Arthamimansa, January-June 2026, Vol-18, Issue-I- ISSN 2320-0197

# Rural-Urban Differentials in Morbidity and Disease Burden in Cooch Behar District of West Bengal[#]

**Sushovan Mondal** [1] (Corresponding Author)
Assistant Professor, Dept. of Economics, Cooch Behar College, Cooch Behar, Pin- 736101, West Bengal, Email: Sushovanmondaleco@gmail.com.

**Amlan Majumder**
Associate Professor, Department of Economics, University of North Bengal, Darjeeling, 734013, West Bengal, India. Email: amlan@nbu.ac.in.

==========

**Abstract**

*The analysis of morbidity patterns is crucial for assessing population health and identifying demographic and socio-economic factors that influence disease burden, especially in developing countries like India. This study explores the disease prevalence in the Cooch Behar district of West Bengal, with a specific focus on rural–urban disparities. The study utilises primary data obtained from 440 households comprising 1796 individuals, recording a total of 2,118 self-reported illness episodes. Diseases are classified into three broad categories, such as Group I, Group II and Group III, according to the modalities of the Global Burden of Disease Study 2010, and examined across various demographic and socio-economic variables. The findings indicate a dual disease burden, characterised by the predominance of non-communicable diseases, particularly in urban areas, while communicable diseases remain significant in rural regions. The study also reveals notable disparities in morbidity, with higher morbidity prevalence observed among women, the elderly individuals, lower-income groups, and less educated populations. The results reflect differentials in morbidity and disease burden across different demographic and socio-economic groups. The study highlights the need of adopting comprehensive and inclusive health policies aimed at addressing types of diseases and reducing disparities across rural and urban populations.*

***Keywords:*** *Communicable and Non-Communicable Diseases, Epidemiological Transition, Morbidity Prevalence Rate (MPR), Disease Burden, Cooch Behar District.*

==========

## 1. Introduction

The assessment of morbidity patterns is fundamental to understanding a population's disease burden and to designing effective public health policies. Morbidity not only reflects the prevalence of disease but also is linked to broader demographic and socio-economic conditions in which individuals reside. In developing economies like India, where health systems are often under strain due to disease burden, analysing morbidity patterns becomes even more important for identifying vulnerable groups and the corresponding need to prioritise resource allocation. India, like many other developing countries, is undergoing a significant transformation in its morbidity profile. While communicable diseases have

*# Part of doctoral work, which is being carried out under the supervision of Dr. Amlan Majumder (Supervisor) in the Department of Economics, University of North Bengal.*

*1. Research Scholar, Department of Economics, University of North Bengal, Darjeeling, Pin-734013, West Bengal.*

traditionally been the major health concerns in the country, non-communicable diseases such as hypertension, cardiovascular diseases, and diabetes are now rising at an alarming rate. However, in many regions of India, this transition is incomplete, leading to the coexistence of both types of diseases, often referred to as the dual burden of disease.

Morbidity broadly denotes the condition of illness, disability, or departure from optimal health within a population, encompassing the consequences and complications arising from diseases other than death (Morgan & Summer, 2008). Cockerham and Scambler (2009) distinguished between disease as a biological condition and illness as the social and psychological experience of that condition. Similarly, Majumder (2006b) indicated morbidity as the state of illness or disability in a population, where people remain in an intermediate state between an ideal health condition and death. Morbidity is generally assessed through incidence and prevalence rates. Incidence refers to the number of new cases occurring within a specific period, while prevalence measures the proportion of individuals affected by a disease at a particular point in time. Johansson (1992) further conceptualised morbidity as either perceived (self-reported) or observed (clinically diagnosed), highlighting the importance of subjective health assessment in understanding disease burden. In this context, Murray (1996) interprets perceived morbidity as the gap between observed and ideal health status.

**Studies on Morbidity and Disease Burden**

The existing literature on disease burden has made substantial contributions by providing important theoretical frameworks and empirical insights, yet it remains uneven in its ability to capture micro-level realities, particularly in peripheral regions such as the Cooch Behar District. From a theoretical perspective, the epidemiological transition framework suggests a shift from communicable to non-communicable diseases (NCDs) (Omran, 1971), yet studies in India reveal that this transition is uneven and context-specific. Rural areas are increasingly experiencing the prevalence of NCDs together with persistent infectious diseases, resulting in a "double burden" of disease (IHME, 2017; Arokiasamy, 2018). Furthermore, rural-urban disparities due to limited health care infrastructure, financial barriers and dependence on informal healthcare providers in rural areas worsen the health outcomes of rural people (Balarajan et al., 2011; Peters et al., 2002). This complexity challenges the conventional rural–urban health differentials.

Empirical studies highlight that disease patterns in India and West Bengal are shaped by the interaction of demographic, environmental, and behavioural factors. While the rising trend of chronic illnesses such as cardiovascular diseases and diabetes are evident, communicable diseases associated with poor sanitation and living conditions continue to disproportionately affect rural populations (Laxminarayan et al., 2015; Dandona et al., 2017). Such coexistence reflects structural and developmental disparities in morbidity status. Studies show that socio-economic determinants such as income, education, occupation, caste, and gender, etc., play an important role in shaping both disease prevalence and healthcare utilisation. Evidence suggests that economically disadvantaged groups are more susceptible to acute illnesses, whereas relatively affluent populations report higher chronic conditions. Education improves health awareness and utilisation of services; gender disparities often limit women's access to timely healthcare (Ghosh & Arokiasamy, 2010; IIPS & ICF, 2021; Sen et al., 2010).

**Need of the Study**

The limitation of existing literature is its reliance on large-scale datasets such as NSSO and NFHS, which often vague in understanding the intra-district variations in disease prevalence. This limitation is particularly relevant for peripheral and cross border regions like Cooch Behar, where unique contextual factors such as cross-border mobility with Bangladesh, peripheral locations, and a predominantly rural economy dependent on agriculture and informal employment contribute to economic vulnerability and influence disease patterns. Despite these distinctive characteristics, such regions remain underrepresented in micro-level health analyses. Therefore, the present study seeks to examine disease composition and prevalence across rural–urban settings in Cooch Behar and analyse their association with demographic and socio-economic factors, to provide a clear understanding of intra district disparities in disease prevalence.

**Objectives:**

The study pursues three primary objectives. First, it seeks to examine the overall morbidity pattern and the distribution of disease categories within Cooch Behar district. Second, it compares the relative prevalence of communicable and non-communicable diseases in order to identify which category constitutes the dominant share of the disease burden. Third, the study investigates rural–urban differentials in disease prevalence and assesses how socio-economic and demographic factors influence morbidity patterns.

**Sample Size and Disease Burden Measures:**

The study is based on primary survey data gathered from 440 households, comprising 1,796 individuals drawn from both urban and rural areas of Cooch Behar District. Using a multistage sampling technique and ensuring adequate geographical representation of the representative sample, a total of 2,118 self-reported illness episodes were recorded over a reference period of last 12 months before the survey. To assess the disease burden, two standard epidemiological indicators are used: the Morbidity Prevalence Rate (MPR) and the Morbidity Incidence Rate (MIR) both expressed per 1,000 populations. MIR captures the occurrence of new disease cases within a specified reference period and is particularly relevant for analysing acute illnesses of shorter duration, whereas MPR captures the total burden of disease by including both existing and newly reported cases, making it more suitable for the assessment of chronic conditions. Following the recommendations of the World Health Organisation (WHO), MIR and MPR are calculated as follows:

$$\text{Morbidity Incidence Rate (MIR)} = \frac{I}{P} \times 1000,$$

$$\text{Morbidity Prevalence Rate (MPR)} = \frac{C}{P} \times 1000,$$

Here, 'I' indicates the number of newly reported cases of a disease within the 12-month reference period. C refers to the total number of disease cases, including both new and pre-existing (old) cases, while P denotes the population at risk of developing the illness during that reference period.

For analytical clarity, diseases were classified according to the Global Burden of Disease framework into three broad categories (Murray· and Lopez 1996): Group I comprising communicable, maternal, perinatal, and nutritional conditions; Group II consisting of non-communicable diseases; and Group III including intentional and unintentional injuries such as accidents. This

classification facilitates a systematic examination of morbidity patterns across demographic and socioeconomic groups as well as rural–urban settings.

**Results and Discussion:**

This section is organised into two main parts: the first part examines the variations in morbidity prevalence in relation to nature and severity of illness, and disease categories across rural and urban areas of Cooch Behar district, while the second part explores disease prevalence in relation to selected demographic and socioeconomic characteristics alongside differences in disease composition between rural and urban populations.

The findings presented in table 1, indicating the predominance of acute illnesses, which account for approximately two-thirds of all reported cases, and have a significantly higher MPR compared to chronic diseases, indicating that short-term and episodic health issues continue to dominate the morbidity profile. However, there are important rural–urban differences. Rural areas are characterised by a higher concentration of acute illnesses, indicating continued exposure to infectious diseases. In contrast, urban areas display a relatively balanced distribution between acute and chronic conditions, with chronic diseases slightly dominating. This indicates that short-term and episodic health problems continue to dominate the morbidity profile in the rural areas as well as in the Cooch Behar district but a transition towards non-communicable diseases are noticed in urban areas.

**Table- 1: Distribution of illness episodes and Morbidity Prevalence Rate (MPR) by Nature of illness and Place of Residence**

| Nature of illness | Rural | | | Urban | | | Cooch Behar | | |
|---|---|---|---|---|---|---|---|---|---|
| | Illness episodes | % | MPR | Illness episodes | % | MPR | Illness episodes | % | MPR |
| **Acute** | 1110 | 71.8 | 933.6 | 282 | 49.4 | 464.6 | 1392 | 65.7 | 775.1 |
| **Chronic** | 437 | 28.2 | 367.5 | 289 | 50.6 | 476.1 | 726 | 34.3 | 404.2 |
| **Total** | **1547** | **100** | **1301.1** | **571** | **100** | **940.7** | **2118** | **100** | **1179.3** |

***Source:*** *Author's calculation from survey data, Note: MPR = Morbidity Prevalence Rate per 1000 persons, Acute: Diseases lasting for 30 days or less; Chronic: Diseases persisting continuously for a period of more than 30 days.*

Table 2 indicates that low severe illnesses constitute the largest share of morbidity in Cooch Behar district (51.9 per cent), followed by medium-severity conditions (37.3 per cent), while high-severity illnesses constitute a relatively smaller proportion (10.8 per cent). This pattern suggests that a substantial proportion of the disease burden is associated with relatively less severe but more frequent health conditions. The overall Morbidity Prevalence Rate (MPR) is substantially higher in rural areas (1301.1 per 1,000 population) in comparison to urban areas (940.7), highlighting a greater disease burden among rural residents. Rural areas also record higher prevalence rates for low and medium severity illnesses, whereas urban areas show a relatively higher proportion of high-severity cases (13.0 per cent). These findings suggest that rural populations face a heavier overall morbidity burden, while urban areas experience a comparatively greater proportion of high severe illnesses.

**Table- 2: Distribution of illness episodes and Morbidity Prevalence Rate (MPR) by Severity of Illness and Place of Residence**

| Severity of illness | Rural | | | Urban | | | Cooch Behar | | |
|---|---|---|---|---|---|---|---|---|---|
| | Illness episodes | % | MPR | Illness episodes | % | MPR | Illness episodes | % | MPR |
| **Low** | 805 | 52.0 | 677.0 | 294 | 51.5 | 484.3 | 1099 | 51.9 | 611.9 |
| **Medium** | 587 | 37.9 | 493.7 | 203 | 35.6 | 334.4 | 790 | 37.3 | 439.9 |
| **High** | 155 | 10.0 | 130.4 | 74 | 13.0 | 121.9 | 229 | 10.8 | 127.5 |
| **Total** | **1547** | **100** | **1301.1** | **571** | **100** | **940.7** | **2118** | **100** | **1179.3** |

***Source:*** *Author's calculation from primary data, Note: Low = Symptoms without disruption to normal activities; Medium = Disruption of activities; High = Bed ridden for 7 or more consecutive days.*

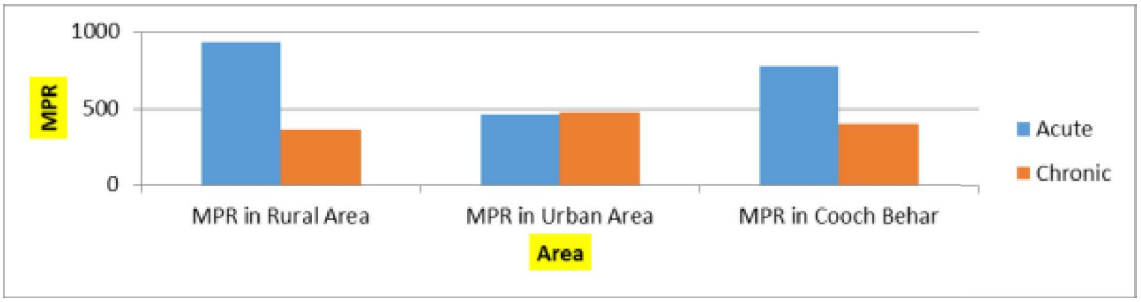
In terms of disease categories, the study finds that non-communicable diseases account for the largest share, i.e. 53.9% of total illness episodes of the district (Table 3). Furthermore, the MPR for GII diseases (636.4 per 1000 population) exceeds that of GI diseases (496.1 per 1000 population), reinforcing the conclusion that the burden of non-communicable diseases is greater not only in terms of their share of total morbidity but also in their prevalence. Urban areas are overwhelmingly dominated by NCDs, reflecting an advanced stage of the epidemiological transition. In contrast, rural areas display almost equal distribution of communicable and non-communicable diseases, where traditional infectious diseases coexist with rising noncommunicable diseases.

**Table- 3: Distribution of illness episodes and Morbidity Prevalence Rate (MPR) by Disease Category and Place of Residence**

| Category of Disease | Rural | | | Urban | | | Cooch Behar | | |
|---|---|---|---|---|---|---|---|---|---|
| | Illness episodes | % | MPR | Illness episodes | % | MPR | Illness episodes | % | MPR |
| **GI** | 740 | 47.8 | 622.4 | 151 | 26.4 | 248.8 | 891 | 42.1 | 496.1 |
| **GII** | 744 | 48.1 | 625.7 | 399 | 69.9 | 657.3 | 1143 | 53.9 | 636.4 |
| **GIII** | 63 | 4.1 | 53 | 21 | 3.7 | 34.6 | 84 | 4 | 46.8 |
| **Total** | 1547 | 100 | 1301.1 | 571 | 100 | 940.7 | 2118 | 100 | 1179.3 |

**Source:** Author's calculation from primary data. Note: MPR = Morbidity Prevalence Rate per 1000 population, GI: Communicable, maternal, peri-natal and nutritional conditions; GII: Non-communicable diseases; GIII: Injuries and accidents.

**Figure 1: Nature of Disease and Morbidity Prevalence Rate**




Thus, the findings suggest that the distribution of illness episodes and the Morbidity Prevalence Rate (MPR) clearly indicate that communicable diseases do not outweigh the non-communicable diseases either at the aggregate level in Cooch Behar district or within its urban areas. However, communicable diseases remain of considerable importance, particularly in rural regions. Overall, the findings point towards an ongoing epidemiological transition, characterised by the growing prominence of non-communicable diseases alongside the persistent presence of communicable diseases.

**Table- 4: Distribution of illness episodes, Morbidity Prevalence rate and Incidence rate by Residence and Gender**

| Gender | Rural | | | Urban | | | Cooch Behar | | |
|---|---|---|---|---|---|---|---|---|---|
| | Illness episodes | MIR | MPR | Illness episodes | MIR | MPR | Illness episodes | MIR | MPR |
| **Male** | 806 | 908.7 | 1269.3 | 293 | 491.9 | 948.2 | 1099 | 663.3 | 1164.2 |
| **Female** | 741 | 958.5 | 1337.5 | 278 | 526.8 | 932.9 | 1019 | 807.5 | 1196.0 |
| **Total** | 1547 | 931.9 | 1301.1 | 571 | 509.1 | 940.7 | 2118 | 789.0 | 1179.3 |

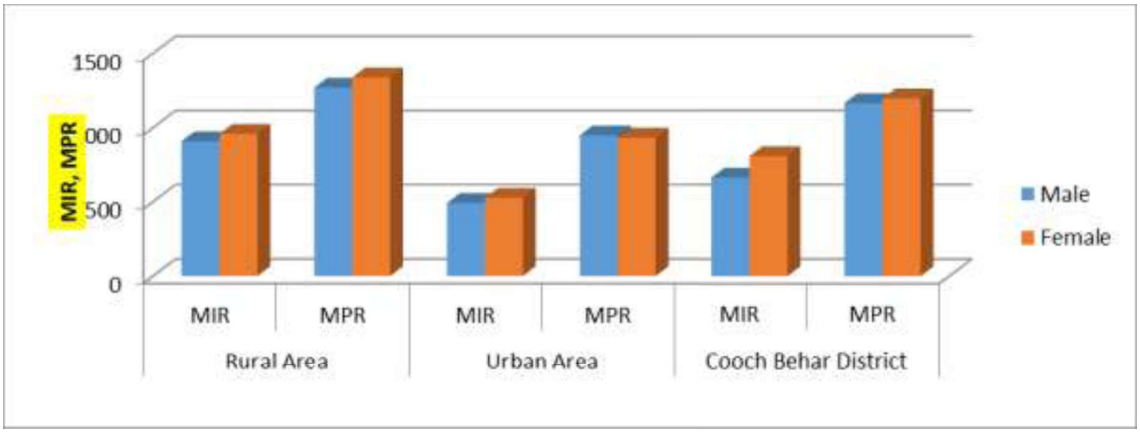
***Source:*** *Author's calculation from primary data, Note: MIR = Morbidity Incidence Rate per 1000 individuals, MPR = Morbidity Prevalence Rate per 1000 individuals.*

## Gender Disparities in Morbidity

Gender-based analysis reveals males report slightly more illness episodes, but females exhibit higher morbidity prevalence rates, indicating a greater overall burden of illness (Table 4). The rural–urban comparison further highlights that, in rural areas, both MIR and MPR are higher for females than for males, with female MPR reaching 1337.5 compared to 1269.3 for males, and MIR at 958.5 compared to 908.7. This indicates that rural women bear a disproportionate burden of both new and existing illnesses. In urban areas, while the differences are less, women still show a higher incidence of new illness episodes. These findings may point to the combined effects of biological vulnerability, socio-cultural constraints, and unequal access to healthcare.

Arthamimansa, January-June 2026, Vol-18, Issue-I- ISSN 2320-0197

**Figure 2: Gender wise and Morbidity Incidence and Prevalence Rate.**




Furthermore, gender-based analysis of morbidity prevalence across disease categories (Table 5) shows that males have higher MPR in GI (526.5 per 1000) and GIII (54.0 per 1000) diseases than females (462.4 and 38.7, respectively), indicating a larger burden of specific diseases belonging to GI and GIII category. In contrast, females show a markedly higher MPR in GII diseases (694.8 per 1000) than males (583.7), suggesting a greater susceptibility or reporting of non-communicable disease.

**Table- 5: Morbidity Prevalence Rate across selected demographic characteristics of sample**

| Sample Characteristics | GI | GII | GIII | Morbidity Prevalence Rate for all Disease Categories (GI + GII + GIII ) | | |
|---|---|---|---|---|---|---|
| | | | | Rural Area | Urban Area | Cooch Behar |
| **Gender** | | | | | | |
| **Male** | 526.5 | 583.7 | 54.0 | 1269.3 | 948.2 | 1164.2 |
| **Female** | 462.4 | 694.8 | 38.7 | 1337.5 | 932.9 | 1196.0 |
| **Age Group ( in years)** | | | | | | |
| **Less than 5** | 1813.2 | 98.9 | 33.0 | 2157.1 | 1238.1 | 1945.1 |
| **5-14** | 849.5 | 228.2 | 14.6 | 1251.7 | 694.9 | 1092.2 |
| **15-29** | 362.6 | 334.9 | 48.5 | 842.4 | 500.0 | 746.0 |
| **30-44** | 395.7 | 479.6 | 45.6 | 1062.0 | 650.3 | 920.9 |
| **45-60** | 366.7 | 1023.8 | 69.0 | 1617.1 | 1178.8 | 1459.5 |
| **61 & Above** | 327.5 | 1362.4 | 39.3 | 1898.3 | 1549.5 | 1729.3 |
| **Education** | | | | | | |
| **NASA** | 2241.4 | 126.4 | 34.5 | 2424.7 | 2285.7 | 2402.3 |
| **Illiterate** | 537.7 | 1100.5 | 70.4 | 1716.6 | 1583.3 | 1708.5 |
| **Up to Primary** | 718.9 | 437.8 | 27.0 | 1338.2 | 755.1 | 1183.8 |
| **Primary to Secondary** | 398.8 | 656.7 | 43.5 | 1125.0 | 1023.4 | 1099.0 |
| **Secondary to H.S** | 300.5 | 737.1 | 70.4 | 1211.9 | 978.9 | 1108.0 |

| | | | | | | |
|---|---|---|---|---|---|---|
| **H.S to Graduate** | 270.6 | 597.1 | 41.2 | 985.9 | 853.5 | 908.8 |
| **Post Graduate & Above** | 323.8 | 323.8 | 38.1 | 702.7 | 676.5 | 685.7 |
| **Marital Status** | | | | | | |
| **Currently Married** | 392.7 | 780.6 | 51.8 | 1325.5 | 1044.7 | 1225 |
| **Unmarried** | 686.0 | 281.0 | 29.8 | 1152.8 | 635.4 | 996.9 |
| **Widow** | 358.0 | 1444.4 | 111.1 | 2113.2 | 1535.7 | 1913.6 |
| **Divorcee** | 0.0 | 3000.0 | 0.0 | 3000 | 0 | 3000 |
| **Widower** | 533.3 | 1000.0 | 66.7 | 1875 | 1285.7 | 1600 |

***Source:*** *Author's calculation from primary data, Note: MPR = Morbidity Prevalence Rate (per 1000 populations), GI: Communicable diseases together with maternal, peri-natal and nutritional conditions; GII: Non-communicable diseases; GIII: Injuries and accidents. NASA: Not attaining school age, H.S: Higher Secondary.*

### Age-wise Distribution and Epidemiological Transition

Age-wise analysis reveals a clear life-cycle pattern in morbidity, with higher morbidity at both ends of the age spectrum. Children below the age of 5 years exhibit extremely high MPR, primarily driven by communicable diseases. This reflects their vulnerability to infections due to underdeveloped immunity and environmental factors such as poor sanitation and nutrition. As age increases, the burden gradually shifts towards non-communicable diseases, with middle-aged and elderly populations experiencing higher prevalence of chronic conditions. The elderly, in particular, show the highest morbidity rates, driven by age-related degenerative diseases. This pattern provides evidence of an ongoing epidemiological transition and highlights the importance of age-specific healthcare strategies.

**Figure 3: Age-wise MPR and Transition in Disease Pattern**