

**ACCESS TO AND UTILISATION OF HEALTH**

**CARE SERVICES IN WEST BENGAL**

**A COMPARATIVE STUDY WITH ORISSA AND KERALA**

**ACCESS TO AND UTILISATION OF HEALTH  
CARE SERVICES IN WEST BENGAL**  
A COMPARATIVE STUDY WITH ORISSA AND KERALA

*Dissertation submitted in the partial fulfilment of the requirements for the degree of Master  
of Philosophy in Applied Economics of the Jawaharlal Nehru University*

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June, 2001

I hereby affirm that the work for the dissertation, **Access to and Utilisation of Health Care Services in West Bengal: A Comparative Study with Orissa and Kerala**, being submitted as a part of the requirements of the M.Phil. Programme in Applied Economics of the Jawaharlal Nehru University, was carried out entirely by myself and has not formed part of any other Programme and not submitted to no other institution/University for the award of any Degree or Programme of Study.

June 29, 2001

  
Subrata Mukherjee

Certified that this study is the bona fide work of Subrata Mukherjee, carried out under our supervision at the Centre for Development Studies.



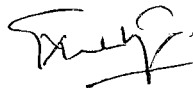
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*To my parents*

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*Subrata Mukherjee*

ABSTRACT OF THE DISSERTATION  
**ACCESS TO AND UTILISATION OF HEALTH CARE SERVICES IN WEST  
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This study has made an attempt to identify, understand and assess the factors related to access to and utilisation of health care in the state of West Bengal (which is one of the major Indian states with highest population density), examine their variations across regions and across the socio-economic and demographic classes and finally draw a few tentative policy lessons.

The study approached the problem of access to and utilisation of health care from the standpoint of health economics and tried to evaluate access to and utilisation of health care services from the equity point of view. While the rationale for health care policies may well be concerned with equity, their implementation has been dominated by considerations of equality. Among the different criteria of equality, we have considered group equality of access and utilisation as more relevant from the practical and policy points of view. All the questions and issues were addressed and discussed in a comparative perspective with two other states Kerala and Orissa. The main reason for taking Kerala and Orissa is that West Bengal lies between Kerala and Orissa in terms of many socio-economic demographic variables and variables related to medical infrastructure and manpower.

Mainly data collected by National Sample Survey Organisation in their 42<sup>nd</sup> and 52<sup>nd</sup> rounds, National Council of Applied Economic Research, National Family Health Surveys have been used for the study. In addition, data provided by the directorate of Health Services (respective state governments) and other sources have been used depending upon the purpose. The empirical analysis of this study is divided into three parts. The first part prepares the background of the study by giving details about the three states in terms of socio-economic variables, geographic and demographic features, medical infrastructure and manpower, its variation across the regions, infrastructural facilities (including village connectivity and transport facilities); the second part gives an account of morbidity pattern, analyses the variations in utilisation across socio-economic classes; and the last part examines the expenditure aspect of health care.

The urban areas of the three states do not show any difference in the (outpatient) utilisation of health care. There is a considerable difference in the utilisation of health care by the rural people in the three states. There is no rural-urban difference in Kerala and the difference is highest in Orissa. West Bengal shows higher degree of group inequality in (outpatient) utilisation between socially backward caste and general caste and between rural population and urban population. In contrast to Kerala and Orissa, the association between (outpatient) utilisation and income is stronger in the rural areas compared to the urban areas in West Bengal. This implies that income is more important in the rural areas compared to the urban areas in the determination of (outpatient) utilisation of health care. An examination of the causes for no treatment by reasons also reinforces this argument. The lower income for the state as a whole, higher incidence of rural poverty, higher percentage of socially backward population (especially the scheduled tribes) and lower literacy together seem to be responsible for very low utilisation of health care in rural Orissa. But in case of rural West Bengal, the lack of physical access seems to be the major reason for lower (outpatient) utilisation. However, the utilisation data does not show any systematic gender disparity in West Bengal. The considerable rural-urban difference in the rate of hospitalisation in West Bengal indicates the rural people's lack of access to inpatient health care.

The difficulties in accessing health care and pattern of utilisation by different groups of population are also reflected in the magnitude and composition of health care expenditure. Even if West Bengal shows a higher government expenditure on medical care (including public health) as a percentage of total government expenditure compared to Kerala and Orissa, the per capita government on medical care (including public health) is lower in West Bengal compared to Kerala. Not only is the per capita government expenditure on health care lower, but also is the average monthly per capita household expenditure on medical care lower in West Bengal compared to Kerala. The government expenditure on health care has an urban bias in all the three states. Apart from the factors related to the physical access, the higher relative price of private inpatient care and higher indirect cost of inpatient care seem to be responsible for lower rate of hospitalisation in rural West Bengal compared to Kerala and Orissa.

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## Chapter 1

### INTRODUCTION

#### 1.1 Stating the Problem:

Good health is one of the most crucial components of human well-being. Although access to health care services is not the only factor that determines health outcome, it is definitely one of the most important determinants. Large sections of the population without access to health care services, fairly high proportion of the population below the poverty line, high illiteracy are some of the characteristics that India shares with other developing countries. It is now well recognised that there exists two-way relationship between ill-health and poverty, in spite of the fact that most of the governments, at least in principle, believe that every individual should have adequate access to health care services irrespective of one's income. In a limited sense access means existence of a health care facility within certain distance from the house where the individual lives. But it is well known that this notion of physical access may not often translate into realisable access. Therefore it is important to know how people actually utilise whatever facilities are available. A study of various aspects of access to health care services and their pattern of utilisation is therefore important in understanding the factors that play an important role in shaping people's health. The present study seeks to deal with various aspects of access to and utilisation of health care services in the state of West Bengal and draw lessons for policy intervention.

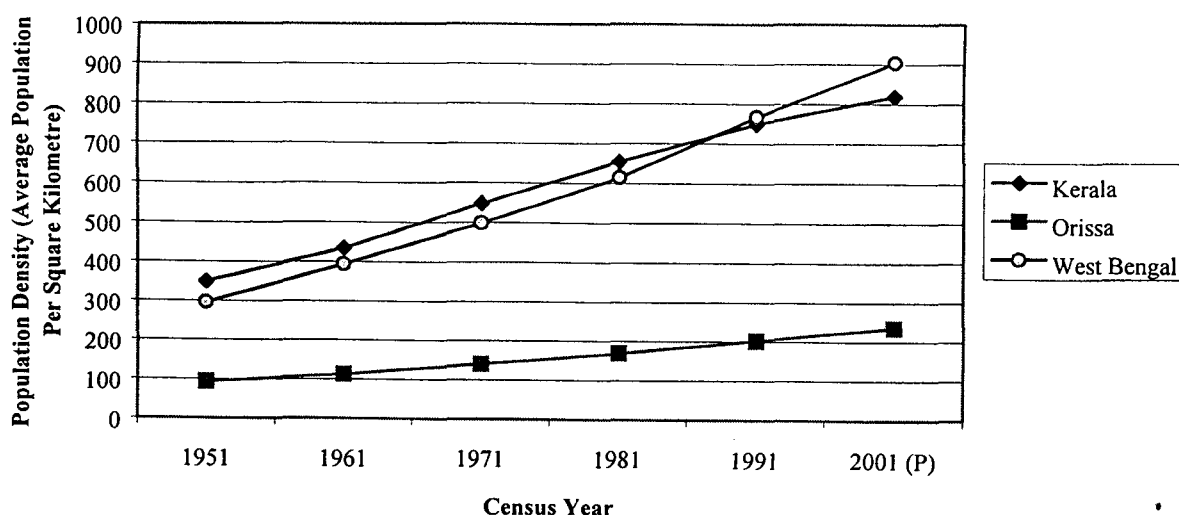
The most important motivation behind a study of access and utilisation perhaps comes from our concern for equity. Although the primary goal of a health system is to improve the health status of people, one may reasonably ask: Does better availability of health care at the aggregate level imply more equitable spatial distribution and better effective access to health care across different socio-economic classes? Even if a more-or-less uniform spatial distribution of health care facilities is achieved, does it necessarily lead to a uniform pattern of health care utilisation by different socio-economic and demographic classes? An attempt to answer these questions requires examination of the supply or availability of health care, its spatial distribution, determinants and patterns of health care utilisation. In addition, an examination of the pattern of health care expenditure can highlight some aspects of access to and utilisation of health care.



In India, the health care sector is characterised by a complex combination of facilities, which provide services in different systems of medicine and different kinds of institution. The nature of this combination varies greatly from one state to another. Therefore, while studying the pattern of access and utilisation in a state, it would be instructive to compare and contrast its pattern with some other states. For the purpose of our study we have chosen Orissa and Kerala for comparison.

The reasons for studying West Bengal are the following: Firstly, according to the 1991 and the provisional estimates of 2001 Census, West Bengal is the major Indian state with the highest density of population. (The growth of population density for West Bengal, Kerala and Orissa is depicted in figure 1.1). There is an argument that high population density eases the problem of access, because a facility in a densely populated area can easily have the critical minimum mass of people around it to make it efficient<sup>1</sup>. Secondly, there have not been many studies addressing the issues relating to differential access and performance in respect of health care in the context of West Bengal. Finally, the resource crunch of the government and the necessity to go for health sector reforms – the state is implementing a World Bank Funded State Health System Project – would create the urgency for understanding the health care sector of West Bengal.

Figure 1.1: Growth of Population Density in Kerala, Orissa and West Bengal



<sup>1</sup> Higher population density and greater involvement of private sector even in the remote areas are considered the factors causing greater access to health care in Kerala.

## 1.2 Objectives of the Study:

The present study has the following objectives:

- (i) to build up a picture of the access to health care and to examine its variation across districts;
- (ii) to examine the morbidity profile and utilisation of health care services across socio-economic and demographic classes;
- (iii) to examine the pattern of expenditure on health care and its distributional implications; and
- (iv) to draw a few policy lessons.

## 1.3 Methodology and Approach:

This study approaches the problem of access to and utilisation of health care in West Bengal from the standpoint of health economics. Whereas economics deals with the consequences of resource scarcity, health economics deals with the consequences of resource scarcity in the health care sector. Mainly three kinds of economic agents<sup>2</sup> are involved in the functioning of the health sector: the household as the consumer of medical goods and services, the government and private sector organisations as the producer and supplier of medical goods and services. The economic approach looks into the sector from the resource allocation point of view, which has efficiency and equity as two evaluative criteria<sup>3</sup>. The present study does not address the question of efficiency. Instead, it aims at evaluating the access to and utilisation of health care services from equity point of view.

Of all criteria, equity is perhaps the most difficult to evaluate because of three reasons: (a) it has so many facets; (b) the concept is contested, so that there is disagreement about its meaning and (c) data are difficult to obtain (Atkinson, 1998). There are two notions of equity: horizontal and vertical equity (Culyer and Wagstaff, 1993). Horizontal equity implies that persons in equal need of health care should get equal treatment. Vertical equity implies that persons with greater need should get more treatment than those with lesser needs<sup>4</sup>. Because these services are mostly paid

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<sup>2</sup> The presence of health insurance companies is not considered as they cover a significant portion of the population in India.

<sup>3</sup> Robinson and Le Grand (1993) suggest four criteria say, quality, efficiency, choice and responsiveness, and equity for evaluating any intervention in the market for health care

<sup>4</sup> The vertical equity (in its Aristotelian version) requires that persons with in unequal need be treated in proportion to the inequality in need.

by taxation, the extent to which they are equitable depends largely on the extent to which the general taxation system is progressive. Equity also depends on the extent to which the service received varies with income. In health care the most expensive part of the system is treatment of chronic illnesses. Hence a move towards vertical equity would suggest that resources be moved from the treatment of communicable and acute illness towards the communicable diseases (which are more prevalent among the poor). A move towards equity could be measured by the extent to which any reform increased the relative life expectancy of the poor.

While the rationale for health care policies may well be concerned with equity, their implementation has been dominated by consideration of equality (Mooney and McGuire, 1987). Mooney (1983, 1986) and Le Grand (1982, 1987, 1991) have identified several definitions of equity in the context of health care provision. These are equality of (i) expenditure per capita; (ii) inputs per capita; (iii) inputs for equal need (iv) access for equal need; (v) utilisation for equal need; (vi) marginal met need and (vi) health. It is difficult to reconcile these objectives with one another. The equality of inputs per capita may differ from equality of expenditure per capita if inputs vary in their prices. Principles (iii) and (iv) are different because to achieve equal access (defined as equal opportunity to use health care resources) may require differential levels of inputs. For instance, all other things being equal, higher levels of resources might be allocated to more sparsely populated areas. Principle (v) refers to actual consumption rather than to access. In principle, it is possible to choose any of the definitions and indeed to combine them to different degrees. Among the different criteria of equality, equality of access and utilisation seem to be more relevant from policy and practical point of view<sup>5</sup>. Since the present study is restricted by the secondary data of aggregate nature, the issues of equality in access and utilisation will be analysed at the group level. Gender (viz. male and female), location (viz. rural and urban), social class (viz. scheduled caste, scheduled tribe, and other castes), administrative unit (viz. district) will be taken as the bases to form groups. Regarding equality of access to health care, inter-district variations in terms of some standard indicators<sup>6</sup> will be discussed. Regarding equality of utilisation of health care gender, location and social class group inequality will be analysed.

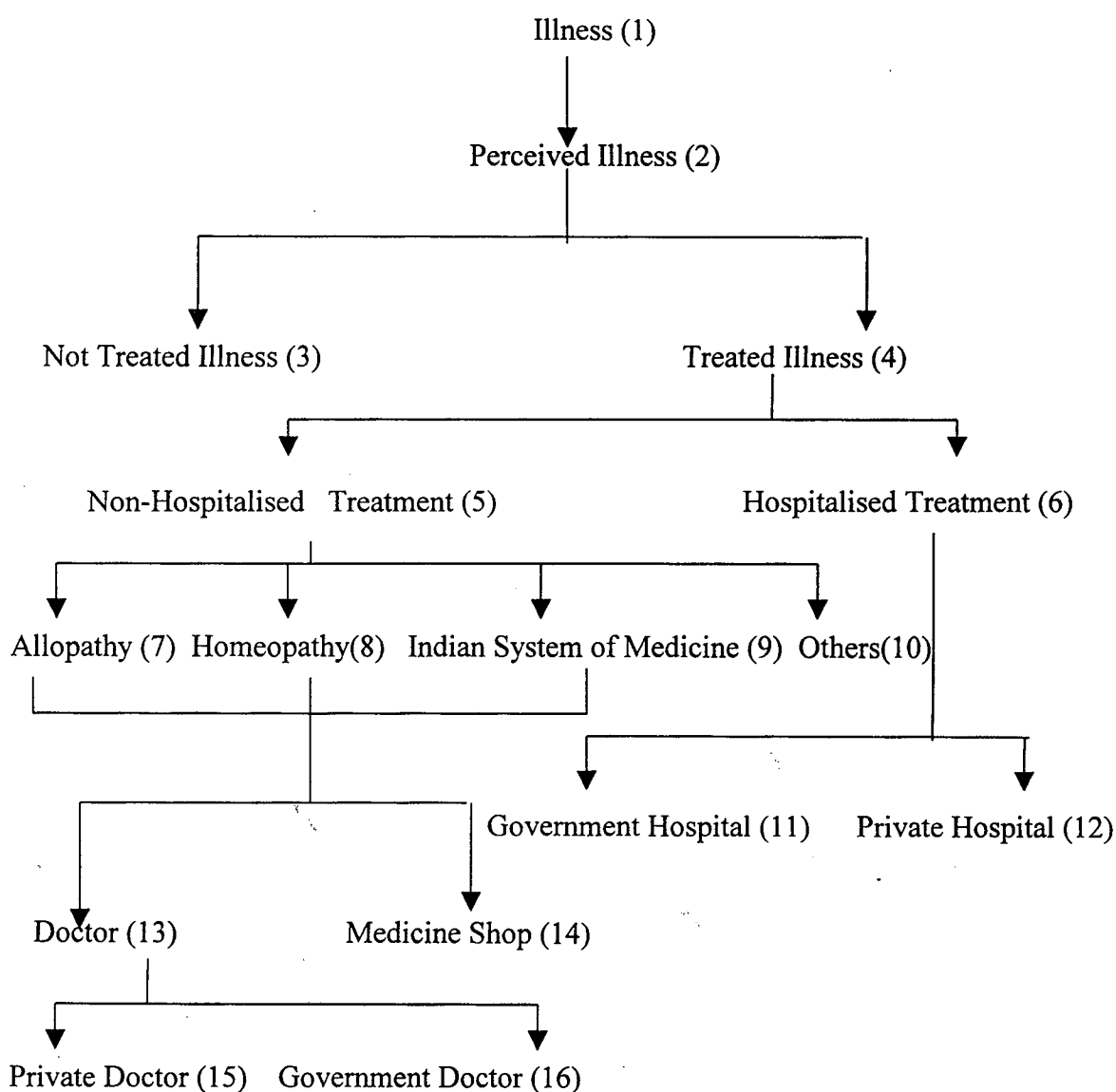
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<sup>5</sup> According to Mooney and McGuire (1987) equal access for equal need might be the preferred definition. But they also point out that there may be situations where application of this principle will be too expensive and inefficient. For example providing equal access for equal need to treatment, say for example bypass surgery, for the people living in the remote rural areas might not be acceptable.

<sup>6</sup> The standard indicators are bed per lakh population, population per hospital and area per hospital.

To understand the pattern of utilisation at the group level and aggregate level, understanding an individual's behaviour to seek health care can be a starting point. An individual's decision to go for treatment can be schematically presented in Figure 1.2. This may help us to understand the group morbidity and utilisation of health care empirically<sup>7</sup>.

Figure 1.2: A Decision Tree showing an individual's health care seeking behaviour



Let us start with perceived illness (node 2). Perceived illness is a deviation of the health condition of an individual from what she considers as her normal state of health. It is an individual's perception about her state of health and desire for health care so it is influenced by

<sup>7</sup> Studying the health behaviour of a group of population is important because, it is possible to predict rates of illness for a population on the basis of past experience, but for an individual illness it is not predictable.

the socio-economic condition that the individual is confronting. Perceived illness would lead to utilisation of health care depending upon the severity of illness and individual's access to health care (nodes 3 and 4). The nature of the illness will decide whether the individual will have to go (at the second stage) for inpatient care (hospitalised treatment) or outpatient care (non-hospitalised treatment).

There are different systems of medicine mainly available for outpatient care. An individual does have different perceptions about the quality of each of these systems and expectations about the cost of treatment. The choice of the individual is given in the nodes 7, 8, 9 and 10. Since the availability of different systems of medicine other than allopathy is limited, once the individual chooses allopathy as a system of medicine, the choice is between government doctor and private doctor (nodes 15 and 16). Similarly, since the scope for inpatient care under different systems of medicine other than allopathy is limited, the choice is between government facilities (11) and private facilities (12).

There are two points to be mentioned about the approach. Firstly, the approach that will be followed is a pragmatic combination of description, explanation and evaluation. These three components, of course, will not be applied in isolation from one another. Rather, descriptive economics will be used to complement explanations and evaluation of events (Jacob, 1997). Description involves the identification, definition, and measurement of phenomena. Explanation involves conducting a cause-and-effect analysis. Evaluation involves judging or ranking alternative phenomena according to some standard.

Secondly, the approach is grounded in a comparative perspective. As we have already mentioned, we have selected two other states Kerala and Orissa – besides West Bengal, for the sake of comparison<sup>8</sup>.

The merit of a comparative study lies in that it helps elucidate issues and brings out causative factors. The selection of Orissa and West Bengal can be justified by the fact that, in terms of many social and demographic indicators and demographic characteristics, West Bengal lies

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<sup>8</sup> Comparison with the national average does not carry much sense because nation is a collection of different states, which are heterogeneous in different aspects.

between these two states <sup>9</sup>. In terms of some indicators relating to the economy, general infrastructure, health and health care, West Bengal lies between Kerala and Orissa (this will be discussed in detail in Chapter 3).

Finally, this study does not assess the health sector in terms of the number of jobs it provides, the volume of its capital investment and the value of its purchases from suppliers. The study, instead, assesses the output of the health care sector and the pattern of its distribution.

#### **1.4 Data Sources and their Limitations:**

Three kinds of data are required for the study: (a) socio-economic and demographic characteristics of the state; (b) state and if possible district level data on medical infrastructure, man power, village connectivity, transport facilities; (c) household and individual level data on morbidity, utilisation of health care and health care expenditure.

For the first kind of information we depend on Census 1991, Provisional Estimates of Census 2001, Registrar General of India, Planning Commission. For the second kind of information we depend on reports of National Family Health Survey for three states Kerala, Orissa and West Bengal, Pocket Book on Transport Statistics in India, Health Intelligence of India (by Central Bureau of Health Intelligence), Statistical Abstracts (West Bengal), Economic Surveys (Kerala and West Bengal). For the third kind of information we depend on the data collected by National Sample Survey Organisation in their 42<sup>nd</sup> and 52<sup>nd</sup> rounds and National Council of Applied Economic Research (Sunder, 1995).<sup>10</sup>

For NSS and NCAER data it may be useful to give here some background information regarding the period of data collection, geographical coverage, sample selection, sample size and reference period, data coverage and different definitions used for the purpose of survey (for sample design, sample design and reference period see Appendix).

##### *Period of Data Collection*

NSS 42: July 1986 – June 1987

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<sup>9</sup> One more advantage of taking Kerala and Orissa for the comparative study is that there exist studies on access to and utilisation of health care in the context Kerala (Narayana, 2001) and Orissa (Mishra and Padhi, 2000).

<sup>10</sup> The reports that are used for the study contain grouped data, households are grouped on the basis of MPCE, castes, gender, location of residence and age.

NSS 52: July 1995 – June 1996

The NSS one-year round was split up into four sub-rounds of three months each.

NCAER: May – June 1993

The data from NSS surveys and NCAER study are non-comparable for three reasons: Firstly, there is a considerable difference in the sample size. Secondly, whereas NSS provide data on the incidence of morbidity, NCAER provides data on prevalence rate of morbidity, and it is well documented in the literature that the prevalence rate is higher than the incidence rate (Satya Sekhar, 1995). Finally, NCAER data was a one-time study and unlike the NSS it did not consider the possibility of any seasonal variations in the reporting of morbidity level.

### **1.5 Chapter Scheme:**

Different concepts relating to the study, their theoretical background in philosophy and in health economics and issues relating to empirical measurement are discussed in *chapter 2*. *Chapter 3* presents the data relating to the socio-economic indicators, demographic variables and variables on transport and health care infrastructure for West Bengal along with Kerala and Orissa. It also gives an account of inter-district variation in health care facilities for West Bengal. *Chapter 4* examines the morbidity profile and utilisation patterns across socio-economic and demographic classes. *Chapter 5* examines the pattern of expenditure on health care (separately government and household, and direct and indirect). Finally, *Chapter 6* summarises the empirical findings carried out in chapters 4 and 5 and draws some policy lessons.

## APPENDIX

The details about sample design, sample size and reference period of NSSO and NCAER surveys are presented below:

### *Sample Design*

NSS 42 and NSS 52: Two-stage stratified design. 1<sup>st</sup> stage units were villages in the rural sector and urban blocks in the urban sector. 2<sup>nd</sup> stage units were household in both sectors. The sample villages were selected with probability proportional to population with replacement in the form of two independent inter-penetrating sub-samples (IIPNS). The sample blocks were selected by simple random sampling without replacement (SRSWOR). For the selection of sample households in a village/block, the households were divided into two sub-strata: one containing households with at least one member who had been hospitalised during last 365 days (from the date of survey) and other containing households with at least one member who had fallen ill or being injured during last 30 days (from the date of survey) out of those households not included in the first stratum. A sample of 2 households was selected from each sub-stratum circular systematically with a random start.

NCAER: A multistage stratified sample design was used for the present study with village/town as first stage unit and household as second stage unit. The universe for the study comprised both rural and urban areas of the economy. All the districts in the states/town as first stage unit and household as second stage unit. The universe for the study comprised both rural and urban areas of the country. All the districts in the states/union territories were covered in the survey and each of these districts was selected with probability one. From each district two villages were selected with probability proportion to the population of the village. The remaining towns were grouped in five strata, on the basis of their population size. From each stratum, a sample of towns was selected independently. A progressively increasing sampling fraction with increasing size class of the stratum was used for allocating sample towns in each stratum. Thus 515 cities/towns were selected as first stage unit of sample for the urban areas. All the households in the selected villages and blocks were listed through a specially designed proforma. If the number of households in a selected block or a village exceeded 150, the appropriate sampling fraction was used and the listing was limited to a maximum of 150 households only. The listed households from each village/block were



classified in five income categories and after stratification, using the inverse probability of selection of village or town and blocks, estimated for each state. Sample households were selected with equal probability from each stratum of income, using random number table.

### Sample Size

NSS 42: The survey was conducted in a sample of 8346 villages and 4568 urban blocks.

Table A.1.1 Number of sample villages and blocks allotted and surveyed for the selected states and all-India

State	Rural (Villages)		Urban (Blocks)	
	Allotted	Surveyed	Allotted	Surveyed
Kerala	336	336	144	144
Orissa	368	357	120	120
West Bengal	520	498	352	338

Source: NSS 42

NSS 52: In all, 16480 villages were planned to be surveyed in that round. Of these, 7888 were allocated to the central sample and the rest to the state sample. In the urban sector, the allocations for the Central and State samples were, respectively, 5112 and 6320 blocks. This report is based on the estimates obtained from the Central Sample alone. The number of villages and that of urban blocks actually surveyed as the Central sample were 7663 and 4991, respectively. 10 households were planned to be surveyed in each selected first stage unit. In the Central sample, the actual numbers of households surveyed in the rural and urban areas were 71,284 and 49,658, respectively.

Table A1.2: Distribution of sample villages/blocks allotted and surveyed and distribution of households surveyed for Central sample.

State	No of Sample Villages/Urban Blocks				No of Household Surveyed	
	Allotted		Surveyed		Rural	Urban
	Rural	Urban	Rural	Urban		
Kerala	288	208	288	208	2850	2078
Orissa	352	112	352	112	3219	1120
West Bengal	480	368	480	368	1612	3637

Source: NSS 52

NCAER: In all 718 villages were selected for the survey. In urban sample all 53 big cities (population exceeding 5 lakhs, according to 1991 Census) were included in the sample.

Table A 1.3: State-wise distribution of sample towns, villages and households.

<i>State</i>	<i>Number of Selected</i>			<i>Number of Selected Households</i>		
	Towns	Blocks	Villages	Urban	Rural	Total
Kerala	21	59	28	490	241	731
Orissa	15	35	26	282	205	487
West Bengal	30	104	32	870	257	1127

Source: NCAER

In all 18,693 households were selected, of which 12,339 were from the urban areas and the remaining 6354 from the rural areas.

*Reference Period*

NSS 42 and NSS 52: 30 days preceding the date of survey for non-hospitalised illness and 365 days for hospitalised illness.

NCAER: one month preceding the date of the survey.

## Chapter 2

### Concepts and Measurements

#### 2.1 Introduction:

Health care is needed when there is a deviation from the normal state of health. But need and normal state of health are influenced by subjective judgement of the individual and are not easy to define. In case of deviation from the normal state of health, the need for health care can be different for individuals belonging to different socio-economic classes. Need for health care as perceived by the individual can be influenced by the physical environment to which that individual belongs. The scope for subjective bias in measuring an individual's /a group of individuals health status and his/her/their need for health care are not the only conceptual and measurement problems, but there are other issues which need to be clarified before using them to assess the present functioning of a health care sector in a particular context. What is the special nature of the goods and services, called health care, how to measure the health care consumed by an individual or a group of individuals during a particular time period? How to measure an individual's or a group of individuals' access to health care system? Apart from the physical availability of health care facilities, the actual access to health care depends upon factors like the quality of health care received from the existing facilities and the expected cost of treatment. This raises the following questions: does better availability of health care lead to better access to health care? Does better access to health care lead to higher utilisation of health care? These are all important questions, a conceptual and theoretical understanding is necessary before attempting to measure the variables relevant to answer these questions. The following sections are devoted to develop different concepts, relevant for our study from their different theoretical backgrounds and their measurement from the available data.

#### 2.2 Health:

World Health Organisation defined health as,

*a complete state of physical, mental and social well-being, and not merely the absence of disease or illness.*

A slightly different definition by Last (1988) is

*“a state characterised by anatomic integrity; ability to perform personally valued family work, and community roles; ability to deal with physical, biologic, and social stress; a feeling of well-being; and freedom from the risk to untimely disease.”(p. 6)*

Economists treat health in a different way and consider it as a durable good (like capital), which provides services. The flow of services produced from health capital is consumed continuously over an individual's lifetime (Grossman, 1972a, 1972b). Each person is assumed to be endowed with a given stock of health at the beginning of a period, such as a year. The stock of health depreciates with age and may be augmented by investment in medical services. Death occurs when an individual's stock of health falls below a critical minimum level. This initial stock of capital along with the rate of depreciation varies from individual to individual and depends upon a great many factors, some of which are uncontrollable. For example, a person has no control over the initial stock of health allocated at birth. Appropriate health care can compensate for any deficiency to a certain extent. The rate at which health depreciates also depends on many factors such as an individual's age, physical makeup, and lifestyle; environment factors; and the amount of health care consumed<sup>1</sup>. All these factors interact to determine the person's stock of health at any point in time along with the pace at which it depreciates.

Health is demanded by consumers for two reasons: (i) as a consumption commodity, it directly enters their preference functions, or put differently sick days are source of disutility and (ii) as an investment commodity, it determines the total amount of time available for market and non-market activities. In other words, an increase in the stock of health reduces the time lost from these activities, and the monetary value of this reduction is an index of the return to an investment in health (Grossman, 1972a).

Regardless of how we define it, health is a nebulous concept that defies precise measurement. In terms of measurement, health depends as much on the quantity of life (i.e. the number of life-years remaining) as it does on the quality of life. Quality of life has become an increasingly important issue in recent years due to the life-sustaining capabilities of today's medical technology. But quality of life is a relative concept.

The creation and maintenance of health involves a production process. A generalised health production for an individual takes the following form:

Health = H (Profile, Health care, Lifestyle, Socio-economic Status, Environment);

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<sup>1</sup> Apart from health care the other important factors that determine the health status are, nutrition, shelter, clothing, drinking water, sanitation, health awareness etc. (Arrow, 1963). These factors are very important at the lower level of income.

where health reflects the level of health at a point in time; profile captures the individual's mental and physical profile as of a point in time; health care equals the quantity of health care consumed; lifestyle represents a set of lifestyle variables, such as diet and exercise; socio-economic status reflects the joint effect of social and economic factors such as education and poverty; and environment equals a vector of environmental factors, including air and water quality (Santerre et al, 2000).

The health status of a group of individuals depends on the health profile of that group, the group's access to health care facilities, environment etc. The indicators, which are used to measure the health status of a group of people, are general mortality rate, child mortality rate, age-adjusted death rate, morbidity rate, life expectancy at birth etc<sup>2</sup>. Information on mortality is relatively easy to obtain if a proper death registration system has been developed. The overall mortality rate as well as the disease specific rate, although the most important and widely used health indicators, do not always reflect the extent or severity of the burden of a particular disease; some become simply disabled and frail. The magnitude of non-fatal disease is reflected in the morbidity data. In India, the mortality data are maintained by Sample Registration System. There is a considerable confusion and disagreement among the researchers regarding various approaches used in the literature for defining various components of morbidity and its measurement. Various studies have raised a set of methodological issues on self-perceived vs. observed morbidity. The former approach is based on pain and suffering as perceived by an individual while the latter on clinical assessment of any such abnormality. Many health surveys<sup>3</sup> have adopted the self-perceived approach due to various logistic reasons, the most important being the cost factor. The main findings, which emerge from these surveys on the incidence or prevalence of morbidity, its differentials by sex, age, socio-economic status and seasonality, disease pattern, severity of illness, share of public provider and cost of treatment. Most of the studies have not attempted to distinguish between incidence and prevalence of morbidity rate due to lack of information on the dates of onset and termination of an illness episode (Gumber and Berman, 1995).

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<sup>2</sup> All of these are not independent measures. As for example, life expectancy at birth depends on infant mortality rate and child mortality is a component of overall mortality rate.

<sup>3</sup> For a critical review of these surveys see Gumber and Berman (1995).

The surveys conducted by the National Sample Survey Organisation in its different rounds<sup>4</sup> collected data on morbidity. They consider prevalence of rate of illness<sup>5</sup> as a measure of morbidity, which is measured as the number of persons reporting an ailment during the reference period of the survey per 1000 persons.

### **2.3. Health Care/Medical Care:**

Some health economists distinguish between health and medical care while others do not<sup>6</sup>. Health or medical care can be defined as a combination of services and goods guided by the health care practitioner aims to restore what is called the normal state of health or improvement of health status. An individual visiting a doctor receives an examination involving the services of the doctor, nurse, or a paramedic and the use of some equipment. Health care is composed of myriad goods and services that maintain, improve, or restore a person's physical or mental well-being. Prescriptions, drugs, wheelchairs, and dentures are examples of medical goods, while surgeries, diagnostic tests are examples of medical services. A more precise definition of health care is given by Fuchs (1986) as those activities that are undertaken with the objective of restoring, preserving, or enhancing the physical and mental well-being of people. These activities may be aimed at the relief of pain, removal of disabilities, the restoration of functions, the prevention of illness and accidents or the postponement of death.

Because of the heterogeneous nature of health care, units of health care are very difficult to measure precisely. Units of health care are also hard to quantify because most represent services rather than tangible products. As a service, health care exhibits four characteristics (Berkowitz, 1989): intangibility, inseparability, inventory and inconsistency. Intangibility means that a

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<sup>4</sup> The survey on morbidity was conducted by NSSO for the first time in the seventh round (October 1953 - March 1954). This survey and the morbidity survey conducted in the three subsequent rounds (the eleventh to the thirteenth, 1956 -58) were all exploratory in nature. These surveys were followed up by a pilot survey in the seventeenth round (September 1961 - July 1962). A full scale survey on morbidity was conducted in the twenty-eighth round (October 1973 - June 1974). Since then NSSO has not undertaken any separate morbidity survey. Morbidity data are now collected as a part of the decennial surveys on social consumption (National Sample Survey Organisation, 1998).

<sup>5</sup> The morbidity rates given by NSS rounds are actually different from prevalence rates as defined the WHO Expert Committee on Health Statistics. Generally, prevalence rate is defined as the ratio between the number of spells of ailment suffered at any time during the reference period and the population exposed to the risk. It measures the frequency of illnesses prevailing during the reference period, whereas the NSS data gives the estimated proportion of persons reporting ailment suffered at any time during the reference period. Strictly speaking, the estimates given in NSS data are not prevalence rates (National Sample Survey Organisation, 1998).

<sup>6</sup> As for example, according to Jacob (1996) medical care (health care) is a range of services and products whose end purpose is the preservation or enhancement of health and health care is a component of health care which is a process or activity, guided by medical practitioners, in which certain inputs or factors of production (e.g. physician's services, medical instruments, and pharmaceutical) are combined in varying quantities to yield a mean output (health care services) or an output (health status).

medical service is incapable of being assessed by five senses. Inseparability means that the production and consumption of medical service take place simultaneously. Inventory is directly related with inseparability. Because the production and consumption of health care occur simultaneously, health care providers are unable to stockpile or maintain an inventory of medical services. Inconsistency means the composition and quality of health care services consumed vary widely across medical events. Although every one visits his/her physician at some time or another, not every visit to physician is for the same purpose. The composition of health care provided or the intensity at which it is consumed can differ greatly among individuals.

The quality of medical services may also be inconsistent. Quality differences are reflected in the structure, process, and/or outcome of the health care provider (Santerre et al, 2000). Structural quality is reflected in the physical and human resources of the health care provider, such as the facilities (level of amenities), medical equipment (type and age), personnel (training and experience) and administration (organisation structure). Process quality might include access (waiting time), data collection (background history and testing), communication with the patient and diagnosis and treatment (type and appropriateness). Outcome quality refers to the impact of care on patient satisfaction, work time lost to disability, or post-care mortality rate. Health care is extremely difficult to quantify. In most instances, health care is measured either in terms of availability (e.g. number of medical institution, doctor, medical staff, hospital bed per 1000 population or so on) or use.

Health care output can be measured at three sources:

1. The provider can be surveyed to determine how much health care they have produced.
2. The consumer can be surveyed to determine the quantity of consumption<sup>7</sup>.

The NSS data on utilisation allows us to measure the quantity of health care (following method 2). This measure, however, suffers from serious aggregation problem<sup>8</sup>.

#### **2.4. Need, Want and Demand:**

Need, want and demand for health care are three of the many important as well as controversial concepts that require elucidation to explain an individual's or a group of individual's health care

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<sup>7</sup> If significant percentage of population were covered by any type of health insurance then one more way to calculate the health output would be to survey the insurance companies to determine how much health care they have paid for.

<sup>8</sup> This measure aggregates medical goods and services of different quality and of different nature.

seeking behaviour. These are very sensitive issues as far as public provision of health care and participation of private sector in health care sector is concerned. Let us start with the notion of need as explained by Matthew (1971):

*“ The need for health care must be distinguished from the demand for care and from the use of services or utilisation. A need for health care exists when an individual has an illness or disability for which there is an effective and acceptable treatment or cure. It can be defined either in terms of the type of illness or disability causing the need, or of the treatment or facilities for treatment required to meet it. A demand for care exists when an individual considers that he has a need and wishes to receive care. Utilisation occurs when an individual actually receive care. Need is not necessarily expressed as demand, and demand is not necessarily followed by utilisation, while on the other hand, there can be demand and utilisation without real underlying need for the particular used. (p. 27)*

Bradshaw (1972) distinguished four types of needs "normative need", "felt need", "expressed need" and "comparative need". *Normative need* is that which the expert or professional, administrator or social scientist defines need in any given situation. *Felt need* is equated with want. *Expressed need* is the demand, which is felt need turned into action. *Comparative need* is obtained by studying the characteristics of the population in receipt of service. If there are people with similar characteristics not in a receipt of a service, then they are in need.

The influence of perceived need is very important in an individual's expressed need in a developing economy context, where perceived need is influenced not only by demand side factors like age, illness, income but also by supply side factors like availability of suitable health care facilities. The severity of illness – the extent to which his/her normal activities are getting affected – is the most important determinant of perceived need. Except in case of severe illness, individual's economic status, health awareness and physical accessibility to health care facilities<sup>9</sup> highly influence individual's perceived need for health care. Not all perceived needs are absolute needs (Culyer, 1976) but relative to the individual's socio-economic and cultural condition<sup>10</sup>. There are certain needs for health care, which can not be self-diagnosed. There are some needs, which, though, felt needs, are not expressed because of ignorance on the part of the individual that the service exists. The poor, illiterate, the old, those living alone and other handicapped groups are often the people with greatest needs (Titmuss, 1968).

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<sup>9</sup> by physical access to health care means availability of good quality medical facility at reasonable distance or reliable transport facilities at a continuous basis.

<sup>10</sup>As for example for any state of health, actual need for health care can be same, but perceived need for health care can vary depending upon the individual's socio-economic status and his/her physical accessibility to health care.



In view of Cooper (1975), needs are those demands, which in the opinion of the doctor require medical attention. That is, they are an expert's view of one's state of health. Fuchs (1974) warns us not to confuse demand for health care with need, want or desire, although these words are frequently used interchangeably by lay persons. To him, the concepts of need for health care seems to be imprecise and of little value for analytical purposes. In practice it can cover every thing from life-saving emergency operation to the removal of blackheads. He further goes on to write that the perception of need is likely to vary from patient to patient and from physician to physician.

In the social context the term "need" comes to be used by the protagonists in social debate. As for example, Marshall (1973) puts

*Needs, other than the basic needs of life and health, are subjective, that is based on values. Economists can handle the concept of utility even though it is subjective because this concern is with conscious wants, or desires, which are expressed as demands ...*

The concept of need in social policy is based on a collective value system, working with a norm of need satisfaction which is collectively subjective, that is the norm reflects collectively acceptable views.

The controversy regarding the definition of need probably led Culyer, Lavers and Williamson (Culyer, et al. 1972) to make the following critical comment:

*The word 'need' ought to be banished from discussion on public policy, partly because of its ambiguity but also because ... the word is frequently used in ... 'arbitrary senses' ... Indeed in many public discussions it is difficult to tell, when some one says that 'society needs...', whether he means society ought to get it in his opinion, whether a majority of the members of society want it, or all of them want it. Nor it is clear regardless of the the cost to the society.*

One more concept that is closely associated with the need for health care is the demand for health care. Culyer (1976) distinguishes between the notion of a person's demand for health and his/her demand for health care. According to him

*... The demand for health involves more factors. The notion of need by contrast, seems in all its conventional uses to refer to a need for health care services rather than a need for any particular level of health per se. ...The demand for health care is indicated by the individuals themselves in making claim upon health care resources. The demand can be influenced by prevailing notion of need (through education or pressure group activities) but will also be influenced by the income of the persons concerned, the prices they confront, their level of educational attainment and many other factors, including of course their state of health (p 13).*

Hirsch et al (1973) further clarify the distinction between need and demand in health care

*In a limited number of instances involving life or death, acute pain, or permanent disability, need and demand may not be synonymous. In the majority of medical cases need and demand are two distinct concepts. A gap between need and demand exists because the quantity of care professionals believe they should want rarely coincide.*

Economic theory suggests that the demand for health care is a derived demand and is an input in the production of health. It is important to understand the factors influencing demand in order to determine and if necessary create an appropriate condition to ensure that the services supplied will be wanted. The demand for a health care by an individual is influenced by the income of the person concerned, the cost or price she confronts, the level of education and many other factors including the state of health. Other factors being equal, those individuals with low income will show a larger change in demand for health care than those with high income in response to a change in the medical price. Non-availability of health care facilities at reasonable distance and travel difficulty tend to reduce the demand for health care in rural areas. Awareness of health needs which increases with the level of education is expected to raise the demand for health care. Given these socio-demographic variables price and income are the crucial economic variables that influence demand for health care. Price or cost of health care to the individual is composed of direct cost of health care plus the opportunity cost of time. If a visit to hospital or doctor entails a long wait and if the patient must miss work or forgo other fruitful activities, these costs should be included in total cost of health care. Income is considered to be the greatest single determinant of the demand for health care. In the Indian context, a study (Gupta and Dasgupta, 2000) has been done to estimate the demand system for health care and calculate the arc price elasticities.

Any empirical study on need involves measurement problems. Need is a very subjective concept and very difficult to measure. What we can observe is need perceived by the individuals. It may not always be equal to the actual need for health care. Sen (1996) points out that this problem of subjectivity of perception often leads to contradictory interpretation. According to Sen,

*... a more literate population tends to have a greater understanding of illness, whereas an illiterate and ignorant population may have little appreciation of its health predicament. Also greater availability of health services and medical facilities, which make it easier for people to seek medical attention, may reduce death rates (and improve health conditions), but it also, at the same time, increases the perception and understanding of illness. Non-availability of no-use of health facilities can go with non-recognition of morbidity.... (p. 26)*

The surveys conducted by NSSO and NCAER collect data on perceived need (reported illness by individuals) and expressed need (reported treatment by individuals), which can be used to estimate a group<sup>11</sup> of individuals' need for health care. The available data from NSS and NCAER allows us to explore the association between need and different social (e.g. location of residence), economic (e.g. income) and demographic variables (e.g. age and gender).

Regarding demand we encounter a similar measurement problem, as demand cannot be measured directly. What we observe are data on utilisation or expenditure. But they are the results of the interplay between demand and supply. A full analysis requires consideration of both factors together. In an econometric study on the estimation of the demand function for health care (Rosenthal, 1964), the exploratory variables considered were socio-demographic variables like age, marital status, sex, urbanisation, education level, and economic variables like price, income, insurance. As individuals age increases, the likelihood of morbidity increases. Elderly are more prone to chronic diseases. These are typically of longer duration and require more health care than the acute diseases found more often among younger age groups. Studies on Great Britain found that proportionately single, widowed, and divorced people used almost twice as much health care as the married. The utilisation rate of health care for women tends to be higher during the child-bearing ages.

Applying the tools of demand in our specific context must have a serious limitation. Since a large part of the total health care is by the government at zero or near zero cost and it is the health condition (not the income level) which determines an individual's need for health care, the concepts of demand loses its analytical relevance (Money, 1986)<sup>12</sup>. On the one hand, need and utilisation are more appropriate concepts to understand individual's health care seeking behaviour, on the other hand, for understanding an individual's access to health care (to be taken up below) is a more important concept than the supply of health care.

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<sup>11</sup> Groups on the basis of gender, age, location or residence, income. NSSO does not collect information on income since there is a high possibility of underestimation due to understatement of income. They collect information on monthly consumption expenditure. In absence of income figures this can be taken as a proxy for income.

<sup>12</sup> Given the nature of health care and the question mark raised about the role of consumers preferences, there have been some doubts about the relevance of conventional demand theory in health care. In particular uncertainty and lack of information are likely to create difficulties in applying demand theory in an unadulterated form to the commodity of health care (Monney, 1986).

The NSS data allows us to examine the variation in utilisation with different socio-economic and demographic variables like location, caste, expenditure class (as a proxy of income level), age and gender. In this context we can inquire into why certain perceived illness did not get converted into treated illness Both NSS 42nd and 52nd rounds provide information regarding reasons for no treatment.

NSS has classified the different reasons for no treatment into six categories like financial reason, illness not considered serious enough, lack of facilities, lack of faith, long waiting and others.

## 2.5. Access to Health Care Services:

The access to health care is defined as the potential and actual entry of a group of population in to the health /health care delivery system. (U. S. Congress, 1988). The definition indicates that it is not only the potential entry, but also the actual entry of a group of population into the health care system. The access to health care is different from the availability of health care. The physical existence of health care facilities is necessary but not a sufficient condition for access. Apart from the physical existence, the quality of care available in the medical institutions, and people's ability to utilise those facilities effectively determine the actual access.

The problem of access to health care fall into two main categories, which may be labelled "special" and "general" (Fuchs, 1974). The special problems of access are those faced by particular groups in society – the poor, the socially backward castes, and the rural population. The general problem of access is access to quality health care. The general problem of access is one that is felt even by individuals and households who have enough income to pay for care and are not disadvantaged by reason of location or caste. For them the problem is simply to get the kind of care they need and when they need it. In a developing country context, what Fuchs described as the special problem seems to be the general problem.

The problems that the poor face in getting access to health care are similar to those that they face in obtaining other goods and services. There has been argument that health care is a basic right to life and therefore should not depend on income. Opposed to this is the view that if one wishes to help the poor, the best way to do so is to give them more purchasing power and let them decide as to how they want to spend it. According to this view it makes little sense to use hard-

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to-raise tax money to lift the poor up to some arbitrary high standard of health care while they have grievous deficiencies in housing, schooling and other aspect of a good life (Fuchs, 1974). Poverty explains a part of the problem of access for the rural population, but not all of it. Even in areas with substantial purchasing power, the doctor population ratio is lower than that in the urban areas. The reason for poor access to health care in rural areas is clear: doctors prefer to practice in highly urban areas. They do so partly for the professional reasons and partly for the educational, cultural, and recreational facilities available for themselves and their families.

The issue of access to health care involves two issues: (i) access for whom? and (ii) access to what? (Daniels, 1986). The answer to the first question seems to be simple. There should be access to medical services for anyone in medical need. That means the non-medical features of individuals – their caste, gender, geographical location or ability to pay – should not determine whether or not they have access to care. In other words, society has an obligation to provide medical services on the basis medical need, regardless of the ability to pay or other non-medical factors. The second question is more difficult to answer. An attempt to answer the second question raises further questions. Health care services are non-homogenous. Some services are more important, more basic, or more urgent than others. Should we guarantee access to all the services offered anywhere in our health-care system? Is there a social obligation to provide access to all services or only to a basic minimum?

Since equality of access for equal need is the more appealing principle of equity, we have to identify and understand different steps to achieve this objective of equality. There are two variants of this principle. Equality of physical accessibility and equality of use (Murleedharan, 1993). The distance an individual has to travel to reach a health care facilities is an important determinant of health care utilisation.

## **2.6. Utilisation of Health Care Services:**

Utilisation is defined as the actual use of health care services by consumers i.e. the services must be demanded and supplied. In other words, utilisation is the actual access of individual into the health care system in case of need for health care. So utilisation may be thought of as function of perceived need and access to health care system. Given the factors relating to access to health care, higher the perceived illness, higher will be utilisation of health care.

Hirsch et al (1973) distinguished two components of (hospital) utilisation (defined as the number of patient days per 1000 population): the number of admissions per 1000 population and average length of stay per admission. NSS 42 provide (National Sample Survey Organisation, 1992) information on both the components, NSS 52 data (National Sample Survey Organisation, 1998) provide only information on the first component of utilisation.

## **2.7 Summary**

Health status of an individual and a group depends upon a lot of factors, many of which are related to the provision and consumption of health care. Due to its different nature, provision and consumption of health care can not be analysed in terms of demand and supply. Need for and access to health care are more meaningful concepts than usual demand for and supply of health care. There are different concepts of need depending upon the specific context. The morbidity data tells us a partial story about the need, as the latter is highly influenced by subjective judgement (which depends upon the socio-economic characteristics of individuals) and the overall environment to which that individual belongs. So health status of a group of individuals reflected in their mortality and morbidity profile should be seen along with socio-economic and demographic characteristics of that group. The provision of health care requires a balanced combination of infrastructure, manpower, and drugs. The availability of infrastructure and manpower at the aggregate (state) level does not tell us much about their spatial distribution. Thus the need to carry out the analysis of provision of health care in terms of access becomes evident. The physical availability does not imply equitable spatial distribution and equal access of health care to different socio-economic groups. The inter-district variations in infrastructure, distance travelled by rural people to get treatment, village connectivity, transport facilities, urbanisation and social composition can highlight some important aspects of the access to health care by different groups of people and the consequent differences in the utilisation of health care.

## Chapter 3

### People, Economy and Infrastructure

#### 3.1 Introduction:

The health status of a population is shaped by a variety of factors, like natural environment, demographic composition and social and economic status. The health status of a population of a particular society is but a reflection of the socio-economic development of that society. Economic and social development breaks the vicious circle of poverty and ill health. As is generally acknowledged, the agricultural and industrial revolutions, followed by a public health revolution and finally a medical revolution in that sequential order, led the improvement of the population in the present day advanced countries (Hastwell, 1974; Perlman, 1974). Since our concern is a study of access to and utilisation of health care in West Bengal, the relative position of the state in terms of morbidity, access to, utilisation of, and expenditure on health care has been taken up for discussion in the succeeding chapters. The utilisation of and expenditure on health care depends upon the morbidity profile and access to health care in which Indian states differ from one another. So studying health care sector of a state requires an understanding of the different aspects of the society viz. population characteristics, social structure, economy, medical and transport infrastructure.

To understand the issues involved in detail and to keep the inter-state comparison in a manageable form, we argue for a comparative study by selecting two other Indian states Kerala and Orissa. In terms of some basic development indicators West Bengal lies between these two states. The human development index (HDI<sup>1</sup>) for Indian states supports the same ranking (Tilak, 1991)<sup>2</sup>.

These three states are different from one another not only in the process and level of social and economic development but also in terms of characteristics relating to geography and population. So a comparative picture of these three states in terms of geography, population,

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<sup>1</sup> In fact, the construction of Human Development Index (HDI) is based on three indicators: longevity, as measured by life expectancy at birth; educational attainment, as measured by a combination of adult literacy (two thirds weight) and the combined gross primary, secondary and tertiary enrolment ratio (one-third weight) and standard of living as measured by GDP per capita.

<sup>2</sup> The human development indices for the states Kerala, Orissa and West Bengal are 0.755, 0.436 and 0.224 (Tilak, 1991).

society, economy, transport facilities and medical facilities can serve as a backdrop for the study<sup>3</sup>. The overall description of the aspects for the three states has been carried out under the headings: Geography and People, Economy and Health care and Transport Infrastructure.

### **3.2 Geography and People:**

West Bengal is situated in the eastern zone of the Indian republic, extending from 21° 25' to 27° 13' North latitudes and from 85° 50' to 89° 13' East longitudes. It is bounded on the north by the neighbouring countries of Nepal and Bhutan and the state of Sikkim, on the east by Assam and the neighbouring country Bangladesh, on the south by the Bay of Bengal and Orissa and on the north-west by Jharkhand and Bihar (see Maps 3.1 and 3.2).

Kerala is situated between 8° 17' to 12° 47' N latitude and 74° 51' to 77° 24' E longitude. The state is bounded by the Arabian sea on the entire west, Karnataka state on the north and Tamil Nadu on the east and south (see Maps 3.1 and 3.3).

Orissa extends from 17° 49' N to 22° 34' N latitude and from 81° 29' E to 87° 29' E longitude. It is situated in the north-eastern section of the Indian peninsula, bordered in the east by Bay of Bengal. The state is bounded by Jharkhand in the north, Chhatisgarh in the west, West Bengal in the north-east and Andhra Pradesh in the south (see Maps 3.1 and 3.4).

Table 3.1 shows different characteristics relating to the geography and people of Kerala, Orissa and West Bengal. Among these three states, Orissa has the largest geographical area and Kerala has the smallest. The district-wise population, area and population density for the three states are presented in the Appendix (Table A 3.2). In terms of population, West Bengal is the most populated and Kerala is the least populated. But in terms of population density, West Bengal is ahead of Kerala, and Orissa has the lowest population density. There is an argument that high population density can solve the problem of physical access to health care, because a larger population can be covered by a single health care institution and people's travel cost to seek treatment<sup>4</sup> may be lower.

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<sup>3</sup> Studying the health care sector of West Bengal in terms of access and utilisation in a comparative perspective needs an understanding of the difference prevailing in these states in terms of geography, population, society, economy and health care infrastructure.

<sup>4</sup> High population pressure on a single institution can have an adverse impact on the quality of care, which may reduce the actual access.



As far as age composition of the population is concerned, the proportion of old age population is highest in Kerala and lowest in West Bengal. The proportion of people in the most productive age group (age group 15 - 64) is also highest in Kerala.

Table 3.1: Selected geographical and demographic indicators for Kerala, Orissa and West Bengal

	<i>Kerala</i>	<i>Orissa</i>	<i>West Bengal</i>
Area (in Square Km.)	38863	155707	88572
Population (in million)			
1991 Census	29.10	31.66	68.08
2001 Census (P)	31.84	36.71	80.22
Population density <sup>1</sup>	819	236	904
Population Growth Rate <sup>2</sup>	0.90	1.49	1.65
Age Composition <sup>3</sup>			
0-14 years	29.8	35.9	36.8
15-39 years	44.6	40.3	41.7
40-59 years	16.8	16.5	15.3
60 years & above	8.8	7.2	6.1
Birth rate <sup>4</sup>	17.7	27.8	24.8
Death rate <sup>5</sup>	6.3	11.7	8.4
Infant Mortality Rate <sup>6</sup>	17	114	65
Life Expectancy at Birth <sup>7</sup>			
Male	70.69	58.52	64.50
Female	75.00	58.07	67.20

Note: 1 corresponding to 2001 census population (provisional) estimate; 2 annual exponential growth rate during 1991 and 2001; 3 corresponding to 1991 Census; 4, 5 & 6 Crude Birth and Death Rates and Infant Mortality Rate are for the year 1992; and 7 Life Expectancy at Birth is Projected for the 1996 - 2001,

Source: Registrar General of India, Sample Registration System Report of the Technical Group of Population Projection - 1996, Census of India (Provisional Estimates, 2001); Census of India, 1991, Socio-Economic tables, Directorate of Census Operations, Kerala, Orissa and West Bengal

Table 3.2 presents some selected social indicators for the three states Orissa is largely rural, with less than 15 percent of the total population residing in urban areas. Both Kerala and West Bengal has over a quarter of the total population residing in urban areas. The percentage of socially backward population is highest in Orissa (close to 40 percent) and lowest in Kerala.

The highest percentage of socially backward population in Orissa is because of large tribal population in Orissa. The district-wise figures on percentage of rural population, percentage of scheduled caste and scheduled tribe are given in the Appendix.

Table 3.2: Selected Social Indicators (1991) for Kerala, Orissa and West Bengal.

	<i>Kerala</i>	<i>Orissa</i>	<i>West Bengal</i>
Literacy Rate			
Male	94.20	75.95	77.58
Female	87.86	50.97	60.62
Scheduled Caste	77.66	36.78	42.21
Scheduled Tribe	57.22	22.31	27.78
Total	90.92	63.61	69.22
Percentage of rural population	73.6	86.6	72.5
Social Composition			
Percentage of scheduled caste	9.9	16.2	23.6
Percentage of Scheduled tribe	1.1	22.2	5.6

Source: Census of India, 1991

The three states vary considerably from one another in the inter-district variation in population density, urbanisation and composition of social classes (see Appendix of this chapter). Population density is more evenly distributed across the districts of Kerala compared to West Bengal. If we exclude Kolkata and Howrah agglomeration, average population density will be higher in Kerala compared to West Bengal. Both Kerala and West Bengal show higher inter-district variation in the percentage of urban population compared to Orissa. There is not much inter-district variation in Orissa in the percentage of urban population except the five districts<sup>5</sup>, which show a higher percentage of urban population compared to the other districts. West Bengal has a very high percentage (23.6 percent) of scheduled caste population whereas Orissa has a very high percentage (22.2 percentage) of scheduled tribe population. There are seven districts in Orissa where the percentage of scheduled tribe population in total district population is more than 50 percent<sup>6</sup>. The inter-district variation in population density,

<sup>5</sup> Those five districts in Orissa are Cuttak, Sambalpur, Sundergarh, Khurda and Jharsuguda with percentage of urban population 24.6, 25.4, 33.4, 34.4 and 35.7 respectively.

<sup>6</sup> Those seven districts are Koraput, Sundergarh, Phulbani, Nowarangput, Rayagada, Mayurbhanj and Malkangidi.

urbanisation (percentage of urban population out of total district population), percentage of scheduled castes and tribes are presented graphically in Figures 3.1, 3.2, 3.3 and 3.4.

Figure 3.1: Box plots showing the distribution of 'population density' across the districts of Kerala, Orissa and West Bengal.

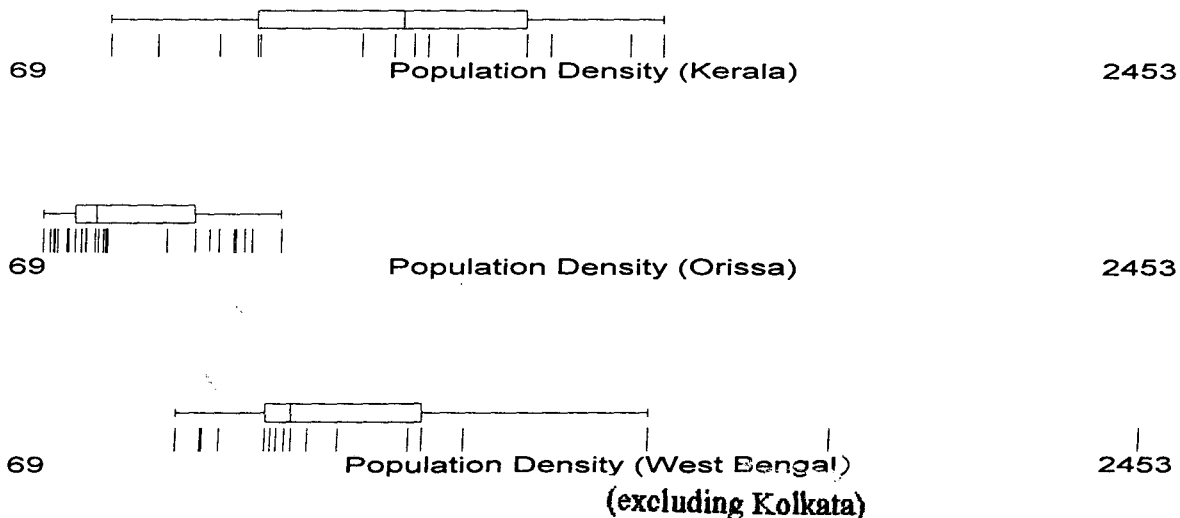


Figure 3.2 Box plots showing the distribution of 'percentage of urban population' across the districts of Kerala, Orissa and West Bengal

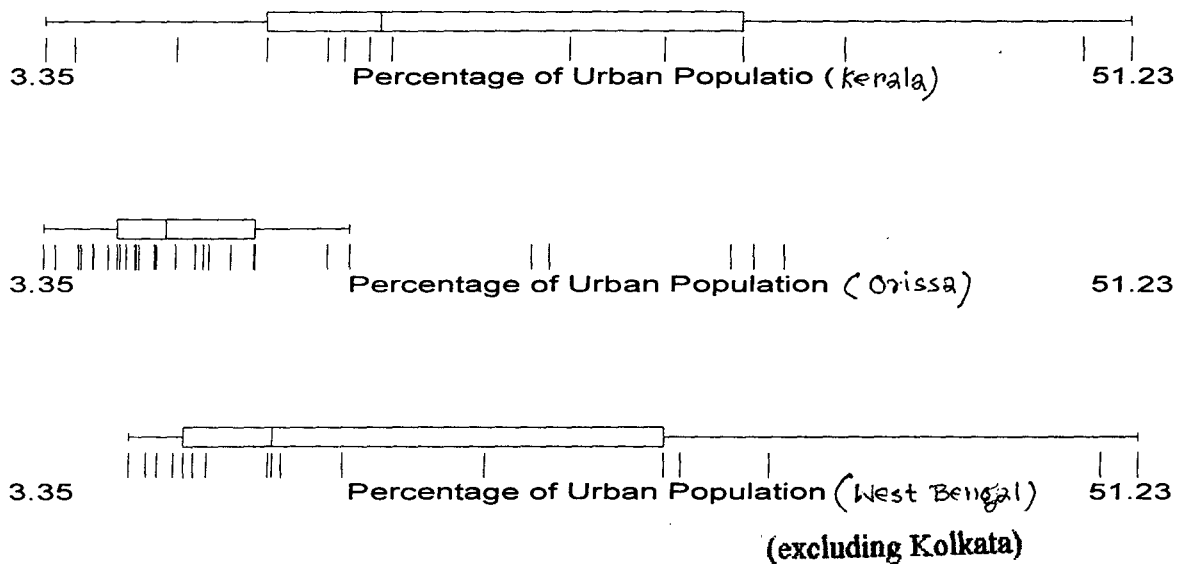


Figure 3.3 Box plots showing the distribution of 'percentage of scheduled caste population' across the districts of Kerala, Orissa and West Bengal

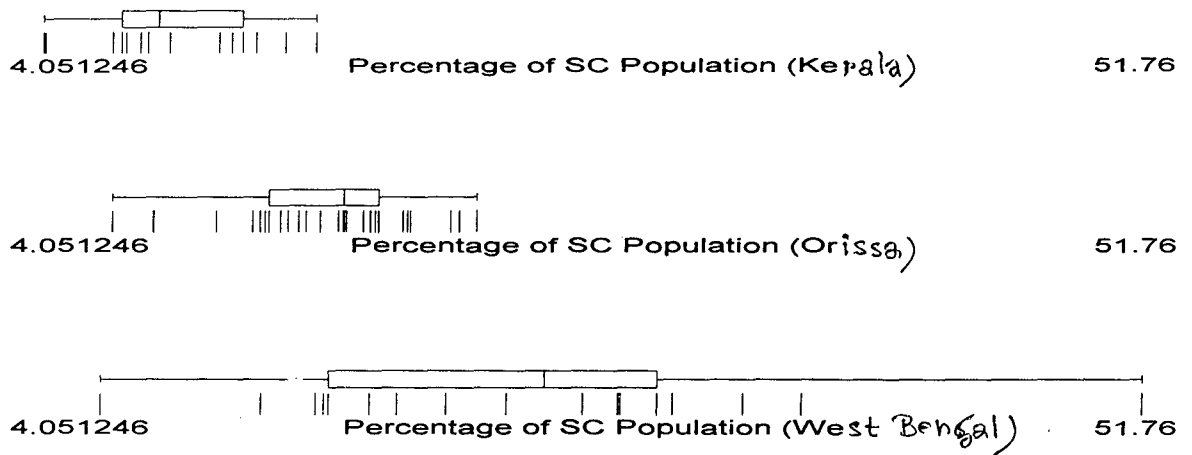
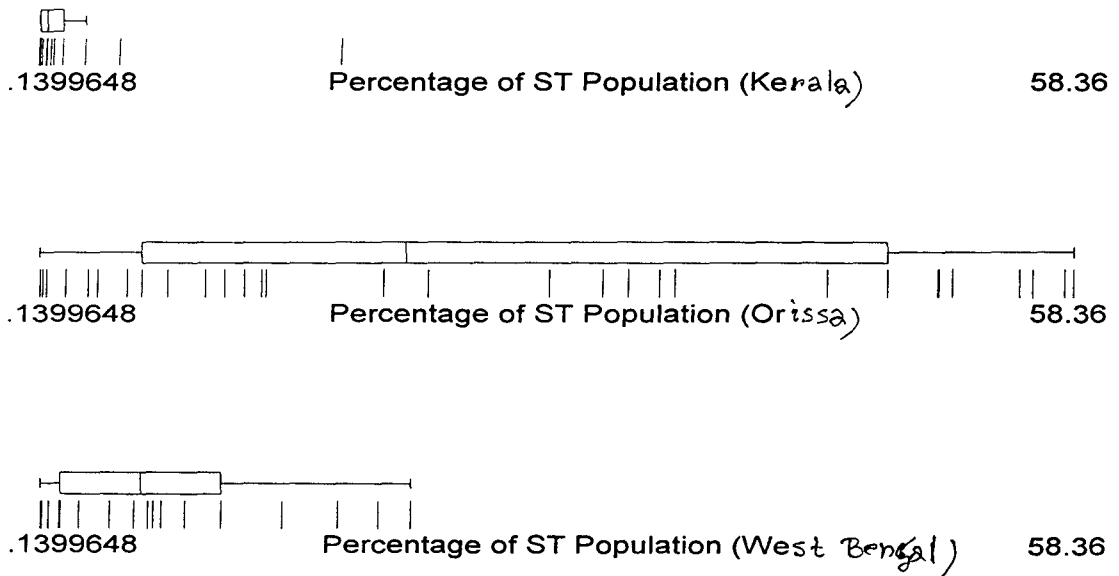


Figure 3.4: Box plots showing the distribution of 'percentage of scheduled tribe population' across the districts of Kerala, Orissa and West Bengal



Source: See Appendix Table A 3.2

### 3.3 Economy:

The three states are predominantly agricultural economies, with over one-third of the state domestic product (SDP) originating in the primary sector (Table 3.3). The share of tertiary sector in State Domestic Product also does not show any significant variations across the states. The states are not highly industrialised as only one-quarter SDP originating in the secondary sector. The per capita Net State Domestic Product, however, shows significant

difference among the three states with Kerala reporting an income level 40 percent higher than that of Orissa and West Bengal reporting 60 percent higher than Orissa. It can be said that among these three states West Bengal is the most economically developed state and Orissa is the least economically developed state.

Table 3.3: Net state domestic product (in Rs.lakhs) at factor cost by industry of origin and per capita net state domestic product for the year 1996-97 at 1980-81 prices.

	<i>Kerala</i>	<i>Orissa</i>	<i>West Bengal</i>
Primary Sector	252929 (34.08)	205250 (36.74)	690223 (32.12)
Secondary Sector	177967 (23.98)	119128 (21.32)	551142 (25.65)
Tertiary Sector	311352 (41.95)	234270 (41.94)	907412 (42.23)
Net State Domestic Product	742248 (100.00)	558748 (100.00)	2148777 (100.00)
Per Capita NSDP	2169	1580 <sup>1</sup>	2601 <sup>2</sup>

Notes: Figures in the parentheses show the percentage of three sectors in Net State Domestic Product

<sup>1</sup> revised estimates; <sup>2</sup> provisional estimates

Source: National Accounts Statistics

A gap always exists between potential access and actual access to health care due to economic reasons. If quality treatment is not available at an affordable cost, then potential access does not get converted into actual access and utilisation. In a society, where both public and private medical sector exists side by side and where a belief has been growing in the mind of the people that better quality of medical treatment is available at private facilities, household's income is an important factor influencing the household's potential access to health care. A look into the poverty situation in these three states can reflect the percentage of population who might suffer from the problem of physical access due to lack of sufficient income.

Table 3.4: State-wise number (in lakhs) and percentage of population below poverty line (1999 – 2000)

<i>States</i>	<i>Rural</i>		<i>Urban</i>		<i>Combined</i>	
	Number	Percentage	Number	Percentage	Number	Percentage
7 days recall period						
Kerala	18.2	8.14	17.73	17.91	35.93	11.14
Orissa	131.63	43.98	23.92	40.33	155.55	43.38
West Bengal	154.04	27.24	31.06	13.83	185.1	23.43
30 days recall period						
Kerala	20.97	9.38	20.07	20.27	41.04	12.72
Orissa	143.69	48.01	25.4	42.83	169.09	47.15
West Bengal	180.11	31.85	33.38	14.86	213.49	27.02

Source : www.indiastat.com (Original Source: Planning Commission, Govt. of India)

The absolute number of poor is highest in West Bengal and lowest in Kerala, but in terms of incidence of poverty (measured as the number of people below the poverty line as a percentage of total population) Orissa and Kerala stand for the highest and the lowest values respectively (Table 3.4). In both Orissa and West Bengal, the incidence of poverty is higher in the rural areas, whereas in Kerala it is just the opposite. This will have a serious implication for access to health care if we add the fact that there has been a strong urban bias in setting up of government medical facilities. Given that, the government medical facilities are largely free or less expensive compared to the private allopathic treatment, but located in urban areas, one would expect a lower utilisation of health care by the rural people than their urban counterparts due to lack of potential access.

### **3.4 Health Care:**

By its nature health care is a composite good (a composition of medical service and goods under the supervision of physician(s)). The production of health care requires manpower (in the forms of doctors, para- and non-medical staff etc.), infrastructure (in the forms of buildings, hospital bed, ambulance, different durable medical instruments) and medicine and other non-durables. The quality of treatment at any medical institution depends upon the number and skill of manpower and availability of appropriate medical infrastructure including medicine. Given these factors, the quality of treatment also depends on the average population served by that medical institution. If a medical institution has to handle excessive burden of patients beyond its capacity, that will definitely affect the quality of treatment. The availability of health care can be analysed in terms of average availability of health care infrastructure, manpower in the absence of data on supply of drugs and other durable and non-durable medical inputs.

#### ***3.4.1 Infrastructure:***

The overall medical infrastructure of a state is reflected in the number of medical institutions, number of hospital beds and the private-public composition. The figure at the aggregate level do not show how this infrastructure is distributed across regions and to what extent it is accessible by different groups of people. The states vary considerable from one another in terms of aggregate availability of medical facilities, its distribution between rural and urban areas and across districts.

The three states differ in terms of the composition of the number and size of public and private health care institutions. The data show that West Bengal and Orissa do have similarities in the public-private mix-up, but the picture of Kerala is completely different (Table 3.5). Kerala has higher private participation both in terms of number of medical institutions and number of beds. In Kerala only 36 percent of the hospital beds are in the government sector, whereas in Orissa and West Bengal the shares of government sector in hospital beds are 91 and 87 respectively. The table also shows that the average size of the government institutions in terms of inpatient capacity is higher in Kerala than West Bengal<sup>7</sup>.

Table 3.5: Number of hospitals and beds according to the ownership in Kerala, Orissa and West Bengal - 1993

<i>State</i>	<i>Government (Including Local Bodies)</i>		<i>Private and Voluntary Organisation</i>		<i>Total</i>	
	Hospital	Bed	Hospital	Bed	Hospital	Bed
Kerala	141 (6.91)	28030 (36.31)	1899 (93.09)	49169 (63.69)	2040 (100)	77199 (100)
Orissa	255 (89.79)	13188 (90.99)	29 (10.21)	1306 (9.01)	284 (100)	14494 (100)
West Bengal	263 (67.09)	47855 (87.38)	129 (32.91)	6912 (12.62)	392 (100)	54767 (100)

Source: Directorate General of Health Services, Health Information of India -1994.

There has not been a change in the percentage share of government (or private) in total hospital beds during 1983 – 1993 (Table 3.6) in and West Bengal. During the same period the percentage share of government hospital bed marginally increased in Orissa. This indicates that the number of private hospital beds did not witness higher growth in Orissa and West Bengal compared to Kerala. In contrast the reported growth of the private sector has continued in Kerala.

<sup>7</sup> The average numbers of bed per government medical institution in Kerala, Orissa and West Bengal are 199, 52 and 181 respectively. The average numbers of bed per private medical institution in Kerala, Orissa and West Bengal are 26, 45 and 54 respectively.

Table 3.6: Percentage distribution of public and private beds in Kerala, Orissa and West Bengal

<i>State</i>	<i>1983</i>		<i>1993</i>	
	Public	Private	Public	Private
Kerala	58	42	36	64
Orissa	88	12	91	9
West Bengal	87	13	87	13

Note: Private includes voluntary or non-government organisations

Source: Government of India, Ministry of Health and Family Welfare, Health Information of India, Central Bureau of Health Intelligence (New Delhi, Government of India, various years)

An individual or a group of individuals face difficulties in accessing health care mainly because of two reasons: the physical existence of a medical institution within reasonable distance where quality treatment will be available at an affordable cost and income level of the individual. But quality treatment and affordable costs are largely subjective notions and vary considerably from individual to individual. Two points are clear from the above two tables: Firstly, government is the prime provider of health care (as far as its share in total number of medical institutions and total hospital beds are concerned) in Orissa and West Bengal. In Kerala, private sector is bigger than the government sectors in terms of its share in the total number of medical institutions and total hospital beds. Secondly, in Orissa and West Bengal the public-private composition did not experience any significant change till 1993.

A comparison of rural infrastructure is important because physical access to health care is a problem mainly in the rural areas. If we compare the figures on average population served by one Sub-Centre, Primary Health Centre and Community Health Centre with the norm (given in the appendix Table A 3.1), we find that the ratios seem to be better in Orissa compared to West Bengal<sup>8</sup>. But, Padhi and Mishra (2000) point out that the population based norms of coverage can be quite misleading in case of Orissa. According to their study the distinct and worrying aspect of the public delivery system in Orissa is its very poor geographical density. This has to do with relatively low population density for the state as a whole, and more importantly, very large difference in the same between coastal and non-coastal districts.

<sup>8</sup> Kerala figures cannot be compared because availability and utilisation of private health care facilities is very high in Kerala for inpatient as well as outpatient care.



Table 3.7: Number of and average rural population served by (one) Sub-centres, PHCs and CHCs in three states Kerala, Orissa and West Bengal

State	Number			Average population* served by one		
	Sub-Centre	PHC	CHC	Sub-Centre	PHC	CHC (in lakh)
Kerala	5049	956	80	4259	36949	2.68
Orissa	5927	1056	157	4627	25970	1.75
West Bengal	7873	1556	89	6271	31729	5.55

\* population relates to Census 1991

Source: Directorate General of Health Services, Bulletin on Rural Health Statistics.

The major problem of access in rural West Bengal is the non-availability of any health care facilities within a reasonable distance. Table 3.8 shows that in rural West Bengal, only 40.5 percent of the household had accessed medical facilities in their villages. Another 41.7 percent had to travel less than 5 kilometres for treatment. In this context, it should be remembered that the primary health Centres, Sub-Centres and Block Primary Health Centres very often lack the required facilities to treat any difficult illness. The medical facilities required to treat severe illness are mainly available in the Sub-Divisional, State General, District Hospital and Medical College Hospitals. As far as availability of PHC or SC is concerned the situation is far better in Kerala and even in Orissa. The table also shows that a hospital on an average people had to travel 8.5 kilometres to reach a hospital in West Bengal.

Table 3.8: Percentage distribution of villages according to distance from nearest health facility in Kerala, Orissa and West Bengal

Distance	PHC	SC	PHC/SC	Hospital	Dispensary or Clinic	Any Health Facility
Kerala						
With in village	82.7	92.1	96.2	66.4	87.4	98.2
<5 kms	2.6	0.8	0.8	4.3	9.6	1.8
5 - 9 kms	8.8	3.6	1.8	18.3	0.9	--
> 10 kms	3.2	0.3	--	9.3	1.0	--
Don't know/ missing	2.7	3.2	1.2	1.1	1.1	--
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Median distance	0.0	0.0	0.0	0.0	0.0	0.5

Table continued....

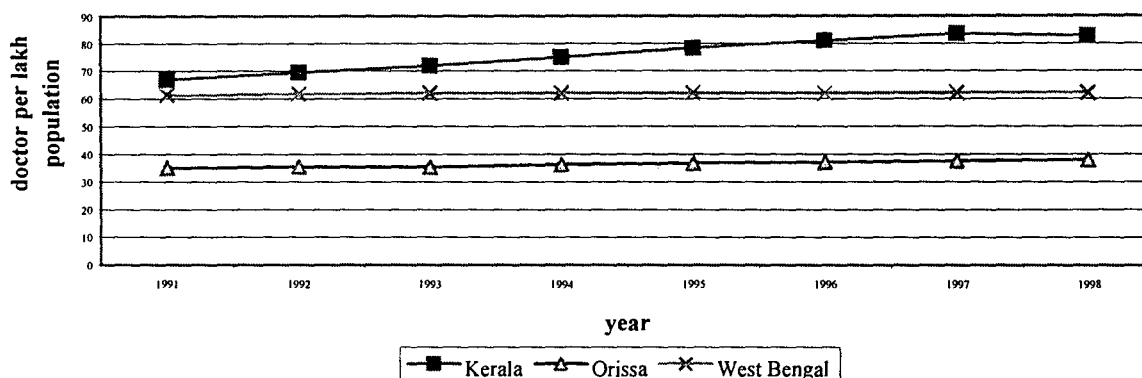
Orissa						
With in village	2.6	77.6	78.2	5.7	48.0	93.2
<5 kms	8.0	0.6	1.1	19.2	38.3	4.6
5 - 9 kms	10.8	2.2	3.9	19.4	7.6	2.3
> 10 kms	76.4	7.1	16.8	52.5	6.1	--
Don't know/ missing	2.1	12.4	--	3.1	--	--
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Median distance	20.2	0.0	0.0	10.3	1.0	0.0
West Bengal						
With in village	6.8	24.6	27.7	1.0	20.5	40.4
<5 kms	39.1	45.0	51.9	30.3	50.7	41.7
5 - 9 kms	40.1	23.7	17.5	24.5	27.9	17.8
> 10 kms	13.5	3.2	2.9	41.7	0.8	—
Don't know/ missing	0.5	3.5	--	2.4	--	--
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Median distance	5.5	2.7	2.4	8.5	2.3	1.4

Source: International Institute for Population Sciences (1995a, 1995b and 1995c)

### 3.4.2 Man-Power

The physical existence of health care institutions are not enough to produce health care service efficiently unless these are staffed with adequate number of medical, paramedical and non-medical manpower. Apart from manpower the other important inputs to health care are different medical instruments and availability of drugs. Figure 3.5 shows the growth of doctor per lakh population in Kerala, Orissa and West Bengal.

**Figure 3.5: Growth of the number of doctors per lakh population in Kerala, Orissa and West Bengal**



Apart from allopathy there are other systems of medicines, like homeopathy, ayurveda, unani etc. The number of registered doctors under all systems and separately for Homeopathy and Indian System of Medicine is presented in Table 3.9. The number of doctors per one lakh population of any system is the lowest in Orissa and better in West Bengal.

**Table 3.9: Number of registered doctors with the state medical council and the number of doctors (registered practitioners) under Indian system of medicine and homeopathy (ISM&H)**

State	Registered Doctors <sup>1</sup>		Doctor per lakh population <sup>2</sup>	
	All doctors	ISM&H	All doctor	ISM&H
Kerala	24660	20761	81	68
Orissa	12660	7768	37	23
West Bengal	45794	40319	62	54

Note: <sup>1</sup>. corresponding to the year 1996; <sup>2</sup>. estimated population for the year 1996

Source: Department of Indian System of Medicine and Homeopathy, New Delhi Medical Council of India Directorate General of Health Services, Bulletin of Rural Health Statistics in India

However, as far as rural manpower (number of government doctors per lakh rural population) is concerned, the situation is worse in West Bengal (see Table 3.10). In terms of the government doctors posted in the rural areas, Orissa shows a high doctor per lakh population. It is almost three times the number in West Bengal. The growth of the number of doctors per lakh population is presented in Figure 3.5. It shows that during 1990s the number of doctors per lakh population remained almost constant in Orissa and West Bengal. But it shows an increase over the years in Kerala.

Table 3.10: Number of specialists and doctors working in CHCs and PHCs in rural areas of Kerala, Orissa and West Bengal

<i>Specialist and doctor</i>		<i>Kerala*</i>	<i>Orissa**</i>	<i>West Bengal***</i>
Specialist	Surgeon	--	73	42
	Obst. And gynacs	--	143	41
	Physicians	--	142	39
	Paediatrician	--	77	11
	Total	146	435	133
Doctor		1230	2351	1547
Total		1376	2786	1680
Doctor per one lakh rural population****		6.42	10.16	3.40

\* reference period 31.12.1994

\*\* reference period 31.3.1991

\*\*\* reference period 31.3.1995

\*\*\*\* The estimated population for Kerala, Orissa and West Bengal is corresponding to the three states are corresponding to the years 1994, 1991 and 1995.

Source: Directorate General of Health Services, Bulletin of Rural Health Statistics in India

Orissa does not maintain its superior position over Kerala and West Bengal in terms of paramedical staff per lakh rural population. The figures on paramedical staff are presented in Table 3.11. West Bengal is on par with Orissa with regards to paramedical staffs per lakh population. Thus, if we consider manpower in the public facilities in the rural areas as a whole, West Bengal is far behind Kerala and even Orissa.

Table 3.11: Number of selected paramedical health manpower working in rural areas in three states Kerala, Orissa and West Bengal.

<i>Paramedical Staffs</i>	<i>Kerala<sup>1</sup></i>	<i>Orissa<sup>2</sup></i>	<i>West Bengal<sup>3</sup></i>
Health assistant (Male)	1039	168	1689
Health Assistant (Female)/LHVs <sup>4</sup>	1772	998	1447
Health workers (Male)	3896	337	8564
Health workers (Females)/ANM <sup>5</sup>	5094	6944	8126
Total rural para-medical health staffs	11801	8447	19826
Paramedical health staffs per one lakh rural population	39	27	27

Notes: <sup>1</sup>.reference period 31.12.1994<sup>2</sup>.reference period 31.3.1991<sup>3</sup>.reference period 31.3.1995

<sup>4</sup>. LHVs - Lady Health Visitors<sup>5</sup>. ANM - Auxiliary Nurse-Midwives

Source: Director General of Health Services, Bulletin on Rural Health Statistics in India - 1997

### **3.5 Transport:**

The utilisation of health care facilities has been shown to be highly correlated with distance to the nearest facility (Lee et al, 1993). Poor transport and communication system (especially in the rural areas) effectively limit the coverage radius of health facilities for outpatient services. Consequently, present patterns of service-provision effectively limit coverage to a small proportion of the population. It is unrealistic to expect consumers to travel any distance (or indeed pay money) to health facilities for treatment unless they can be confident that they will get quality and quantity of services appropriate to their needs.

Transport facility is an important aspect relating to the physical accessibility to health care. If villages were scattered and small and population density was less, it would not be possible to build up medical infrastructure in all villages. Besides, PHC or rural hospital could not have a variety of treatment facilities. As seen in Table 3.8, to avail medical service from PHC or SC in West Bengal, the rural people on an average (median distance was taken as an average) had to travel 2.4 kilometres and to avail health care services from hospital (which becomes necessary in case of severe illness) they had to travel on an average 8.5 kilometres. The rural people's physical access to health care is bounded not only by the distance of health care institutions but also by the availability of suitable transport facilities. The first thing required to have a good transport facility is that villages should be well connected with towns and cities by (suitable) road. The next two sections provides data on village connectivity and transport facilities.

#### ***3.5.1 Village Connectivity:***

Nearly 40 percent of the villages with population less than 1000, 64 percent of the villages with population between 1000 and 1500 and 62 percent of the villages with population more than 1500 were connected by (suitable) road till 1993 - 94 in West Bengal. The situation is very poor compared to Kerala, and as far as medium and large size villages are concerned Orissa has a better village connectivity compared to West Bengal (see Table 3.13) .

Table 3.12: Village connectivity in three states Kerala, Orissa and West Bengal.

State	Villages with population less than 1000		Villages with population between 1000 and 1500		Villages with population above 1500		All villages	
	Total number	Connected till 93-94	Total number	Connected till 93-94	Total number	Connected till 93-94	Total number	Connected till 93-94
Kerala	6 (0.47)	6 (100)	10 (0.79)	10 (100)	1252 (98.74)	1252 (100)	1268	1268 (100)
Orissa	41132 (86.95)	12228 (29.73)	3524 (7.45)	3034 (86.10)	2649 (5.60)	2640 (99.66)	47305	17902 (37.84)
West Bengal	27646 (72.61)	11351 (41.10)	5500 (14.45)	3547 (64.49)	4928 (12.94)	3048 (61.85)	38074	17946 (47.13)

Note: Figures in the parentheses corresponding to the column total number show percentage of the particular category of village out of total villages. Figures in the parentheses corresponding to the column connected till 1993-94 show percentage of connected villages.

Source: Pocket Book on Transport Statistics in India (1995) Transport Research Wing, Government of India, New Delhi.

Table 3.13 also shows better village connectivity in Kerala compared to Orissa and West Bengal in terms of distance from the nearest town. Whereas 60 percent of the Kerala villages have town within 9 kilometres distance, the percentages are 22 and 48 for Orissa and West Bengal respectively.

Table 3.13: The percentage distribution of villages according to distance from the nearest town and transport facilities in Kerala, Orissa and West Bengal

Distance	<5	5-9	10+	Don't know	Total	Median
<b>Kerala</b>						
Nearest town	26.8	32.9	38.9	1.4	100	8.2
Nearest railway station	10.7	25.8	61.4	2.2	100	12.9
Nearest bus stand	25.4	38.3	36.3	-	100	8.3
<b>Orissa</b>						
Nearest town	11.8	10.0	77.2	1.0	100	16.0
Nearest railway station	7.6	7.9	81.4	3.1	100	40.6
Nearest bus stand	44.6	25.8	29.1	0.7	100	6.0
<b>West Bengal</b>						
Nearest town	17.6	30.6	51.8	-	100	10.6
Nearest railway station	21.5	13.1	65.5	-	100	15.5
Nearest bus stand	80.3	12.7	7.0	-	100	3.2

Source: International Institute for Population Sciences (1995a, 1995b and 1995c)

### 3.5.2 Road and Vehicle Density:

The road length per 100 square km or road length per one lakh population does not show the connectivity of different places, but still it can give an average picture of road availability without which transport facilities cannot be improved from its present status. Table 3.14 shows that in terms of vehicle density (measured as population per vehicle, population per bus and urban population per three wheeler and taxi) and road density (road length per 1000 square kilometres), Kerala is better than Orissa and West Bengal. As far as vehicle density is concerned West Bengal shows a better position than Orissa, but West Bengal shows a lower density of road compared to Orissa. Lower the vehicle density, higher would be the difficulties in transport facilities. Further, long travel distance to reach medical facilities along with less vehicle density leads to a manifold increase in the degree of difficulties in accessing health care by many folds.

Table 3.14: Vehicle and road density in Kerala, Orissa and West Bengal.

<i>State</i>	<i>Population per vehicle<sup>1</sup></i>	<i>Population per bus<sup>1</sup></i>	<i>Urban population per Three wheeler or taxi<sup>1</sup></i>	<i>Road length<sup>2</sup> per '000 square km</i>
Kerala	33	958	55	3550.5
Orissa	58	3318	1215	1371.3
West Bengal	67	2676	372	692.8

Note: 1 Total registered (tax and tax exempted) motor vehicles in India on 31.3.1994; 2 Data on road length is for 1993-94

Source: Pocket Book on Transport Statistics in India

### 3.6 Inter-District Variation in Government Medical Infrastructure:

An analysis of the inter-district variations in medical infrastructure gives us a picture of spatial distribution of health care facilities and can highlight the variations in physical access to health care facilities by different groups of people<sup>9</sup>. The information on government medical infrastructure is available for all the states but there are no reliable estimates of private medical infrastructure for Orissa and West Bengal. This compels us to restrict our inter-district analysis to government medical infrastructure only. The comparison of inter-district

<sup>9</sup> Here administrative separation is the basis of group. As for example the population of a district can be considered as a group.

variation is much more meaningful between Orissa and West Bengal, while comparing with Kerala we should remember that a large part of total medical infrastructure and manpower is in the private sector in Kerala.

We choose three indicators for this purpose of capturing the spatial distribution: (i) bed per lakh population (measured by dividing the total number of hospital bed existing in the district in all government medical institutions by the district population and multiplying by one lakh), (ii) population per government medical institution (measured by dividing the district population by the number of government medical institutions existing in that district) and (iii) area per institution (measured as dividing the district area in square kilometres by the number of government medical institutions existing in that district). The lower bed per lakh population indicates lack of access to inpatient care, provided availability of private inpatient care at an affordable cost is low. The higher population per institution shows the excessive burden on the government health care institutions on an average. In the absence of availability of private outpatient care, higher population per medical institution can lead to deterioration in the quality of health care available in those institutions. The lower area per medical institution indicates better access to health care in terms of travel distance to seek treatment. The districts where population density is high due to rapid urbanisation are expected to show higher population per medical institution and lower area per medical institution.

Table 3.15: Percentage distribution of districts according to district-wise average number of bed per one lakh population

<i>Average no of bed per one lakh population</i>	<i>Kerala</i>	<i>Orissa</i>	<i>West Bengal</i>
Less than or equal to 39	0	57.14	0
40 – 79	21.43	35.71	41.18
80-119	35.71	3.57	41.18
120 or more	42.86	3.57	17.65
Total	100.00	100.00	100.00
Mean	131	40	102
Median	115	37.5	86
Standard Deviation	50.36	23.36	88.31
Coefficient of Variation	0.39	0.58	0.89
Inter Quartile Range (IQR)	78	22.5	52
IQR/Median	0.68	0.60	0.60

Source: see Appendix Table A 3..3



Table 3.15 shows that on an average the number of beds per one lakh population is highest in Kerala and lowest in Orissa. If we add up the hospital beds existing in the private sector, the difference of average bed per lakh population between Kerala and West Bengal or Orissa will be much higher than the present level. The inter-district variations (measured by standard deviation and coefficient of variation) is lowest in Kerala and highest in West Bengal. The highest inter-district variations in West Bengal is due to two outlier districts Kolkata and Darjeeling. Except Sambalpur and Cuttack the variation among the districts is much less in Orissa. In Orissa 57 percent of the districts are having hospital beds per one lakh population less than or equal to 39. In Kerala more than 78 percent of the districts are having more than 80 beds per lakh population. In West Bengal almost 82 percent of the districts are having average bed per lakh population between 40 to 119.

Table 3.16 shows the inter-district variation in average population served by one medical institution. The variation is highest in Orissa and there are six outlier districts<sup>10</sup> with either very high or low values of average population served per one government medical institution. Kerala shows on an average higher average population served by one health care institution than Orissa and West Bengal. This does not tell us about the real picture if we consider the fact that only 7 percent of the medical institutions are in the government sector in Kerala, whereas in Orissa and West Bengal 90 percent and 67 percents of the medical institutions are in the government sector respectively. The low average value of population per government medical institution in West Bengal is due to the outlier district Calcutta. The inter-district variation is much less in Kerala than West Bengal.

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<sup>10</sup> The outlier districts in Orissa are Mayurbhanj and Nayagarh (very high values) and Koraput, Phulbani, Malkangiri and Nawapara (very low values).

Table 3.16: Percentage distribution of districts according to district-wise average population served by one government medical institution and summary statistics

<i>Population per GMI</i>	<i>Kerala</i>	<i>Orissa</i>	<i>West Bengal</i>
<i>Less than or equal to 8999</i>	<i>0</i>	<i>66.67</i>	<i>5.89</i>
<i>9000 – 17999</i>	<i>4.14</i>	<i>23.33</i>	<i>35.29</i>
<i>18000 – 26999</i>	<i>64.29</i>	<i>63.33</i>	<i>52.94</i>
<i>27000 or more</i>	<i>28.57</i>	<i>6.67</i>	<i>5.88</i>
<i>Total</i>	<i>100.00</i>	<i>100.00</i>	<i>100.00</i>
<i>Mean</i>	<i>24632</i>	<i>18601</i>	<i>14118</i>
<i>Median</i>	<i>23211</i>	<i>19737</i>	<i>18878</i>
<i>Standard Deviation</i>	<i>3939.36</i>	<i>7589.77</i>	<i>7045.15</i>
<i>Coefficient of Variation</i>	<i>0.16</i>	<i>0.41</i>	<i>0.50</i>
<i>Inter Quartile Range (IQR)</i>	<i>8043</i>	<i>2646</i>	<i>6676</i>
<i>IQR/Median</i>	<i>0.35</i>	<i>0.13</i>	<i>0.35</i>

Source: Appendix Table A 3.3

The inter-district variation of area per government medical institution is given in Table 3.17. This indicator is important as far as equality of physical accessibility (for a group of people) is concerned. Because the role of space in defining equality of access is very important, as the distance an individual has to travel to reach a health care facility has a direct bearing on the extent to which she will use it (Muraleedharan, 1993). The variation is highest in Orissa and lowest in West Bengal. The variation is slightly higher in Kerala<sup>11</sup> (as reflected in the values of standard deviation, inter quartile range and inter quartile range-median ratio). On an average the area coverage of one government medical institution is less in Kerala and West Bengal compared to Orissa. The inter-district variation in area per one government institution is also high in Orissa compared to Kerala and West Bengal.

<sup>11</sup> Kerala has one outlier district Idduki, where average area served by one government medical institution is very high compared to other districts of Kerala

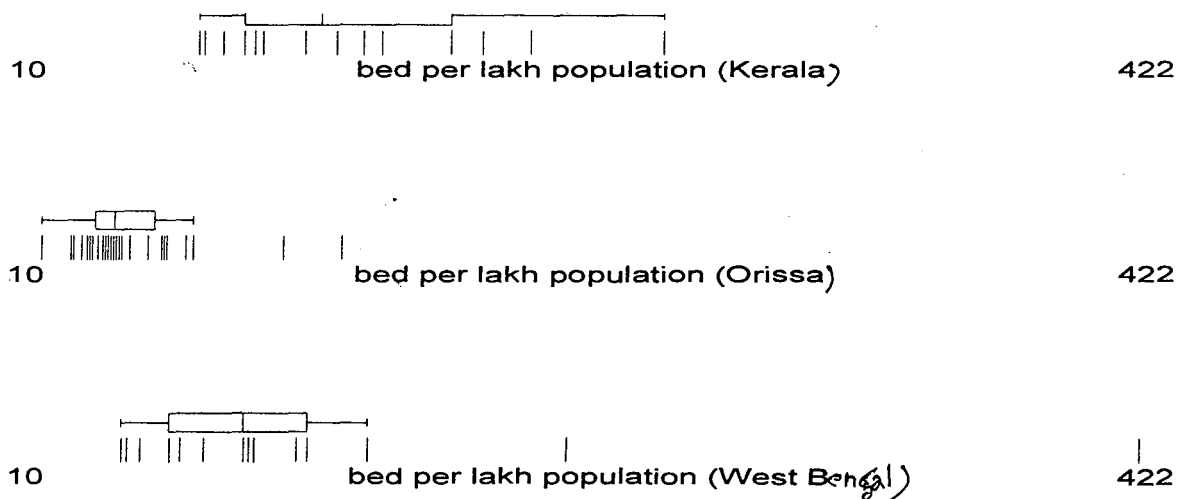
Table 3.17: Percentage distribution of districts according to the district-wise average area covered per government medical institution

<i>Area per GMI</i>	<i>Kerala</i>	<i>Orissa</i>	<i>West Bengal</i>
Less than or equal to 40	78.57	0.10	82.35
41 –100	21.42	43.33	17.65
101 –160	0	33.33	0
More than 160	0	13.33	0
Total	100.00	100.00	100.00
Mean	30	92	18
Median	28	100	25
Standard Deviation	16.35	61.23	15.59
Coefficient of Variation	0.55	0.67	0.87
Inter Quartile Range (IQR)	16	96	12
IQR/Median	0.57	0.96	0.48

Source: see Appendix Table A 3.3

The box plots showing the distribution of these three indicators across the districts of Kerala, Orissa and West Bengal is given in Figures 3.6, 3.7 and 3.8.

Figure 3.6: Box plots showing the distribution of 'bed per lakh population' across the districts of Kerala, Orissa and West Bengal





advanced districts and two backward districts, and found that health care services to be more concentrated in the advanced districts with the least variation being within the public sector.

### **3.7 Summary:**

This chapter gives a brief account of people economy, health care and village connectivity of Kerala, Orissa and West Bengal. The three states Kerala, Orissa and West Bengal are primarily agricultural economies. Different indicators relating to the health status shows that Kerala is in much better position than Orissa and West Bengal. In fact, the situation is much worse in Orissa. Less per capita Net State Domestic Product and higher incidence of poverty in Orissa compared to Kerala and West Bengal indicates that overall economic condition is worse in Orissa compared to Kerala and West Bengal. Kerala not only shows a better position in terms of medical infrastructure and manpower, but also lower inter-district variations in medical infrastructure compared to Orissa and West Bengal. As far as manpower is concerned, Kerala shows higher doctor-population ration compared to Orissa and West Bengal. In terms of government medical infrastructure and number of government doctors and paramedical staffs posted in the rural areas, Orissa shows a better situation than West Bengal. The village connectivity and transport facility is also better in Kerala compared to West Bengal and Orissa. However, in terms of overall medical infrastructure, doctor-population ratio, village connectivity and transport facilities West Bengal is in a far better position than Orissa. In a nutshell, high population density, higher rate of poverty in the rural areas compared to urban areas, large number of population served per one (government) medical institution, long distance of PHC or SC and Hospital from most of the villages, considerable inter-district variation in health care facilities, very low doctor population ratio in the rural areas, poor village connectivity, inadequate transport facilities, slow growth of government and private hospital bed - these are the characteristics we found in the West Bengal economy and in the health care sector. The situation is far better in Kerala and worse in Orissa. The information can provide a comparative perspective to analyse the morbidity pattern, utilisation of and expenditure on health care.

## APPENDIX

Table A 3.1: National Norm for Primary Health Care Facilities

<i>Item</i>		<i>Norm</i>
1	At least one trained Dai	For each village
2	One trained village Health Guide	For each village or 1000 population
3	One Sub-Centre	For 5000 population in plain area and for 3000 population in tribal, hilly and backward areas.
4	One Primary health Centre	For every 30000 population in plain area and for 20000 population in tribal, hilly and backward areas.
5	One Community Health Centre	For every 1 to 1.2 lakh population serving as a referral institution for four primary health centres.

Source: Bulletin on Rural Health Statistics in India for the quarter ending in June, 1990

Table A 3.2: Inter-district variations in area, population, population density, percentage of rural population, percentage of scheduled caste population and scheduled tribe population in Kerala, Orissa and West Bengal.

### Kearala

<i>District</i>	<i>Area (Square KM)</i>	<i>Population (in lakhs)</i>	<i>Population density</i>	<i>Percentage of rural population</i>	<i>Percentage of scheduled caste population</i>	<i>Percentage of scheduled tribe population</i>
Alappuzha	1414	20.01	1415	69.5	9.5	0.14
Ernakulam	2407	28.17	1170	51.3	8.6	0.18
Idukki	5019	10.78	215	95.3	14.6	4.66
Kannur	2966	22.52	759	49.1	4.1	0.81
Kasaragod	1992	10.72	538	83.6	7.6	2.73
Kollam	2491	24.08	967	81.5	12.7	0.16
Kottayam	2203	18.28	830	82.4	7.4	0.98
Kozhikode	2344	26.20	1118	61.7	7.0	0.21
Malappuram	3550	30.96	872	90.9	8.3	0.34
Palakkad	4480	23.82	532	84.3	15.9	1.49
Pathanamthitta	2642	11.88	450	87.0	13.3	0.58
Thiruvananthapuram	2192	29.47	1344	66.1	11.7	0.55
Thrissur	3032	27.38	903	73.7	12.2	0.15
Wayanad	2131	6.72	315	96.6	4.1	17.11
KERALA	38863	290.99	749	73.6	9.9	1.1

Note: All figures are corresponding to the Census year 1991

Source: Census of India (1991)

## Orissa

<i>District</i>	<i>Area (Square KM)</i>	<i>Population (in lakhs)</i>	<i>Population density</i>	<i>Percentage of rural population</i>	<i>Percentage of scheduled caste population</i>	<i>Percentage of scheduled tribe population</i>
Anugul	6166	9.31	151	88.54	16.82	11.68
Balasore	3498	16.97	485	90.91	18.57	10.57
Bargarh	5832	12.07	207	93.33	18.44	19.56
Bhadrak	2785	11.06	397	90.07	21.71	1.69
Bolangir	6548	12.31	188	89.49	15.39	22.06
Boudh	3452	3.18	92	95.13	19.64	12.92
Cuttack	3914	19.73	504	75.37	18.19	3.49
Deogarh	2789	2.34	84	92.63	14.6	33.31
Dhenkanal	4601	9.48	206	91.76	16.03	12.68
Gajapati	3011	4.55	151	89.71	8.77	47.88
Ganjam	8072	27.04	335	84.33	17.91	2.93
Jagatsinghpur	1740	10.14	583	92.5	21.72	0.61
Jajpur	2888	13.86	480	96.15	22.87	7.4
Jharsuguda	2201	4.47	203	64.33	17.15	31.88
Kalahandi	8195	11.31	138	93.09	17.01	28.88
Kendrapara	2566	11.50	448	94.5	19.83	0.4
Keonjhar	8305	13.37	161	87.52	11.49	44.52
Khurda	2888	15.02	520	65.63	13.62	5.14
Koraput	8374	10.30	123	83.33	13.41	50.67
Malkangiri	6115	4.22	69	91.84	19.96	58.36
Mayurbhanj	10412	18.85	181	93.83	6.99	57.87
Nawapara	3402	4.69	138	94.51	13.09	35.95
Nayagarh	3953	7.83	198	96.65	13.78	5.96
Nowrangpur	5292	8.47	160	95.03	15.09	55.27
Phulbani (khandamal)	5463	5.46	100	93.47	18.21	51.51
Puri	3057	13.05	427	87.48	18.56	0.27
Rayagada	7596	7.14	94	87.49	14.28	56.04
Sambalpur	6686	8.09	121	74.6	17.07	35.08
Sonepur	2281	4.77	209	92.7	22.11	9.5
Sundargarh	9714	15.74	162	66.64	8.78	50.74
Orissa	155959	316.60	236	86.6	16.2	22.2

Note: all the figures are corresponding to the Census year 1991

Source: Government of Orissa (2000)

## West Bengal

<i>District</i>	<i>Area (Square KM)</i>	<i>Population (in lakhs)</i>	<i>Population density</i>	<i>Percentage of rural population</i>	<i>Percentage of scheduled caste population</i>	<i>Percentage of scheduled tribe population</i>
Bankura	6882	28.05	408	91.71	31.37	10.34
Birbhum	4545	25.56	562	91.02	30.68	6.95
Burdwan	7024	60.5	861	64.91	27.44	6.21
Cooch-bihar	3387	21.71	641	92.19	51.76	0.61
Darjeeling	3149	13	413	69.53	16.15	13.78
Hoogly	3149	43.55	1383	68.81	24.12	4.05
Howrah	1467	37.3	2453	50.42	15.79	0.27
Jalpaiguri	6227	28.01	450	83.64	36.99	21.04
Kolkata	185	44	23784	0	6.45	0.2
Malda	3733	26.37	706	92.93	18.12	6.5
Midnapur	14081	83.32	592	90.15	16.34	8.28
Murshidabad	5324	47.4	890	89.57	13.4	1.3
N 24 parganas	4094	72.82	1779	48.77	21.49	2.33
Nadia	3927	38.52	981	77.37	29.01	2.35
Purulia	5259	22.24	355	90.56	19.35	19.23
S 24 parganas	9960	57.15	574	86.7	34.45	1.23
S-Dinajpur	2183	12.01	550	86.33	29.1	16.92
N-Dinajpur	3180	19.27	606	86.87	28.97	5.41
West Bengal	88751	680.78	767	72.52	23.62	5.59

Note: All the figures are corresponding to the Census year 1991

Source: Census of India 1991, Government of West Bengal (1999b)



Table A 3.3: Inter-district variations in government medical infrastructure in Kerala, Orissa and West Bengal.

**Kerala**

<i>District</i>	<i>Government Medical Institutions</i>		<i>Bed per lakh population</i>	<i>Population per GMI population</i>	<i>Area per GMI</i>
	Number	Beds			
Alappuzha	90	4033	193	23274	16
Ernakulam	117	4160	136	26231	21
Idukki	63	840	75	17832	80
Kannur	106	2763	115	22602	28
Kasaragod	60	739	62	19824	33
Kollam	88	2078	81	29158	28
Kottayam	85	3379	174	22824	26
Kozhikode	96	5745	201	29703	24
Malappuram	123	2183	61	29044	29
Palakkad	112	2208	85	23148	40
Pathanamthitta	64	1072	87	19175	41
Thiruvananthapuram	115	7187	224	27867	19
Thrissur	122	4264	145	24186	25
Wayanad	40	811	105	19359	53
Kerala	1281	41462	131	24632	30

Note: Figures on number of medical institutions and number of beds are corresponding to the year 2000. Population figures are estimated population for the year 2000.

Source: Government of Kerala (2001), Census of India 1991, Census of India 2001 (Provisional Estimates - Kerala)

## Orissa

<i>District</i>	<i>No of GMI</i>	<i>Bed per lakh population</i>	<i>Population per GMI</i>	<i>Area per GMI</i>
Anugul	43	28	21652	143
Balasore	86	27	19727	41
Bargarh	61	10	19790	96
Bhadrak	60	21	18431	46
Bolangir	60	36	20516	109
Boudh	16	25	19851	216
Cuttack	81	101	24355	48
Deogarh	12	55	19520	232
Dhenkanal	48	39	19747	96
Gajapati	30	43	15157	100
Ganjam	121	57	22348	67
Jagatsinghpur	46	*	22049	38
Jajpur	69	*	20090	42
Jharsuguda	22	38	20306	100
Kalahandi	62	43	18240	132
Kendrapara	56	22	20527	46
Keonjhar	55	37	24310	151
Khurda	84	35	17881	34
Koraput	81	34	12716	103
Malkangiri	65	56	6491	94
Mayurbhanj	39	40	48323	267
Nawapara	115	33	4082	30
Nayagarh	23	64	34028	172
Nowarangpur	49	29	17279	108
Phulbani (khandamal)	50	67	10926	109
Puri	65	50	20083	47
Rayagada	50	31	14280	152
Sambalpur	45	123	17978	149
Sonepur	26	36	18339	88
Sundargarh	82	40	19190	118
Orissa	1702	40	18601	92

Note: \*\* figures were not given in Padhi and Mishra.. Population figures are corresponding to the Census Year 1991, Population per government medical institution and area per government medical institution are calculated from data given in Government of Orissa (1999) and figures on bed per lakh population are taken from Padhi and Mishra (2000). The number of government medical institutions as on 31.03.1999

Source: Census of India (1991), Government of Orissa (1999) and Padhi and Mishra (1999)

## West Bengal

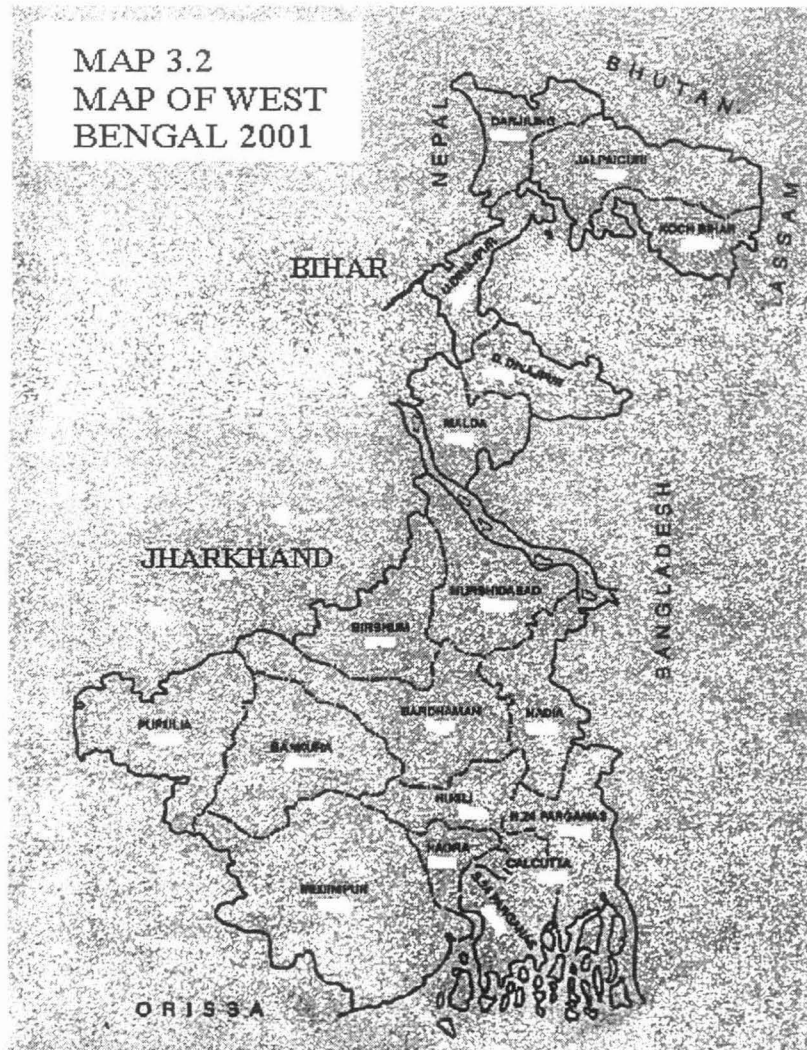
<i>District</i>	<i>Government Medical Institutions</i>		<i>Bed per lakh population</i>	<i>Population per GMI population</i>	<i>Area per GMI</i>
	Number	Beds			
Bankura	164	2976	106	17104	42
Birbhum	122	2197	86	20951	37
Burdwan	521	6645	110	11612	13
Cooch Bihar	115	1552	71	18878	29
Darjeeling	124	2702	208	10484	25
Hoogly	263	3758	86	16559	12
Howrah	197	3370	90	18934	7
Jalpaiguri	198	2477	88	14146	31
Kolkata	1343	18586	422	3276	0.14
Malda	128	1249	47	20602	29
Midnapur	369	4836	58	22580	38
Murshidabad	247	2937	62	19190	22
N 24 Parganas	275	4233	58	26480	15
Nadia	185	5122	133	20822	21
Purulia	118	2441	110	18847	45
S 24 Parganas	197	2410	42	29010	51
West Dinajpur	317	1255	40	9868	17
West Bengal	4822	69321	102	14118	18

Note: The number of medical institutions and beds as on 31.3.1998. Population figures are corresponding to 1991 Census.

Source: Census of India (1991), Government of West Bengal (1999a and 1999b)

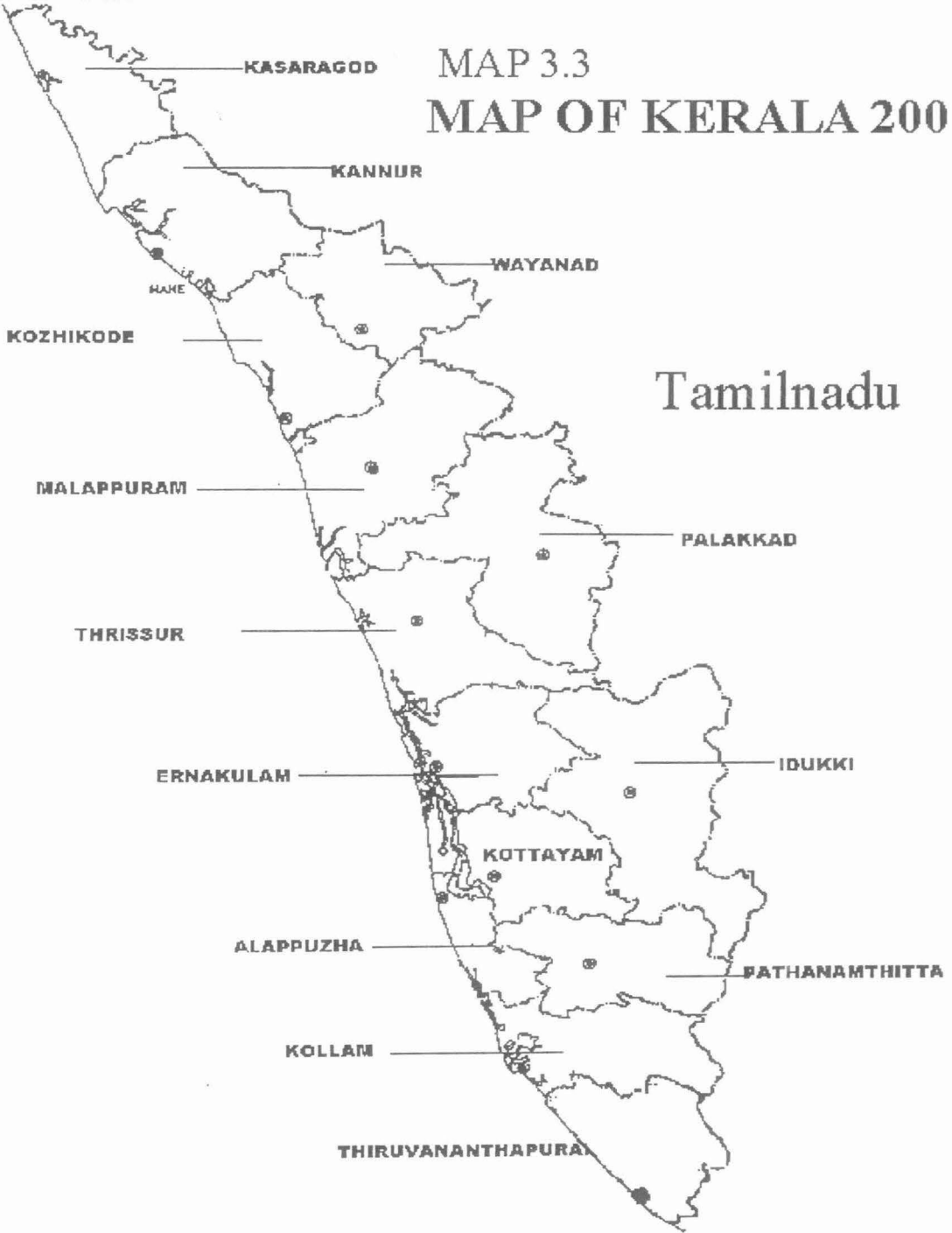


MAP 3.2  
MAP OF WEST  
BENGAL 2001

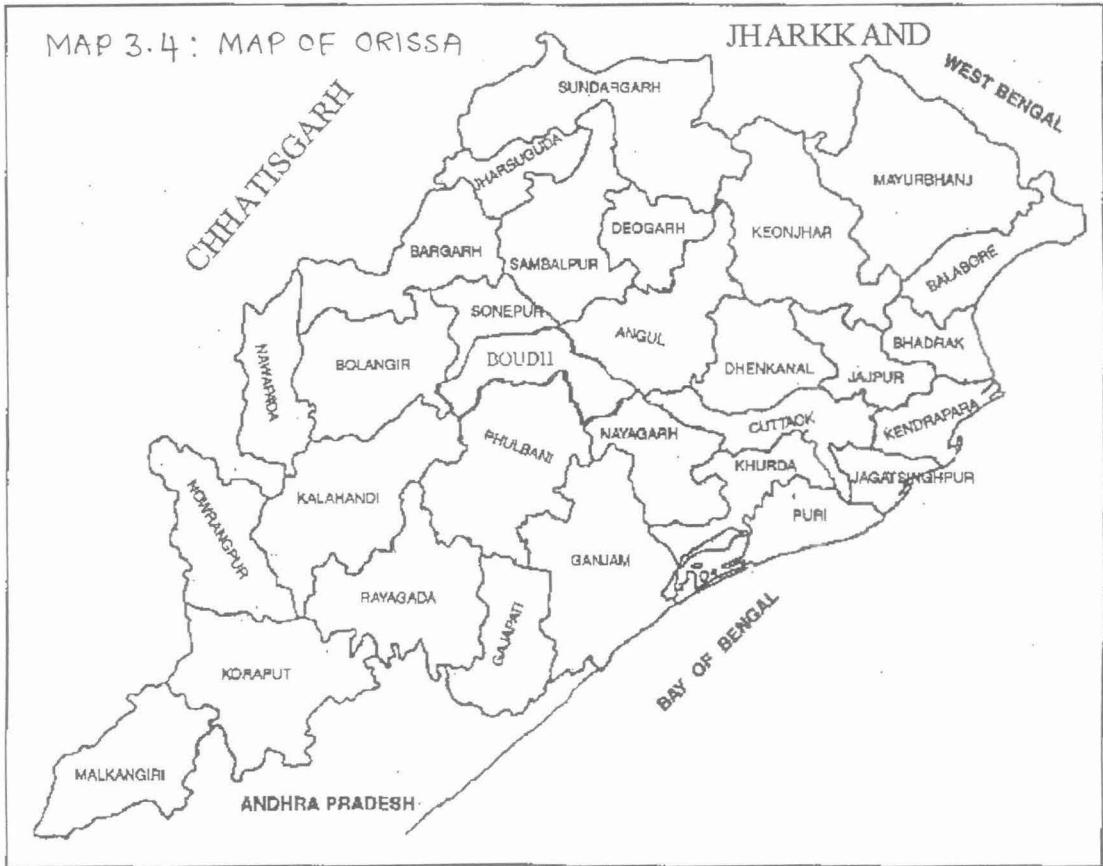


Karnataka

MAP 3.3  
MAP OF KERALA 2001



MAP 3.4: MAP OF ORISSA



## Chapter 4

### Morbidity Profile and Utilisation of Health Care

#### 4.1 Introduction:

The health status of a society is usually measured in terms of indicators of mortality and morbidity. Indicators, such as the child mortality rate and life expectancy at birth, which are often used to describe the health status of a society, are basically derived from mortality profile. In recent years focus has shifted to the morbidity profile as an important aspect of the health status of a society. Incorporation of the morbidity profile in addition to mortality rates to reflect the health status of a society raises further questions. As a society develops economically and socially, the health status of that society improves in terms of reduction in the age adjusted death rate, but at the same time people's perception about good health also changes as a result of better health care facilities and improved health awareness among the members of society. Despite this limitation, due to subjectivity in reported morbidity data, they are still considered important to assess the disease burden and the amount of health care the society needs.

Given the potential access to health care, higher morbidity should result in higher utilisation of health care. Any gap between the levels of morbidity and utilisation arises because of the factors relating to potential access to health care. The following sections are structured on the basis of figure 1.2<sup>1</sup>. The morbidity profile provides the background for the discussion of utilisation. The variation in utilisation across socio-economic classes will be followed by analysis of utilisation - system-wise, institution-wise and provider-wise. Finally, the discussion on reasons for 'no treatment' highlights some of the problems the people face in accessing health care in the three states.

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<sup>1</sup> Following Figure 1.2 which depicts an individual's health care seeking behaviour schematically, an order can be constructed to study the group characteristics first in terms of morbidity and then studying the utilisation of inpatient and outpatient health care (system-wise, institution-wise and provider-wise) and reasons for no treatment.



## 4.2 Morbidity Profile:

The morbidity profile shows the burden of disease on the society in terms of incidence and prevalence rates of morbidity or illness. Disease is increasingly recognised as both a significant indicator of human well-being and a determinant of poverty. The morbidity data which shows the burden of disease in a society helps us in two ways: firstly, it helps the policy makers to take a decision on any health programmes for timely intervention, prevention, and control and eradication of the disease; and secondly, it indicates the extent of need of hospitals, dispensaries, laboratories, rehabilitation centres, home nursing facilities etc (Gumber and Berman, 1995). Most of the Indian states are currently at various stages of epidemiological transition. Epidemiologic theory states that as mortality declines, a marked shift takes place in the distribution of major causes of death, i.e. a shift from serious communicable diseases to non-communicable diseases. This section presents the incidence and prevalence rates of illness and the pattern of morbidity across different social, economic and demographic groups based on the NSS and the NCAER data. The NSS has classified all types of illness into two categories: short-duration illness or acute illness and long-duration illness or chronic illness. Apart from that, NSS data provides information on hospitalised illness. NCAER has classified all types of illness into four categories, acute illness, chronic illness, serious communicable disease, and accident and injury (see Appendix A 4.1).

Table 4.1: Incidence of acute and chronic illness (per 1000 population) in rural and urban Kerala, Orissa and West Bengal

<i>State</i>	<i>Rural</i>			<i>Urban</i>		
	Acute illness	Chronic illness	Total	Acute illness	Chronic Illness	Total
Kerala	80	38	118	61	27	88
Orissa	56	6	62	52	10	62
West Bengal	47	19	66	49	16	65

Note: The classification of acute and chronic illness by NSSO is given in the appendix of this chapter.

Source: NSS 52

Table 4.2: Prevalence Rate of Illness (per 1000 population) by types of Illness.

<i>State</i>	<i>Rural</i>				<i>Urban</i>			
	SCD	AI	CI	Total	SCD	AI	CI	Total
Kerala	18.8	111.4	64.7	194.9	8.7	125.6	49.6	184.0
Orissa	30.3	140.7	20.6	191.5	25.9	116.0	28.5	170.4
West Bengal	15.2	53.8	13.1	82.1	11.4	52.2	17.9	81.5

Note: SCD = Serious Communicable disease; AI = Acute Illness and CI = Chronic Illness

NCAER's classification of illnesses (see Appendix)

Source: NCAER (1995)

Whereas the NSS data (Table 4.1) shows much higher incidence of morbidity in Kerala compared to Orissa and West Bengal, the NCAER data (Table 4.2) shows much higher prevalence of morbidity in Kerala and Orissa, compared to West Bengal. Both the data sources show higher incidence/prevalence of acute illness than chronic illness, but at the same time they show mutually contradictory trends. The greater health awareness due to higher literacy and higher percentage of old-age population probably explain the higher incidence (as shown in the NSS data) and prevalence (as shown in the NCAER data) of morbidity in Kerala compared to Orissa and West Bengal. The higher prevalence of morbidity in Orissa (as shown in NCAER) could be due to higher incidence of poverty (see table 3.4). The NSS data does not show any rural-urban difference in the incidence of morbidity in Orissa and West Bengal, but it shows higher incidence of morbidity in rural Kerala compared to urban Kerala. NCAER data does not show any considerable rural-urban difference in the prevalence of morbidity in West Bengal, but it shows higher prevalence of morbidity in rural Orissa and Kerala compared to their urban counterparts. As far as incidence or prevalence of chronic illness is considered, NSS data shows that it is highest in Kerala and lowest in Orissa, but NCAER data shows that it is highest in Kerala and lowest in West Bengal. Regarding the prevalence of serious communicable disease, NCAER data shows that it is highest in rural Orissa and lowest in rural West Bengal and urban Kerala. The discrepancy between NSS and NCAER data in their findings can be cross-checked in the light of available literature, data related to other variables and NFHS data on the incidence of some selected diseases.

Firstly, there is an argument that mainly two factors, the perception factor and the higher share of old-age population, are responsible for the higher incidence or prevalence of morbidity in Kerala compared to other Indian states. The perception factor points out that high level of health consciousness among the population causes higher morbidity. The increase in the share

of old-age population due to increase in life expectancy creates higher morbidity burden on the population. The study by Kannan et al (1991) points out the inadequacy of these two factors in explaining the higher incidence of morbidity in Kerala compared to other states. The study found that the rate of morbidity decreases with increasing socio-economic status. This implies that underlying socio-economic status contributes to this situation<sup>2</sup>. Secondly, the lower incidence of chronic illness in Orissa compared to West Bengal (as shown in the NSS data) is not convincing, because of the reasons that percentage of old-age population in total population is higher in Orissa (7.2 percent, see Table 3.1) compared to West Bengal (6.1 percent, see Table 3.1) and the incidence of poverty is higher in Orissa compared to West Bengal. As the incidence of chronic illness shows a steady increase with the increase in age (see Table A 4.1) and since Orissa has a higher percentage of old-age population, one would expect higher incidence of chronic illness in Orissa. The information on the incidence of four types of disease (viz. Asthma, tuberculosis, jaundice and malaria) collected by NFHS is presented in Table 4.3.

Table 4.3: Number of persons per lakh usual household residents suffering from Asthma, tuberculosis, jaundice or malaria in Kerala, Orissa and West Bengal 1998-99.

<i>State</i>	<i>Asthma</i>	<i>Tuberculosis</i>	<i>Jaundice during the past 12 months</i>	<i>Malaria during the past three months</i>
Rural				
Kerala	5084	581	640	58
Orissa	3288	835	1265	7770
West Bengal	2654	537	2544	1669
Urban				
Kerala	3901	348	165	47
Orissa	3000	819	1152	4571
West Bengal	2410	357	1892	918
Combined				
Kerala	4806	526	528	56
Orissa	3255	833	1253	7414
West Bengal	2593	492	2381	1482

Source: International Institute for Population Sciences (2000)

<sup>2</sup> As far as the increasing share of old-age population is concerned, the increase in the share of this group (above 60) has been of the order of 3 to 4 percent only and that cannot possibly account for the high rate of morbidity

Table 4.3 shows that the incidence of asthma and tuberculosis<sup>3</sup> is higher in Orissa compared to West Bengal. This is in accordance with the findings of NCAER's study. Thirdly the NCAER data shows the highest prevalence of serious communicable diseases in Orissa. It also shows that the prevalence of serious communicable disease is lowest in rural West Bengal and urban Kerala. The higher prevalence of serious communicable disease in rural Kerala compared to rural West Bengal, as shown in the NCAER study, raises doubt about its reliability<sup>4</sup>. NFHS data clearly shows that the incidence of serious communicable diseases like Jaundice and malaria is very less in Kerala compared to Orissa and West Bengal.

NSS 42 round provides data on the incidence of morbidity (measured as the number of persons reporting ill during the reference period per 1000 population) by age group, MPCE fractile group, location of residence and gender. It is interesting to examine the association between the incidence of morbidity and age group, location of residence, gender or expenditure class (MPCE fractile group). Figure 4.1, which plots the incidence of morbidity against age group for rural and urban West Bengal, shows that except the lower need for health care by the age group 15-39, as age increases need for health care increases. This implies that except for the most productive age group (15-39), as age increases, on an average the need for health care increases. The need for health care by old-age group (60 and above) is much higher in the rural areas compared to the urban areas<sup>5</sup>.

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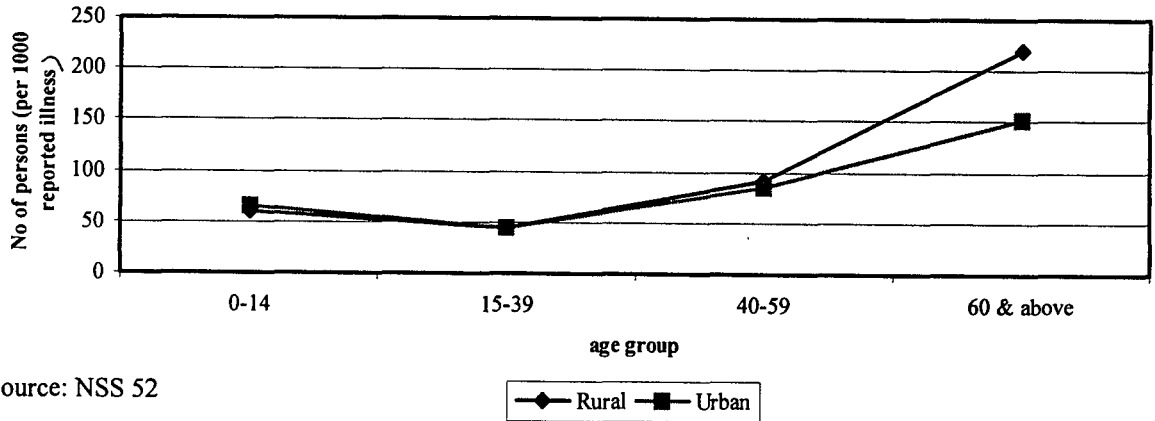
(Kannan et al, 1991)

<sup>3</sup> Asthma and tuberculosis are chronic illness according to the NSSO classification.

<sup>4</sup> The NFHS data depicts (table 4.3) a very lower incidence of serious communicable diseases like jaundice and malaria in rural Kerala compared rural West Bengal.

<sup>5</sup> according to 1991 Census, 6.1 percent of the total population in West Bengal are of the age group 60 and above and out of them 79 percent stays in the rural areas whereas remaining 21 percent stay in the urban areas.

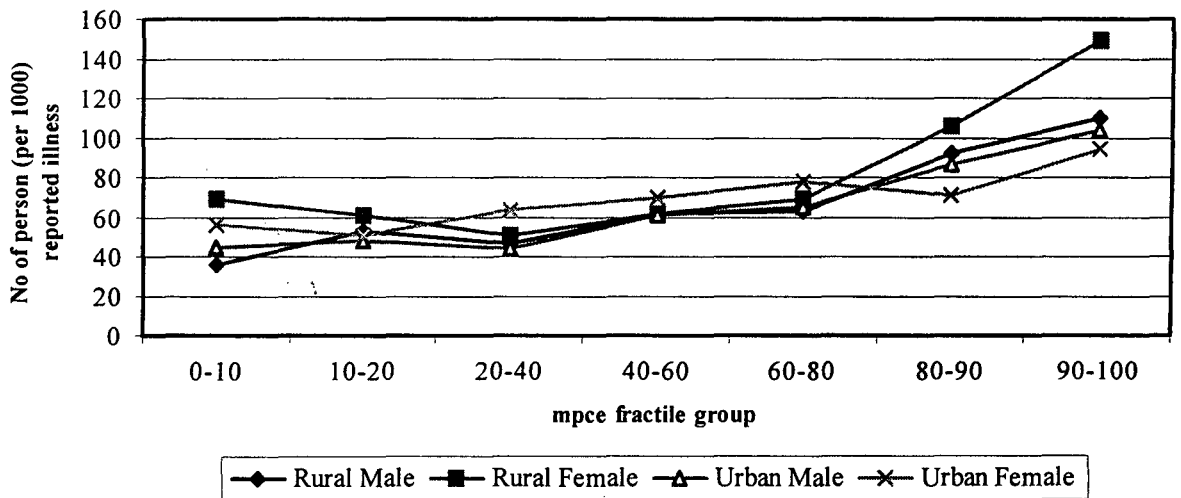
**Figure 4.1: Number of persons reporting illness (per 1000 persons) by age group in West Bengal**



Source: NSS 52

The association between expenditure class (MPCE fractile group) and the incidence of morbidity is explored graphically in Figure 4.2. The figure clearly shows that as income increases, the incidence of illness increases. The figure does not show any systematic gender difference in the incidence of morbidity across expenditure classes.

**Figure 4.2: Number of persons reporting any illness (per 1000 persons) by mpce in West Bengal**



Source: NSS 52

Table 4.4: Reported number of illness (per 1000 persons) by sex in rural and urban Kerala, Orissa and West Bengal

<i>State</i>	<i>Rural</i>			<i>Urban</i>		
	Male	Female	Total	Male	Female	Total
Kerala	116	119	118	88	88	88
Orissa	64	61	62	56	69	62
West Bengal	61	70	66	61	68	65

Source: NSS 52

Table 4.4 presents the reported number of illness by gender in rural and urban areas. The Table shows that except in rural Orissa, the incidence of female morbidity is not lower than that of male morbidity. In West Bengal the incidence of morbidity is higher for the female than the male. So even if on the average rural and urban areas need equal amount of health care, in both the areas females are in greater need of health care. Need for health care can be of different types depending upon the nature of illness. Equal morbidity in rural and urban areas goes against Sen's point (Sen, 1996) that morbidity has a positive association with the health care facilities and health awareness. But if Sen's point were valid then actual morbidity in rural areas would be much higher than what the figures show.

#### 4.3 Utilisation of Health Care:

The utilisation of health care depends on the availability of quality health care facilities at a reasonable distance and cost. Thus, the utilisation of health care depends not only on the supply side condition like existence of appropriate health care facilities at reasonable distance but also on the demand side factors like individual's perceived need for health care and income level. Therefore, the provision of appropriate medical infrastructure is a necessary but not a sufficient condition for health care utilisation. A number of factors such as economic status, caste, occupation, education and gender influence the perceived need for health care and the access to health care services.

The perceived need for health care by an individual would result in utilisation of health care, provided the factors relating to physical and financial access to health care were favourable. Except in the cases of extreme illness, the physical availability of health care would have a strong bearing on the utilisation pattern. If medical facilities were available within reasonable

distance and at reliable cost and quality, one would expect a higher level of utilisation, for a given level of morbidity. The simplest measurement of utilisation is the number of persons reporting medical treatment per 100 or 1000 persons during a specified period (say, 15 days, one month or one year). Whether an individual will go for treatment or not depends, along with other factors, upon the nature of illness<sup>6</sup>. If the illness is very severe (as perceived by the individual and others concerned with the well-being of the individual), there will be a strong effort on the part of the individual to go for treatment even if there is unfavourable access to health care. Depending upon the nature, utilisation can be classified into two categories: utilisation as an outpatient and utilisation as an inpatient.<sup>7</sup>

As far as women's utilisation of health care is concerned, apart from the availability of health care facilities and income, women's education, cultural attitude, women's own perception about their health and their self-image to seek health care are important factors (Gulati and Ramalingam, 1998). The study by Visaria and Gumber (1996) finds that the utilisation of health services differs by social classes and the poor people have far less effective access to these services than their richer counterparts. So education, social structure and income are important factors in the determination of utilisation of health care. The following sections will discuss the utilisation of outpatient care and look into the variations across social, demographic and income groups in the three states.

#### **4.4 Utilisation by Social and Demographic Groups:**

The utilisation of outpatient care by social and demographic groups in the three states are given in Tables 4.5 and 4.6. Data shows that the percentage of treated illness in the urban areas in all the three states are comparable at close to 90. The three states vary considerably from one another in the percentage of treated illness in the rural areas. As far as the rural population is concerned, the percentage of treated illness is highest in Kerala (88.3 percent) and lowest in Orissa (66.1 percent). The difference in the percentage of treated illness in rural areas among the three states is reflected in their rural-urban difference in the percentage of treated illness. The rural-urban difference in the percentage of treated illness seems to be not significant in Kerala. The differences show 19 and 9 points in case of Orissa and West Bengal

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<sup>6</sup> By nature of illness we mean the severity of illness symptoms i.e. to what extent the normal activities of the individual is getting affected by her illness.

respectively. The higher percentage of treated illness in the urban areas of the three states point to the role of better access to health care. That would also explain the higher percentage of treated illness in rural Kerala compared to rural West Bengal and Orissa. As already elaborated, in Kerala, almost 60 percent of the villages have a town at less than 10 kilometre distance whereas for West Bengal and Orissa the percentages were 48 and 22 respectively. Further, both the density of doctors and vehicles is much higher in Kerala compared to Orissa and West Bengal.

The percentage of treated illness shows no difference between male and female in the three states. Comparing the aggregates of treated illness between rural and urban areas it may be seen that the percentages are significantly higher for the urban areas in Orissa and West Bengal. In Kerala, there does not seem to be any difference between male and female.

Table 4.5: Percentage of treated illness Kerala, Orissa and West Bengal

State	Rural			Urban		
	Male	Female	Total	Male	Female	Total
Kerala	87.9	88.7	88.3	89.6	88.8	89.2
Orissa	69.3	66.1	67.7	84.3	88.6	86.6
West Bengal	79.4	80.8	80.1	91.0	88.8	89.9

Source: NSS 52

Utilisation of health care by different social classes (viz. scheduled caste, scheduled tribe and general or other caste) in terms of percentage of treated illness is presented in Table 4.6. The table does not show any difference between the socially backward classes and others in terms of percentage of treated illness in case of Kerala<sup>7</sup>, but considerable difference between socially backward castes and general caste in the percentage of treated illness is present in Orissa and West Bengal. In rural Orissa, the scheduled caste and scheduled tribe people show lower percentage of treated illness compared to general caste. The higher percentage of scheduled caste and scheduled tribe population in total population and their lower utilisation of health

<sup>7</sup> This distinction is not very strict because inpatient cases first appear as an outpatient cases. This distinction is required since they require different infrastructure for the treatment and the cost of treatment is also different.

<sup>8</sup> Surprisingly the scheduled tribe population in Kerala shows 100 percent treated illness, which is much higher than the percentage of treated illness by the general caste. Since Kerala has only 1.1 percent of its population as scheduled tribe population (see Table 3.2), this result could be due to small sample.



care (see Table 4.5) in rural Orissa compared to rural West Bengal is reflected in the (overall) lower utilisation of health care in rural Orissa compared to rural West Bengal.

Table 4.6: Percentage of persons reporting medical treatment of ailments by social classes in Kerala, Orissa and West Bengal

State	Rural			Urban		
	Scheduled tribe	Scheduled caste	Others	Scheduled tribe	Scheduled caste	Others
Kerala	100	88.1	88.2	100	87.4	89.2
Orissa	60.7	66.2	72	84.4	77.5	89.8
West Bengal	71.2	77.1	82.6	76.1	90.7	89.9

Source: NSS 52

The Tables 4.5 and 4.6 indicate the difference in the percentage of treated illness gender-wise (i.e. male-female difference), location-wise (rural-urban difference) and cast-wise (socially backward class- general caste) in the three states. Of course, the three states vary considerably in the magnitude of the difference. One way to capture these group differences is to approach the problem from 'group inequality' point of view. Chakraborty (2001) proposes the application of odd ratio to measure group inequality. The advantage of using this measure over the other measures of group inequality is that it is neither biased by the axiom of scale independence nor biased by the axiom of translation. Table 4.7 shows that the group inequalities (in the percentage of treated illness) on the basis of gender, location and caste are of lower degrees in Kerala. In fact, none of the three states show significant gender group inequality. But both Orissa and West Bengal show higher degrees of social class and location group inequalities. In both Orissa and West Bengal the rural-urban group inequality is considerably higher than the socially backward caste-general caste group inequality. This points out the importance of location and social class as a causative factor in explaining the utilisation especially in Orissa and West Bengal.

Table 4.7: Odd Ratios<sup>9</sup> of percentage of treated illness

State	Rural			Urban			Rural & Urban
	ST & Other	SC & Other	Female & Male	ST & Other	SC & Other	Female & Male	
Kerala	*	0.9905	1.0699	*	0.8398	1.0699	0.9138
Orissa	0.6006	0.7617	0.8638	0.7169	0.4564	0.8638	0.3243
West Bengal	0.5208	0.7092	1.0918	0.3617	1.1078	1.0918	0.4522

\* Odd ratio could not be calculated since the percentage of treated illness among the scheduled tribes is given as 100 percent in rural and urban Kerala.

Source: NSS 52

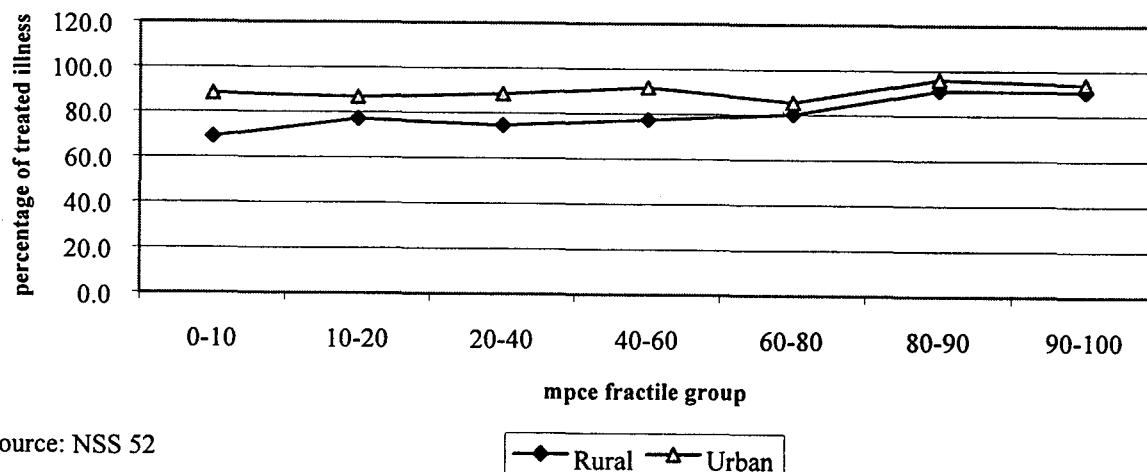
#### 4.5 Utilisation by Income

One of the variables that plays an important role in an individual's decision to go for treatment is the income of the individual. Spending more money can reduce many of the problems related to the physical access. In other words, the individuals with higher income do have better access to health care than the individuals with lower income. Given the morbidity level, better access to health care would increase the level of utilisation. NSS data permits us to explore the association between utilisation (percentage of treated illness in each expenditure class) and expenditure class<sup>10</sup>, graphically. Figure 4.3 plots the percentage of treated illness by expenditure class for both rural and urban areas in West Bengal. It shows that as one moves from lower expenditure class to higher expenditure class, the percentage of treated illness shows a steady rise with urban always being higher than the rural. This indicates that income matters in the utilisation of health care. The rural-urban difference in the percentage of treated illness narrows down, as we move from lower expenditure class to higher expenditure class. This clearly shows that location matters more in the lower level of income than the upper level of income. This raises the important question that apart from social class structure, which factor is more influential on utilisation, income or location?

<sup>9</sup> As for example the odd ratio between scheduled tribe and other caste is defined as a ration between the ratios (odds), (proportion of treated illness among scheduled tribe)/(proportion of non-treated illness among scheduled tribe) and (proportion of treated illness among other caste)/(proportion of non-treated illness among other caste)

<sup>10</sup> Monthly Per Capita Expenditure (MPCE) fractile groups, as given in the NSS 52<sup>nd</sup> Round data, can be considered as expenditure classes.

Figure 4.3: Percentage of treated illness by mpce fractile group in West Bengal



Source: NSS 52

To answer this question, Cramer's V is used (as a formal test) to find out the degree of association between expenditure class and utilisation and between location and utilisation. Table 4.8 shows the degree of association between expenditure class and utilisation and between location and utilisation, in terms of Cramer's  $V^{11}$  values.

Table 4.8: Cramer's V showing the association between expenditure class and utilisation and location and utilisation in Kerala, Orissa and West Bengal.

State	Expenditure class and utilisation			Location and utilisation (4)	Difference (3) - (4)
	Rural (1)	Urban (2)	Total (3)		
Kerala	0.0949	0.2293	0.0795	0.0111	0.0684
Orissa	0.2429	0.3983	0.2498	0.1414	0.1084
West Bengal	0.2166	0.1200	0.1881	0.1130	0.0751

Note: All the Chi-squares are significant (see Appendix Tables A 4.2 and A 4.3)

Source: NSS 52

Table 4.8 shows that the association between expenditure class (which can be considered as a proxy for income) and utilisation of health care is weakest in Kerala and strongest in Orissa among the three states we have considered. The table also shows that in Kerala and Orissa, the association between income and utilisation is stronger in the urban areas than in rural areas. The association between location and utilisation of health care is weakest in Kerala, but it is

<sup>11</sup> Cramer's V shows the degree of association between two categorical variables (see Mukherjee et al, 1998; and appendix Section A 4.2).

quite strong in Orissa and West Bengal. In Orissa, income is more influential than location in determining the utilisation compared to Kerala and West Bengal. The weak association between location and utilisation in Kerala compared to Orissa and West Bengal indicates that in Kerala there is no difference between rural and urban areas in access to health care.

It is clear from the above discussion that social structure, location and income level and distribution are the important factors in determining the level of utilisation, given the availability of health care facilities at the aggregate level. In the following sections we will take up the factors relating to social structure, location and income level and distribution and try to understand to what extent variations in utilisation are due to variation of these factors.

#### **4.6 Utilisation by Social Classes, Location and Income:**

The three states vary considerably from one another in the utilisation of health care (measured in terms of percentage of treated illness). As far as the urban population is concerned, there is not much variation across the three states. This clearly indicates that the difference in the overall utilisation observed in the three states is because of the difference in the utilisation of health care by the rural people in the three states. This also reinforces the argument that access to health care is a problem in the rural areas of Orissa and West Bengal. The non-availability of quality health care within reasonable distance and at affordable cost, and the social structure (i.e. the level of education and caste system) are probably the reasons for lack of access in the rural areas. The availability of quality health care within a reasonable distance and at an affordable cost can lead to higher utilisation, for a given level of morbidity. An increase in the level of education increases the health awareness among the people and thereby lead to higher utilisation of health care. Strict caste system (like untouchability) can reduce the utilisation of health care by the socially backward groups of population even if the medical facilities are available.

Let us consider rural Kerala and Orissa. In Kerala, there is no rural-urban difference in the percentage of treated illness. There is a considerable difference in the percentage of treated illness between rural Kerala and rural Orissa. This difference could be because of their differences in access to health care, caste system and health awareness. Tables 3.8, 3.12 and 3.13 do not provide any evidence of poor rural health infrastructure and manpower in Orissa

compared to Kerala, as far as government medical facilities (e.g. government medical infrastructure per lakh rural population, number of government doctors or paramedical staff posted in the rural areas per one lakh rural population etc) are concerned. So this difference in the utilisation of health care cannot be explained in terms of less access to health care due to non-availability. This difference must be due to the level of health awareness and the caste system. The literacy rates in Kerala and Orissa are around 91 and 64 percent respectively. The percentages of scheduled cast population in Kerala and Orissa are 9.9 and 16.2 respectively. The percentages of scheduled tribe population are 1.1 and 22.2 respectively. (see Table 3.2). This clearly shows that the percentage of socially backward population in total population is much higher in Orissa compared to Kerala. The health awareness is expected to be lower in Orissa due to low level of literacy rate compared to Kerala. The large scheduled tribe population and their lower utilisation of health care by them (see Table 4.6) probably reflects the social obstacles faced by the socially backward classes in accessing medical services. The importance of social structure and level of literacy in determining the level of utilisation becomes more clear when we compare rural West Bengal with rural Orissa. Rural Orissa is having better access to health care than West Bengal in terms of government health care infrastructure and manpower. But we will see in the latter sections of this chapter that higher utilisation of health care in West Bengal compared to Orissa is due to very high utilisation of private health care facilities and not because of higher utilisation of government facilities (Table 4.11). The utilisation of private facilities for outpatient care is also high (45 percent) in rural Orissa. The higher utilisation of private facilities by the rural people in Orissa and West Bengal raises doubt about the real cost and quality of treatment available in the government facilities in the rural areas. Answer to this question is beyond the scope of the present study. Let us try to explain this difference (difference in utilisation between rural Orissa and rural West Bengal) in terms of income level and distribution, social structure, level of health awareness.

The rural areas of both the states show higher percentage of outpatient care from private sources (Table 4.11). The higher utilisation of private care could be because of insufficient government facilities to meet the required demand for treatment or dissatisfaction with the treatment in government facilities. As people move from government to private sources for treatment, the income factor becomes more crucial in the determination of utilisation of health care. Orissa lags far behind West Bengal in terms of per capita income (measured as per capita

net state domestic product, see Table 3.3). The incidence of poverty is much higher in rural Orissa than rural West Bengal (see Table 3.4). The percentage of rural population is also higher in Orissa compared to West Bengal (Table 3.2). The higher incidence of rural poverty in Orissa compared to West Bengal is an indication of more skewed distribution of income in rural Orissa compared to rural West Bengal. So a part of the difference in utilisation between rural Orissa and West Bengal could be due to much more skewed distribution and lower level of income in Orissa compared to West Bengal.

As far as utilisation of health care by the socially backward classes is concerned, rural Orissa shows much lower utilisation than rural West Bengal. Whereas percentage of scheduled caste population is higher in West Bengal than Orissa, the percentage of scheduled tribe population is much more higher in Orissa compared to West Bengal (see Table 3.2). While both the scheduled castes and scheduled tribes are considered as socially backward population groups, the economic and social conditions of the scheduled tribes are considered to be more vulnerable than that of the scheduled castes. This indicates the importance of social structure (i.e. the social composition of the society) in determining the overall level of utilisation.

An increase in the literacy rate improves the health awareness among the people. Nag (1989), in a comparative study of rural Kerala and West Bengal, argues that an important factor that contributed to the higher utilisation of medical facilities in rural Kerala compared to rural West Bengal was a higher degree of political awareness in rural Kerala. According to him, difference in political awareness of the rural poor between the two states is because of caste organisations, peasant movements and educational structure. The higher literacy of the population – both male and female – in Kerala compared to Orissa and West Bengal (see Table 3.2) adds further credence to this argument. Not only the literacy was lower in West Bengal (by 20 percent) and Orissa (by 30 percent) compared to Kerala, but also the gender gap in literacy was higher in West Bengal and Orissa.

#### **4.7 Utilisation as Inpatients:**

As far as hospitalisation is concerned, the rate of hospitalisation (hospitalisation per 1000 population during the reference period) is much lower in Orissa and West Bengal compared to Kerala. Except Kerala, the rate of hospitalisation is higher in the urban areas than rural areas.

In West Bengal, there is a considerable rural-urban difference in the rate of hospitalisation. In West Bengal, the rate of hospitalisation in the urban areas is double the rate of hospitalisation in the rural areas.

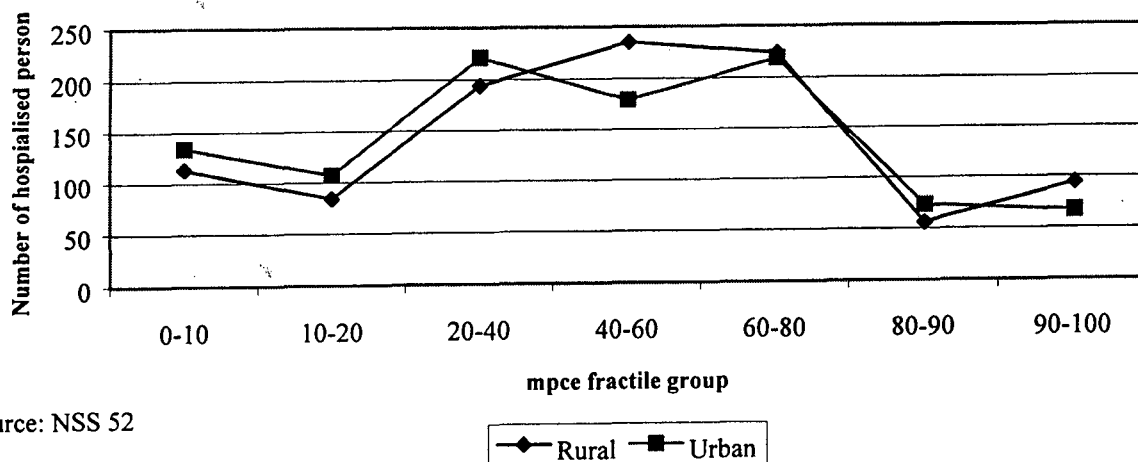
Table 4.9: Hospitalisation per 1000 population (during the reference period) in Kerala, Orissa and West Bengal

State	Rural			Urban		
	Male	Female	Total	Male	Female	Total
Kerala	69	71	70	72	59	65
Orissa	14	11	13	17	14	16
West Bengal	12	11	11	21	23	22

Source: NSS 52

Even if, West Bengal shows a considerable rural-urban difference in the rate of hospitalisation, it does not show any systematic gender difference in hospitalisation. Hospitalisation is marginally higher for the rural male and urban female compared to their male/female counterparts. The per thousand distribution of hospitalised cases by expenditure groups is depicted in Figure 4.4. It clearly shows that the rate of hospitalisation is low among the lowest expenditure group people (MPCE fractile group 0-20) and highest expenditure class (MPCE fractile group 80-100).

Figure 4.4: Per thousand distribution of hospitalised person by mpce in West Bengal



Source: NSS 52

If the higher incidence and prevalence of chronic illness in a group of individuals implies higher need for health care for that group, then considerable rural-urban difference in the rate

of hospitalisation observed in West Bengal is an alarming trend, which requires an inquiry into the possible reasons. In West Bengal there is no significant rural-urban difference in the incidence of chronic illness, but there is considerable rural-urban difference in the rate of hospitalisation. Orissa shows a far lower incidence of chronic illness (see Table 4.1), but hospitalisation in rural Orissa is higher than that of West Bengal. This lower rate of hospitalisation in rural West Bengal probably reflects rural people's lack of access to inpatient care. The lack of access to health care in rural West Bengal is evident in Table 3.8 which shows the distance travelled by the rural people to reach PHCs/HCs and rural hospitals. The marginally higher rate of hospitalisation in rural Orissa compared to rural West Bengal could be because of rural people's access to PHC or SC is better in rural Orissa compared to West Bengal (evident from Tables 3.8 and 3.10).

An individual's utilisation of health care, as an outpatient, is a multi-stage decision process (which is depicted in Figure 1.2). It is a collection of sequential decisions regarding the system, institution and provider<sup>12</sup>. In case of inpatient care the choice is limited because majority of the population depend upon allopathy system of medicine. A detailed analysis of utilisation of health care by different groups raises a number of questions (Feldstein, 1995): what determines the utilisation of a particular system of medicine, institution and medical provider? What are the relative importance of taste, information and opportunity cost? Why do people go to a private or a public hospital? How do the performances of private and public hospitals affect individual choice? The following sections will examine the utilisation of health care system wise, institution wise and provider wise to understand some of the questions but no attempt will be made to answer all of them.

#### **4.8 System-wise Utilisation of Health Care:**

India has a number of indigenous systems of medicine. In the pre-colonial period, the ayurveda system was the most prominent system of medicine. During the colonial period, there was a transition from the traditional to the western systems of medicine. This transition was originally confined to the urban areas and the rural population continued to depend on the traditional systems of medicine that included unani and ayurveda. Over the years, the

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<sup>12</sup> In India apart from allopathy there are other system of medicine like homeopathy, ayurveda, unani etc. Choice of institution means choice between private and public sectors. If more than one provider is available under one institution, then there comes the choice of particular provider.



allopathic system of medicine has turned out to be the most dominant among the various systems. However in recent years, there has been a revival of interest among the people not only in ayurveda and homeopathy but also in other systems like naturopathy and acupuncture. The NSS (42<sup>nd</sup> round) data provide information on the system of medicine utilised by people for their ailments. The dominance of allopathic system over other systems is very well depicted in Table 4.10. In case of outpatient care, more than 90 percent of the people in all these three states went for allopathic treatment. In Kerala and rural Orissa, ayurveda is the second popular system of medicine and in urban Orissa and West Bengal homeopathy is the second popular system of medicine. In case of inpatient care, dependence on the systems of medicine other than allopathy is very low although Kerala shows slightly higher dependence on ayurveda system of medicine in case of inpatient care.

Table 4.10: Distribution (percentage) of outpatient and inpatient treatments by systems of medicine in Kerala, Orissa and West Bengal

State	Rural				Urban			
	Allo.	Hom.	Ayur.	Other	Allo.	Hom.	Ayur.	Other
Outpatient treatment								
Kerala	93.27	2.17	4.12	0.42	92.61	2.58	4.40	0.41
Orissa	93.00	2.77	2.91	1.35	93.25	5.34	0.74	0.67
West Bengal	92.61	6.88	0.36	0.15	91.75	7.75	0.02	0.48
Inpatient treatment								
Kerala	96.80	0.52	1.73	0.68	98.28	0.38	1.27	0.07
Orissa	99.71	0.08	0.13	0.07	99.44	0.00	0.00	0.56
West Bengal	98.69	0.30	0.00	1.00	99.81	0.00	0.09	0.10

Note: Others include unani/hakimi and any combination of more than one system.

Source: NSS 42

#### 4.9 Institution-wise Utilisation of Health Care:

The available health care sources can be classified into two institutional sources: government and others<sup>13</sup>. The government sources of health care include Government Dispensaries, Sub-Centres, Primary Health Centres, Block Level Primary Health Centres, Rural Hospitals, Sub-Divisional Hospitals, State General Hospitals and Medical College Hospitals. The other

<sup>13</sup> NSS 42<sup>nd</sup> round divided all types of provider under two categories government and private whereas 52<sup>nd</sup> round divided all types of medical provider under two exhaustive categories government and others (others include non-governmental organisation also).

sources include medical institutions run by different Non Governmental Organisations, private doctors, private nursing homes, private hospitals and hospitals of the corporate bodies. The utilisation of government facilities for outpatient and inpatient care is presented in Table 4.11.

As regards outpatient treatment, the proportion of people utilising government facilities does not vary between rural and urban areas in Kerala and West Bengal. But in Orissa, the proportion is high by 16 points. The utilisation of government facilities is fairly high, over 50 percent, in Orissa and low at 20 percent in West Bengal. The low utilisation of public health care sector in West Bengal – lower by 10 percentage points compared to Kerala – is surprising given that over two-thirds of the hospitals are in the public sector (see Table 3.5).

The utilisation of public facilities for inpatient treatment shows a pattern very different from that of the outpatient treatment. As regards inpatient treatment, over 70 percent of the urban patients and over 80 percent of the rural patient in West Bengal and Orissa utilise public facilities; in Keala it is only 40 percent. These proportion almost correspond to the proportion of hospital beds in the public sector in the three states (see Table 3.5).

Table 4.11: Percentage of treated illness from government sources in Kerala, Orissa and West Bengal

<i>State</i>	<i>Outpatient</i>		<i>Inpatient</i>	
	Rural	Urban	Rural	Urban
Kerala	31	31	40	38
Orissa	55	39	91	81
West Bengal	19	21	82	72

Source: NSS 52

The lower utilisation of government facilities in case of outpatient care and the considerable rural-urban difference in the utilisation of government facilities calls for an examination of the changes that have taken place in the utilisation of government facilities over time. The NSS 42<sup>nd</sup> and 52<sup>nd</sup> rounds data can highlight (Table 4.12) the changes that have taken place in the utilisation of government facilities for inpatient and outpatient care over a decade. In the case of outpatient care, there has hardly been a change in the percentage of treated illness at government facilities in the rural areas of the three states. In urban Kerala and urban Orissa,

the percentage of treated illness at government facilities has come down over the years. In West Bengal, there has hardly been a change.

In both Kerala and West Bengal, the percentage of illnesses receiving inpatient treatment at government facilities has come down over the years. Since there is no evidence that the private medical facilities have increased in the rural areas of West Bengal, the fall in the dependence on government needs further enquiry. There has been an increase in the percentage of illness receiving inpatient care from government sources in rural Orissa and in urban Orissa it remained constant.

Table 4.12: Change in the percentage of ailments receiving outpatient and inpatient treatment from government sources

<i>State</i>	<i>Rural</i>		<i>Urban</i>	
	42 <sup>nd</sup> Round (1986-87)	52 <sup>nd</sup> Round (1995-96)	42 <sup>nd</sup> Round (1986-87)	52 <sup>nd</sup> Round (1995-96)
Outpatient treatment				
Kerala	34	31	36	31
Orissa	52	55	46	39
West Bengal	19	19	20	21
Inpatient treatment				
Kerala	43	40	56	38
Orissa	88	91	81	81
West Bengal	92	82	74	72

Source: NSS 42 and NSS 52

#### 4.10 Provider-wise Utilisation of Health Care

There are different types of health care providers under a particular system<sup>14</sup>. The distribution of outpatient treatment over providers shows (Table 4.13) the relative importance of different providers in terms of their utilisation by the individuals. The public hospitals (among government facilities) and private hospital (among private facilities) are the major sources of

<sup>14</sup> As for example under the institution 'government' there can have public hospital, PHC public dispensary, similarly under the institution category 'others' there are private hospital, private doctor, medical shop, charitable dispensary etc.

outpatient care in Kerala, but in Orissa and West Bengal, public hospitals and private doctors are the major sources of outpatient care. It is surprising that despite having a vast network of private medical facilities in Kerala, it is not Kerala but West Bengal where people utilise more private facilities than government facilities for outpatient care.

Table 4.13: Percentage distribution of outpatient treatments over sources of treatment for rural and urban Kerala, Orissa and West Bengal

<i>Sources of Treatment</i>	<i>Kerala</i>		<i>Orissa</i>		<i>West Bengal</i>	
	Rural	Urban	Rural	Urban	Rural	Urban
Public hospital	27.55	32.83	34.01	41.80	12.48	19.52
PHC	4.32	2.43	11.93	1.11	6.00	0.58
Public dispensary	2.32	0.43	6.04	3.54	0.89	0.74
Private Hospital	41.64	40.21	2.03	4.07	0.93	1.95
Nursing home	1.04	0.66	0.00	0.67	0.17	0.34
Charitable Institution	0.11	0.12	0.54	1.05	0.18	2.03
ESI/AMA	0.38	0.63	0.71	1.42	0.04	2.39
Private doctor	20.57	19.87	31.39	38.78	74.74	69.60
Others	2.12	2.82	13.35	7.56	4.49	2.85
Total	100.00	100.00	100.00	100.00	100.00	100.00

Source: NSS 42

However, the dependence on government facilities for inpatient care is very high. Table 4.14 presents the distribution of hospitalised cases by providers. In both Orissa and West Bengal, people mainly depend upon the public hospitals and PHCs for inpatient care. Among private facilities, private hospitals in Kerala and Orissa and nursing homes in West Bengal are the major sources of inpatient care. Even if more than 20 percent of the government hospital beds are in the PHCs (including Block Level Primary Health Centres) in West Bengal, only 14.85 percent of the rural inpatient cases and 1.26 percent of the urban inpatient cases utilised PHCs. But this low level of utilisation of PHCs could be because the NSS did not consider the utilisation of hospitals for childbirth.

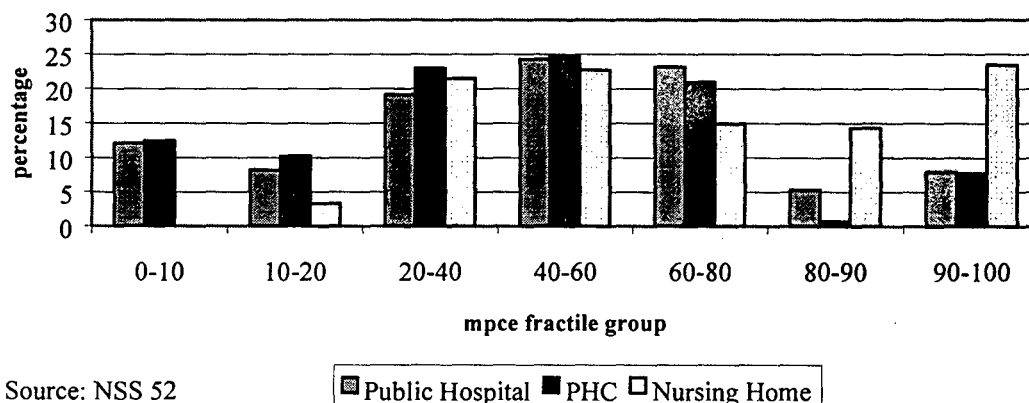
Table 4.14: Percentage distribution of hospitalised cases over type of hospital for rural and urban Kerala, Orissa and West Bengal

<i>Type of hospital</i>	<i>Kerala</i>		<i>Orissa</i>		<i>West Bengal</i>	
	Rural	Urban	Rural	Urban	Rural	Urban
Public hospital	41.02	54.77	80.25	78.94	76.77	72.64
PHC	2.36	0.88	7.81	2.54	14.85	1.26
Private hospital	53.40	41.79	6.36	13.90	1.43	10.06
Charitable Institutions	0.26	0.63	2.62	1.15	0.66	2.45
Nursing home	2.96	1.92	0.89	1.27	6.05	13.48
Others	0.00	0.00	2.07	2.19	0.24	0.11
Total	100.00	100.00	100.00	100.00	100.00	100.00

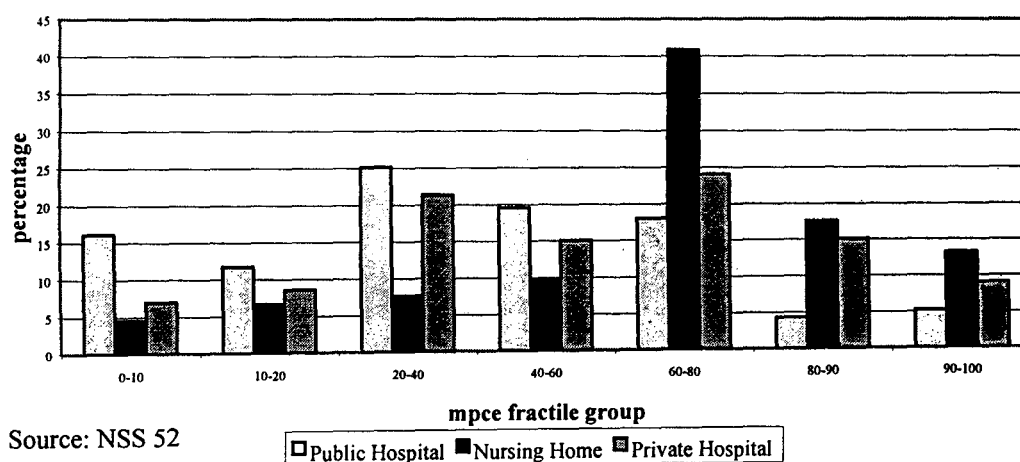
Source: NSS 42

In case of inpatient treatment, the higher utilisation of public hospitals, PHCs and Nursing Home by the rural people and Public Hospitals, Nursing Home and Private Hospitals by the urban people of West Bengal raises further question as to how this utilisation is distributed across expenditure classes. The percentage distribution of hospitalised cases over expenditure classes by the type of hospital in rural and urban West Bengal is presented in Figures 4.5 and 4.6. We have selected Public Hospital, PHC and Nursing Home in the urban areas and Public Hospital, Nursing Home and Private Hospital to depict the percentage distribution of hospitalised cases over the expenditure classes as these are the major sources of inpatient treatment in rural and urban West Bengal respectively. The figures point out that the utilisation of public facilities by the higher expenditure class people and that of private facility by the lower expenditure class people. This is not a desirable utilisation pattern from equity point of view. In both rural and urban West Bengal, it is the middle expenditure class people (MPCE fractile group 20-80) who utilise a major portion of the total inpatient care.

**Figure 4.5: Percentage distribution of hospitalised cases over mpce fractile group by type of hospital in rural West Bengal**



**Figure 4.6: Percentage distribution of hospitalised cases over mpce fractile group by type of hospital in urban West Bengal**



#### 4.11 Reasons for No Treatment:

It was already depicted in Table 4.5 that all reported ailments were not treated. In West Bengal, for nearly 20 percent of the ailments in the rural areas and about 10 percent of the ailments in the urban areas, no treatment was sought. The situation is far better in Kerala and worse in rural Orissa. The higher percentage of untreated illness in the rural areas probably reflects the lack of physical access to health care and the financial constraints that prevail in the rural areas. In other words, the gap between reported illness and utilisation of health care reflects the lack of access to quality health care within a reasonable distance and at an

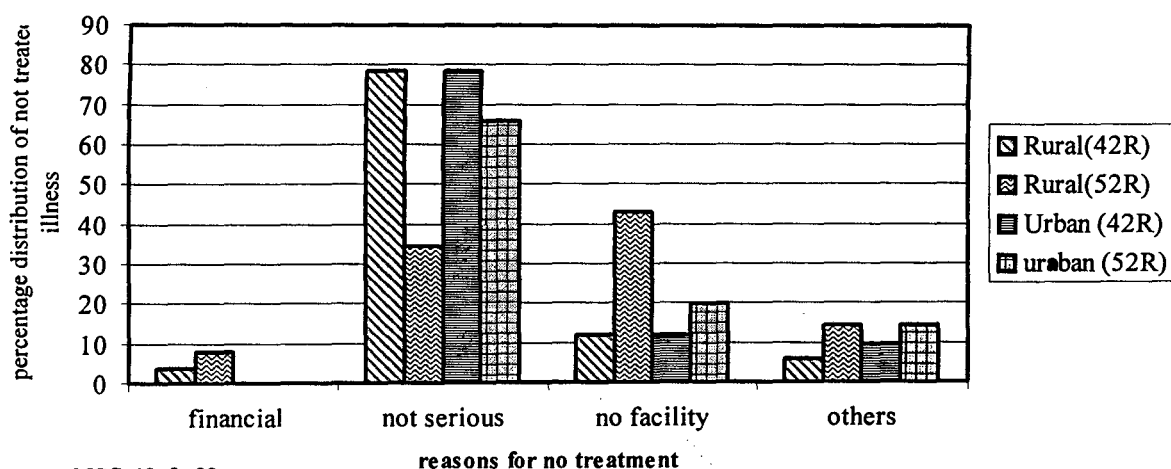
affordable cost. NSS 42<sup>nd</sup> and 52<sup>nd</sup> rounds provide information regarding reasons for no treatment. The data is presented in the Table 4.15. NSSO has classified the different reasons for no treatment into six categories like financial reason, illness not considered serious enough, lack of facilities, lack of faith, long waiting and others. The most important reason for not seeking treatment, turns out to be the "illness not considered serious enough". This is the respondents' perception of seriousness and it need not really indicate whether these illnesses were serious or not. Among the other reasons, financial constraint and lack of facility stand for higher percentage in rural areas of the three states.

Table 4.15: Reasons for no treatment (a comparison between 42<sup>nd</sup> and 52<sup>nd</sup> rounds)

<i>Reasons</i>	<i>Rural</i>		<i>Urban</i>	
	42 <sup>nd</sup> round	52 <sup>nd</sup> round	42 <sup>nd</sup> round	52 <sup>nd</sup> round
<b>Kerala</b>				
Lack of facilities	0.00	5.70	0.00	1.10
Lack of faith	1.71	1.20	0.15	1.30
Long waiting	0.00	0.00	0.00	0.00
Financial reason	14.66	12.90	4.54	11.60
Illness considered not serious	80.98	69.80	88.94	73.70
Others	2.65	9.10	6.37	12.90
<b>Orissa</b>				
Lack of facilities	6.60	19.50	0.92	0.00
Lack of faith	1.20	5.10	0.00	0.00
Long waiting	0.00	0.40	0.00	4.00
Financial reason	68.57	23.00	12.09	45.40
Illness considered not serious	17.37	38.30	85.51	35.60
Others	6.26	10.80	1.48	10.00
<b>West Bengal</b>				
Lack of facilities	3.85	7.90	0.14	0.00
Lack of faith	2.04	0.50	1.49	2.00
Long waiting	0.00	0.00	2.13	0.30
Financial reason	12.06	43.10	11.82	19.70
Illness considered not serious	78.30	34.60	78.41	65.90
Others	3.75	13.20	6.01	10.60

For the sake of simplicity, we have reclassified all reasons into three main reasons (financial, illness considered not serious enough and no facility) and others. A comparison between 42<sup>nd</sup> and 52<sup>nd</sup> rounds based on the reclassified reasons for no treatment in rural and urban West Bengal is presented in figure 4.7. In rural West Bengal, a higher percentage of people expressed no facility as a reason for no treatment in the 52<sup>nd</sup> round compared to 42<sup>nd</sup> round of NSS. The relative share of financial reason has also increased, but the increase was observed to be higher in rural West Bengal. The reason "illness considered not serious enough" has become less important in 52<sup>nd</sup> round compared to 42<sup>nd</sup> round, especially in the rural West Bengal.

**Figure 4.7: Percentage distribution of not treated illness by reasons in West Bengal (A comparison between NSS 42 and 52 rounds)**



Source: NSS 42 & 52

#### 4.12 Conclusion:

Whereas the NSS data shows the highest incidence of morbidity in Kerala and lowest incidence of morbidity in Orissa, NCEAR data shows highest prevalence of morbidity in Kerala and lowest prevalence of morbidity in West Bengal. Our analysis is mainly based on NSS (42<sup>nd</sup>) round data. With regards to the incidence of morbidity, there is not much variation between Orissa and West Bengal. Data does not show any rural-urban difference in the incidence of morbidity in Orissa and West Bengal, but the incidence of morbidity is considerably higher in rural Kerala compared to urban Kerala. The incidence of morbidity shows a steady increase with the increase in age and income, except the fact that the incidence of morbidity is lowest for the age group 15-39. The utilisation of health care depends upon



both the supply side factors, like availability of health care facility and the demand side factors like education, income, social class system, gender etc. The urban areas of the three states show the same level of utilisation of health care (expressed in terms of percentage of treated illness). There is a considerable difference in the utilisation of health care by the rural people in the three states. There is no significant rural-urban difference in the utilisation in Kerala and the difference is highest in Orissa. Data shows that utilisation varies on the basis of social and economic classes, level of education and location of residence. The utilisation of health care is at a very low level for the socially backward classes in Orissa and West Bengal. The utilisation shows a steady increase with the increase in income. The lower level of utilisation in the rural areas of Orissa and West Bengal basically indicates the importance of supply side factors in determining the utilisation. Both the states Orissa and West Bengal show higher degrees of group inequality between socially backward caste and general caste, and rural population and urban population.. In the three states utilisation shows stronger association with income than rather location. The lower level of income for the state as a whole, higher incidence of rural poverty, higher percentage of socially backward population (especially the scheduled tribes) and lower literacy seem to be responsible for very low utilisation of health care in rural Orissa. The utilisation data does not show any systematic gender discrimination in utilisation. The rate of hospitalisation is very low in Orissa and West Bengal compared to Kerala. The higher rate of hospitalisation in Kerala compared to Orissa and West Bengal could be due to the higher morbidity (especially chronic illness), people's better access to the inpatient care in Kerala compared to Orissa and West Bengal. The considerable rural-urban difference in the rate of hospitalisation in West Bengal indicates the rural people's poor access to inpatient care. Allopathy is the dominant system of medicine in all the three states. Ayurveda in Kerala and the homeopathy in West Bengal are the second popular systems of medicine in case of outpatient care. The rural people's dependence on the government facilities is higher compared to that of the urban people in case of outpatient care in Kerala and Orissa. In West Bengal, the dependence is almost the same. People do depend more on the government facilities for inpatient care than they depend for the outpatient care. In contrast to the experience of Kerala and Orissa, the urban people's dependence on the government medical facilities has not come down in West Bengal over the years. In case of inpatient treatment, rural West Bengal shows a decline in the utilisation of government facilities. But there is no evidence that private medical facilities (for inpatient care) witnessed a growth in rural West Bengal. In case of outpatient care, people in West Bengal highly depend on the

private doctors who mainly operate in a partially regulated or non regulated environment. An examination of the non-treated illness by reasons shows that apart from the reason “illness was not serious”, two important reasons for no treatment are financial reason and no facility. The financial reason turns out to be the second important reason for no treatment in the three states

## **Appendix**

A 4.1: The classification of diseases by National Sample Survey Organisation (NSSO) and National Council of Applied Economic Research (NCAER).

### ***NSSO's Classification***

- a) Short duration ailments include diarrhoea and gastroenteritis (including cholera), tetanus, diphtheria, whooping cough, meningitis and viral encephalitis, fevers of short duration, chicken pox, measles/German measles and mumps, diseases of the eye, acute disease of ear, heart failure, cerebral stroke, cough and acute bronchitis, acute respiratory infection (including pneumonia), diseases of mouth, teeth and gum, injury due to accident and violence, other diagnosed ailment (up to 30 days) and undiagnosed ailment (up to 30 days).
- b) Long-duration ailments include chronic amebiasis, pulmonary tuberculosis, sexually transmitted disease, leprosy, jaundice, guinea worm, filaria (elephantiasis), cancer, other tumours, (generally debility) anaemia, goitre and thyroid disorders, diabetes, beri beri, ricket, other malnutrition diseases, mental and behavioural disorders, epilepsy, other diseases of nerves, cataract, other visual disabilities, other diseases of the eye, hearing disability, other diseases of the ear, diseases of the heart, high/low blood pressure, piles, speech disability, diseases of mouth teeth and gum, gastritis hyper-acidity/gastric/peptic/duodenal ulcer, diseases of kidney/urinary system, prostrate disorders, hydrocele, pain in joints, other disorder of bones and joints, locomotor disability, other congenital deformities (excluding disability), other diagnosed diseases (more than 30 days and undiagnosed ailment (more than 30 days)

### ***NCAER's Classification***

- a. Serious Communicable Diseases (SCD) include typhoid, malaria, cholera/acute gastroenteritis, jaundice, mumps, measles, chicken pox and tuberculosis;
- b. Acute Illnesses (AI) include diarrhoeal diseases, respiratory infections, non-specific fever, skin diseases, eye/ear problems, headache/bodyache/backache, stomach problems -- indigestion, gas, acidity and constipation.

Table A 4.1: The incidence of chronic illness (per 1000 population) by age group

Age Group	Kerala		Orissa		West Bengal	
	Rural	Urban	Rural	Urban	Rural	Urban
0-14	10	7	3	3	6	4
15-39	16	14	3	8	14	8
40-59	65	37	19	21	44	34
60 +	161	129	15	33	94	71
Total	38	27	6	10	19	16

Source: NSS 52.

Table A 4.2: Association between expenditure class and Utilisation in rural and urban areas

State	Rural		Urban	
	Chi-square	Cramer's V	Chi-square	Cramer's V
Kerala	19205.91	0.0949	26730.27	0.2293
Orissa	94845.19	0.2429	40095.06	0.3983
West Bengal	147002.5	0.2166	16029.38	0.1200

Note: All Chi-squares are significant.

Source: Calculated from NSS 52

Table A 4.3: Association between location and Utilisation and between expenditure class and Utilisation

State	Location and Utilisation		Expenditure Class and Utilisation		Difference
	$\chi^2$	Cramer's V	$\chi^2$	Cramer's V	
	(1)	(2)	(3)	(4)	(4) - (1)
Kerala	324.08	0.0111	16702.03	0.0795	0.0684
Orissa	37188.07	0.1414	116052.9	0.2498	0.1084
West Bengal	54223.73	0.1130	150375.2	0.1881	0.0751

Note: All chi-squares are significant.

Source: Calculated from NSS 52

A 4.2: The test of independence (using Chi-square test) is used to check for the existence of association. The larger the value of the test statistic, the greater is the evidence of association. The same Chi-square statistic can also be used to develop a measure of association. One such measure is given by Cramer's V (see Mukherjee et al, 1998, p. 292).

## Chapter 5

### Expenditure on Health Care

#### 5.1 Introduction:

A steady increase in the cost of health care has been a concern to both individuals and governments the world over. Under the Indian Constitution, health care falls under a State Government's responsibility. Most of the Indian states now find it difficult to grapple with the increasing health care expenditure because of resource crunch. Lack of government expenditure in curative care would have an adverse impact on the vulnerable groups of rural population as their dependence on the government medical facilities is higher.

The pattern of households' utilisation of health care and expenditure would have an impact on the distribution of income. If a segment of the poor utilise private medical facilities due to the non-availability of government facilities and a segment of the rich utilise government facilities, then there takes place an undesirable redistribution of income (i.e. a transfer of income from poor to the rich) and income inequality increases as a result. The expected cost of treatment is an important factor that influences the decision of an individual about the utilisation of health care, selection of the system of medicine, institution and provider. The past and present levels and pattern of expenditure under different systems of medicine, institutions and providers form the basis of an individual's expectation about the cost of treatment.

The next section will give an account of government health and health care expenditure. That will be followed by an attempt to measure the urban bias in government expenditure on health care. Later sections will discuss household expenditure in detail.

#### 5.2 Government's Expenditure on Health Care:

Both the private and the public sectors contribute to the production and consumption of health care products and services. The expenditure by central, state and local governments and the external aid come under the 'public sector's spending on health care'. The households' out-of-pocket expenditure, expenditures by the private employers, ESIS contribution and the

expenditure by other sources come under the private sector's spending. An estimate of total health expenditure in India (Berman, 1996) shows that little over 20 per cent of total health expenditure comes from the government and the rest from private sector, of which nearly 75 per cent of the health expenditure is 'households' out-of-pocket-expenditure'.

The lower contribution of government in total health expenditure does not mean that government expenditure is less important. Purohit and Siddiqui (1994) found that the level of government expenditure had direct influence on the availability as well as utilisation of various health facilities in the country. As such, the level of utilisation has been higher in states, which have relatively higher per capita expenditure on health care<sup>1</sup>. On the contrary, states with lower per capita government expenditures have depicted lower levels of utilisation<sup>2</sup>. In Orissa and West Bengal, government medical institutions are the major sources of health care, especially in case of inpatient care (see Table 4.11). In Orissa the dependence of government facilities for outpatient care is also high. Further, the private health care has a tendency to grow around public health care institutions. In many places the doctors who are employed in public medical facilities, provide health care service in the private sector also. This is not only true for outpatient care but also for inpatient care. Thus the government medical infrastructure plays an important role in the development of private medical infrastructure.

The three major heads of government health expenditure are medical, public health and family welfare (see Appendix A 5.1). The medical head mainly includes curative and clinical services in hospitals, medical education and government support for ESIS. The public health mainly includes disease control programmes, services of non-allopathic system of medicine, and some of the expenditures on rural primary health care services. The family welfare head is primarily family planning, with maternal and child health and immunisation included and hence mainly relates to the primary level care and outreach services<sup>3</sup>.

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<sup>1</sup> Siddiqui et al (1994) classified the Indian states into three categories according to the per capita state expenditure on health. Kerala falls under middle expenditure group whereas Orissa and West Bengal fall under lower expenditure group.

<sup>2</sup> Besides the government expenditure, other factors, namely, education, and caste status of the respondents also have significant bearing upon awareness, which in turn affects access and pattern of the utilisation of health care facilities. This we have already discussed in Chapter 4.

<sup>3</sup> This functional classification is not very precise. For example, some inputs for curative services at the primary health care level are likely to be financed under the medical head. The national family welfare programme also finances postpartum facilities in public hospitals.

Although the focus of the present study is to analyse the households' medical expenditure, an account of the medical expenditure by the governments in the three states is provided to place the analysis of household's medical expenditure in a perspective. The government expenditure on social services and health care as a percentage of total government expenditure is presented in Table 5.1. It may be seen that the government expenditure on social services as a percentage of total government expenditure is higher in Kerala compared to Orissa and West Bengal, but government expenditure on health care as a percentage of total government expenditure is higher in West Bengal<sup>4</sup> compared to Kerala and Orissa.

Table 5.1: Government expenditure on social services and health as a percentage of total government expenditure (1998-99)

State	Social Service			Medical care (Including Public Health)		
	Current	Capital	Total	Current	Capital	Total
Kerala	33.13	0.78	33.9	4.71	0.24	4.96
Orissa	31.26	1.02	32.27	2.94	0.18	3.11
West Bengal	32.24	0.74	32.99	6.05	0.18	6.23

Source: Economic Intelligence, CMIE, Public Finance, March 2000

Although West Bengal shows higher government expenditure on health care (including public health) as a percentage of total government expenditure compared to Kerala, the per capita government expenditure on health care is higher in Kerala compared to West Bengal (see Tables 5.1 and 5.2). The per capita government expenditure on water supply and sanitation is also higher in Kerala compared to Orissa and West Bengal. Not only that per capita expenditure is lower in Orissa and West Bengal compared to Kerala but also the gap is widening in the 1990s. As the dependence on public health care sector is larger in both Orissa and West Bengal compared to Kerala (see Chapter 4, Section 4.9), the effective difference would be much larger.

<sup>4</sup> In West Bengal, the higher government expenditure on social services and health care as a percentage of total government expenditure is attributed to higher revenue expenditure.

Table 5.2: Per Capita Expenditure on Medical And Public Health (1980-81 Prices)

State	Medical & Public Health Only			Including Water Supply & Sanitation			
	1987-88	1991-92	1995-96	1981-82	1987-88	1991-92	1995-96
Kerala	28.07	29.00	36.44	33.06	37.31	37.73	44.99
Orissa	19.83	19.87	21.15	23.21	29.81	29.17	31.05
West Bengal	24.51	27.39	28.37	25.70	28.93	31.13	34.53

Note: Since 1986-87, water supply and sanitation figures are separately available.

Source: Narayana (2001)

### 5.3 Urban Bias in Government Expenditure on Health Care:

The three states differ from one another not only in terms of per capita government expenditure on health care but also in terms of distribution of the government expenditure between rural and urban areas. One of the undesirable features of government medical infrastructure referred in Chapter 3 is its strong urban bias. The urban bias in setting up government medical facilities also leads to urban bias in government expenditure on health care.

Table 5.3: Percentage distribution of population and government expenditure on health care between rural and urban areas of Kerala, Orissa and West Bengal.

State	Percentage of Population (1991)		Percentage distribution of government health care expenditure (1990-91)		Measure of urban bias
	Rural	Urban	Rural	Urban	
Kerala	73.6	26.4	34.13	65.87	5.38
Orissa	86.6	13.4	36.33	63.67	11.33
West Bengal	72.5	27.5	30.83	69.17	5.91

Note: Measure of urban bias =  $\frac{\text{Per capita government expenditure in urban areas}}{\text{Per capita government expenditure in rural areas}}$

Source: The bias has been calculated from the data given in Reddy and Selvaraju (1994)

Certain degree of urban bias of government health and health care expenditure is unavoidable owing to the nature of secondary and tertiary medical facilities. The three states differ from one another in the degree of urban bias (see Table 5.3). The urban bias is highest in Orissa, where 86.6 percent of the people lived in rural areas, and the government spent only 30.83 percent of total health expenditure for the rural people. The measure of urban bias in Orissa is



about 11, which means that government spends 11 times more on each person living in the urban areas compared to rural areas. However, the degree of urban bias in West Bengal is comparable to that to Kerala.

Combining the per capita expenditure on medical and public health discussed in the previous section and the urban bias, it may be possible to draw some broad inferences on per capita expenditure on rural population. While it is almost 40 percent lower at Rs. 13 in Orissa and West Bengal. Thus, as regards government spending on rural health care there does not seem to exist any significant difference between Orissa and West Bengal.

#### **5.4 Households' Direct Expenditure on Health Care:**

Newhouse (1978) distinguished the cost incurred by individuals for medical treatment into two parts. His argument can best be explained at the individual level. According to him an individual does pay two prices to get medical treatment: a direct price of treatment (in the form of physician's fee, cost of medicine, cost of diagnostic tests and other related costs) and an indirect price of treatment (which is the cost of time he spends for treatment). In symbol,

$$\text{Price of the health care} = P_m + w.t$$

where  $P_m$  = direct price of health care

$w$  = opportunity cost of per unit time,

$t$  = total time spent due to the illness and for seeking health care.

In other words, the direct cost or expenditure is the tangible part of expenditure on health care, while indirect expenditure is earning an individual forgoes because of illness in various ways. This section deals with the direct part of household's medical expenditure.

The study by George et al (1994) on the household health care expenditure in two districts of Madhya Pradesh looked into the components of household expenditure and finds that per capita monthly expenditure is the lowest for the lowest income class, it shows a steady increase with the increase in income level and reaches the maximum in the upper income class<sup>5</sup>. The NSS 52<sup>nd</sup> round<sup>6</sup>, which collected data on monthly expenditure on various articles, gives us the average figures of expenditure on institutional and non-institutional health care.

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<sup>5</sup> In terms of medical expenditure as a percentage of total household income, the middle income class spends highest share (lower middle 9.88 percent and middle 9.07 percent, upper income class 3.91) of their income, though their health expenditure in absolute terms is much lower than the upper income class. There is an

Table 5.4: Average Monthly Expenditure (Rs.) per person on health care (institutional and non institutional for rural and urban areas of Kerala, Orissa and West Bengal

State	Kerala		Orissa		West Bengal	
	Rural	Urban	Rural	Urban	Rural	Urban
Medical (Inst.)	9.62 (1.90)	27.59 (4.09)	1.22 (0.40)	2.52 (0.44)	0.51 (0.17)	3.27 (0.63)
Medical (Non- Inst.)	17.17 (3.39)	16.00 (2.37)	9.25 (3.00)	13.83 (2.43)	8.68 (2.91)	18.38 (3.53)
Medical total	26.79 (5.29)	43.59 (6.46)	10.47 (3.40)	16.35 (2.87)	9.19 (3.08)	21.65 (4.16)
Total consumption expenditure	506.35 (100.0)	674.34 (100.0)	308.55 (100.0)	569.02 (100.0)	298.18 (100.0)	521.37 (100.0)

Note: Figures in the parentheses show the percentage of total consumption expenditure

Source: NSS 52<sup>nd</sup> Round report (No 440) on " Household Consumer Expenditure and Employment Situation in India."

Table 5.4 shows that both in absolute terms and as a percentage of total consumption expenditure, the individual's expenditure on health care (institutional and non-institutional) is significantly higher in Kerala compared to Orissa and West Bengal. The rural-urban difference in medical expenditure is also highest in Kerala compared to Orissa and West Bengal. The households' expenditure on health care is very low in rural West Bengal, even lower than rural Orissa. Since the rural-urban difference in the percentage of (outpatient) treated illness in West Bengal is at modest level (10 percentage point), the considerable rural-urban difference in per capita household medical expenditure could be due to the difference in the rate of hospitalisation and the average cost of treatment between rural and urban areas of West Bengal. Table 5.4 does not distinguish between outpatient and inpatient expenditures and it only shows the average medical expenditure. We have already seen that the patterns of utilisation are different for outpatient and inpatient treatment (see Table 4.11). Generally the

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underspending on health in the lowest income class (7.91 percent) and that is less than that of the lower middle class (George, 1994).

<sup>6</sup> Total expenditure incurred for medical treatment received during the reference period (15 days for the non-hospitalised treatment and 365 days for hospitalised treatment) includes expenditure on items like bed charges (with charges for food included in it), medicine (including drips), materials for bandage, plaster, etc; fees for the services of medical and paramedical personnel; charges for diagnostic tests: operation and therapies; charges of ambulance; cost of ambulance; cost of oxygen, blood, etc. All types of expenditure incurred for treatment, such as lodging charges of escort, attendant charges, cost of transport other than ambulance, and cost of personal medical appliances are excluded from medical expenditure.

cost of outpatient treatment is lower than that of inpatient treatment. In the following discussion we will take up the costs of outpatient and inpatient treatment separately. The cost of treatment is expected to be higher in case of private facility than the government facility but data shows that the cost of treatment from government sources is higher than the private sources in rural Orissa and rural West Bengal (see Table 5.5).

Table 5.5: Average duration of (outpatient) treated illness and average total expenditure (Rs.) per treatment by source of treatment for rural and urban sectors of Kerala, Orissa and West Bengal

<i>STATE</i>	<i>RURAL</i>				<i>URBAN</i>			
	Avg. Duration		Avg. Exp.		Avg. Duration		Avg. Exp.	
	Govt.	Pvt.	Govt.	Pvt.	Govt.	Pvt.	Govt.	Pvt.
Kerala	13.6	12.8	9.25	70.71	12.7	11.8	44.46	60.64
Orissa	11.9	10.6	88.15	55.05	10.5	9.5	50.41	83.57
West Bengal	13.0	11.8	62.89	56.25	15.8	12.0	79.59	99.96

Source: NSS 42.

The NSS data sources (National Sample Survey Organisation, 1992, 1998) which we have used for our study, do not provide break-up of the (outpatient) medical expenditure into different components, but the NCAER (Sunder, 1995) provides a break-up of average expenditure per (per outpatient treated) illness into different components like fees and medicine, clinical tests, transport and others. The NCAER's data on medical expenditure for outpatient treatment is presented in Table 5.6. It shows that among the rural areas of the three states, average expenditure per outpatient treatment is highest in Kerala and among the urban areas of the three states, average expenditure per outpatient treatment is highest in West Bengal. In all the three states, doctor's fees and medicine, together accounts for more than 70 percent of the total medical expenditure. Despite a good connectivity of villages and higher transport density in Kerala, the transport expenditure, both in absolute amount and as a percentage of total medical expenditure is highest in rural Kerala. The transport expenditure as a percentage of total medical expenditure is also higher in rural Orissa compared to rural West Bengal. The higher expenditure on transport in rural Kerala could be because people do not utilise the nearby medical facilities. The same argument cannot be used to explain the higher transport expenditure (as a percentage of total medical expenditure) in rural Orissa. Table 3.17 shows that a very high inter-district variation in 'average area covered per government

medical institution' exists in Orissa compared to West Bengal. The average (median) area covered per government medical institution is also highest in Orissa (100square kilometre) compared to Kerala (28 square kilometre) and West Bengal (25 square kilometre, see Table 3.17). This implies that higher transport expenditure as a percentage of total medical expenditure is because of long distance travelled by rural people to reach medical facility in rural Orissa. A part of the difference in transport expenditure could be because of different modes of transport prevalent in the three states. Urban West Bengal shows a very low transport expenditure both in absolute amount and as a percentage of total medical expenditure compared to urban Orissa and urban Kerala. The (marginally) higher percentage of treated illness (see Table 4.5) and lower transport cost in urban West Bengal compared to urban Kerala indicates that there is no difference in physical access to health care between urban Kerala and urban West Bengal. In fact, urban West Bengal shows better physical access to health care in terms of lower transport cost.

Table 5.6: Break-up of Average Expenditure (Rs.) per illness episode for non-hospitalised illness in rural and urban Kerala, Orissa and West Bengal

<i>State</i>	<i>Fees &amp; Medicine</i>	<i>Clinical Test</i>	<i>Transport</i>	<i>Others</i>	<i>Total</i>
Rural					
Kerala	125.67 (73.3)	12.76 (7.4)	25.97 (15.1)	7.12 (4.1)	171.52 (100.0)
Orissa	41.71 (71.3)	2.14 (3.7)	8.16 (14.0)	6.42 (10.9)	58.43 (100.0)
West Bengal	56.15 (70.4)	2.54 (3.2)	6.57 (8.2)	14.28 (17.9)	79.54 (100.0)
Urban					
Kerala	65.47 (81.2)	4.07 (5.1)	6.52 (8.0)	4.51 (5.5)	80.57 (100.0)
Orissa	100.77 (73.7)	11.58 (8.5)	11.81 (8.6)	12.59 (9.2)	136.75 (100.0)
West Bengal	110.81 (83.7)	10.37 (7.8)	3.61 (2.7)	7.54 (5.7)	132.33 (100.0)

Source: NCAER (1995)

The illness which requires inpatient care (i.e. hospitalised treatment) usually happens to be a serious illness. Naturally the cost of treatment is expected to be higher in hospitalised illness compared to non hospitalised treatment.

The average cost of treatment, which required hospitalisation, is presented in Table 5.7. As expected, the average cost of treatment is higher in case of private inpatient treatment compared to government inpatient treatment in all the states. In Kerala, there is not significant rural-urban difference in the relative cost of government inpatient care treatment<sup>7</sup>. This means that government inpatient care is as costly in the rural areas as it is in the urban areas. Equal rate of utilisation of government facilities for inpatient care (see Table 4.11) in rural and urban areas is perhaps the reflection of this equal relative cost. In Orissa and West Bengal, the relative cost of government inpatient care is much higher in the urban areas compared to rural areas. The relative cost of government inpatient care is much lower in urban Orissa and West Bengal compared to urban Kerala. This could be the reason for people's higher utilisation of government facilities in case of inpatient care in urban Orissa and West Bengal compared to Kerala.

Table 5.7: Average amount of payment (Rs.) made to hospital by type of hospital for rural and urban sectors of Kerala, Orissa and West Bengal.

<i>State</i>	<i>Rural</i>			<i>Urban</i>		
	Govt	Other	All	Govt	Other	All
Kerala	1616	2805	2293	1527	2254	1927
Orissa	1681	2583	1641	2142	11829	3668
West Bengal	1500	4303	1957	1348	7836	3217

Source: NSS 52

### 5. 5 Households' Indirect Expenditure on Health care

So far we have confined our analysis of households' expenditure on health care to the direct expenditure on health care only. Apart from the direct expenditure, an individual also incurs a cost, which is not tangible like the direct cost (see Section 5.4). That cost can be regarded as

<sup>7</sup> The relative cost of private inpatient care is measured by dividing the average cost of treatment from private sources by the average cost of treatment from government sources. The relative costs of private inpatient care are 1.7, 1.5 and 2.9 respectively for rural Kerala, Orissa and West Bengal and are 1.5, 5.5 and 5.8 respectively for urban Kerala, Orissa and West Bengal.

an indirect cost of treatment. The indirect cost occurs to the individual in many ways. Firstly, ill health reduces the productivity during the sick period, and as a result the individual's level of income comes down if the nature of her occupation does not protect herself from this loss of income. Secondly to visit a doctor or hospital, she has to spend time, which she could have used productively for any other job<sup>8</sup>. The indirect cost of treatment is also referred as opportunity cost of time to seek treatment, in the literature of health economics. This indirect cost varies from person to person depending upon her age, nature of job, coverage of medical insurance, economic status and her access to health care. The opportunity cost of time is higher for the poor people, as they have to sacrifice their earning opportunities during the time of illness and seeking health care.

The average amount of loss of households' income due to illness, which required hospitalised (inpatient) or non-hospitalised (outpatient) treatment, can be taken as a proxy for indirect cost of treatment. The indirect cost of treatment (measured in terms of average loss of household income per hospitalised or non-hospitalised cases) is given in Table 5.8. As expected indirect cost of treatment is higher for the illnesses, which required hospitalised treatment than those which did not require non-hospitalised treatment. Except Kerala, the average indirect cost of treatment is higher in the rural areas, as far as non-hospitalised cases are concerned. For hospitalised cases, the average indirect cost of treatment is higher in rural areas of Kerala and West Bengal compared to their urban counterparts. The rural-urban difference in the average indirect cost of treatment is lower in Kerala compared to Orissa and West Bengal. There is a considerable rural-urban difference in the indirect cost of treatment in Orissa compared to Kerala and West Bengal in case of illnesses, which did not require hospitalised treatment. The very high indirect cost of treatment (in case of non-hospitalised illness) in rural Orissa also gives a partial explanation of lower utilisation of outpatient care in rural Orissa (see Table 4.5).

The rural-urban difference is highest in West Bengal in case of illnesses, which required hospitalised treatment. But compared to Kerala and Orissa, the indirect cost of treatment is low in West Bengal both in rural and urban areas. One of the reasons for lower indirect cost of treatment in West Bengal (compared to Kerala and Orissa) could be the higher coverage of hospitalised cases by the Employer Medical Welfare Scheme (EMWS) in West Bengal

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<sup>8</sup> This is true only in case of such illness, which is not very severe as perceived by the individual.

compared to Kerala and West Bengal (see Appendix Table A 5.2). The high rural-urban difference in the rate of hospitalisation in West Bengal (see Table 4.9) might be the reflection of high rural-urban difference in the indirect cost of treatment (in case of hospitalised treatment).

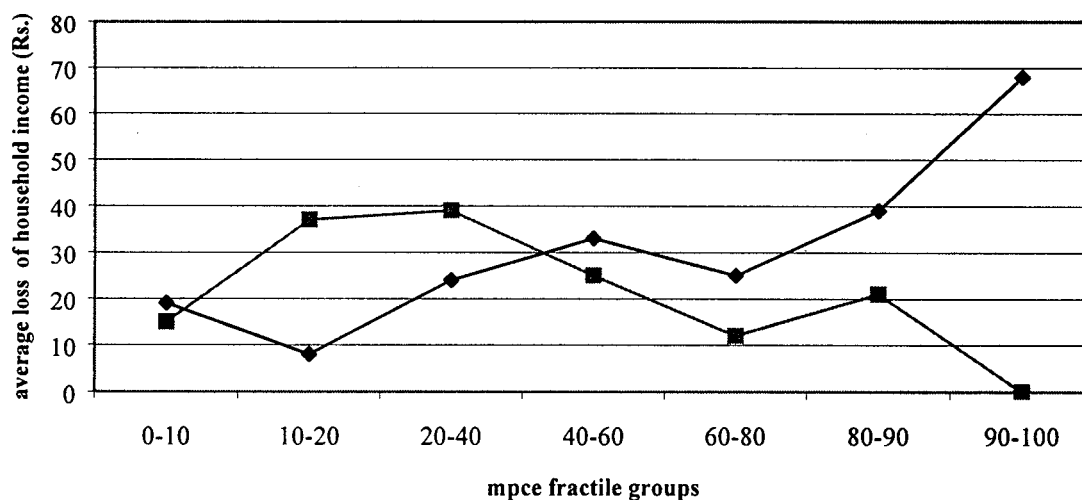
Table 5.8: Average amount of loss of household income per non-hospitalised and hospitalised cases during last 365 days in rural and urban Kerala, Orissa and West Bengal.

<i>State</i>	<i>Non-hospitalised Cases</i>		<i>Hospitalised Cases</i>	
	Rural	Urban	Rural	Urban
Kerala	43	48	429	406
Orissa	70	35	402	450
West Bengal	32	21	382	225

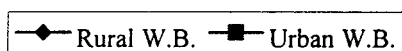
Source: NSS 52

Now the questions that arise: how does the indirect cost of treatment vary with income of the household, is the variation same for non-hospitalised and hospitalised illnesses, is the variation same for rural and urban areas? Figures 5.1 and 5.2 plot the average loss of household income per illness against expenditure classes in case of West Bengal. Figure 5.1 shows that as income increases the indirect cost of treatment per non-hospitalised illness, on an average, increases for the rural people and decreases for the urban people with some fluctuation. This also shows that at the lower level of income urban people incur higher indirect cost of treatment than the rural people. Whereas the indirect cost of treatment shows a rising trend for the rural people at the upper level of income, it shows a declining one for the urban people. Figure 5.2 shows that as income increases, on an average the indirect cost of treatment (per hospitalised illness) increases for the rural people but it remains almost constant for the urban people. The figures indicate that at the upper level of income the rural people suffer much more than the urban people in terms of loss of household income due to illness.

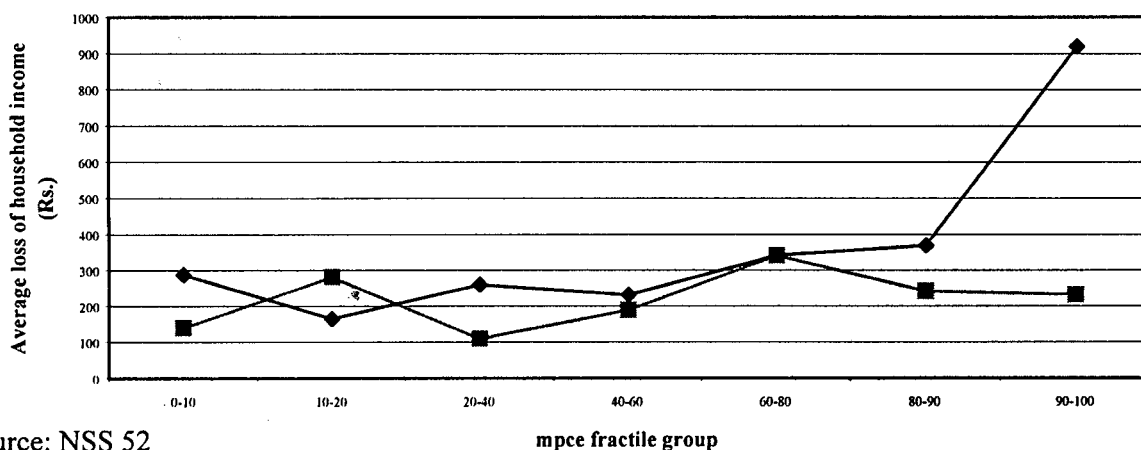
**Figure 5.1: Average amount of loss of household income per ailment (not treated as inpatient of hospital) by mpce fractile group in rural and urban West Bengal**



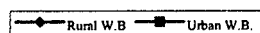
Source: NSS 52



**Figure 5.2: Average amount of loss of household income (Rs.) per ailment (treated as an inpatient of hospital) by mpce fractile group in rural and urban West Bengal**



Source: NSS 52



## 5.6 Conclusion

The difficulties in accessing health care and pattern of utilisation by different groups of population are reflected in the magnitude and composition of medical expenditure. As far as the total health expenditure of the country as a whole is concerned a significant share is borne by the household sector. The rest is borne by government, NGOs, international agencies etc.



The government expenditure on health care is crucial not only because of its important role in running public health and family welfare programmes but also because it is the major source of inpatient care in Orissa and West Bengal (and of course in other Indian states). Even if West Bengal shows a higher government expenditure on health care (including public health) as a percentage of total government expenditure compared to Kerala and Orissa, the per capita government expenditure on health care (including public health) is higher in Kerala compared to West Bengal. Not only is the per capita government expenditure on health care higher, but also the average monthly per capita household expenditure on health care is higher in Kerala compared to West Bengal. The government expenditure on health care is urban biased in all the three states. The degree of urban bias is highest in Orissa. Both for outpatient and inpatient care, the treatment from private facilities are more expensive than that from government facilities. If better quality is the reason for people's higher utilisation of private facilities, data supports this perception showing longer duration of illness if the illness was treated in the government hospitals rather than private facilities. The higher transport expenditure incurred by the rural population of Kerala and Orissa requires different explanation. In Orissa it could be due to longer travel distance to reach medical facilities but in Kerala it could be because of different reasons. The private inpatient care is much more expensive than the government inpatient care in West Bengal compared to Kerala and Orissa. With regard to the indirect cost of treatment (measured in terms of average loss of household income per hospitalised and non-hospitalised illness), it is much higher in case of hospitalised cases compared to non-hospitalised cases. On an average the people in the rural Orissa incur much higher indirect cost of treatment (in case of non-hospitalised illness) than their urban counterpart. This could probably be the one of the reasons for very high rural-urban difference in percentage of (outpatient) treated illness in Orissa. In West Bengal, the much higher indirect cost of treatment in the rural areas compared to the urban areas in case of hospitalised treatment could be one of the reasons for very low rate of hospitalisation in the rural areas compared to urban areas. Finally, the indirect cost of treatment per illness shows an increase with the rise in income level for the rural people, but for the urban people it does not show any steady increase.

## APPENDIX

**A 5.1** There are total three heads of government health expenditure: Medical, Public Health and Family Welfare.

**Medical:** this includes a wide range of programmes like curative services, medical education (doctor and nurses) and research, statutory health insurance (ESIS/CGHS) Indian system and homeopathy and population of drugs (under the ministry).

**Public Health:** under this head the main programme is the prevention and control of communicable diseases. This also includes training of all paramedical health workers for the public health programmes like food and drug administration, pollution control, public health laboratories etc.

**Family Welfare:** Before 1977 called Family Planning. This head of account was started in 1971-72 as an independent head. Prior to this expenditure on Family Planning was spread over medical and public health accounts heads but within that data is not given separately. For instance, training of health workers and camp organisation was under public health but running of the FP centres was under the medical treatment. Presently this head includes all FP expenditures like CFW welfare centres (rural and urban areas), services and supplies, compensation, training for FP programmes etc. It includes maternal and child health expenditure.

Table A 5.1: Percentage distribution of treatments (not treated as inpatient of hospital) during last 15 days by type of medical services of government sources in rural and urban Kerala, Orissa and West Bengal

State	Rural			Urban		
	Free	Partly free	Paying	Free	Partly free	Paying
Medicine						
Kerala	26	19	55	24	16	59
Orissa	11	15	74	10	4	86
West Bengal	22	37	40	49	19	33
X-Ray, ECG, Scan etc						
Kerala	29	5	66	6	0	94
Orissa	3	0	97	71	0	29
West Bengal	33	19	48	53	2	45
Other diagnostic tests						
Kerala	55	0	45	70	0	30
Orissa	82	0	18	100	0	0
West Bengal	61	5	34	67	2	31
Surgery						
Kerala	50	0	50	0	0	0
Orissa	100	0	0	100	0	0
West Bengal	82	0	18	96	0	4
Other treatments						
Kerala	52	4	44	31	32	37
Orissa	64	0	36	61	0	39
West Bengal	70	23	6	84	0	16

Source: NSS 52

Table A 5.2: Percentage distribution of hospitalised cases over payment categories for rural and urban sectors of Kerala, Orissa and West Bengal

STATE	RURAL			URBAN		
	No payment	EMWS	Payment	No payment	EMWS	Payment
Kerala	15	2	83	9	1	90
Orissa	46	3	51	35	17	48
West Bengal	33	13	54	31	18	51

Source: NSS 42

## Chapter 6

### Summary and Conclusion

The study approached the problem of access to and utilisation of health care in West Bengal from the standpoint of health economics and tried to evaluate access to and utilisation of health care services from the equity point of view. Of all criteria, equity is perhaps the most difficult to evaluate. While the rationale for health care policies may well be concerned with equity, their implementation has been dominated by considerations of equality. Among the different criteria of equality, we have considered equality of access to and utilisation as more relevant from practical and policy points of view. Since the present study was restricted by the secondary data of aggregate nature, the issues of equality in access to and utilisation were analysed at the group level. Monthly Per Capita Expenditure, Gender (viz. male and female), location (viz. rural and urban), social class (viz. scheduled caste, scheduled tribe, and other castes), administrative unit (viz. district) were taken as a basis to form the groups. Regarding equality of access to health care, inter-district variations in terms of some standard indicators was discussed. All the questions and issues were addressed and discussed in a comparative perspective with two other states, namely Kerala and Orissa. The merit of a comparative study is that it helps in elucidating issues and in bringing out causative factors. Kerala and Orissa were selected for the comparative study because in terms of many social and economic indicators and demographic characteristics West Bengal lies between these two states.

Studying health care sector of a state requires an understanding of the different aspects of the society viz. population characteristics, social structure, economy, medical and transport infrastructure. Keeping this in mind, the information on population characteristics, social structure, economy, medical infrastructure and man power, village connectivity and transport facilities were given for the three states to prepare the background of the study.

The average population served per Sub Centre, Public Health Centre in West Bengal is much higher than what was suggested in the National Norm. The shares of private sector in total number of medical institution and hospital beds are higher in Kerala compared to Orissa and West Bengal. The average rural population served by one SC, PHC and CHC is higher in West Bengal compared to Kerala and Orissa. On an average people in rural West Bengal had to travel more distance to reach a SC or PHC compared to Kerala and Orissa. Not only is the doctor-population ratio (i.e. the number of doctors per one lakh population) higher in Kerala

compared to West Bengal (and Orissa), but also it has increased over the years in Kerala. The doctor-population ratio remained unchanged over the years in West Bengal (and Orissa). In terms of rural population per one rural government medical institution and rural population per one government doctor and paramedical staff posted in the rural areas, Orissa seems to be in a better position compared to West Bengal. Except the districts of Kolkata and Darjeeling, the inter-district variations in bed-population is lower in West Bengal compared to Kerala and Orissa. The inter-district variation in population per one government medical institution is higher in West Bengal compared to Kerala and Orissa. But the districts of West Bengal (and Kerala) do not show much variation from one another in average area per one government medical institution

The utilisation of health care depends not only on the supply side factors (e.g. availability of health care facility) but also on the demand side factors like need for health care, education, income, social class system, gender etc.

The urban areas of the three states do not show any difference in the utilisation of health care (expressed in terms of percentage of treated illness). This indicates that there is not much variation in access to health care in the urban areas of the three states. There is a considerable difference in the utilisation of health care by the rural people in the three states. There is no significant rural-urban difference in the utilisation in Kerala and the difference is highest in Orissa. Data shows that utilisation varies on the basis of social and economic classes, level of education and location of residence. The degree of utilisation of health care is at a very low level for the socially backward classes in West Bengal (and Orissa). The utilisation shows a steady increase with the increase in income. The lower level of utilisation in the rural areas of West Bengal (and Orissa) basically indicates the lack of access to health care. West Bengal (and Orissa) show(s) higher degrees of group inequality in (outpatient) utilisation between socially backward caste and general caste, and between rural population and urban population. In the three states (outpatient) utilisation shows stronger association with income than with location. In contrast to Kerala and Orissa, the association between (outpatient) utilisation and income is stronger in the rural areas compared to the urban areas in West Bengal. This implies that in West Bengal income is more important in the rural areas compared to the urban areas in the utilisation of health care. An examination of the causes for no treatment by reasons also reinforces this argument. The percentage of people who did not go for treatment because of financial reasons is highest in West Bengal compared to Kerala

and Orissa. This has a very serious implication, as incidence of poverty is higher in the rural areas compared to the urban areas and rural people are expected to get free health care from the government facilities.

The lower level of income for the state as a whole, higher incidence of rural poverty, higher percentage of socially backward population (especially the scheduled tribes) and lower literacy seem to be responsible for very low utilisation of health care in rural Orissa. But in case of rural West Bengal lack of access to health care seems to be the reason for lower (outpatient) utilisation. Utilisation data does not show any systematic gender disparity in the utilisation of health care. The rate of hospitalisation is very low in West Bengal (and Orissa) compared to Kerala. The higher rate of hospitalisation in Kerala compared to West Bengal (and Orissa) could be due to the higher morbidity (especially chronic illness), and people's better access to the inpatient care in Kerala compared to West Bengal (Orissa). The considerable rural-urban difference in the rate of hospitalisation in West Bengal indicates the rural people's poor access to inpatient care.

Like Kerala and Orissa, allopathy is the dominant system of medicine in West Bengal. Ayurveda in Kerala and homeopathy in West Bengal are the second popular systems of medicine in case of outpatient care. From the number of non-allopathy doctors per one lakh population and utilisation of non-allopathy system of medicine, it seems that non-allopathy doctors are less intensively utilised in West Bengal compared to Kerala.

The dependence on the government facilities for outpatient care is higher in the rural areas compared to those urban areas in Kerala and Orissa. In West Bengal, the dependence is almost the same. People in West Bengal mostly depend on the private doctors who operate in a partially regulated or non-regulated environment. In contrast to the experience of Kerala and Orissa, the urban people's dependence on the government health care facilities has not come down in West Bengal over the years.

People do depend more on the government facilities for inpatient care than they depend for the outpatient care. The dependency on the government facilities is higher in West Bengal (and Orissa) compared to Kerala. The rural West Bengal shows a decline in the utilisation of government facilities over the years. But there is no evidence that private medical facilities witnessed a growth in rural West Bengal.

The difficulties in accessing health care and pattern of utilisation by different groups of population are reflected in the magnitude and composition of medical expenditure. Even if West Bengal shows a higher government expenditure on health care (including public health) as a percentage of total government expenditure compared to Kerala and Orissa, the per capita government expenditure on health care (including public health) is higher in Kerala than in West Bengal. Not only is the per capita government expenditure on health care lower, but also the average monthly per capita household expenditure on health care is lower in West Bengal compared to Kerala. The government expenditure on health care has an urban bias in all the three states. The degree of urban bias is highest in Orissa. But combining the per capita expenditure on medical and public health and urban bias, it seems that regarding the government spending on health care there does not exist significant difference between Orissa and West Bengal. Both for outpatient and inpatient care, the treatment from private facilities are more expensive than from government facilities.

The private inpatient care is much more expensive than the government inpatient care in West Bengal compared to Kerala and Orissa. Rural people's lack of access to inpatient health care, on the one hand and higher relative price of private inpatient treatment on the other hand, seem to be responsible for very low rate of hospitalisation in rural West Bengal. The indirect cost of treatment (measured in terms of average loss of household's income per hospitalised and non-hospitalised illness), is much higher in case of hospitalised cases compared to non-hospitalised cases. On an average, people in rural Orissa incur a much higher indirect cost of treatment (in case of non-hospitalised illness) than their urban counterparts. This could probably be one of the reasons for very high rural-urban difference in percentage of (outpatient) treated illness in Orissa. In West Bengal, the much higher indirect cost of treatment in the rural areas compared to the urban areas in case of hospitalised illness could be one of the reasons for a very low rate of hospitalisation in the rural areas compared to urban areas. Finally, the indirect cost of treatment per illness shows an increase with the rise in income level for the rural people, but for the urban people it does not show any steady increase.

## **A Few Policy Lessons**

The study draws a few policy lessons of tentative nature in the context of West Bengal.

1. People's higher utilisation of private facilities for outpatient care, could be due to two possibilities: either private facilities are easier to access than the government facilities or people prefer private facilities on quality ground. Whatever may be the reasons, it is clear that neither is the per capita availability of government facility sufficient nor is the private sector growing at a faster rate to meet the increasing demand. The government should take measures to enhance the growth of private sector and allow them to work in a regulated environment. More number of PHCs, SCs should be set up in the remote areas, which can provide both quality inpatient and outpatient care to the rural poor.
2. The higher number of non-treated illness due to financial reason and higher utilisation of private facility for outpatient care in the rural areas indicates the failure of the government health care facilities to provide free treatment to the rural poor. Measures should be taken to provide complete free health care at least to the rural poor and socially backward classes (especially the scheduled tribes).
3. Some measures should be taken so that the average loss of household income per illness episode of the poor people in general and rural people in particular can be at a minimum level.



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