



A study of diseases and deaths in colonial Bihar in twentieth century

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Abstract

Death is an inescapable fact of life, yet its causes have never been consistent. In the modern era, epidemics have been a significant source of death worldwide. This article attempts to analyze the role of numerous diseases in the deaths in the Bihar province during colonial rule. An attempt has been made to comprehend the spread of innumerable diseases in Bihar throughout the period offered. In addition, the paper tries to investigate numerous questions, such as the trend and pattern of these epidemics in colonial Bihar. What effect did they have on the death rate in Bihar during the reference period? What factors contributed to the spread of these epidemics? What connected these factors and Bihar's socioeconomic realities and colonial rule? How did these diseases affect rural and urban areas differently? Along with this, it attempts to determine what the then health—related infrastructure was in the context of epidemic prevention, what the colonial policy change was in this context, and to what extent it was sufficient.

Keywords Bihar · Epidemics · Deaths · Colonialism

1 Introduction

During the colonial period, Bihar saw many deaths due to different diseases. According to the Annual Administrative Report for Bihar & Orissa 1935–1936, Bihar witnessed the third highest death rate in the country after the Central Provinces and Bombay (Narayan, 1938, p. 68). As a result of the significant number of fatalities in Bihar, the growth in population in various censuses remained almost moderate from 1891 to 1951. Population growth rates were 0.2% in 1901 compared to 1891, 3.9% in 1911 compared to 1901, and a negative 1.1% in 1921 compared to 1911, 12.2% in 1941 compared to 1931, and 10.8% in 1951 compared to 1941 (Prasad, 1956, pp. 14–15). As far as the death rate in Bihar is concerned, it was highest in 1919 at 56.7, 40 in 1920, and between 25 to 30 in practically all other years. This figure is slightly lower than the all-India average of 34.9 in

1921–1930, 33.2 in 1931–1940, and 32.4 in 1941–1950, but it is still high compared to other states. Table 1 shows the death rate in Bihar during 1918–1936.¹

Regarding the causes of large-scale deaths, there is no doubt that epidemics played a significant role apart from floods, famines, earthquakes, and other factors. Among these epidemics, cholera, smallpox, plague, malaria, and kala-azar, which fall under the broad umbrella of fever, have been significant, substantially raising the death toll during this period. For instance, the people of Bihar died in the first decade of the twentieth century due to famines and plague. Similarly, influenza in the second decade of the twentieth century fuelled the tally of fatalities in the state. Smallpox caused many deaths in the 1920s. Tables 2 and 3 helps to understand the contributions of different diseases to the deaths in Bihar during the colonial period.²

It is important to note that much work has been done on these diseases from a scientific and medical standpoint. Still, there is a shortage of necessary studies on epidemics and their socioeconomic implications in historiography. Older British historians, like L. C. Knowles, Vera Anstey,

¹ Census of India 1951 (Vol. V, Part 1). Patna, Bihar: Govt. Press, 1956.

² Bihar State Archive, *Report on the Administration for the Province of Bihar and Orissa 1913–1936*, Patna Superintendent, Government Printing.

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Table 1 The death rate in Bihar during the period 1918–1936

Year	Death rate
1918	35.2
1919	56.7
1920	40
1921	30.9
1922	24.07
1923	25
1924	29.1
1925	23.9
1926	25.2
1927	25.2
1928	24.9
1929	25.3
1930	29.6
1931	29.2
1932	26.6
1933	20.6
1934	22.1
1935	26
1936	25.1

Table 2 Mortality per mille from different diseases in the Province of Bihar and Orissa

Year	Cholera	smallpox	Plague	fever
1913	2.24	0.06	1.7	18.8
1914	2.05	0.11	1.7	18.18
1915	0.9	0.2	1.8	17.7
1916	2.5	0.4	0.7	21.5
1917	2.6	0.3	0.7	21.5
1918	3.1	0.1	1.7	22.5
1919	5.9	0.11	0.7	40
1920	0.3	0.2	0.4	28.1
1921	0.7	0.6	0.5	22
1922	2.5	0.2	0.4	21.5
1923	0.2	0.2	0.4	22
1924	2.5	0.2	0.4	17.7
1925	2.5	0.2	0.3	16.6
1926	2.2	0.4	0.2	16.4
1927	2.5	0.2	0.3	16.6
1928	1.4	1	0.2	16.14
1929	2.2	0.4	0.2	16.6
1930	3	0.2	0.2	17.7
1931	4.4	0.2	0.2	18.6
1932	4.4	0.2	0.3	17.7
1933	0.2	0.4	0.09	15
1934	0.5	1.1	0.04	15.2
1935	1.5	0.8	0.1	17.8
1936	1.7	0.6	0.07	17.6
1937	0.2	0.6	0.04	17.3

Data were not available for all the years. The Cells highlighted (bold) contains Data imputed using KNN algorithm (using R programme)

In this paper, *Mille* is used *per thousand*. Primary Sources referred to in this paper uses the term *mille* to represent *per thousand*

Table 3 Cholera mortality in British India

Period (quinquennial)	Annual Cholera Mortality in British India (excluding Burma)
1877–1881	288,949
1882–1886	286,105
1887–1891	400,934
1892–1896	443,890
1897–1901	383,294
1902–1906	367,107
1907–1911	397,127
1912–1916	328,593
1917–1921	392,070
1922–1926	143,890
1927–1931	297,756
1932–1936	140,440
1937–1941	147,423

Reginald Coupland, Philip Woodruff, and others, thought that the "main cause of Indian poverty" and of the British failure to revolutionize standards of living was "the rising flood of human beings." Traditional studies of mortality have tended to focus primarily on historical trends. At a time when there is considerable control over death, there is much interest in the existence of mortality differences among different population subgroups, such as rural–urban areas, occupational classes, educational levels, and income groups (Nagi & Stockwell, 1973). Changes are recorded in history, but historians' attention to epidemics and the resulting demographic and other socioeconomic shifts has been relatively limited compared to other subject matter. There is a shift in historiography in which historians worldwide have begun to include these subjects in their research and study. Mark Harrison investigates the clinical aspects of plague and the social, political, and psychological dimensions. He has studied public health in British India in his works. In *A Global History of Medicine*, Mark Jackson traces the history of medicine across continents and countries from ancient to modern times. In *Ourselves Unborn*, Sara Dubow gives a multidisciplinary account of the human fetus. J. C. McKeown, in his work, introduces readers to ancient un-translated Greek and Roman medical texts (McKeown, 2017). Ira Klein also attempted to analyze the deaths due to pandemics in the nineteenth and twentieth centuries in India and concluded that modern economic conditions, especially poverty and population pressure, were the causes of widespread epidemic outbreaks and rapid mortality (Klein, 1973). In *A Beginner's Guide to Death and Disease*, Christopher Bradbury gives a theory about death and suggests that diseases are merely a vehicle in which we move towards death (Bradbury, 2016).

In the nineteenth and twentieth centuries, Chinmay Tumbe studied the demographic disasters resulting from



pandemics like cholera, the plague, and influenza. He emphasized that this period was known for industrialization, colonialism, imperialism, and global wars and for devastating diseases, pandemics, and innumerable lives lost (Tumbe, 2020a, 2020b). Certain historians have researched the disease and its implications in India using various sources. These sources include government and church records detailing their actions, witness testimony to those actions, and the writings of various "authorities" whose explanations of the etiology carried contemporary weight, whether they spoke for religion, morality, "medicine," or folk belief. The experiences of the victims themselves have been recovered on occasion, allowing us to tell the story of an epidemic from "below." Whose perception of the pandemic is, without a doubt, an element of the question "How was the epidemic perceived?" For example, in the 1830s, medical and political elites were confused by cholera, but some poor city dwellers felt that their governments were poisoning them due to Malthusian concerns about overpopulation (Little & Little, 2006).

However, India is a heterogeneous country with various socioeconomic status levels, climatic zones, and many other differences. In a country like India, there is a need for micro-level studies to comprehend these diseases and their consequences fully. Keeping this need and perspective in mind, this study investigates several diseases in Bihar throughout the colonial period, their resulting mortality, and the socioeconomic context in which they occurred.

2 Cholera

Although accounts of diseases with cholera like symptoms date back to the fifth Century BCE., medical researchers establish that cholera was widespread in India throughout the seventeenth and eighteenth centuries. According to microbiology, cholera is caused by *Vibrio cholerae*, which enters the body through contaminated water or food. The presence of bacteria in the small intestine induces diarrhea and vomiting. The resulting dehydration causes several unique symptoms. The victim is fully mindful of the anguish until the end. The blood gets thick and tar like when the water concentration in the bloodstream falls. Capillaries burst, causing the skin to turn blue. The heart rate becomes erratic, and the limbs shrink as they become dehydrated. However, the neurological system stays intact until the end, allowing the victim to be completely conscious of the pain. Without treatment, mortality happens within days, if not hours, of the onset of symptoms (Sherman, 2007). Cholera can be endemic or epidemic. A cholera endemic area is one where confirmed cholera cases have been detected during the last 3 years with evidence of local transmission (meaning the cases are not imported from elsewhere). A cholera outbreak/epidemic can

occur in both endemic countries and countries where cholera does not regularly happen (WHO, *Cholera*).³

In the late nineteenth and early twentieth centuries, cholera claimed about 5% of all lives in British India. While cholera was more prevalent in Bengal than in most other parts of India, it also varied within the state (Tumbe, 2020a, 2020b).

Evidence of cholera in colonial India dates back to the second half of the eighteenth century as Ricky's Bengal Gazette of 22nd April 1781 speaks about an outbreak in Calcutta.⁴ But as far as the epidemic form of this disease is concerned, its beginning is considered from 1817 in Jessore.

Cholera prevalence varies by province, with Madras, Bengal, Bihar, and the Central provinces being the most impacted, followed to a lesser extent by Orissa and the United Provinces.⁵ Bihar suffered from more devastating cholera fatality rates than most other provinces. Partly because the environmental conditions were conducive to disease transmission for many months of the year, population density in Bihar also served an impact and is a contributing factor.⁶ For instance, between 1910 and 1919, the percentage of the total deaths from cholera was 26 in Bengal, 26 in Bihar and Orissa, 18 in United provinces, and 16 in Madras Presidency.

A comparative study of mortality figures from cholera, district by district, from 1929 to 1935 further shows that cholera generally begins late in the summer in the districts of South Bihar and remains present until the advent of the winter months; however, the disease begins early in the summer months in the districts of North Bihar and dies out by the end of the monsoon period. A bad year happens every five or six years on average, with the peak severity of epidemics occurring in two different but consecutive years in South Bihar and North Bihar. In 1930, cholera was widespread in seven districts of South Bihar, Orissa, and Chota Nagpur. The year 1934 proved to be another disastrous

³ Bhore (1946). Report of the Health Survey and Development Committee.. (Vol. I) (India, Health Survey and Development Committee). Calcutta: Manager of publications.p. 112.

⁴ Census of India, 1911—Bengal, Bihar and Orissa and Sikkim; Pt.1, report (Vol. V) (India., Office of the Registrar General & Census Commissioner.). Calcutta: Bengal Secretariat Book Depot.1913, p. 97.

⁵ Bhore (1946). Report of the Health Survey and Development Committee.. (Vol. I) (India, Health Survey and Development Committee). Calcutta: Manager of publications, p. 112.

⁶ Bihar State Archive, *Report on the Administration for the Province of Bihar and Orissa 1924–1925*, Patna Superintendent, Government Printing, 1926, p. 123.



cholera year for the same districts, but North Bihar districts were significantly worse ravaged in 1935.⁷

The report on the spread of cholera and the mortality rate caused by it shows that the mortality rate from cholera (2.24 per million) in 1912–1913 was lower than the 5-year average. Darbhanga (7.07), Muzaffarpur (6.95), and Champaran (3.21) in the Tirhut Division were particularly hard hit. The fatality rate from cholera in 1913–1914 was significantly lower than the 10-year average (2.8).⁸ The disease broke out in epidemic form in Champaran, Muzaffarpur, Darbhanga, and Monghyr.⁹ Cholera death rates increased from 2.6 to 3.1 in 1917. This disease caused an outbreak in Patna, Gaya, Muzaffarpur, Champaran, Darbhanga, Monghyr, Purnea, and Hazaribagh.¹⁰ Cholera is said to have killed 205,584 people in 1918, or 5.9 per million.¹¹ More than half of all deaths occurred in Tirhut, with Darbhanga having the highest mortality rate. The rural mortality rate was 6.0, while the urban death rate was 4.1. The outbreak was severe, and the mortality rate only exceeded once in the last 40 years. No month of the year was free of cholera, although the severe outbreak began in March and peaked in May and June.¹² The province was the victim of the province's most widespread and lengthy cholera epidemic in many years in 1924, which lasted six months. However, the overall distribution of disinfectants and medications by civil surgeons and epidemic doctors and immunization and other preventative measures supported by a concerted anti-epidemic campaign saved many lives. In previous major outbreaks, recorded mortality ranged from 50,000 to 200,000, but only 78,998 deaths were reported in 1924.¹³

The following year was exceptionally healthy. 1926 can be marked as a calm year in terms of cholera, with 1.2 per mille urban deaths compared to 0.8 per mille deaths in rural areas, making combined mortality of 0.8 per mille which is well below the last 10 years' average i.e. 2.2 per mille.¹⁴ Early in April, a severe cholera outbreak occurred in the Purnea area. The infection was traced back to Nepal, where cholera had been reported in the Morang district, which borders Purnea.

There were only 18,818 deaths and two outbreaks in 1925–1926, one in Bhagalpur town in October and another in Purnea district from April to June.¹⁵ A major cholera epidemic erupted in the Shahabad and Monghyr districts in May and extended to Muzaffarpur, Darbhanga, Gaya, and Bhagalpur, accounting for 49,022 deaths throughout the province.¹⁶ Nonetheless, during the year, particular efforts were made to popularise anti-cholera immunizations, and the number of doses issued from the vaccine depot increased from 5790 to 38,566.¹⁷ The year 1928 was no less horrific, with a cholera death rate of 2.2 per million. A severe cholera epidemic hung over Gaya, Shahabad, Champaran, Darbhanga, and Muzaffarpur districts.¹⁸ The disease was rampant in 1929, also. Its virulence rose with the onset of the monsoon, and most mortality occurred in July.¹⁹ The cholera epidemic was extremely severe, resulting in nearly 150,000 deaths and a death rate of 4.4 per thousand, the highest since 1920.²⁰ This year's pandemic was severe in North and South Bihar areas and lasted throughout the winter in numerous districts. In 1932 there was some relief as the death rate from cholera declined to 0.2 per mille, less than one-fourth of the previous year.²¹ North Bihar saw a moderate epidemic at the end of the monsoon season in 1933. Cholera was severe in 1934, but its presence was

⁷ Public Health Commissioner India, *Annual Report of the Public Health Commissioner with the Government of India for 1935 (Vol. I)*. Delhi: Manager of Publication, 1937, p. 22.

⁸ Bihar State Archive (BSA), *Report on the Administration for the Province of Bihar and Orissa 1912–1913*, Patna Superintendent, Government Printing, 1913, p. 87.

⁹ Bihar State Archive (BSA), *Report on the Administration for the Province of Bihar and Orissa 1917–1918*, Patna Superintendent, Government Printing, 1917, p. 86.

¹⁰ Bihar State Archive, *Report on the Administration for the Province of Bihar and Orissa 1917–1918*, Patna Superintendent, Government Printing, 1917.

¹¹ Bihar State Archive, *Report on the Administration for the Province of Bihar and Orissa 1919–1920*, Patna Superintendent, Government Printing, 1920, p. 96.

¹² Sanitary Commissioner, *Annual Report of the Sanitary Commissioner with the Government of India for 1918: With appendices and return of sickness and mortality among European troops, Indian troops, and prisoners in India for the year*, Calcutta: Superintendent of Government Printing, 1920, p. 71.

¹³ Bihar State Archive, *Report on the Administration for the Province of Bihar and Orissa 1924–1925*, Patna Superintendent, Government Printing, 1926, p. 52.

¹⁴ *Annual public health report of the province of Bihar and Orissa for the year 1926*. Patna: Supt., Govt. Print., Bihar and Orissa, 1926, p. 4.

¹⁵ Bihar State Archive, *Bihar and Orissa in 1925–1926*. Patna: Supt., Govt. Print., Bihar and Orissa, 1927.

¹⁶ Bihar State Archive, *Report on the Administration for the Province of Bihar and Orissa 1927–1928*, Patna Superintendent, Government Printing, 1929.

¹⁷ Bihar State Archive, *Report on the Administration for the Province of Bihar and Orissa 1927–1928*, Patna Superintendent, Government Printing, 1929.

¹⁸ Bihar State Archive, *Bihar and Orissa in 1928–1929*, Patna: Superintendent, Government Printing, Bihar and Orissa, 1930, p. 49.

¹⁹ Bihar State Archive, *Bihar and Orissa in 1929–1930*, Patna, Bihar: Superintendent Government Printing, 1931, p. 49.

²⁰ Bihar State Archive, *Bihar and Orissa in 1930–1931*, Patna, Bihar: Superintendent Government Printing, 1932, p. 54.

²¹ Bihar State Archive, *Bihar and Orissa in 1932–1933*, Patna, Bihar: Superintendent Government Printing, 1934, p. 54.



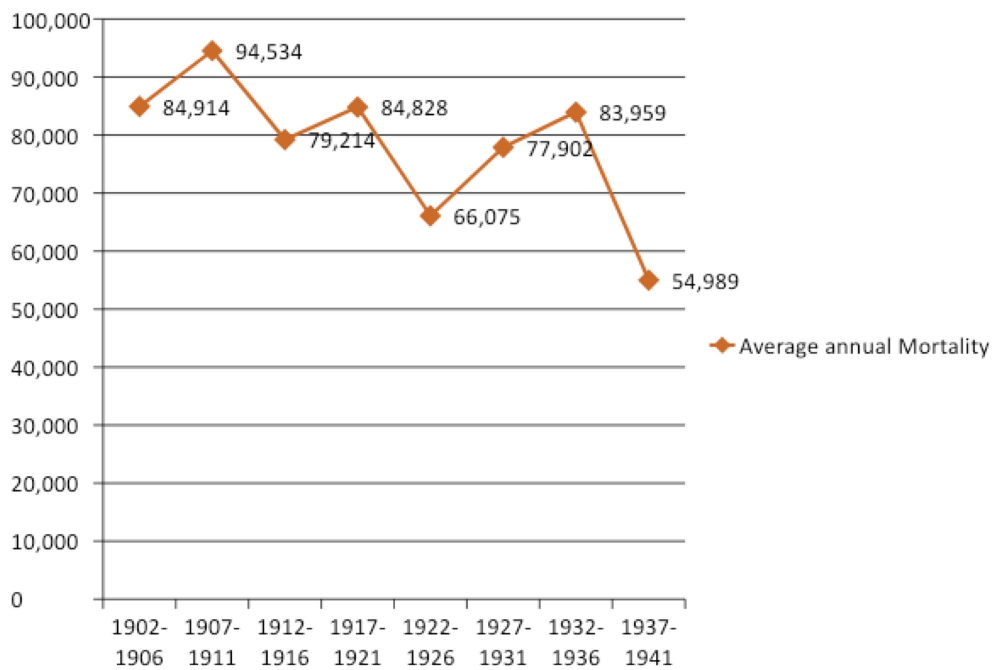


Fig. 1 Average Annual Number of Deaths from Smallpox in British India, excluding Burma (1902–1941)

felt in Orissa. The scourge was fewer in North Bihar, possibly because of the tremendous public health precautions taken due to the earthquake. Yet, many people succumbed to this sickness during the rains in Champaran and elsewhere.²² Cholera struck again in 1935, killing 68,876 people, compared to 57,289 the previous year. Cholera spread in practically all districts of the province in July, owing to ideal meteorological circumstances, and reached epidemic proportions in the districts of North Bihar.²³ The year 1936 was relatively mild for cholera. Manbhum, Santhal Pargana, Shahabad, and Hazaribagh were the worst-affected districts.²⁴

3 Smallpox

British physicians recognized smallpox as one of nineteenth-century India's widespread and destructive epidemic diseases. Smallpox, the "scourge of India," is said to have

killed more people than "all other diseases combined," with its "tenacity and malignity" making it "one of the most violent and severe diseases to which the human race is prone" (Arnold, 1993). Smallpox (*Variola major*), an acute infectious viral illness, causes an intense, burning fever and numerous skin eruptions and pustules that practically cover the entire body in their most severe, confluent forms. These eruptions are most common on the face and limbs. A third or more of those who got smallpox died within two weeks of the first signs of the sickness. In those who survived, sight in one or both eyes was likely to be decreased or lost due to corneal ulcers, as their features changed into pockmarked lunar landscapes. Some sources say smallpox was responsible for three-quarters of all blindness in India. Smallpox was related to a deity known as *Śitalā* in general but fondly referred to as *Mātā*, "mother," throughout northern India, from Sind and Gujarat in the west to Bengal, Assam, and Orissa in the east. In Bengal, she was known as *Basanta* or *Basantacandī* (spring goddess), and the illness was known as *Basantaroga* (spring disease), named after the season when smallpox was most prevalent, and the goddess was most widely revered. *Śitalā* does not appear in the ancient Hindu pantheon, and she was most likely a folk divinity whose recognition in Brahminical Hinduism came slowly and in parts. Smallpox is one of India's three primary epidemic diseases, the main characteristics of which are well-recognized by the general public. During the 60 years from 1880 to 1940, the average yearly rate of smallpox mortality per thousand inhabitants ranged from

²² Bihar State Archive, *Bihar and Orissa in 1934–1935*, Patna, Bihar: Superintendent Government Printing, 1937, p. 62.

²³ Bihar State Archive, *Bihar and Orissa in 1935–1936*, Patna: Superintendent, Government Printing, Bihar and Orissa, 1938, p. 68.

²⁴ Bihar State Archive, *Bihar and Orissa in 1936–1937*. Patna, Bihar: Superintendent Government Printing, 1938, p. 70.



0.1 to 0.8.²⁵ According to the League of Nations' annual epidemiological reports, India has the highest rate of occurrence of smallpox among all countries for which statistics are available.²⁶ (Fig. 1).²⁷

The mortality ratio in 1912 was 0.06 per mille, significantly lower than the 10-year average (0.42). The sickness was mostly limited to specific locations of the Kosi River.²⁸ The mortality rate jumped to 0.11 the following year 1913, but did not cause significant harm. In 1914, the provincial death rate from smallpox was 0.2 per mille. Smallpox outbreaks occurred in the Patna and Jharia coalfields districts.²⁹ The following year, the death rate from smallpox was 0.4 per mille. It became an epidemic in Darbhanga and Sambalpur.³⁰ Smallpox mortality reduced from 0.3 to 0.1 per mille in 1917. This decrease was attributed to increased vaccine supply and greater oversight of immunization employees.³¹ Again, the numbers for smallpox differed significantly between 1920 and 1921. Smallpox mortality climbed from 0.2 per million last year to 0.6 this year. It was partly due to unfavorable economic conditions and the increasing difficulty immunization workers faced in carrying out their tasks. It could be because the Gandhian phase of the Indian National Movement began. Vaccines undoubtedly aided in the prevention of deaths. For example, mortality decreased from 1911 to 1916 when immunizations exceeded 1.25 million, and it grew when the vaccines fell to less than a million in 1918–1919.

Nonetheless, the province's climatic circumstances bear a distinct relationship to smallpox. Smallpox, for example, killed 2,300 people in 1922, compared to 7,700 the previous year. The Administrative report does not explain this decrease to preventive efforts; instead, credits it to good

Table 4 Increase in deaths from smallpox (1929–1936)

Year	Deaths
1929	6,671
1930	7,455
1931	8,028
1932	16,466
1933	42,674
1934	30,310
1935	22,967
1936	22,863

fortune and a favourable climate.³² In the following year, the smallpox mortality rate was 3,174. Smallpox was responsible for 6,932 deaths in 1924, a considerable increase over the previous year.³³ In 1925, the fatality rate from the disease increased due to a severe epidemic in Orissa. According to the province's annual administrative report, the boards seriously contemplated mandating smallpox immunization. Smallpox mortality declined from 1.0 per mille in 1927 to 0.4 in 1928. The district of Palamau had the most significant death rate (1.30). Smallpox was most prevalent in Raghunathpur, Gaya, and Chakradharpur, with death rates of 5.5, 1.4, and 1.3, respectively.³⁴ In 1929, urban mortality from smallpox was 0.3, rural mortality was 0.2, and combined mortality from smallpox was 0.2, smaller than the preceding 10-year average.³⁵ By this year, with the proven benefits of preventive medicine, individuals were willing to take immunizations. The number of deaths from smallpox in 1932 was 16,466, more than double the number in 1931.³⁶ The following year, the number of cases more than doubled from the prior year.

Similarly, the number of deaths from smallpox in 1934 was less than thirty thousand, indicating dissatisfaction. Cuttack and Purnea were the most affected, whereas Muzaffarpur, Saran, Champaran, and Darbhanga (the earthquake area with more rigorous public health precautions)

²⁵ Bhore, J., Report of the Health Survey and Development Committee.. (Vol. I) (India, Health Survey and Development Committee). Calcutta: Manager of publications.1946, p. 109.

²⁶ Bhore, J., Report of the Health Survey and Development Committee.. (Vol. I) (India, Health Survey and Development Committee). Calcutta: Manager of publications.1946, p. 109.

²⁷ Bhore, J., Report of the Health Survey and Development Committee.. (Vol. I) (India, Health Survey and Development Committee). Calcutta: Manager of publications.1946, p. 167.

²⁸ Bihar State Archive, *Report on the Administration for the Province of Bihar and Orissa 1912–1913*, Patna Superintendent, Government Printing, 1913, p. 88.

²⁹ Bihar State Archive, *Report on the Administration for the Province of Bihar and Orissa 1914–1915*, Patna Superintendent, Government Printing, 1916, p. 106.

³⁰ Bihar State Archive, *Report on the Administration for the Province of Bihar and Orissa 1912–1913*, Patna Superintendent, Government Printing, 1913, p. 86.

³¹ Bihar State Archive, *Report on the Administration for the Province of Bihar and Orissa 1917–1918*, Patna Superintendent, Government Printing, 1919, p. 95.

³² Bihar State Archive, *Report on the Administration for the Province of Bihar and Orissa 1922*, Patna Superintendent, Government Printing, 1923, p. 133.

³³ Bihar State Archive, *Report on the Administration for the Province of Bihar and Orissa 1924–1925*, Patna Superintendent, Government Printing, 1926, p. 124.

³⁴ Bihar State Archive, *Bihar and Orissa in 1928–1929*, Patna: Superintendent, Government Printing, Bihar and Orissa, 1930, p. 50.

³⁵ Bihar State Archive, *Bihar and Orissa in 1929–1930*, Patna: Superintendent, Government Printing, Bihar and Orissa, 1931, p. 61.

³⁶ Bihar State Archive, *Bihar and Orissa in 1932–1933*, Patna: Superintendent, Government Printing, Bihar and Orissa, 1934, p. 57.



were the least affected. Daudnagar, Jamalpur, and Puri were the hardest impacted towns.³⁷ A similar pattern of smallpox mortality was seen the following year, with most deaths occurring in Purnea, Sambalpur, Angul, and Ranchi districts. Hazaribagh, Forbesganj, and Dinapur were the worst-affected towns. From 1929 to 1935, there was an increase in disease-related mortality. Table 4 indicates the same.³⁸

Smallpox was the only disease the tally of which increased in the decade of 1921–1930 when compared to the previous two decades of the century. It might be because of the two smallpox epidemics in 1926 and 1927.

4 Plague

Plague was believed to be prevalent in India many centuries ago, and that illness persisted among rats in the Southwestern Himalayan region. Plague's recent history began in 1896 when it was introduced into the seaport of Bombay from China and quickly spread across vast areas.³⁹ The plague, mainly its bubonic form as suggested by the Indian Plague Commission, remained a severe public health issue in India until the middle of the twentieth century CE. The confirmed plague epidemic began in 1895 and 1896, peaking in 1907. Between 1898 and 1928, around 12 million people died in India. Over these decades, the yearly plague death rate per 100,000 persons in India was 183.3, 133.8, and 51.9, respectively (Datta, 1994).

The plague continued to wreak havoc in Bihar, and data are abundant for the first half of the twentieth century. In Bihar, in 1912, the provincial plague death rate was 1.7 per mille. The disease was most severe in Saran, followed by Shahabad, Patna, and Monghyr, demonstrating the trend's consistency. Sasaram, Jagdispur, Lalganj, Hajipur, and Patna city were the hardest hit.⁴⁰ Patna, Saran, and Sahabad were located where the Ganges meets Sone, Gandak, and Gogra, and the conditions were conducive for the disease's growth. Plague mortality dropped the following year, with no new districts on the disease's periphery. However, the epidemic continued to wreak havoc on the towns and districts described above in 1913. Saran, Sahabad, and Patna suffered in 1914, with provincial fatality rates of 1.8 per

mille. In 1915, there was a significant decrease in plague mortality.⁴¹ The following year saw a minor plague, with a mortality rate of 0.7 per mille. However, 1917 more than made up for the Plague's loss in the previous 2 years, with 45,436 documented deaths. In 1918, the death toll rose to 53,532, with Patna bearing the brunt.⁴² In 1919, the Patna division had a 0.4 mortality rate from the plague, with a 0.9 death rate.⁴³ In 1921, the epidemic killed 16,500 people. The following year was also the same. In 1923, the plague killed approximately 28,882 people, nearly as many as the combined deaths from cholera, smallpox, and dysentery. Death from plague fell to 10,792 in 1925 with the provincial death rate merely 0.3 per mille, compared to an average rate of 0.9 in the previous 10 years.⁴⁴ Records from two decades (1910–1930) suggest that the pandemic resurfaced at around 4-year intervals. However, each outbreak was milder than the one before it, and the scourge appeared to be fading over time; 1925 saw the lowest fatality rate from this disease since 1905, with a death rate of 0.2 plagues.⁴⁵ The plague was not a severe public health issue the following year except in Muzaffarpur and Darbhanga districts. During the winter, cases in these two districts occurred regularly. Continuing the previous 4 years' trend, plague showed no symptoms of growth in 1928, with a death rate of 0.2 per mille. However, the Muzaffarpur and Darbhanga districts saw a typical winter pandemic. Residents, already familiar with the disease, left their village as soon as it appeared. There was a minor outbreak in the Monghyr area and a significant outbreak in the Saran region.⁴⁶ By 1929–1930, the plague was confined to select districts of North Bihar, and its advent coincided with the winter months. Darbhanga had the greatest fatality rate (1.2), and the towns that suffered the most were Hajipur (2.5) and Siwan (0.6).⁴⁷ The number of plague deaths (5,323) increased somewhat, although the number of hospital cases (1121) was less than half the amount treated the previous year.⁴⁸ The number of deaths from this cause fell

³⁷ Bihar State Archive, *Bihar and Orissa in 1935–1936*, Patna: Superintendent, Government Printing, Bihar and Orissa, 1937, p. 64.

³⁸ *Bihar State Achieve, Report on the Administration of Bihar and Orissa*.

³⁹ Bhole, J., Report of the Health Survey and Development Committee. (Vol. I) (India, Health Survey and Development Committee). Calcutta: Manager of publications. 1946, p. 114.

⁴⁰ Bihar State Archive, *Bihar and Orissa in 1912–1913*, Patna: Superintendent, Government Printing, Bihar and Orissa, 1913, p. 88.

⁴¹ Bihar State Archive, *Bihar and Orissa in 1914–1915*, Patna: Superintendent, Government Printing, Bihar and Orissa, 1916, p. 87.

⁴² Bihar State Archive, *Bihar and Orissa in 1918–1919*, Patna: Superintendent, Government Printing, Bihar and Orissa, 1920, p. 97.

⁴³ Bihar State Archive, *Bihar and Orissa in 1919–1920*, Patna: Superintendent, Government Printing, Bihar and Orissa, 1921, p. 85.

⁴⁴ Bihar State Archive, *Bihar and Orissa in 1924–1925*, Patna: Superintendent, Government Printing, Bihar and Orissa, 1926, p. 124.

⁴⁵ Bihar State Archive, *Bihar and Orissa in 1925–1926*, Patna: Superintendent, Government Printing, Bihar and Orissa, 1927, p. 68.

⁴⁶ Bihar State Archive, *Bihar and Orissa in 1928–1929*, Patna: Superintendent, Government Printing, Bihar and Orissa, 1930, p. 51.

⁴⁷ Bihar State Archive, *Bihar and Orissa in 1929–1930*, Patna: Superintendent, Government Printing, Bihar and Orissa, 1931, p. 64.

⁴⁸ Bihar State Archive, *Bihar and Orissa in 1930–1931*, Patna: Superintendent, Government Printing, Bihar and Orissa, 1932, p. 56.



from 5,429 in 1931 to 3,374 in 1932. The number of cases treated in hospitals similarly decreased to 911 from 1,489 in 1931.⁴⁹ Muzaffarpur, Darbhanga, and Saran were again at the top of the list. In 1933, out of 1635 deaths caused by the plague, there were 616 deaths in Muzaffarpur, with the remaining occurring in Saran, Champaran, Darbhanga, and North Monghyr. The death toll was reduced to 5,411 in 1934, with North Bihar as the endemic area. After a long hiatus, the plague returned to Champaran, particularly Bettiah town. Bettiah municipality was required to implement interim emergency measures under the Epidemic Diseases Act 1897 in February 1935. The death toll fell to 2,861 in 1935, with the above districts serving as the disease's customary epicenter. In 1936 provincial death rate was 0.04 per mille, compared to 0.09 the previous year, and there were 1,245 fatalities.⁵⁰ The Government's emphasis now focused on discovering methods to eradicate the disease from the town.

As such, the plague affected the whole state of Bihar during this period, significantly raising the number of deaths. When we analyze the ratios for plague mortality, we discover that from 1916 to 1926, urban areas had 1.7 deaths per mille, whereas rural regions had 0.6 deaths per mille.⁵¹ When we look at the data from 1921 to 1931, we can see a similar pattern. In 10 years, the average death rate in urban areas was 0.7 per mille, whereas, in rural areas, it was 0.3 per mille.⁵² This analysis and other data suggest that cholera and plague were more common in towns than villages.

The magnitude of the plague epidemic in the state may also be observed in newspaper stories at the time, which stress both the destructive impacts of the disease and the Government's inadequacy. At the same time, it underlines the importance of raising awareness among people about preventative measures. We can back this up with a few press articles.

⁴⁹ Bihar State Archive, *Bihar and Orissa in 1932–1933*, Patna: Superintendent, Government Printing, Bihar and Orissa, 1934, p. 57.

⁵⁰ Bihar State Archive, *Bihar and Orissa in 1936–1937*, Patna: Superintendent, Government Printing, Bihar and Orissa, 1938, p. 58.

⁵¹ *Annual public health report of the province of Bihar and Orissa for the year 1926*. Patna: Supt., Govt. Print., Bihar and Orissa, 1926, p. 4.

⁵² Phillips, J. *Annual public health report of the province of Bihar and Orissa for ...: And the annual vaccination report for ...* (p. 4) (Bihar and Orissa (India)). Patna, Bihar: Superintendent Government Printing, 1934, p. 4.

5 Fevers

The fever, which killed an estimated 3,622,869 (58.4) people every year in British India (excluding Burma) between 1932 and 1941, was a disaster.⁵³ Malaria, kala-zar, and influenza were all classified as fevers in censuses, and all these diseases contributed to the increasing number of deaths. We can grasp the devastation of fever by noting that cholera, smallpox, and the plague contributed only around 4% of mortality between 1932 and 1942, whereas fevers caused 58% of deaths.

As stated earlier malaria, kala-azar, and influenza were the primary diseases classified under the category of 'Fever'. Malaria, in its malignant form, was responsible for the high fatality rate associated with what is known as fever; malaria was prevalent everywhere and was especially common in North Bihar. It is believed that in the modern period, the colonial intervention concerning infrastructural development, such as the construction of railways and roads along with gradual ecological changes, contributed to the congenial conditions for the rise of malaria, which inflated the mortality rate under the heading of fever (Samanta, 2001, p. 4887).

It appears that the first recorded manifestation of kala-azar in India is difficult to determine precisely. However, it has been pointed out that there are few accurate records of it prior to the 1820s. However, kala-azar was first detected in Bihar's Patna district in 1882, when a malarious type of fever with an enlarged spleen and peculiar cachexia, previously unheard of in this region, became frequent and was misdiagnosed as malarial cachexia (Dutta, 2008). This form of fever with Leishman-Donovan bodies was extremely common throughout the district and other areas of Bihar in the early twentieth century as well as later, after the distinction of kala-azar as a different disease had been established. According to D. F. Michael, a doctor at the Imperial Agricultural Research Institute and College in Pusa Estate, kala-azar was a frequent ailment in North Bihar in the 1920s (Dutta, 2008). No one in Bihar had ever heard of kala-azar before the British arrived. In Bihar, kala-azar was regarded as a disease imported by the labourers returning from the kala-azar areas of North Bengal and Assam.⁵⁴ There was no curative treatment in the hospitals and dispensaries as no specific drug for kala-azar existed in India before 1919. The people rightly believed that the disease was incurable.

Like other parts of India, Bihar also experienced an outbreak of fever (malaria, kala-azar, and influenza), which

⁵³ Bhore, J., *Report of the Health Survey and Development Committee*. (Vol. I) (India, Health Survey and Development Committee). Calcutta: Manager of publications. 1946, p. 10.

⁵⁴ Kumar, N., *Bihar District Gazetteer*. Patna, 1970.



caused a huge number of deaths. In fact, fever killed more people in the province than any other leading cause of death. The death rate from "fevers" was 18.80 per mille, compared to an average of 21.18 in the previous decade.⁵⁵ Purnea, Muzaffarpur, and Palamau had the highest mortality rates, while Darbhanga and Champaran also had high ratios. In 1913, there were 623,556 fever deaths, or 18.18 per mille. Purnea had the highest death rate (25.51), followed by Bhagalpur. Gaya topped the list of towns, with a death rate of 27.22 per thousand people.⁵⁶ In 1914, the death rate from fevers was 17.7. The highest mortality was recorded in Purnea. In 1915, "fever" was responsible for nearly two-thirds of all deaths, mostly due to the reporting agencies' ignorance. The fever death rate was 22.5, compared to 21.5 the previous year and a decennial average of 20.6. This high death rate was caused by the monsoon's unusually extended duration.⁵⁷ In 1919, the death rate from fevers was 28.1, compared to 40.1 the previous year (the year of the influenza pandemic).⁵⁸ The influenza epidemic persisted, albeit in a weaker form. In 1920, the death rate from fevers declined from 28.1 to 22.0. The experimental anti-malarial measures and investigation work that was carried out for 3 years in two selected areas in Kathihar and Kishanganj in Purnea district is said to have failed, partly due to a lack of expert knowledge on the part of the staff, and partly due to the people's dislike of the frequent use of quinine.⁵⁹ The province's highest death rate in 1921 was again due to fever, which claimed 770,000 lives. A Spleen Census among children under the age of ten revealed that 7.05% had an enlarged spleen as a result of malaria. The following year, fever was responsible for two-thirds of all deaths in the province. Fever accounted for 599,976 of the total number of deaths in 1923. There were better-known preventive methods, such as draining low-lying and marshy areas and treating tanks and pools. No fewer than 660,635 deaths were documented under the heading "fever" in 1924, accounting for over two-thirds of all deaths in the province. The problem remained the same: mortality from any disease with fever as a symptom (such as pneumonia, kala-azar, phthisis, and typhoid) was routinely reported under

this category.⁶⁰ In 1925, fever was responsible for 16.4 per mille of the 23.9 deaths per mille.⁶¹ Malaria, pneumonia, and respiratory disorders all contributed to the death toll. In addition, nearly 500,000 people died from fevers in 1926.⁶² In 1928, the death rate from fever was 16.6, compared to 16.6 the previous year. The death rate from fever rose to 17.7 the next year, with Purnea (23.27) and Palamau (23.2) recording the highest mortalities, while Gaya (24.1) and Chatra (22.0) topped the list of municipalities.⁶³ The following year, there was a severe outbreak of malaria in Bhagalpur's Supaul subdivision, necessitating the establishment of temporary dispensaries from which quinine and cinchona were distributed under the supervision and control of epidemic doctors dispatched by the Government to assist local authorities.⁶⁴ Malaria cases treated in hospitals increased from 1,091,000 in 1929 to 1,185,000 in 1930. In 1930, around 74,000 people were treated for influenza, and 114,000 for rheumatic fever.⁶⁵ In 1933, there were 574,548 fever fatalities, compared to 564,666 in 1932.⁶⁶ The overall number of malaria patients treated in hospitals and dispensaries was 882,463, compared to 1,057,482 in 1932.⁶⁷ As a result, the disease appears to be responsible for more illness in the province than any other single disease. It was found in all districts, although it was particularly severe in Purnea, North Bhagalpur, Singhbhum, and significant areas of Orissa. In 1934, fever accounted for 670,389 deaths, accounting for more than 62% of all deaths (574,548).⁶⁸ The biggest number of deaths was recorded in Gaya district and town, Angul and Purnea districts, and Raghunathpur and Colgong towns. While no section of the province was completely malaria-free, the worst malarial regions were found in significant parts of Orissa, Singhbhum, Purnea, and North Bhagalpur. Fever claimed the lives of 663,964 people in 1935, with a

⁵⁵ Bihar State Archive, *Bihar and Orissa in 1912–1913*, Patna: Superintendent, Government Printing, Bihar and Orissa, 1913, p. 88.

⁵⁶ Bihar State Archive, *Bihar and Orissa in 1913–1914*, Patna: Superintendent, Government Printing, Bihar and Orissa, 1915, p. 99.

⁵⁷ Bihar State Archive, *Bihar and Orissa in 1918–1919*, Patna: Superintendent, Government Printing, Bihar and Orissa, 1920, p. 96.

⁵⁸ Bihar State Archive, *Bihar and Orissa in 1919–1920*, Patna: Superintendent, Government Printing, Bihar and Orissa, 1921, p. 84.

⁵⁹ Bihar State Archive, *Bihar and Orissa in 1920–1921*, Patna: Superintendent, Government Printing, Bihar and Orissa, 1922, p. 39.

⁶⁰ Bihar State Archive, *Bihar and Orissa in 1924–1925*, Patna: Superintendent, Government Printing, Bihar and Orissa, 1926, p. 125.

⁶¹ Bihar State Archive, *Bihar and Orissa in 1925–1926*, Patna: Superintendent, Government Printing, Bihar and Orissa, 1927, p. 88.

⁶² Bihar State Archive, *Bihar and Orissa in 1927–1928*, Patna: Superintendent, Government Printing, Bihar and Orissa, 1929, p. 51.

⁶³ Bihar State Archive, *Bihar and Orissa in 1929–1930*, Patna: Superintendent, Government Printing, Bihar and Orissa, 1931, p. 63.

⁶⁴ Bihar State Archive, *Bihar and Orissa in 1930–1931*, Patna: Superintendent, Government Printing, Bihar and Orissa, 1932, p. 55.

⁶⁵ Bihar State Archive, *Bihar and Orissa in 1930–1931*, Patna: Superintendent, Government Printing, Bihar and Orissa, 1932, p. 55.

⁶⁶ Bihar State Archive, *Bihar and Orissa in 1933–1934*, Patna: Superintendent, Government Printing, Bihar and Orissa, 1935, p. 62.

⁶⁷ Bihar State Archive, *Bihar and Orissa in 1933–1934*, Patna: Superintendent, Government Printing, Bihar and Orissa, 1935, p. 62.

⁶⁸ Bihar State Archive, *Bihar and Orissa in 1934–1935*, Patna: Superintendent, Government Printing, Bihar and Orissa, 1936, p. 65.



death rate of 17.6 per million compared to 17.8 in 1934.⁶⁹ Malaria was less severe in Purnea in 1935 but developed in a severe epidemic form in Bhagalpur's Supaul and Madhepura subdivisions. Malaria struck 157 villages in Madhepura and 88 villages in the Supaul subdivision, affecting 14,108 and 33,548 people, respectively. The disease struck soon after the Kosi floods engulfed the majority of these subdivisions, and the villages attacked were in the low-lying area through which the flood water had traveled. Eight field dispensaries were set up temporarily to provide medical assistance to those in need.⁷⁰ While Purnea appears to have a long history of malaria, conditions in Darbhanga and Muzaffarpur in the Tirhut Division and Bhagalpur in the Bhagalpur Division also deteriorated. The overall number of deaths from fevers in 1936–1937 was 560,260, lowering the death rate from 17.8 to 17.3 compared to the previous year. The districts with the highest death rates were Muzaffarpur, Darbhanga, Bhagalpur, Purnea, and Palamau, and the towns with the highest fever rates were Lohardaga, Gaya, and Jhalda.⁷¹

In 1936, there were 1,809,791 malaria patients treated in hospitals, dispensaries, and temporary clinics and centres.⁷² When we conducted a district-wise case study of fever, we discovered that 1901–1910 was an unfavorable period in Sahabad. Fever prevailed and was especially severe in 1905, when the death rate was no less than 37.8 per mille.⁷³ In the Saran area of North Bihar, fever accounted for one-fifth of all deaths, and a virulent type of fever was widespread in 1903, 1905, 1909, and 1910.⁷⁴ In the second decade of the twentieth century, fever was still endemic in the Champaran area. The Muzaffarpur district had an outbreak of fever and other infections in Sitamarhi, Pupri, and Paru Thana.⁷⁵ According to the census of 1921, fever killed 744,000 people

in the district between 1910 and 1920.⁷⁶ The 1918 influenza pandemic also raised fever mortality in the Darbhanga district.

During the final two months of 1918, when the influenza epidemic was at its peak, more people died from fever in Gaya than in any other district, except for Muzaffarpur, even though the mortality rate in these two districts was higher in Gaya. Apart from Shahabad (80.9 per mille), Gaya had the province's highest death rate from all causes in 1918 (73.3 per mille).⁷⁷ Due to the recurrent assaults of the fever that had been a scourge of the district since 1879, Sahabad showed no rise in natural population in census data.⁷⁸ Fever deaths increased steadily in the Monghyr district from 1914 to 1918.⁷⁹ According to statistics, the death rate from fever was lower in Patna than in Gaya, Sahabad, or Monghyr. The influenza outbreak of 1918–1919 significantly increased the number of deaths attributed to fever throughout 1911–1920. When the numbers for the first 7 years of the second and third decades of the twentieth century are compared, we can determine the state of fever in these years. From 1911 to 1917, there were 4,838,387 fever deaths, while the similar figure for 1921 to 1927 was 4,310,030, suggesting a drop of more than 10%.⁸⁰ In the Purnea district, for example, fever-related deaths dropped between 1921 and 1931.⁸¹ According to Census 1951 vital statistics, deaths attributed to fever decreased between 1941 and 1951. This is apparent when fever deaths in the Champaran district dropped over the last decade.⁸² The districts of Darbhanga and Monghyr saw a similar decline in fever deaths.

⁶⁹ Bihar State Archive, *Bihar and Orissa in 1935–1936*, Patna: Superintendent, Government Printing, Bihar and Orissa, 1937, p. 73.

⁷⁰ Bihar State Archive, *Bihar and Orissa in 1935–1936*, Patna: Superintendent, Government Printing, Bihar and Orissa, 1937, p. 73.

⁷¹ Bihar State Archive, *Bihar and Orissa in 1936–1937*, Patna: Superintendent, Government Printing, Bihar and Orissa, 1938, p. 158.

⁷² Bihar State Archive, *Bihar and Orissa in 1936–1937*, Patna: Superintendent, Government Printing, Bihar and Orissa, 1938, p. 158.

⁷³ Census of India, 1911—Bengal, Bihar and Orissa and Sikkim; Pt.1, report (Vol. V) (India. Office of the Registrar General & Census Commissioner.). Calcutta: Bengal Secretariat Book Depot, 1913, p. 123.

⁷⁴ Census of India, 1911—Bengal, Bihar and Orissa and Sikkim; Pt.1, report (Vol. V) (India. Office of the Registrar General & Census Commissioner.). Calcutta: Bengal Secretariat Book Depot, 1913, p. 123.

⁷⁵ Census of India, 1921—Bengal, Bihar and Orissa and Sikkim; Pt.1, report (Vol. V) (India. Office of the Registrar General & Census Commissioner.). Calcutta: Bengal Secretariat Book Depot, 1923, p. 25.

⁷⁶ Census of India, 1911—Bengal, Bihar and Orissa and Sikkim; Pt.1, report (Vol. V) (India. Office of the Registrar General & Census Commissioner.). Calcutta: Bengal Secretariat Book Depot, 1933, p. 28.

⁷⁷ Census of India, 1921—Bengal, Bihar and Orissa and Sikkim; Pt.1, report (Vol. V) (India. Office of the Registrar General & Census Commissioner.). Calcutta: Bengal Secretariat Book Depot, 1923, p. 37.

⁷⁸ Census of India, 1921—Bengal, Bihar and Orissa and Sikkim; Pt.1, report (Vol. V) (India. Office of the Registrar General & Census Commissioner.). Calcutta: Bengal Secretariat Book Depot, 1923, p. 38.

⁷⁹ Census of India, 1921—Bengal, Bihar and Orissa and Sikkim; Pt.1, report (Vol. V) (India. Office of the Registrar General & Census Commissioner.). Calcutta: Bengal Secretariat Book Depot, 1923, p. 40.

⁸⁰ Census of India, 1911—Bengal, Bihar and Orissa and Sikkim; Pt.1, report (Vol. V) (India. Office of the Registrar General & Census Commissioner.). Calcutta: Bengal Secretariat Book Depot, 1933, p. 12.

⁸¹ Census of India, 1911—Bengal, Bihar and Orissa and Sikkim; Pt.1, report (Vol. V) (India. Office of the Registrar General & Census Commissioner.). Calcutta: Bengal Secretariat Book Depot, 1933, p. 25.

⁸² Census of India 1951 (Vol. V, Part 1). Patna, Bihar: Govt. Press, 1956, p. 20.



6 Socioeconomic contexts for the spread of diseases

The proliferation of numerous diseases in Bihar throughout this period revealed a lot about the state's socioeconomic situation, the involvement of the Government, the faults of the development model, and so on. The spread of cholera in Bihar is a specific instance in this context. Apart from the environmental causes and higher density, pilgrimages had a significant role in the spread of cholera in India. According to one study, approximately five million people were engaged in pilgrimages and fairs in Bihar each year, most of whom passed through endemic cholera districts, resulting in the disease's unavoidable extensive spread (Rogers, 1927). In discussing the cholera situation in Bihar, Duggal (1949) stated that, in addition to religious festivals and cattle fairs of solely local importance, some interprovincial festivals were also held in Bihar, with pilgrim centres such as Deoghar and Gaya attracting visitors from all over India. Unfortunately, the majority of Bihar's religious festivals happened during the cholera season, making them prime locations for the propagation of massive outbreaks. Bathing and drinking water from the Ganges is valuable to all Hindus, and their religious preferences have received support from Hankin's conclusions -still relied on to some extent-as to the improbability of this river being an agent in the spread of cholera (Bishop, 1912). However, other studies reveal that the river was a significant element in the spread of cholera, albeit open tanks and poorly constructed, uncared-for wells were also factors (Bishop, 1912). Chief Medical Officer T.S. Bishop also considers Hindu and Muslim dead body disposal procedures inappropriate, claiming that Cholera corpses were active disease agents. He reported that observations made during successive cholera seasons convinced him of the effectiveness of the cholera corpse as an agent in the spread of the disease and that the undeniable difficulties associated with suppressing this widely used practice demanded stringent administrative measures (Bishop, 1912). An examination of 27 people in Puri who had been in close contact with cholera cases revealed that 6 had the cholera vibrio in their stools and were in good health at the time. These healthy "contacts" (cholera immunes), like the cholera convalescents, played a critical role in the spread of the cholera organism across India (Giieig, 1913).

Similarly, in his 'Recent Research on Cholera', E. D. W. Giieig demonstrates that the "carrier" can generate a cholera epidemic. Water, carcasses, humans, and even flies can be active carriers of cholera, leading to outbreaks. Bacteriological examination of flies caught in the vicinity of cholera case collections in Puri revealed that the cholera vibrio was present on the flies' external appendages as well as in the contents of the flies' alimentary tract, demonstrating that

the fly was a channel through which the virus was being conveyed from infected to uninfected individuals in Puri (Giieig, 1913).

Cholera was almost always more common in river districts than in arid areas. Epidemics raged with unusual ferocity in the latter, but cholera was virtually an annual visitation in the river ravines. The explanation appears to be the practice of defecating on river banks, which results in water pollution. The severity of the disease is determined by rainfall and the amount of water flowing through rivers. When the rain is infrequent, the stream is slow, and the volume of water is small, the disease is prevalent. It is rare when there is considerable rainfall and a good flood (the flood water cleanses the country, and cholera disappears).⁸³ Cholera was highly seasonal, with two waves occurring each year. The primary wave occurred between April and July, and the second or minor wave occurred in October. The hot weather cholera prevalence was most likely due to two factors: the relative scarcity of water and the ease with which the water was polluted; and the large population movements caused by this season being a popular time for pilgrimages and marriages in many parts of India.⁸⁴

Malaria was most common in the long strip of North Bihar bordering Nepal, communities along the hills and *ghats* in the Sahabad and Gaya districts, and places near some of the hill ranges on the Chotanagpur plateau. "Aggregation of labour" in the country's latter half also resulted in ludicrous working conditions, particularly in mining districts. The spill places of the rivers in North Bihar that change their courses too frequently are certainly where a malaria outbreak began. The worst impacted villages were those in the Bagmati spill zones, the Puranidhar and Burhi Gandak districts of Muzaffarpur, and the Kamla and Balan districts of Darbhanga.

It is necessary to mention some of the Government's efforts for cholera prevention, such as sanitary control over food production and distribution, supply of clean and safe water, anti-cholera inoculations, supply of Acid Sulfuric *Aromat*, *Camphorodyne*, *Spt.* supply of Camphor and Brandy as remedies, and using Kaolin. However, these precautions were insufficient to prevent cholera deaths, demonstrating the insufficiency of government efforts. Health officers and subordinate staff in District Boards, Epidemic Doctors

⁸³ Census of India, 1911—Bengal, Bihar and Orissa and Sikkim; Pt.1, report (Vol. V) (India. Office of the Registrar General & Census Commissioner.). Calcutta: Bengal Secretariat Book Depot, 1913, pp.71 & 86.

⁸⁴ Sanitary Commissioner, *Annual Report of the Sanitary commissioner with the Government of India for 1918: With appendices and return of sickness and mortality among European troops, Indian troops, and prisoners in India for the year*, Calcutta: Superintendent of Government Printing, 1920, p.53.



appointed by the Government in the infected areas, sufficient stocks of disinfectants and anti-cholera inoculations, the Government maintained stock of cholera vaccine at the Vaccine Depot, the practice of disinfecting the wells and other water bodies, research with arteriography and other trials & experiments etc. constantly feature in the government records of the period, particularly in Annual Reports. But the death tolls claimed by the disease, as visible from the table (above), suggest the inadequacy of the health system of the colonial Government. Referring to the inefficiency of the sanitary department and the incompetence of the staff, the "Behar Herald" of May 4, 1918, observed, "In India alone, two million human lives are annually sacrificed to preventable diseases, and more than 10 million are rendered temporarily or permanently miserable by them, and it is also a fact that nearly four-fifths of the entire registered mortality of India is due to diseases which are either entirely preventable or preventable to a great extent". Referring to the various efforts the paper continues: "if we scrutinize them, if we consider the report of the government and the replies of the government to different questions put in the council, we see that all these measures, beneficial as they are, have been more or less 'nam ke waste'.⁸⁵ Smallpox was long thought to be a preventable disease. Vaccination was made mandatory in all municipalities and three districts in 1931. Vaccination became mandatory in five more districts in 1932. Primary and re-vaccination was thought to provide total protection against the disease. Administrative Reports indicate that areas where people readily submit to vaccination and re-vaccination, have effectively eradicated it (Table 5).

But interestingly, the best techniques of eradicating smallpox and the efficacy of immunizations were all subject to comparable degrees of misunderstanding throughout the nineteenth and twentieth centuries. This occurrence involved several factors. They included the lack of consensus on the issue within official and medical circles, which led to the dissemination of conflicting messages, the propensity of some private organizations to contest official government positions, and their occasional opposition to vaccinations. A newspaper thus expresses concern about the Government's efforts:

The "Express" hopes some of the members of the local Legislative Council will call for a statement regarding the number of deaths from the plague in the various districts of the province and the measures adopted, and the money spent during the last ten years to combat this dreadful epidemic. The careless and culpable indifference of some local bodies, for instance, the

Table 5 Decennial mortality trend from Plague in India during 1898–1968

Period	Total deaths from plague	Specific mortality rate/100,000	Plague as a percent of total deaths 1898–1968
1898–1908	6,032,693	183.3	47.47
1909–1918	4,221,529	133.8	33.32
1919–1928	1,762,718	51.9	13.4
1929–1938	422,880	11.7	3.33
1939–1948	268,596	6.8	2.11
1949–1958	90,059	1.8	0.46
1959–1968	942	0.2	0.001

Source: (Biswas, 2018)

Patna Municipality, is gradually becoming a matter of the greatest concern. The weekly figures reported from Bihar during the current year are alarming, and the question of fighting the disease is more urgent now than the education of the illiterate masses.⁸⁶

Further, in the course of an article on plague and malaria, the "Bihar News" says:-

The Government can do nothing more than publish reports from the heights of Ranchi, the wilderness of Natarhat, the sea beaches of Puri, and the lovely new Capital of Patna. Because the plague can not touch Government officials, it does not follow that money should not be spent to fight the great demon. Though Sir Edward Gait is a good soul, his lieutenants are mostly obsessed with a good dose of imperialistic ideas.⁸⁷

It is also crucial to consider the limitations of the Government's policies in the prevalent socioeconomic context. The deficiency of rural sanitation and widespread illiteracy exacerbated the severity and recurrence in the province. There were several additional factors to consider as well. For example, exorcism via charms and spells is firmly believed in among the lowest classes, as all maladies are attributed to the malign influence of bad spirits. *Kali Mai* was particularly associated with cholera, and no one walked out at night during a cholera epidemic for fear of meeting this wrathful goddess and getting infected with the disease through her nefarious influence. For example, the Santhal Parganas' Sauria Paharia blamed the cholera pandemic on evil spirits transported into the region by train. They tested them by building a crude train model and wheeling it through the village into the jungle, symbolically expelling the evil

⁸⁵ Bihar State Archive, Home Administration –II Report, First Assistant to the Deputy Inspector General of the Police, Crime and Railways, Bihar and Orissa. ACC-1867A, Bihar, p. 75.

⁸⁶ Bihar State Archive, Bihar News issue of April 6, 1918,. ACC-1867A, Patna, Bihar, 1918, p. 130.

⁸⁷ Bihar State Archive, Bihar News issue of April 6, 1918,. ACC-1867A, Patna, Bihar, 1918, p. 130.



spirit out of the town. The Oraons also believed in a spirit known as *Murkuri*, i.e., the thumper, which was thought to be imminent in Europeans. If illness or fever struck Oraon after being touched on the back by an ignorant but caring European, he was convinced that *Murkuri* had traveled from the European's body to his own.⁸⁸ According to the report, it was most unfortunate that here (in India), people's ignorance and superstition stood in the way of effective disease prevention. When smallpox was prevalent, people showed some degree of willingness to protect their children, but the incentive died when there was an improvement. There was a substantial prejudice against the vaccination of infants before they were 1 year old⁸⁹, and the skepticism fostered among the general public by batches of ineffective vaccines. Importantly, as research has revealed over the last three decades, these characteristics were visible worldwide—in Europe, the Americas, Oceania, and Asia. This is an essential issue because official literature created in colonial contexts frequently described 'superstitious' and 'unscientific/anti-scientific' beliefs as the domain of these regions' indigenous populations. Recent scholarship has demonstrated how incorrect these assumptions were and how a lack of scientific understanding about immunization methods and their consequences fuelled civilian opposition in Europe and North America.

Bihar had agricultural hardship in the latter half of the nineteenth century. Scarcities and famines occurred one right after the other. The agrarian classes' material situation was poor, worse than in Bengal, and debt was widespread (Sinha, 1976). The expansion of railroads also appears to be an essential cause for the spread of diseases, actually or potentially damaging to the public's health. They play the job of carriers, transporting both products and diseases. This appears to be especially true in the case of the plague, which probably featured plague rats infecting grain godowns as a contributory cause. Of course, most municipalities in the towns or stations located along the railways were affected. In twelve cities along the railway in Bihar (along or within a few miles of the Ganges), 60,000 people died from plague since 1901, accounting for one-eighth of the population that year.⁹⁰ There was also the possibility of hazards from

'borrow pits,' excavated for railway embankments.⁹¹ They were not linked; instead, clay tanks stood between them. They generated stagnant puddles as it rained, allowing the fever mosquito to reproduce and thrive. These ponds stopped water from draining. The general population mistakenly believed that fever and railroads were linked. In this regard, it is also crucial to assess the role of the village *vaidyas*, who attempted to obstruct the Government's initiatives. These *vaidyas* had complete control over the ignorant people, and disease like cholera was their primary income source. On their advice, most villagers avoided treatment, which had the unintended consequence of increasing the death rate.

The reasons mentioned above may have contributed to the spread of diseases which often took academic forms, killing many human beings. However, these reasons can, at best, only explain the origin and reach of the diseases. These reasons cannot explain the heavy mortality. Socio-economic conditions were the most determining factor for the increasing mortality due to different diseases. Poverty is one cause that increases deaths because of its decisive role in decreasing the capacity and stamina to fight infections. The widespread poverty in colonial Bihar was concomitant to malnutrition, which again became the prominent cause of increasing deaths. The prevalent poverty in rural Bihar may also explain more rural deaths than urban deaths. A recent study showed that it is the socioeconomic factor that transforms a disease into an epidemic or pandemic with lethal consequences. Agricultural stagnation, inflation, population density, malnutrition, and medical deficiency increased mortality (Jha, 2023, p. 102).

7 Conclusion

Thus, the preceding study provides information on the spread of numerous diseases in Bihar throughout the colonial period, particularly in the first half of the twentieth century. Throughout the study period, these diseases remained common, and they occasionally assumed the form of an epidemic, resulting in a substantial number of deaths. These diseases included cholera, smallpox, plague, and common fever infections such as influenza, malaria, and kala-azar. These diseases claimed the lives of almost half a million people. Sometimes these infections took on a particularly vicious form, rapidly increasing the number of deaths. The 1918–1919 influenza pandemic can be seen in this context,

⁸⁸ Census of India, 1911—Bengal, Bihar and Orissa and Sikkim; Pt.1, report (Vol. V) (India. Office of the Registrar General & Census Commissioner.). Calcutta: Bengal Secretariat Book Depot, 1913, p. 157.

⁸⁹ Bihar State Archive, *Bihar and Orissa in 1932–1933*, Patna: Superintendent, Government Printing, Bihar and Orissa, 1934, p. 57.

⁹⁰ Census of India, 1911—Bengal, Bihar and Orissa and Sikkim; Pt.1, report (Vol. V) (India. Office of the Registrar General & Census Commissioner.). Calcutta: Bengal Secretariat Book Depot, 1913, p. 77.

⁹¹ Census of India, 1911—Bengal, Bihar and Orissa and Sikkim; Pt.1, report (Vol. V) (India. Office of the Registrar General & Census Commissioner.). Calcutta: Bengal Secretariat Book Depot, 1913, p. 77.



due to which the death rate increased dramatically over this period, and around 0.2 million individuals perished. Even if this aberrant statistic is ignored, disease mayhem remained throughout the period, as witnessed equally in urban and rural locations. As previously stated, infectious diseases spread in cities due to population density. Fever was common in rural regions where fever-carrying mosquitoes may transmit it.

At the same time, it is essential to note that the state's distinctive geographical position and socioeconomic status not only aided in spreading diseases but also enhanced their adverse effects, as evidenced by increasing mortality. Northern Bihar is filled with rivers that bring large floods from Nepal's mountain ranges every year, drowning most of the region for most of the year. In contrast, South Bihar is thickly wooded and dotted with peaks and hills. Both topographical factors promote the spread of diseases such as cholera and malaria. In this context, neglect can also be evident in the Government's attempts. One, as seen in the context of smallpox eradication, there was a lot of confusion at the level of governance and administration regarding vaccination and other scientific measures; second, whatever efforts were made, were done very little and very late, which failed to yield the expected results. For example, the administrative report for 1927–1928 notes that virtually little had been done to manage and check malaria, and the disease's negative impacts are not recognized.

Similarly, there was no curative treatment in hospitals and dispensaries because there was no specific kala-azar medicine in India before 1919. In addition to pointing out the Government's failings, the press at the time spoke about local bodies' negligent and guilty apathy. It accused officials of being influenced by imperialist ideas. The advent of railways also aided the transmission of diseases. Artificial embankments were created due to the construction of railways and roads, and a huge number of potholes were also made at various locations, resulting in water-logging, which became the source of diseases.

Aside from that, it is also vital to consider the socioeconomic circumstances of disease dissemination and its impact. The deteriorating state of agriculture, farmers' obligation to pay exorbitant taxes as a result of the zamindari settlement, the havoc of moneylenders, the eviction of farmers from their land, and rising inflation broke the back of the common people and wired their natural ability to fight disease, increasing the number of deaths. Not only that but the time and resources spent fighting these ailments impacted their agricultural work, creating a vicious cycle of poverty and disease exacerbated by colonial rule's insensitivity. The prevalence of illiteracy and superstition among the general public hampered the prevention of

diseases. Although superstitious and unscientific behaviour was not limited to Indians, as colonial officials claim, it can also be seen in other advanced nations of Europe and Asia; it did have an impact on preventing diseases. As a result, it can be stated that throughout the first part of the twentieth century, the common people of Bihar were plagued by numerous diseases, which caused a vast number of deaths. These deaths, however, cannot be seen and understood solely by attributing them to diseases; they must also be seen and understood in the context of existing socioeconomic conditions and colonial rule.

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