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Epidemiologic Profile and Utilisation of Health Care in North Bengal[1]

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ABSTRACT Infrastructure of health services is passing through a phase of transition in North Bengal. Private sources of care became the main crowed puller than the public ones. Does this change in infrastructure and preference for care correspond to the changes in epidemiologic profile of this region? The research question to be investigated in this paper is that – whether pattern of morbidity or epidemiological profile of this region has transformed leading to a change in the appeal towards a particular type of care or system of medicine. The present study thus applies simple statistical tools to examine the epidemiological profile of Cooch Behar and Jalpaiguri districts of North Bengal (West Bengal, India), and tries to find out its association with pattern of utilisation of health services with respect to type of care and system of medicine.

1. INTRODUCTION

Infrastructure of health services is passing through a phase of transition in North Bengal. The fact can be observed from the dwindling picture of the public health facilities and the flourishing of private sources of care at a faster rate in the region. The reasons behind this fact are, however, not very clear. The question is that – why public sector is lagging behind its private counterpart in pulling crowd from all sections of population? Though scholars have tried to explain the phenomenon from the point of view of characteristics of the subject, disorder, and service, the present study feels that an examination of the phenomenon of epidemiological transition could be a good supplement to those. If pattern of morbidity of one particular region changes, and existing health care infrastructure is not competent enough to meet growing and diversified demand for health care, people will eke out a living with crumbled public health care system or flee to private sources of care if those are available and affordable. The present study thus applies simple statistical tools to examine the epidemiological profile of Cooch Behar and Jalpaiguri districts of North Bengal (West Bengal, India), and tries to find out its association with pattern of utilisation of health services with respect to public and private types of care; and Allopathic, Homeopathic, and other (traditional) systems of medicine.

1.1. An introduction to Cooch Behar and Jalpaiguri

Cooch Behar and Jalpaiguri are the two districts in the extreme northern part (North Bengal) of the state of West Bengal, India. According to the Encyclopaedic District Gazetteers of India (Bhall, 1997), the district of Koch Bihar (also spelled as Cooch Behar officially) geographically forms part of the Himalayan Terai of West Bengal. It lies between the parallels 25^0 57´ 56" and 26^0 32´ 46" north latitude and the longitude of the eastern most point being 89^0 52´ 00" east and the longitude of the western most point being 88^0 45´ 02" east. The northern boundary and most part of the western boundary are formed by the district of Jalpaiguri. The southern boundary of the district is bounded by the Rangpur district of Bangladesh, the eastern boundary is formed by the district of Goalpara of the state of Assam. Headquarters of this district is Cooch Behar.

Cooch Behar derives its name from two wards viz. Koch and Bihar. Koch is an ethnic group of people inhabiting in the vast tract of land to the north-east of the State of West Bengal, Bihar or more properly 'Vihara' on the other hand denotes an abode or spot. So, Koch Bihar means the land of the Koch. Total area of the district is 3387 sq. kms. The district is predominantly an agricultural area.

The district of Jalpaiguri lies between 26^0 16´ and 27^0 0´ north latitude and between 88^0 4´ and

89^0 53′ east longitude. Looking like an irregular rectangle, the district is bounded in the north by Bhutan and the district of Darjeeling, on the south by the district of Rangpur of Bangladesh and the district of Cooch Behar, on the west by the district of Darjeeling and Bangladesh and on the east by the by Assam.

The district has been so named after its principal town Jalpaiguri. The name Jalpaiguri is said to have derived from 'Jalpai' or olive tree and 'Guri' or place meaning thereby, the place abounded with the olive trees. The name Jalpaiguri might as well be associated with 'Jalpes', i.e. 'Siva', the presiding deity of the entire region from the time immemorial. Headquarters of the district is Jalpaiguri. The total area of the district is 6227 sq. kms. Of the total area nearly 28 percent is covered by dense forest, 20 per cent is under tea plantation, and 5 per cent is used for agricultural activities.

2. REVIEW OF LITERATURE

2.1. Morbidity and Epidemiological Transition

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (WHO, 1961). The term morbidity, meaning the state of illness or disability in a population, is a departure from the above ideal health condition. Though death is clearly a well-defined event, illness is not. But it is a state somewhere between perfect health and death whose identification depends upon both the criteria used and type of observation applied to them. Morbidity measures are of two types: self-perceived morbidity and observed morbidity. The objective and scope of the study require a measure of the first type.

Self-perceived morbidity refers to measures, which are perceived and reported by an individual, usually in response to enquiries regarding illness. Murray and Chen (1992) grouped self-perceived morbidity into four categories: symptoms and impairments, functional disability, handicap, and health service use. Morbidity surveys may dependent upon the perception and reporting of symptoms and impairments by individuals. Results from such surveys are the most common form of morbidity data in developing countries (Murray and Chen, 1992). Surveys on functional disability include questions on individual's ability to carry out specific functions and tasks or on restrictions of normal activities. Handicap, as self-perceived functional disability within a specifically defined context, attempts to measure the significance of a functional disability to an individual in a specific social setting. Because data on functional disability and handicap are rare in developing countries, levels of health service use are employed to estimate morbidity burden of a community.

For more than three decades, researchers have examined the links between demographic and socio-economic changes and systematic shifts in disease and mortality patterns. Omran (1971) who first used the term 'epidemiologic transition', projected the view that in progressing from high to low mortality levels, all population experience a shift in the major causes of illness and disease. Whereas infectious diseases and nutritional and reproductive health problems predominate in high mortality populations, chronic and degenerative diseases predominate in low mortality populations. Since Omran, a number of writers have sought to refine or extend the notion of the epidemiologic transition. A broader notion of the 'health transition' has been introduced to account for response of the organised health system to long-term changes in the health condition of a society. Some writers have challenged the view of the epidemiologic transition as a universal theory of unidirectional change, emphasising heterogeneity in the pace or quality of the transition in different settings (Salomon and Murray, 2002).

India is in the midst of an epidemiologic transition and has an epidemiological profile of a poor as well as an affluent country (Sundar, 1995; Peters et al., 2002). Important 'causes of disease' studies in India at National level are based on self-perceived morbidity method. Twenty-eighth (28^{th}) round National Sample Survey of India (NSS, 1980) was dedicated on morbidity. The survey depicts that one in three Indians fell ill annually, with similar rates in urban and rural areas for 2-weeks reference period. It means that annual prevalence rate of disease was around 333.33. Among the States, Kerala has the highest rate of reported morbidity though it was the most demographically advanced state. Citing this example and another one from USA (which shows that self-perceived morbidity in USA is several times higher than

that of rural Kerala and the Indian national average) Murray and Chen (1992) has put question on validity and reliability of 'self-perceived' method. National Council for Applied Economic Research (NCAER) did a Household Survey of Medical Care in India in 1990 (Sundar, 1995). The study shows, in India, prevalence rates of morbidity for one-month reference period as 106.7 and 103.0 for rural and urban areas respectively. The figures for West Bengal were 82.0 and 81.5 in the rural and urban areas respectively. This study also shows highest rates of morbidity in Kerala. The figures (for Kerala) were 194.8 and 183.9 in rural and urban areas respectively. High morbidity in Kerala may be due to high perception of illness of the educated and highly health conscious people of the State or may be burden of disease is really very high in that State.

One regional level study by Inspiration (2002), commissioned by GTZ, Germany, has presented occurrence rates of 12 major diseases in rural areas of Cooch Behar in major four seasons: summer, rainy, spring and winter. If we add the seasonal figures to get annual rates, we get very high incidence rates for few diseases like fever (171 per cent), Diarrhoea (160 per cent), Acute Respiratory Infection (64.2 per cent), Measles / Chicken Pox (48 per cent), Skin disease (34.2 per cent), and Malaria (32.01 per cent) among the sampled population.

2.2. Pattern of Morbidity and Utilisation of Care

According to Kroeger (1983), with characteristics of the subject and service, utilisation of health care also depends on characteristics of disorder. He has presented a detailed review on aetiological concept and type of disease in Africa, Asia and Latin America. In Africa, the dichotomy between magical-supernatural and physical-empirical diseases was found to be related to different folk strategies of treatment. In India, preference for modern health care would depend on particular illness. In rural India and Taiwan, people with mental illness resorted more particularly to traditional healers. In Latin America, illness with deemed super natural causes were treated by folk specialists, while others, such as infections were treated at home. In some cases, patients went to doctors to gain relief from the symptoms and to the folk healer to remove the cause of the disease.

Pathak et al. (1981) found that higher the severity of perceived morbidity, the higher the degree of utilisation of services in a rural area of Nagpur in India. Germano (1986) showed a varied pattern of utilisation for different types of illness in their different stages in a rural set up in Kenya. In the Solenzo Medical District in Burkina Faso, Sauerborn et al. (1989) found that most of the seriously ill patients overcame the barriers of cost and access to use professional health service. In their study, severity of disease is one of the most important determinants of health seeking behaviour.

Studies on pattern of morbidity and utilisation of care are very limited in the context of North Bengal. District level reports of Rapid Household Survey – Reproductive and Child Health Project (RHS-RCH) for Cooch Behar and Jalpaiguri (MODE, 1998; 1999) show very high levels of reproductive morbidity but very low levels of utilisation of health services. The Report of Inspiration (2002) for Cooch Behar states that in spite of high incidence rates of disease, a sizeable proportion of health seekers prefers quacks and primary level public health facilities. For common ailments, communicable diseases, and major ailments 36, 44, and 48 per cents households seek care from public sources respectively and the remaining 64, 56, and 52 per cents seek care from private sources respectively.

3. NEED FOR THE STUDY

The above review provided us with important clue that varied pattern of morbidity may have impact on the health seeking behaviour. However, it is to be mentioned that RHS-RCH has not covered all sections of population and also not considered all types of illness or disease. The Baseline Survey in Cooch Behar has been conducted in rural areas of the district only. The district of Jalpaiguri is yet to see such a study. Also, the studies mentioned in the above section of review of literature on pattern of morbidity and utilisation of care have not followed any standard categorisation of diseases and are not comparable among each other. If we look at the sampling design of the study done by Inspiration (2002) in Cooch Behar, we find that 60 villages have been covered in the district and 10 households have been selected from each village.

Of the 10 households, 7 have been selected purposively such that each has at least one infant, 1 household has been selected purposively such that it has one adolescent. Rest 2 households have been selected randomly. In such a sampling design the possibilities of biases cannot be ruled out. Moreover, as the study used 1-year recall period, it has aggravated the chances of misreporting. The present study will address such methodological issues and look forward to reveal true picture of the epidemiological profile of this region and its impact on pattern of utilisation of care.

4. DATA

The study utilises primary data collected through interview technique for a 5-month reference period and is based on self-perceived morbidity method. The survey has been conducted in the second half of 2003 in the Sadar sub-divisions of Cooch Behar and Jalpaiguri districts of North Bengal. Determination of sample size for morbidity analysis needs special attention. It depends on a number of technical and non-technical factors. Non-technical factors are: time and resources available for the study, geographical considerations, etc. Technical factors include objective of the study, proportion of cases having the characteristics (under study) in the population, and level of margin at which the study is designed. The level of margin for the present study is 0.05 (i.e. $\alpha = 0.05$). The pilot study revealed that the (annual) average period prevalence rate (proportion of persons who are exposed to utilisation of care) of disease for the two districts are 0.348 and 0.489 (without the multiplier 1000) in rural and urban areas respectively. The average sizes of a household in rural and urban area of the two districts are 5.455 and 5.150 respectively according to 1991 Census.

If 'n' is the size of a sample, P = proportion of cases having the characteristics, and Q = (1-P) then $n = Q / (P*\alpha^2)$.

This will give $n = 0.652 / (0.348*0.0025) \approx 749$ persons or $749 / 5.455 \approx 140$ households in rural areas and $n = 0.511 / (0.489*0.0025) \approx 418$ persons or $418 / 5.150 \approx 80$ households in urban areas of each of the districts. The total sample size is 2334 persons or 440 households in the two districts. Among the large-scale household surveys, in NFHS-II, 15-60 households have been selected from each village (EIT and IIPS, 1999); in RHS-RCH (Mode, 1998), 20 households have been selected from each village / ward. In the present study it has been decided to select 20 households from each mouza / village / ward. This leads us to select 140/20 = 7 mouzas / villages in rural areas and 80/20 = 4 wards in urban areas in each district.

It is to be mentioned that after completing the survey we get 2342 persons from 440 households – 1506 from rural and 836 urban areas. However, there are 325, 158, and 483 illness episodes, which have been included in the analyses in the rural, urban, and the combined categories respectively.

5. METHOD

5.1. Morbidity Analysis

5.1.1. Examination of the Phenomenon of Epidemiological Transition: In order to carry out studies on epidemiological transition data on morbidity will be classified according to the Global Burden of Disease (GBD) study 1990 (Murray and Lopez, 1996).

The observed distributions will be compared with the hypothesised ones (using Chi-square statistic) to test whether epidemiological transition has taken place in rural and urban areas of Cooch Behar and Jalpaiguri districts of North Bengal

Table 1: Classification of diseases as in Global Burden of Diseases study 1990

Cause Group	*Major categories*
Group I: Communicable, maternal, perinatal, and nutritional diseases	Infectious and parasitic diseases, Respiratory infections, Maternal conditions, Conditions arising during the perinatal period, Nutritional deficiencies
Group II:Non-communicable diseases	Malignant neoplasms, Diabetes mellitus, Endocrine disorders, Neuro-psychiatric conditions, Sense organ diseases, Cardiovascular diseases, Chronic respiratory diseases, Digestive diseases, Genito-urinary diseases, Skin diseases, Musculoskeletal diseases, Congenital anomalies, Oral conditions
Group III: Injuries	Unintentional injuries, Intentional injuries

5.1.2.Pattern of Morbidity With Respect to Characteristics of the Subject: Simple cross tabulations will be done to get the pattern of morbidity with respect to background characteristics of the patients / respondents / households such as age, gender, caste, family size, education of the head of the households, household cash income.

5.1.3. Incidence and Prevalence Rates of Disease: In order to compute rates of morbidity, the illnesses that exist in a population during a given time interval may first be classified as follows (Hill, 1966):

a) Illness beginning during the interval and ending during the interval.

b) Illness beginning during the interval and still existing at the end of the interval.

c) Illness existing before the beginning of the interval and ending during the interval.

d) Illness existing before the beginning of the interval and still existing at the end of the interval.

For each of the above categories we are interested to measure rates based on number of spells. We need number of illness in the first two categories to measure incidence rate.

$$\text{Incidence Rate (annual)} = \frac{I}{P} * \frac{360}{150} * 1000$$

where I is the number of new cases of illness in the 5-month reference period per 1000 average number persons living in the community during the reference period.

$$\text{Period Prevalence Rate (annual)} = \frac{C}{P} \text{x} \frac{360}{150} \text{x} 1000$$

where C is total number of spells (in all the four categories) in the 5-month reference period per 1000 average number persons living in the community during the reference period. Morbidity rates will be computed for rural, urban, and combined categories. These annual rates can also be converted into monthly rates by replacing the numerator of the formulae, 365 by 30.

5.2. Morbidity and Utilisation of Care

Simple cross tabulations will be done to get clues on how pattern of morbidity affects pattern of utilisation of a care. Though utilisation of care may have many dimensions, we have defined it in three ways:

a) Utilisation of a care from 'modern source' in consultation with doctors and medical specialists in one group, and utilisation from 'traditional source' (including treatment from paramedical or supporting stuff and from any system of medicine except Allopathy and Homeopathy) or self-treatment or family-treatment, etc. in the other;

b) Utilisation of a care from 'public' or 'private' facilities;

c) Utilisation of a care from 'Allopathic', 'Homeopathic', or 'other' systems of medicine.

6. RESULTS

6.1. Morbidity Analysis

6.1.1. Epidemiologic Profile: Table 2 shows type of illness classified into three broad categories following the categorisation of Global Burden of Disease Study 1990, as shown in table 1. There are 325 cases of illness in the rural areas, out of which more than 57 per cent of the cases (187) are of communicable and related diseases. On the contrary nearly 30 per cent of the cases (97) are of non-communicable diseases. More than 12 per cent cases (41) are of intentional and unintentional injuries. In the urban areas there are 158 cases of illness. Percentages of communicable and non-communicable diseases, and injuries are 16.5, 54.4, and 29.1 respectively. If we compare type of illness between rural and urban categories, we see dominance of communicable diseases in the former and dominance of non-communicable diseases in the latter. The figure for injuries is also higher in the urban category than in the rural category.

From the point of view of epidemiological transition, the rural areas of this region of North Bengal remain in the pre-transitional stage. The observed epidemiological profile differs from the hypothesised one (Chi-square test statistic: 100.160, sig. 0.000). The urban areas are, however, in the second stage of epidemiological transition (Chi-square test statistic: 35.443, sig. 0.000).

Table 2 also shows severity of illness in three categories: low, medium, and high. From the table, however, we do not see any specific pattern of severity.

6.1.2. Type of Illness and Characteristics of the Subject: Tables 3, 4, and 5 show types of illness according to characteristics of the subject (background characteristics of the patients / respondents / households) in rural, urban, and

combined categories respectively. In the rural areas there are 187, 97, and 41 cases of illness in the three broad categories of diseases (communicable, etc., non-communicable, and injuries) respectively. Of the 187 cases of communicable diseases, etc., nearly 20 per cent occurs to children in their first 4 years of age. Percentage figures corresponding to the 5-14, and 65 + age groups also round about it. The figure is simply double (40.6 %) in the working age group. From these figures it is clear that the occurrence of communicable disease is the highest in the 0-4 age group (it is to be mentioned that age groups are not equal). Similarly, children in the 0-4 age group suffer most from non-communicable diseases also. Occurrence of intentional and unintentional injuries is seen the highest for the children in the 5-14 age group. Gender differences in pattern of morbidity are also prominent. Women suffer more from diseases in the Group-I, as those include maternal and reproductive morbidity also. Men suffer more from non-communicable diseases and injuries. Households in small families (with family members 5 or less) suffer more from diseases in Group-I, and in the large families

Table 2: Epidemiologic profile in major three categories

Disease profile	*Category*	*Rural*		*Urban*		*Combined*	
		n	*%*	*n*	*%*	*n*	*%*
Type of illness*	Group I	187	57.5	26	16.5	213	44.1
	Group II	97	29.8	86	54.4	183	37.9
	Group III	41	12.6	46	29.1	87	18.0
	Total	325	100.0	158	100.0	483	100.0
Severity of illness	Low	121	37.2	45	28.5	166	34.4
	Medium	122	37.5	73	46.2	195	40.4
	High	82	25.2	40	25.3	122	25.3
	Total	325	100.0	158	100.0	483	100.0

* Group I: Communicable, etc., Group II: Non-communicable, Group III: Injuries

Table 3: Type of illness and characteristics of the subject - Rural

Characteristics of the subject	*Category*	*Type of illness **					
		Group I		*Group II*		*Group III*	
		n	*%*	*n*	*%*	*n*	*%*
Age-structure	0-4	37	19.8	16	16.5	5	12.2
	5-14	40	21.4	28	28.9	12	29.3
	15-64	76	40.6	32	33.0	16	39.0
	65+	34	18.2	21	21.6	8	19.5
	Total	187	100.0	97	100.0	41	100.0
Gender	Male	71	38.0	53	54.6	22	53.7
	Female	116	62.0	44	45.4	19	46.3
	Total	187	100.0	97	100.0	41	100.0
Caste	SC/ST	71	38.0	36	37.1	18	43.9
	General	116	62.0	61	62.9	23	56.1
	Total	187	100.0	97	100.0	41	100.0
Family size	≤ 5	108	57.8	48	49.5	15	36.6
	> 5	79	42.2	49	50.5	26	63.4
	Total	187	100.0	97	100.0	41	100.0
Education	≤ Primary	72	38.5	51	52.6	21	51.2
	Middle +	115	61.5	46	47.4	20	48.8
	Total	187	100.0	97	100.0	41	100.0
Income (Rupees)	< 2000	86	46.0	38	39.2	23	56.1
	2000 - 4999	75	40.1	42	43.3	15	36.6
	5000 +	26	13.9	17	17.5	3	7.3
	Total	187	100.0	97	100.0	41	100.0

* Group I: Communicable, etc., Group II: Non-communicable, Group III: Injuries

Table 4: Type of illness and characteristics of the subject -Urban

Characteristics of the subject	*Category*	*Type of illness**					
		Group I		*Group II*		*Group III*	
		n	*%*	*n*	*%*	*n*	*%*
Age-structure	0-4	4	15.4	31	36.0	15	32.6
	5-14	7	26.9	28	32.6	16	34.8
	15-64	10	38.5	17	19.8	9	19.6
	65+	5	19.2	10	11.6	6	13.0
	Total	26	100.0	86	100.0	46	100.0
Gender	Male	16	61.5	56	65.1	28	60.9
	Female	10	38.5	30	34.9	18	39.1
	Total	26	100.0	86	100.0	46	100.0
Caste	SC/ST	7	26.9	15	17.4	6	13.0
	General	19	73.1	71	82.6	40	87.0
	Total	26	100.0	86	100.0	46	100.0
Family size	≤ 5	18	69.2	51	59.3	30	65.2
	> 5	8	30.8	35	40.7	16	34.8
	Total	26	100.0	86	100.0	46	100.0
Education	≤ Primary	23	88.5	67	77.9	32	69.6
	Middle +	3	11.5	19	22.1	14	30.4
	Total	26	100.0	86	100.0	46	100.0
Income (Rupees)	< 2000	1	3.8	8	9.3	5	10.9
	2000 - 4999	8	30.8	23	26.7	15	32.6
	5000 +	17	65.4	55	64.0	26	56.5
	Total	26	100.0	86	100.0	46	100.0

** Group I: Communicable, etc., Group II: Non-communicable, Group III: Injuries*

Table 5: Type of illness and characteristics of the subject – Combined (Rural + Urban)

Characteristics of the subject	*Category*	*Type of illness**					
		Group I		*Group II*		*Group III*	
		n	*%*	*n*	*%*	*n*	*%*
\Age-structure	0-4	41	19.2	47	25.7	20	23.0
	5-14	47	22.1	56	30.6	28	32.2
	15-64	86	40.4	49	26.8	25	28.7
	65+	39	18.3	31	16.9	14	16.1
	Total	213	100.0	183	100.0	87	100.0
Gender	Male	107	50.2	109	59.6	50	57.5
	Female	106	49.8	74	40.4	37	42.5
	Total	213	100.0	183	100.0	87	100.0
Caste	SC/ST	78	36.6	51	27.9	24	27.6
	General	135	63.4	132	72.1	63	72.4
	Total	213	100.0	183	100.0	87	100.0
Family size	≤ 5	126	59.2	99	54.1	45	51.7
	> 5	87	40.8	84	45.9	42	48.3
	Total	213	100.0	183	100.0	87	100.0
Education	≤ Primary	95	44.6	118	64.5	53	60.9
	Middle +	118	55.4	65	35.5	34	39.1
	Total	213	100.0	183	100.0	87	100.0
Income (Rupees)	< 2000	87	40.8	46	25.1	28	32.2
	2000 - 4999	83	39.0	65	35.5	30	34.5
	5000 +	43	20.2	72	39.3	29	33.3
	Total	213	100.0	183	100.0	87	100.0

* Group I: Communicable, etc., Group II: Non-communicable, Group III: Injuries

(with more than 5 family members) suffer more from injuries (Group-III). Occurrence of communicable diseases, etc. is higher in the families whose heads have middle or higher

levels of education. Households with higher income suffer less as compared to the poorer ones from all types of diseases.

In the urban areas people suffer more from non-communicable diseases and injuries as shown in table 4. Incidence of non-communicable diseases seems to be the highest for children in the 0-4 age group followed by children in the 5-14 age group. Males have higher risk of suffering from all types of diseases than females do. Morbidity is high in the small (with family members 5 or less) families and in families where household-heads are primarily educated or illiterate. Pattern of morbidity with respect to household-income draws our attention. We see that incidence of diseases increases sharply with income for all types of diseases. Table 5 shows the pattern of morbidity in the combined category.

If we compare results of rural and urban categories, we see that females in the former suffer more from Group-I diseases than females in the latter. On the contrary males in the urban areas suffer more from all types of diseases than their rural counterparts. Pattern of morbidity with respect to household income is quite reverse in the two categories. In rural areas, comparatively, poor households are seen to suffer more. In the urban areas the affluent households are reported to suffer more than the poorer ones. The reason behind such fact is, however, not clear. Comparatively, burden of disease among the affluent households in rural areas may be low or affluent households in urban areas might have experienced many complexities, which they have reported.

6.1.3. Incidence and Prevalence Rates of Disease: Table 6 shows incidence and prevalence rates of diseases. Incidence rate of disease in the rural areas of the districts is 273.06. It conveys that 273 in every 1000 persons face new attacks annually or roughly 22 in every 1000 persons face new attack monthly. In the urban areas annual incidence rates is 165.91; in other words, roughly 14 in every 1000 persons fall ill monthly. In the combined category annual incidence rate of disease is 234.81 per 1000.

Table 6: Annual incidence and prevalence rates of disease

Rates	*Rural*	*Urban*	*Combined*
Incidence rate	273.06	165.91	234.81
Prevalence rate	525.12	459.89	501.84

The prevalence rates are higher than incidence rates to some extent as those consider new attacks as well as illness, which are prevailing during the reference period. In the rural areas 525 in every 1000 persons fall ill annually or roughly 43 in every 1000 persons fall ill monthly. In the urban areas annual and monthly prevalence rates are 459.89 and 37.80 per 1000. In the combined category annual prevalence rate disease is 501.84.

If we compare the above rates with the figures cited in the section of review of literature, we see that prevalence rates of disease is far above the national average. According to the NSS (1980), annual prevalence rate of disease was 333.33. The prevalence rate of disease is thus 1.5 times higher than the national average. When we compare the results with the findings of NCAER (Sundar, 1995), the prevalence rate of rural areas is 2.56 times higher than the national average, and 3.33 times higher than the average rate of West Bengal. In the urban areas the rate (prevalence) is 1.61 times higher than the national average and 2 times than the state-level (West Bengal) average. Though strictly not comparable, if we contrast the findings of our study with those of the Inspiration (2002), we may comprehend that the occurrence rates for few diseases like fever, diarrhoea, etc. (communicable diseases) are tremendously high in Cooch Behar as depicted by latter. According to that study, on an average, one person is likely to suffer from these diseases more than once in a year, as the rates are 171 and 160 per cents respectively.

6.2. Morbidity and Utilisation of Care

Table 7 shows pattern of utilisation of care with respect to morbidity. Out of 187 cases of communicable diseases, etc. in rural areas, more than 74 per cent cases have been treated with modern care, and more than 62 per cent with private care. There are 97 cases of non-communicable diseases in the rural areas. Out of these cases, nearly 59 per cent have been treated with modern care, and more than 75 per cent with private care. For injuries also, by and large people prefer modern care from private sources.

In the urban areas for more than 54 per cents of diseases in Groups-II and III, people prefer traditional care. We must remember here that

Table 7: Type of illness* and pattern of utilisation of care

Utilisation	*Rural*						*Urban*						*Combined*					
	Group I		*Group II*		*Group III*		*Group I*		*Group II*		*Group III*		*Group I*		*Group II*		*Group III*	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Traditional	48	25.6	40	41.2	15	36.6	12	46.2	47	54.7	25	54.3	60	28.2	87	47.5	40	46
Modern	139	74.3	57	58.8	26	63.4	14	53.8	39	45.3	21	45.7	153	71.8	96	52.5	47	54
Total	187	100	97	100	41	100	26	100	86	100	46	100	213	100	183	100	87	100
Public	70	37.4	24	24.7	13	31.7	5	19.2	9	10.5	4	8.7	75	35.2	33	18	17	19.5
Private	117	62.6	73	75.3	28	68.3	21	80.8	77	89.5	42	91.3	138	64.8	150	82	70	80.5
Total	187	100	97	100	41	100	26	100	86	100	46	100	213	100	183	100	87	100
Allopathy	125	66.8	53	54.6	19	46.3	16	61.5	50	58.1	26	56.5	141	66.2	103	56.3	45	51.7
Homeopathy	36	19.3	22	22.7	12	29.3	6	23.1	23	26.7	15	32.6	42	19.7	45	24.6	27	31
Other	26	13.9	22	22.7	10	24.4	4	15.4	13	15.1	5	10.9	30	14.1	35	19.1	15	17.3
Total	187	100	97	100	41	100	26	100	86	100	46	100	213	100	183	100	87	100

* Group I: Communicable, etc., Group II: Non-communicable, Group III: Injuries

traditional care also includes self-treatment or family-treatment, etc. This indicates chances of self- or family-treatment or other among the urban dwellers. For communicable and other diseases in Group-I, urban dwellers are seen to prefer modern care. As of sources of care, nearly for all cases of all types of diseases urban dwellers seek care from private sources.

If we look at the pattern of utilisation of care with respect to system of medicine, we see that in the rural areas nearly 67 per cent of the cases have been treated with Allopathy. For more than 19 per cent of cases household seek Homeopathic care. In the rural areas, for other types of diseases in Groups-II and III, households' dependence on Allopathy declines gradually. On the contrary dependence on Homeopathy and other systems of medicine increases gradually. On an average, households in the urban areas also follow similar pattern.

7. SUMMARY AND CONCLUSION

The study revealed that in rural areas of Cooch Behar and Jalpaiguri districts of North Bengal, real burden of disease is very high. Both the incidence and prevalence rates of disease are markedly above than the national and state-level averages. As of disease profile, people suffer more from communicable and other diseases, which prevail in the pre-transitional societies, i.e., in societies with poor socio-economic background. Burden of non-communicable diseases and injuries are, however, high in urban areas. According to the phenomenon of epidemiological transition, rural areas of this region remain in the pre-transitional stage, and the urban areas are passing through the mid-transitional stage. So, this particular region of North Bengal has an epidemiological profile of backward as well as advanced societies. It conveys that the problem of this region has at lease two facets: one is associated with the real heavy burden of diseases and the other is with the complex epidemiological profile of pre-transitional and transitional societies. Health care infrastructure of this region must be competent enough to meet such complex needs. From the results it is clear that people from all societies (pre-transitional and transitional) have less dependability on the public health facilities. Consequently people are seen to flee to the private sources of care. From these results,

however, we cannot make any inference about people's inherent preference for public or private types of care. Nevertheless the fact remains that public sources of care (of this region) are not good enough to deal with the complex epidemiological profile of North Bengal.

NOTES

1. Part of doctoral work which is supervised by Jeta Sankrityayana, Reader in Economics, University of North Bengal, Darjeeling, India.

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