statistics.

INTRODUCTION

The number of underweight and stunted children has dropped during the previous ten years, neonatal and child mortality rates have fallen, and the average life expectancy has grown. Between 2001 and 2011, the proportion of people in developing nations whose life expectancy at birth was less than sixty percent decreased from 18 percent to 7 percent (Amutha, D., 2014). A fundamental task of public health is the monitoring and assessment of population health. Martiner (2013). In the second part of the nineteenth century, when plague epidemics ravaged India, the epidemiological need for mortality data became apparent (Amutha, D., 2022). The COVID-19 Pandemic has once more shown the value of mortality surveillance (Amutha, D., 2021).

India also exhibits significant health inequities and disparities in health status, which affect the death rates of vulnerable groups including mothers and children. At the national and sub-national levels, these disparities have an impact on the population (Ahmad Malik M, Naaz Akhtar S., 2021). Low investment in rural health infrastructure causes management issues, a lack of a committed cadre of health workers, and inadequate training of healthcare professionals, all of which contribute to poor health services generally (Dr.D.Amutha, 2018). Data on births, infant mortality, and deaths for the year 2020 have been published in the SRS Bulletin's most recent report on causes of deaths statistics for the years 2016–18, 2017–19, and 2020, respectively (SRS Bulletin, 2019). Only 19% of estimated deaths in 2019 had a medically certified cause of death (MCCD), despite the fact that 93% of estimated deaths were reported to the authorities (Vital Statistics Division, 2019).

Despite being recorded for the remaining deaths, the causes of death as reported by the deceased's family members are not disclosed in the annual reports. The figures on mortality vary greatly by state. The percentage of deaths that are registered ranges from 28 to 100 percent, while the percentage of MCCDs varies from 3 to 100 percent. The rise in MCCD during this time period was modest (2.3%) even though the completeness of death registration grew at an average rate of roughly 4% per year from 2010 to 2019. (Pandey AK et al., 2019). Only 19% of estimated deaths had an MCCD, according to the SRS report for the year 2019 (http://censusindia.gov.in/census.website/data/mccdrep), whereas 48.7% of deaths were treated prior to death at public or private hospitals. A substitute for actual

population health is infant mortality. There may be a link between infant mortality causes and elements that have the potential to affect public health as a whole (Joy Crevoiserat, Jamie Kim; 2014).

In India, there are numerous factors that contribute to maternal and new-born deaths. A country's socioeconomic progress can be well predicted by looking at its infant mortality rate. India is experiencing serious infant mortality-related issues. The data showed that the world's highest neonatal death rate (43 per 1000 live births) exists (UNICEF, 2008). India is responsible for one-fifth of live births worldwide and more than a quarter of neonatal mortality. In India, where 65.4% of births overall and 75.3% of births in rural areas occur at home, a quarter of the world's neonatal mortality (one million) per year occur (NFHS-3, 2007). Despite the subject's importance, it should be noted that there is no information available regarding the specifics of the causes of deaths (Rohini Ghosh, 2012). The patterns of new-born and child mortality do differ between urban and rural settings (Y. Ebenezer & Dr.D.Amutha, 2018). In rural areas, there is a substantial correlation between the death rates of women and men, whereas in metropolitan areas, there is only a weak correlation (Agnihotri, 2001). IMR drop in urban regions is significantly less pronounced than in rural areas over the past ten years, reducing the gap between the two (Census of India) (2013). The study examines the pattern and increase in fertility and death rates in India from 1950 to 2023.

REVIEW OF LITERATURE

Agnihotri (2001) claimed that decreasing baby and child death rates are certain signs of growth. However, if the girl children are denied access to the improved health infrastructure and nutritional support, then these may not equally benefit male and female children. A reliable indicator of discrimination against girl children is the ensuing gender gap in mortality. Male mortality rates drop more quickly as death levels decline, according to analysis of time series data on infant and child mortality of important Indian states.

According to Sakthi Padhi (2001), the degree of economic development, the rate of economic growth, or material wealth are not the only factors affecting infant and child mortality. Proximate factors that directly affect infant and child mortality are such that they cannot be

changed by changes in income and purchasing power alone and are outside the purview of the market.

Bhalotra (2008) examined the effects of generalised income shocks on newborn mortality in India and looked into potential explanations. In order to avoid some of the specification issues in earlier research, this study employs data and methodologies designed to do so. It also examines previously unconsidered processes and extensions.

OBJECTIVES OF THE STUDY

The following goals are part of the study:

1. To study the number of death rate and infant mortality rate from 1950 to 2023 in India.
2. To acquire the trend and growth of fertility rate for India in 1951 to 2023.

METHODOLOGY

Secondary data serves as the sole basis for this paper. the Directorate of Economics and Statistics, Ministry of Home Affairs, Government of India, Vital Statistics Division, books, journals, RBI bulletins, theses, and websites; and the Directorate of Economics and Statistics. The research used a variety of methodologies, including percentage analysis, compound growth rate, trend analysis, and coefficient of variation.

DISCUSSION

A table showing the infant mortality rate and death rate in India from 1950 to 2023 is displayed.

TABLE 1: DEATH RATE AND INFANT MORTALITY RATE IN INDIA

Year	Death Rate	Growth Rate	Infant Mortality Rate	Growth Rate
1950	28.161	0.000%	189.629	0.000%
1951	27.584	-2.050%	186.737	-1.530%
1952	27.008	-2.090%	183.846	-1.550%
1953	26.432	-2.130%	180.954	-1.570%
1954	25.856	-2.180%	178.062	-1.600%
1955	25.280	-2.230%	175.171	-1.620%

1956	24.703	-2.280%	172.279	-1.650%
1957	24.127	-2.330%	169.388	-1.680%
1958	23.551	-2.390%	166.496	-1.710%
1959	23.016	-2.270%	164.119	-1.430%
1960	22.481	-2.320%	161.742	-1.450%
1961	21.946	-2.380%	159.366	-1.470%
1962	21.411	-2.440%	156.989	-1.490%
1963	20.876	-2.500%	154.612	-1.510%
1964	20.374	-2.400%	152.851	-1.140%
1965	19.873	-2.460%	151.091	-1.150%
1966	19.371	-2.530%	149.330	-1.170%
1967	18.870	-2.590%	147.570	-1.180%
1968	18.368	-2.660%	145.809	-1.190%
1969	17.911	-2.490%	143.815	-1.370%
1970	17.454	-2.550%	141.822	-1.390%
1971	16.997	-2.620%	139.828	-1.410%
1972	16.540	-2.690%	137.835	-1.430%
1973	16.083	-2.760%	135.841	-1.450%
1974	15.676	-2.530%	132.832	-2.220%
1975	15.269	-2.600%	129.824	-2.260%
1976	14.862	-2.670%	126.815	-2.320%
1977	14.455	-2.740%	123.807	-2.370%
1978	14.048	-2.820%	120.798	-2.430%
1979	13.773	-1.960%	117.771	-2.510%
1980	13.498	-2.000%	114.743	-2.570%
1981	13.223	-2.040%	111.716	-2.640%
1982	12.948	-2.080%	108.688	-2.710%
1983	12.673	-2.120%	105.661	-2.790%
1984	12.451	-1.750%	103.178	-2.350%
1985	12.229	-1.780%	100.695	-2.410%
1986	12.008	-1.810%	98.213	-2.460%

1987	11.786	-1.850%	95.730	-2.530%
1988	11.564	-1.880%	93.247	-2.590%
1989	11.286	-2.400%	91.019	-2.390%
1990	11.007	-2.470%	88.791	-2.450%
1991	10.729	-2.530%	86.564	-2.510%
1992	10.450	-2.600%	84.336	-2.570%
1993	10.172	-2.660%	82.108	-2.640%
1994	9.956	-2.120%	79.936	-2.650%
1995	9.739	-2.180%	77.764	-2.720%
1996	9.523	-2.220%	75.591	-2.790%
1997	9.306	-2.280%	73.419	-2.870%
1998	9.090	-2.320%	71.247	-2.960%
1999	8.947	-1.570%	68.988	-3.170%
2000	8.804	-1.600%	66.729	-3.270%
2001	8.661	-1.620%	64.471	-3.380%
2002	8.518	-1.650%	62.212	-3.500%
2003	8.375	-1.680%	59.953	-3.630%
2004	8.261	-1.360%	57.854	-3.500%
2005	8.147	-1.380%	55.755	-3.630%
2006	8.034	-1.390%	53.655	-3.770%
2007	7.920	-1.420%	51.556	-3.910%
2008	7.806	-1.440%	49.457	-4.070%
2009	7.697	-1.400%	47.382	-4.200%
2010	7.589	-1.400%	45.307	-4.380%
2011	7.480	-1.440%	43.232	-4.580%
2012	7.372	-1.440%	41.157	-4.800%
2013	7.263	-1.480%	39.082	-5.040%
2014	7.258	-0.070%	37.666	-3.620%
2015	7.253	-0.070%	36.249	-3.760%
2016	7.247	-0.080%	34.833	-3.910%
2017	7.242	-0.070%	33.416	-4.070%

2018	7.237	-0.070%	32.000	-4.240%
2019	7.273	0.500%	30.924	-3.360%
2020	7.309	0.490%	29.848	-3.480%
2021	7.344	0.480%	28.771	-3.610%
2022	7.380	0.490%	27.695	-3.740%
2023	7.416	0.490%	26.619	-3.890%

Source: Sample Registration System

The infant mortality rate and death rate in India from 1950 to 2023 are shown in a table 1. India had a death rate of 27.584 per 1000 people in 1951, a 2.050 percent decrease from 1950. India currently has a death rate of 7.416 per 1000 people in 2023, a 0.490 percent decrease from 2022. Similar to this, India had a 1951 infant mortality rate of 186.737 deaths per 1000 live births, a 1.530 percent decrease from 1950. India's infant mortality rate in 2023 is projected to be 26.619 deaths per 1000 live births, a 3.89 percent decrease from 2022. India had a 27.695 infant mortality rate in 2022, which was a 3.74 percent decrease from 2021 (deaths per 1000 live births). 2021 saw a 3.61 percent decrease from 2020 in India's infant mortality rate, which was 28.771 deaths for per 1000 live births. In 2020, India's infant mortality rate was 29.848 deaths per 1000 live births, a 3.48 percent decrease from 2019. Table 2 showing the fertility rate in India from 1950 to 2023.

TABLE 2: FERTILITY RATE IN INDIA

Year	Fertility Rate	Growth Rate
1950	5.907	0.000%
1951	5.906	-0.020%
1952	5.904	-0.030%
1953	5.903	-0.020%
1954	5.902	-0.020%
1955	5.900	-0.030%
1956	5.899	-0.020%
1957	5.897	-0.030%
1958	5.896	-0.020%

1959	5.895	-0.020%
1960	5.894	-0.020%
1961	5.892	-0.030%
1962	5.891	-0.020%
1963	5.890	-0.020%
1964	5.857	-0.560%
1965	5.823	-0.580%
1966	5.790	-0.570%
1967	5.756	-0.590%
1968	5.723	-0.570%
1969	5.660	-1.100%
1970	5.598	-1.100%
1971	5.535	-1.130%
1972	5.473	-1.120%
1973	5.410	-1.150%
1974	5.323	-1.610%
1975	5.236	-1.630%
1976	5.148	-1.680%
1977	5.061	-1.690%
1978	4.974	-1.720%
1979	4.916	-1.170%
1980	4.857	-1.200%
1981	4.799	-1.190%
1982	4.740	-1.230%
1983	4.682	-1.220%
1984	4.599	-1.770%
1985	4.516	-1.800%
1986	4.432	-1.860%
1987	4.349	-1.870%
1988	4.266	-1.910%
1989	4.179	-2.040%

1990	4.093	-2.060%
1991	4.006	-2.130%
1992	3.920	-2.150%
1993	3.833	-2.220%
1994	3.763	-1.830%
1995	3.693	-1.860%
1996	3.623	-1.900%
1997	3.553	-1.930%
1998	3.483	-1.970%
1999	3.414	-1.980%
2000	3.346	-1.990%
2001	3.277	-2.060%
2002	3.209	-2.080%
2003	3.140	-2.150%
2004	3.071	-2.200%
2005	3.002	-2.250%
2006	2.934	-2.270%
2007	2.865	-2.350%
2008	2.796	-2.410%
2009	2.716	-2.860%
2010	2.636	-2.950%
2011	2.556	-3.030%
2012	2.476	-3.130%
2013	2.396	-3.230%
2014	2.365	-1.290%
2015	2.334	-1.310%
2016	2.302	-1.370%
2017	2.271	-1.350%
2018	2.240	-1.370%
2019	2.220	-0.890%
2020	2.200	-0.900%

2021	2.179	-0.950%
2022	2.159	-0.920%
2023	2.139	-0.930%

Source: Sample Registration System

In 1951, India had 5.906 births per woman, which is a 0.020 percent decrease from 1950. 2.139 births per woman are expected in India in 2023, which is a 0.93 percent decrease from 2022. In India, there were 2.159 births per woman in 2022, a 0.92 percent decrease from 2021. In India, there were 2.179 births per woman in 2021, a 0.95 percent decrease from 2020. India's fertility rate fell by 0.9 percent from 2019 to 2.200 births per woman in 2020. Table 3 displays the findings of the analysis and provides data on India's overall death rate, infant mortality rate, and fertility rate from 1950 to 2023.

TABLE 3: TREND AND GROWTH OF DEATH RATE, INFANT MORTALITY RATE AND FERTILITY RATE FROM 1950 TO 2023 IN INDIA

Particulars	**Trend Coefficients**		**R^2**	**CGR (percentage)**
	a	**b**		
Death and Infant Mortality Rate	8.24	0.077* (15.53)	0.72	6.44
Fertility Rate	8.11	0.072* (18.09)	0.86	7.25

* Significant at 5 per cent level.

Note: CGR = Compound Growth Rate

Figures in parentheses indicate t-values.

In India, there have been rises in the death rate, infant mortality rate, and fertility rate between 1950 and 2023, with rates of compound growth of 6.44 percent and 7.25 percent, respectively. The trend coefficients, which are positive and significant at a 5 percent level, suggest that India's death rate, infant mortality rate, and fertility rate have all increased between 1950 and 2023. The trend coefficient for India's death rate, infant mortality rate, and fertility rate from 1950 to 2023 is 0.077, whereas it is 0.072 for the number of fertility rates.

CONCLUSION

In India, there has been a general decline in death rates throughout time. Female death rates have decreased significantly across the board for all states, demonstrating the effectiveness of public health efforts to lower under-five mortality rates. However, there is still a lot that can be done to reduce mortality rates for other component age groups in all states. Countries and the entire world continue to place a high priority on infant health. The health of the population of infants and children should continue to be a priority for national and local governments, NGOs, civil society organisations, and the general public. Continuous efforts should be made to raise standards of living, access to high-quality healthcare, education, human security and rights, improve environments, and eliminate risk factors and other health-related variables. The objective is to quicken India's reform process by using a different approach. India continues to lower infant and child mortality. India's future ability to reduce new-born and child mortality will largely depend on the performance of its underperforming states and the strategy it uses to do it.

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