

**SOCIO-ECONOMIC INEQUALITIES
IN HEALTH CARE UTILIZATION:
A COMPARATIVE STUDY OF BIHAR AND GUJARAT**

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YOGENDRA MUSAHAR



**CENTRE FOR THE STUDY OF REGIONAL DEVELOPMENT
SCHOOL OF SOCIAL SCIENCES
JAWAHARLAL NEHRU UNIVERSITY
NEW DELHI – 110067**

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Dedicated
to
My Mother

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Chapter 1

Introduction

1.1 Introduction

Health care is one of the basic needs. It is recognized to be a productive asset and forms a part of basic human capabilities (UNDP, 1999). The progress of any country rests on sound health of her people. Unfortunately, India's health sector portrays the story of inadequacy of facilities, the poor qualities of services, the deteriorating state of physical infrastructure as well as the persistence of widespread inequalities. There is inadequate public expenditure on health care in India. The total expenditure on health as percentage of GDP (2009) is 4.2 %.(Global Health Observatory, 2009). More than 70% of the health expenditure is provided by the private sectors. Under such circumstances, the household out-of-pocket health expenditure comes into play.

According to one estimate, in 2004-05, about 39.0 million (30.6 million in rural areas and 8.4 million in urban areas) Indian people fell into poverty as result of out-of-pocket expenditure on health (Balarajan and Others, 2011). The poor, the landless and the most marginalized communities do not have security of employment and income. Their income is uncertain and extremely low. Under such circumstances, they are unable to access quality health care. They become victims of curable disease. The inequality in health care is being intensified by the lack of the pure water supply and the proper sanitation. Many factors are responsible for inequalities in access to health care. Some of the important them are inadequate health care facilities by the government, centralization of facilities in urban areas, failure of implementing machineries, uneven distribution of resources, poverty, mass illiteracy, geographical barriers (remoteness of areas), privatization, inflation etc.

The inequalities in access to health care have various dimensions. These are differed by states, rural -urban, male-female, rich-poor, educated- uneducated as well as scheduled and non- scheduled populations. The scheduled population (SC/ST) possesses the limited resources. Mostly, they find their livelihood in unorganized sector of Indian economy where income is uncertain and insufficient for the minimum standard of living. Then it is

obvious that they find themselves unable to access the optimum health care. Caste-based inequality in household health expenditure reflects unequal access to quality health care by different caste groups (Mukherjee et al, 2011). Most of the health inequalities across social groups are unjust because they reflect an unfair distribution of the social determinants of the health (access to educational opportunities, safe jobs, health care, and the social base of self-respect).

1.2 Socio-economic inequalities and development process in India

Socioeconomic inequalities refer to at least two dimensions of inequality—social and economic and these two dimensions are closely associated, but incorporate two different aspects of stratification. In broader sense, socioeconomic inequalities conceptualize and consider the disparities in income, education, occupation, race, ethnicity, and more specifically disparities in health, nutrition, living standard and social status of the individuals in the society. Max Weber (1958)¹ conceptualized inequality along three related tracks namely class (economic resources), status (hierarchy on the basis of distinctive lifestyles, consumption patterns, and modes of conduct or action), and party (political clout).

APEC Symposium on Socio-economic Disparity² conceptualized it as “it is a complex concept, with many overlapping economic perspectives and social dimensions. It is multi-faceted, but disparity essentially regresses to disparity among individuals.” Socio-economic disparities do matter when it creates socio-economic exclusion and this is what happening in the development trajectory of India. Due to widening gulf of socio-economic disparities, a substantial population is being systematically excluded from the main stream of development. The benefits of growth are not translating into inclusive

¹ Pyakuryal Kailash ((2001), “Weberian Model of Social Stratification- A Viewpoint”, *Occasional Papers in Sociology and Anthropology*.

² Socio-Economic Disparity in the APEC Region, 2006.

³ N.J. Kurian (2007), ‘Widening economic & social disparities: Implications for India’, *Indian Journal of Medical Resource*.

⁴ Amitabh Kundu et.al (2010), ‘Regional Inequality and Inclusive Growth in India under Globalization: Identification of Lagging States for Strategic Intervention’, *Oxfam India Working Paper Series 6*.

development of every section of Indian population.

According to N.J. Kurian³ India suffers from acute economic and social disparities in terms of regional, rural-urban, social and gender. Since the last two decades all these disparities have been increasing. Amitabh Kundu and others (2010)⁴ hold the views that the dynamics of growth in the country is resulting in regional imbalances and the inter-state inequality in per capita income and consumption expenditure show a clear increasing trend during the first and second phase of structural reform they also opined that the capacity of the governments at the state level to make interventions and bring about social transformations is highly concentrated in relatively developed states. The problem related to basic needs such as health, education, and access to other amenities cannot be effectively addressed just by focusing on economic development. On the basis of evidence from literature review, Jayati Ghosh (2007)¹ and others claimed that inequality increased both in rural and urban areas in the post-liberalization period. The evidence shows that both at the national and the state-levels, income disparities between the rural and urban sectors increased during this period and the income gap between the poorest and the richest states increased during the 1990s.

The increasing trend of socio-economic inequalities with growth processes in India during post liberalization period is evident in a study performed by Deepankar Basu (2007)². He tried to seek how do countries of the world perform in terms of changes in socio-economic economic inequality during the last two decades? His findings suggest that two countries which have grown very rapidly since the 1990s but have not managed to translate that rapid economic growth into improvements in socio-economic indicator such as LEB (Life Expectancy at Birth) are China and India. He has substantial evidence to say that the growth process underway must have increased socio-economic inequality significantly. The inter-social group inequalities remained very prominent aspects of socio-economic inequalities in India. The deprived and depressed sections

¹ Jayati Ghosh and Others (2007), inequality in India: A survey of recent trends, DESA Working Paper No. 45.

² Deepankar Basu (2011), 'Socio-economic Inequality in India and the World since 1990.'

³ Sukhdev Thorat(2007), Human Poverty and Socially Disadvantaged Groups in India, UNDP, India, New Delhi.

(SCs/STs/Minority and other poor) of Indian society is gradually being isolated from main stream of the development. The gap between rich and poor is increasing year by year.

N.J. Kurian (2007) holds that socially backward sections especially SCs and STs have gained little from the new prosperity which rewards disproportionately those with assets, skills and higher education. Even in state like Kerala, inter-caste disparity continues to underlie overall disparity. In terms of food expenditure, clothing expenditure, land-holding, and education levels of heads of households, there are substantial inter-caste disparity between the SC/ST populations compared to the other population (Ashwini Deshpande, 2002). Inter-social group variations³ of HDI by social groups across states reveal uneven human development outcome. There was relatively low HDI in some group of states (Bihar, Uttar Pradesh, Orissa and Madhya Pradesh) contrary to high level of HDI in some states (Kerala, Himachal Pradesh, Maharashtra and TaminNadu). The more saddening story was that in all states, the HDI values were lower for the SCs as compared to non-SC/STs. Adding to this curse, at all India level(2000), STs had the lowest HDI followed by SCs and lastly by Non-SC/STs.

1.3 Socio-economic inequalities and health in India

The socio-economic status is a crucial factor of health and nutritional status and it also has influence on mortality and morbidity. It greatly influences the accessibility, affordability, acceptability and utilization of various exiting health services. The socio-economic conditions play vital role on health of the individuals' right from the birth or better to say from the beginning of the pregnancy. The health of the babies depends upon the inputs (all requirements for the reproductive health and overall well being) provided to the mother during the pregnancy as well as due course of time. These very inputs to be afforded depend upon the socio-economic conditions of the individuals. It is well recognized that there are socio-economic disparities across the population of the country delineated on the basis of social and economic groups and their differential impacts are likely to occur on the health outcome. In the developing country like India, there is lots of evidence which indicate the adverse effects of the socio-economic inequalities on the health.

Country Reports on HNP (Health, Nutrition and Population) and Poverty¹ which was carried out for the developing countries revealed that the health of the poor is notably worse than that of the better-off. Secondly, the poor use health services less, have less adequate health-related behaviors, and are disadvantaged with respect to other determinants of health status.

Table 1.1: Infant Mortality rate across socio-economic differentials

Socio-economic Differentials	Infant Mortality Rate(IMR)		
	Rural	Urban	Total
Education			
No education	71	61	70
<5 years complete	69	53	66
5-7 years complete	50	48	50
8-9 years complete	47	31	42
10-11 years complete	46	25	37
12 or more years complete	30	24	26
Caste/tribe			
Scheduled Caste	71	51	66
Scheduled Tribe	64	44	62
Other backward castes	61	42	57
Others	56	36	49
Religion			
Hindu	63	44	59
Muslim	60	36	52
Sikh	46	-	46
Christian	55	16	42
Buddhists/Neo Buddhist	47	-	53
Others	87	-	85
Wealth Index			
Lowest	71	65	70
Second	69	62	69
Middle	61	50	58
Fourth	42	46	44
Highest	34	27	29

Source: NFHS-3(2005--06)

¹ Davison R. et al (2007), 'Socio-Economic Differences in Health, Nutrition, and Population within Developing Countries', *The World Bank*.

In a study by Monica Das Gupta (1997)¹ it was realized that improvements in socio-economic circumstances and education appear to reduce child mortality by reducing whatever hidden factors cause differences in child loss. The early years of the individual's life are the foundation for the entire life span of those individuals. But in a country like ours a substantial population doesn't have secure sources for livelihood. They live their life on scanty resources that is why their siblings remained to get proper nutrition and antenatal care which are inevitable for the sound growth of the siblings. Under such circumstances infant and child mortality are much higher in our country in comparison to developed countries in general and to some of the neighboring countries in particular that miles back from us in terms of economic growth.

The given figures clearly depict the level of infant mortality rates across varying socio-economic determinant. As mother's years of schooling increasing the infant mortality is decreasing substantial by both rural and urban areas. The caste hierarchy is clearly visible in the rate of infant mortality rate. The depressed classes are at disadvantageous position registering higher infant mortality rate as compared to so called upper castes of the society. It signifies that so called upper castes are in better position to provide essential requirements for survival of the babies in turn infant and the children. The Christian population registered the lowest infant mortality rate among all religions. While in terms of wealth index, poor had to lose more siblings in comparison to richer ones.

1.4 Statement of the Problem

India have been one the signatories of the Alma ata declaration (1978), 'Health for all by 2000 AD'. India brought of its 1st legislation on health as National Health Policy 1983 (36 years after independence) which stressed the need for providing primary health care with special emphasis on prevention, promotion and rehabilitation. The NHP 1983 was amended as National Health Policy 2002 with the major of objectives of enhancing decentralization of public health system, contribution of private sector in providing health

¹ Monica Das Gupta (1997), 'Socio-Economic Status and Clustering of Child Deaths in Rural Punjab', *Population Studies*.

services, insuring more equitable access to health services across the geographical dimensions. Despite these provisions, universalization of health care is a distant thing. India is still poor in the global perspectives in terms of the health outcomes; the liberalization of the Indian economy allows the private players to jump into the health sector.

The jumping of the private players in the health sector is adding more problems to the deprived population and because of that the gap between poor and rich is increasing substantially day by day. The private health facilities are too costly to be accessed by the deprived and the poor sections of the society. Being a hierarchical caste based society; India is witnessing inter-group inequalities in utilization of the health care facilities. The basic problem is that the deprived sections of the Indian society (SCs/STs and other poor) don't have the access to the optimum health care facilities due to illiteracy, poverty, failure of the public health facilities, remoteness of dwellings, etc. They become victims of the curable diseases that affect their overall well being.

1.5 Rationale of the Study

The present study is an effort to examine the inequalities in health care utilization across the population groups delineated by economic and social orders. The selection of two states (Bihar and Gujarat) for present study is an arbitrary choice of two different states having different sets of socio-economic backgrounds. This study is based on the nationally representative households' survey 60th round of NSSO (2004-05). The inequalities in health care utilization have been investigated in terms of prevalence of ailments, their treatment, and economic condition of ailing persons' household, treatment expenditure, as well as contribution of public and private players in treatments. These two different states (Bihar and Gujarat) have different social and economic backgrounds. Bihar is one of the backward states of the Indian union with low income, mass illiteracy; and predominance of the subsistence agriculture as the main economic activity whereas Gujarat is one of the developed states of India with better level of overall development. In such circumstances, it is interesting to pursue the comparative study of social and economic inequalities in utilization of the health care facilities of the two different states having different social and economic backgrounds.

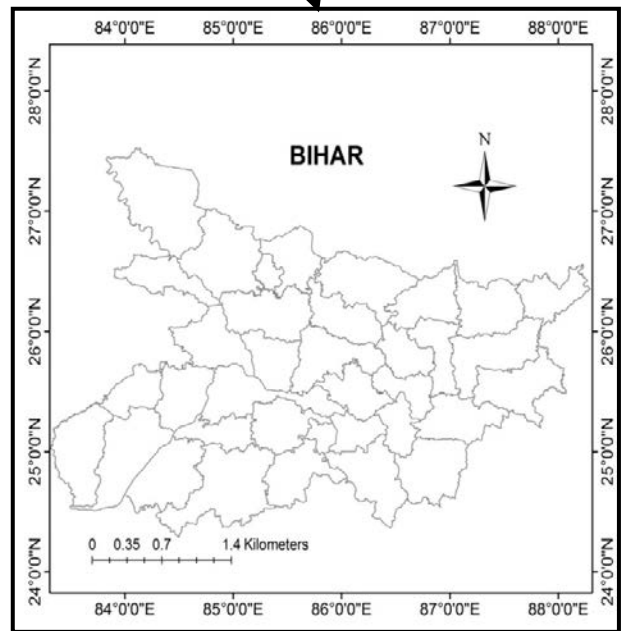
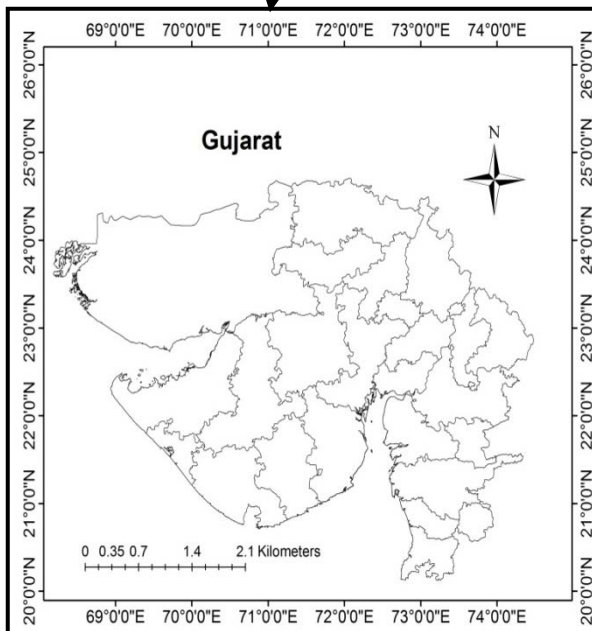
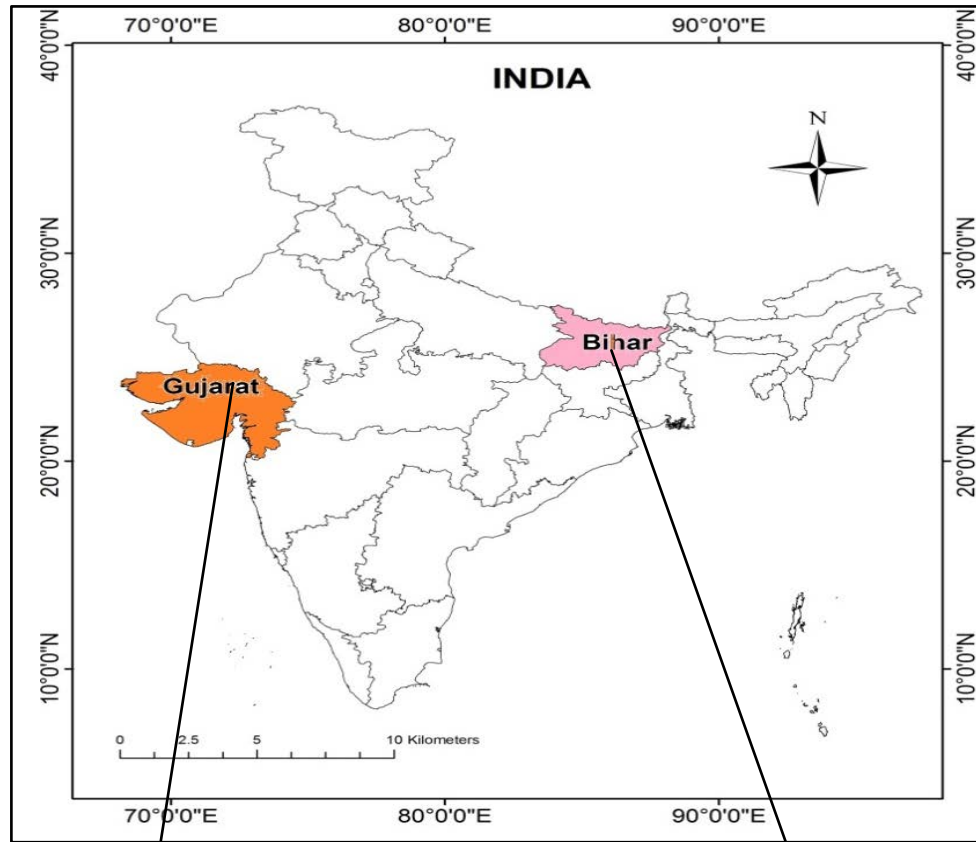
1.6 Study Area

Table 1.2: Selected Characteristics Features of the Study Areas

Features	Bihar	Gujarat
Latitude	24° 20' 10" N to 27° 3'15"N	20° 6' N to 24 °42'N
Longitude	83° 19'50" E to 88 °17' 40" E	68° 10' E to 74 °28' E
Total Area(square km)	94,163.00	196,024
Districts	38	26
Sub- Sub districts	101	225
No. of Villages	44,874	18,225
Proportion of Urban population	11.30	42.58
Number of Towns	199	348
Statutory Towns	139	195
Census Towns	60	153
Number of Urban Agglomerations	14	38
Total Population	103,804,637	97,12,611
Male Population	54,185,347	50,96,705
Female Population	49,619,290	46,15,906
Population Density(person/square km)	1102	308
Literacy	63.82	79.31
Male Literacy	73.39	87.23
Female Literacy	53.33	70.73
Sex Ratio	916	918
Child Sex Ratio(0-6)	933	886
SC Population(%), census 2001	15.7	7.10
ST Population(%), census 2001	0.9	14.80
Per Capita Income, 2004-05 (in Rs.)	7467	16,878
Net State Domestic Product,2004-05 (in Rs. crores)	68791	172265

Sources: Census of 2001, 2011; Data Book for DCH, Planning Commission

1.6.1 Location Map of Study Areas



1.6.2 Gujarat and Bihar: *at a glance*

Gujarat

Gujarat is a state in north western India owed its name from the Gujara, the land of the Gujjars. After independence, in 1948 the entire Gujarati speaking population came under one administrative body on may1, 1960. Gujarat consists of 25 districts and -sub divisions. The climate of Gujarat is moist in the southern districts and dry in the northern region. The average rainfall in Gujarat varies from 33 to 152 cm. The Tropic of Cancer passes through the northern border of this state, so it has an intensely hot or cold climate. But Arabian Sea and the Gulf of Cambay in the west and the forest covered hills in the east soften the rigors of climatic extremes. The economy of Gujarat is one of the most prosperous states of Indian union and economy of Gujarat is highly industrialized. There were 20,050 (provisional) registered working factories and about 2,56,388 small scale industrial units on March 31, 2001. The principal revenue generation from agriculture comes from cotton – a cash crop. Gujarat ranks high in the manufacturing sector. The most remarkable feature of Gujarat's recent industrial development has been the growth of the dairy industry, much of it conducted on a cooperative basis.

Bihar

Bihar, the ancient land of Buddha, has witnessed golden period of Indian history. The Word “Bihar” has been coined from “Vihara” meaning Buddhist monasteries. . In 1935, certain portions of Bihar were reorganized into the separate province of Orissa. The state of Jharkhand was carved out from Bihar by 2000. There are 38 districts in Bihar after formation of separate state Jharkhand. The entire state is part of the Ganga-Plains. The river Ganga divides whole Bihar into two physical divisions- the north Bihar Plain and the South Bihar Plain. The climate of the state is part of the climatic pattern of the Indian Subcontinent. The temperature varies from a maximum of 44°C in summer to a minimum of around 2.3°C in the winters. The rainfall varies from medium to heavy. Bihar is one of the India's most floods prone states with almost 76% of the population in the north Bihar living under the recurring threat of flood devastation whereas most of part of the south Bihar remained dry throughout the year. Bihar is embedded with very fertile alluvial soil but due to lesser investment and sustenance nature agricultural practices, per hectare

yield is very low. Bihar is one of the poorest states of Indian union, but due to change in political regime this state is witnessing faster growth in recent years. In January 2010, Central Statistics Organization reported that in the five-year period (2004-05 to 2008-09), Bihar's GDP grew by 11.03% which made Bihar a second fastest growing economy in India during last five years.

1.7 Literature Review

1.7.1 Relationships between socio-economic status and health care utilization

J. Curitis (2008) studied the relationship between socio-economic status (SES) and health care utilization of the Canadian population between 1978 and 2003. The results of this study indicate a positive relationship between SES and health care utilization, and in many cases the inequalities are increasing over time.

G.A.M van den Bos et al (2002) studied the socioeconomic gap in long term health outcomes after stroke and related health care utilization. For the very purpose, 465 patients were included who had had a stroke six months earlier and were followed up three years and five years after stroke. They had found that the patients from the lower socioeconomic groups experienced more disabilities up to three years after stroke and more handicaps up to five years after stroke. Further, after adjusting for health care needs there were no significant associations between socioeconomic status and health care utilizations. Y. Ellenweig and O. Grafstein (1989) pursued the case of study of inequity in health of two types of Israeli urban settlements: developments towns (melting pots of immigrants' populations) and veteran towns (well established populations). For the purpose, a total of 21,280 individuals were interviewed in 6,191 households across the country for demographic, occupational and health services –use.

This case study incorporated an integrated approach to inequity in health that included the health-care system structure, utilization patterns, and the socio-demographic-economic background of different strata. The findings were discussed into three divisions. First, structural inequities were examined. It included the health personnel and facilities per population. The second was the utilization inequities which included

primary care and hospital care utilization. The crude and the age-adjusted utilization were essentially similar except highly need-dependent services, such as X-rays and laboratory tests. The third aspect was the inequities in outcome. It revealed that age-specific death rate, infant mortality, cause-specific death rates were higher in development towns than in veteran towns, and there was a similar trend was shown in hospitalization rates for certain infectious diseases.

The essence of this study was that despite the existence of almost universal health insurance coverage in Israel, it was observed that the inhabitants of less privileged development towns were more prone to inequitable health outcomes with respect to the wealthier populations living in veteran towns.

Romualdo Benigni (2003) in his paper, 'Inequalities in Health: The Value of Sex-related Indicators' by the evidence from the geographical distribution of the sex difference in cancer incidence and life expectancy, he found that there is a close link between the health of the populations and SES.

1.7.2 Factors affecting the utilization of health care services

Anderson (1973) cited Bice, T. W. et al, (1971)¹ who had identified four sets of factors influence the utilization of health services

- (1) Demographic characteristics of the population such as age, race, and income.
- (2) The organization of health services
- (3) The Ecological factors such as distance, and
- (4) The Social psychological factors such as the influence of friends and neighbors.

Andersen² has proposed something different scheme for classifying variables related to health services utilization as follow-

(1)**Predisposing factors** - demographic and some of the social psychological variables were grouped into a category termed.

(2) **Enabling factors**- Income, insurance, and community health resources were grouped

¹ Bice, T. W(1971), 'Socio-economic Status and Use of Physicians Services': A Reconsideration

² Andersen, R (1968), 'A Behavioral Model of Families' Use of Health Services.' Chicago, Center for Health Administration Studies, Research Series 25.

in one category called enabling factors

(3) Need- third category termed need included levels of health as well as the usual response to illness.

Anders Grimsmo et al (1984)¹ put factors affecting primary health care utilization into four categories:

(1) Need factors describe both the actual and general health status of the individual.

(2) Organizational factors account for the availability of primary health care.

(3) Sociodemographic factors include the followings-

- a) Sex
- b) Age
- c) Marital Status
- d) Education
- e) SES status

(4) Socio-psychological factors deal with differences in utilization caused by beliefs and support.

Mrinalini Pathak et.al (1981) in their study (Perceived Morbidity, Utilization of Health Services and Factors affecting it in a Rural Area) found that utilization of health services depends on the following-

- (a) Age
- (b) Education as the function of values, beliefs, attitudes, and goals.
- (c) Occupation of an individual as economic means
- (d) The intensity of illness i.e. more the severity, the higher is the degree of utilization.
- (e) Availability or accessibility of health care is an important determinant of use.

1.7.3 Social Inequalities in Health Care Utilization

Mohindra K S. et al. (2006) in their study aimed to examine the social patterning of women's self-reported health status in India and to test the validity of the two hypotheses: First, low caste and lower socioeconomic position is associated with worse reported

¹ Grimsmo Anders et al (1984), Factors Affecting Primary Health Care Utilization, *Family Practice*.

health, and second, associations between socioeconomic position and reported health status vary across castes. For this purpose, 4196 non-elderly women from a panchayat (territorial decentralized unit) in Kerala in 2003 were surveyed. As far the methodology was concerned, they had used age-adjusted percentages and odds ratios, and multilevel multinomial logistic regression models for analysis. It was found that the women from lower castes (SCs/STs) and other backward castes (OBC) reported a higher prevalence of poor health than women from forward castes. Regarding the second hypothesis, they found that the women from low caste with higher socioeconomic status were associated with higher reported health status, whereas the women from the upper caste with lower socioeconomic position associated with lower reported health status. The women from the low caste and the low socioeconomic position were associated with worse reported health status.

Mukherjee et al (2011) used data from a 2003-2004 panel survey Kottatharya Panchayat that collected detailed information on health care consumptions from 543 households to analyze inequality in per capita out-of-pocket health expenditure across castes by considering households' health care needs and types of care utilized. They used multivariate regression to measure the caste-based inequality in health expenditure. They found that per capita health expenditure across caste groups reaffirmed the caste hierarchy. The forward caste showed the highest per capita health expenditure, followed by the OBC, Other ST/SC and Paniya households, which showed the lowest figure. They classified the households in three categories on the basis of the health care needs such as low need households, high need households and very high need households. The multivariate analysis showed that moving from low-need to very –high-need households; both the forward caste and the Other ST/SC caste groups were able to systematically increase per capita expenditure on health care. This pattern was not observed for the Paniya and the OBC caste groups. There was no difference between Paniya low-need and high-need in per capita health expenditure but for the very-high-need Paniya households' expenditure was substantially higher.

T.K. Roy, Sumati Kulkarani and Y. Vaidehi(2004) studied the extent of inequalities in health care and in nutritional status existing in the various states with focus on caste/tribe. The National Family Health Survey (NFHS-2) was used for the present

purpose. The three groups of the indicators were taken into account for the purpose. These were (1) Four socio-economic indicators(low standard of living, illiteracy, no exposure to media, and no health facility within locality);(2)Two programme indicators of utilization of health services(non-utilization of ANC services, and unsafe delivery);(3) Two nutritional status indicators(low body mass index and prevalence of anaemia).

The degree of the associations between the four caste/tribes and the indicators taken, was measured by computing Square root (χ^2/N). The effect of socio-economic inequalities on health and nutrition inequalities were also sought by using the Logistic Regression Model. According to the extent of inequalities in the indicators among the four groups, the states were classified into (1) the extreme inequality (2) the moderate inequality, (3) the low inequality. The main findings might be enlisted as follows-(a) Gujarat, Orissa and Madhya Pradesh were characterized by extreme inequality among for groups with respect to economic conditions (SLI) and education. (b) in Maharashtra, Assam, and Karnataka, inequality among four groups regarding education was low.(c) Orissa, Madhya Pradesh, and Bihar were the three states characterized by high inequality among four groups with respect to exposure to media.(d) the three states of West Bengal, Madhya Pradesh and Orissa revealed the highest inequality between four groups regarding accessibility to health facility.(e) in Bihar and Uttar Pradesh people had almost the same access to health facility irrespective of the caste/tribe group to which they belong.(f) regarding the two programmes related indicators, Orissa, Madhya Pradesh and Andhra Pradesh showed the highest inequality.(g) in West Bengal, Rajasthan and Karnataka caste/tribe had the least influence on whether she received ANC. (h) Regarding the two nutrition indicators, inequality between four groups regarding BMI was the highest in Gujarat, West Bengal, and Orissa.(i) the least disparity between four groups with respect to prevalence of anaemia was found in Karnataka, Andhra Pradesh and Uttar Pradesh.

B Starfield, A W Riley, W P Wit and R Robertson (2002) in their study entitled “Social class gradients in health during adolescence” aimed to examine whether such gradients exists in new data of US adolescents. For this study, they included adolescents ages 11-17. The findings from the new data showed social class gradients in several domains of health and in profiles of health. The best health profiles were significantly and progressively associated with rising social class gradient. On the other hand, the

probability of being in the poorest health profile type group was progressively higher as social class declined.

Jason Schnittker and Jane D. McLeod (2005) reviewed the literatures of “The Social Psychology of the Health Disparities”. Psychosocial factors (broadly referred to social and psychological factors) that have the potential to influence health and well being include life stressors, the structure and content of interpersonal relationships, self and identity, personality traits, and emotions and affect. The role of psychosocial factors in health disparities is mixed. The social psychology bridges the gap between the two dominant approaches in the field: those who encourage the exploration of health's upstream causes and those who explore the many downstream mechanisms behind disparities. The mixed findings regarding the mediational effects of psychosocial factors may reflect interactions among SEP and psychosocial factors when predicting health. SEP (socioeconomic position) modifies the effects of psychosocial factors on health through its associations with material, interpersonal, and psychological resources. SEP appears to modify the physiological pathways through which psychosocial factors influence health.

Dr. Laurence Knott (2011) studied the inequalities in health in the population of U.K. under the title of “Health and Social Class”. This paper focused on the association between health and social class, National Health Services, causes of health inequalities, reports on health inequalities by the various commissions. The author claimed that the relationship between class and ill health is not simple. There are a number of different influences on health, some of which include social class. This is demonstrated by multilevel analysis. The National Health Service covers the universal health care of the population. The followings explanations were given by him as the causes of health inequalities-(a) **post hoc ergo propter hoc (chicken or the egg)**. The low social class that has led to the poor health or poor health has led to a deterioration of social status. But the healthy will tend to rise through the social classes does not seem feasible. (b) **The material explanation**. It blames poverty, poor housing conditions, lack of resources in health and educational provision as well as higher risk occupations for the poor health of the lower social classes.(c) **Cultural explanation** which suggests that the lower social classes prefer less healthy lifestyles, eat more fatty foods, smoke more and exercise less

than the middle and upper classes. **(d) Social capital** (term for how connected people are their communities through work, family, membership of clubs, faith groups, and political and social organizations). The studies had shown that it has impact on health. Two major reports included (a) **Black Report** was the report on Inequalities in Health Care(chaired by Sir Douglas Black, former president of the Royal College of Physician) which was published in1980. **The Black Report** showed that there had continued to be an improvement in health across all the classes during the first 35 years of the National Health Service but there was still a correlation between social class and infant mortality rates, life expectancy and inequalities in the use of medical services.**(b) The Acheson Report** was produced by Sir Donald Acheson(a former chief of medical officer) in November 1998. It found little cause for congratulation and also called for the issue of poverty to be addressed.

K.R. Nayar (2007) had done comprehensive review under the title, Social exclusion, caste and health: A review based on the social determinants framework. On the basis of the literatures, he pointed out that poverty and health linkages need to be understood with a broader social determinants framework. Now, it is well-accepted that poverty, quality of life, employment, working and living conditions influence health and behavioral modifications. He sought the Amartya Sen's remark, the poverty; social exclusion and deprivation have a major impact on health. The author had examined the linkages between caste and some selected health/health care utilization (prevalence of anaemia, treatment of diarrhea, infant mortality rate, utilization of maternal health care and childhood vaccination among different caste groups) in India based on NFHS 2. The author claimed that on the whole, the data showed that the marginalized sections such as SCs/STs and the other backward castes who are also the poor in India suffer from a 'social gap' in terms of health status and health services.

1.7.4 Economic Inequalities in Health Care Utilization

Jennifer M. Mellor Jeffrey Milyo (2002) used data from the 1995-99 March Current Population Survey (309135 individuals; and 216572 observations from metropolitan statistical areas) to examine the effect of income inequality on individual health status for both the general population and those individuals in poverty. The self-reported health was

taken as the common measure of individual health. Three measures of income inequality such as the coefficient of variation, the percentile of household income, and the share of income going to the top 50 percent of households were taken for the purpose. The empirical exercise that carried out by them was differed from the previous literature in two respects. First, they controlled for the regional characteristics might be correlated with income inequality and secondly, they explored whether the relationship between income inequality and health is robust across geographical units. They found no consistent evidence of an association between state-level and metropolitan –area-level income inequality and the health status of all individuals and no consistent evidence that inequality has its strongest impact on the health of the poor.

John Lynch et.al (2004) systematically reviewed the empirical evidence to examine the associations between income inequality and health. They argued that individual income is partly determined by a person’s education, skills, and efforts, but income inequality is determined by history, politics, and economics. The findings of their review reveal that the evidence suggests that income inequalities are not associated with population health differences (at least not as a general phenomenon) among wealthy nations. In case of U.S. studies at aggregate level, the extent of income inequality across states and metropolitan areas seems robustly associated with a variety of health outcomes, especially measured at the state level. In case of other countries, the aggregate and multilevel evidence generally suggests little or no effect of income inequality on health indicators in rich countries (Australia, Belgium, Canada, Denmark, Japan, New Zealand, Spain, and Sweden), but there may some effect in U.K. In concluding remark, they pointed out that despite little evidence to support a direct effect of income inequality on health, it does not mean that unequal income distribution at the system level are not important to individual and population health. Reducing income inequality by raising the incomes of more disadvantaged people will improve the health of poor individuals, which will help to reduce health inequalities, and increase average population health.

Alex Y. Chen et.al (2004) studied income-related inequality in Healthcare Delivery in the United States using the data from the files for the Household Component of the 1996-1998 Medical Expenditure Panel Survey (MEPS, a national survey on the use of medical

care conducted by the Agency for Healthcare Research and Quality). The method adopted was the summary index of income-related inequality in expenditures developed by Wagstaff et al. One of the uniqueness of this study was that they derive the summary index to quantify income-related inequality in need-adjusted medical care expenditures. They found that income-related inequality in need-adjusted medical care expenditures among American population of all ages, and it favored the wealthy. The inequality was the highest among senior, intermediate among working-age adults, and the lowest among the children.

S. Weich et al. (2002) studied income inequality and self-rated health in Britain using data from the British Household Panel Survey (autumn, 1991) of 8366 people living in private households of England, Wales, and Scotland. This particular study tested the hypotheses that people in regions of Britain with the greatest income inequality would report worse health than those in other regions, after adjusting for individual socioeconomic circumstances. They found more evidence against the hypothesis, namely that the association between worse health and income inequality would not vary with individual income. It means the association between worse health and income inequality would vary with individual income.

Rajeev Ahuja (2004) studied health insurance for the poor. He argued that health insurance is emerging as an important financial tool to meet the health care needs of the poor. He accused that neither market-mediated nor government-provided insurance is an appropriate way of reaching the poor. According to the author, the community-based health insurance is a more suitable arrangement for providing insurance to the poor. The author highlighted the importance of the Community-Based Health Insurance stating that it is more appropriate insurance arrangement for the poor, which could take different forms and each of these forms may be suitable for the particular population with particular sets of health profile and health risks. Further, he advocated that increased public health spending and reforming of public health facilities is a must for the success of these community-based health initiatives.

Balarajan and Others (2011) have conceptualized and critically analyzed the health care and equity in India by using various data sources. They found that there are substantial variations in the utilization of the health care by gender, socio-economic status, and

location. In case maternal health care services, women in the richest quintile were more likely to deliver in an institutions than were those in the poorest quintile. Jason Beckfield (2004) in his paper entitled, Does Income Harm Health: New Cross-National Evidence focused on the cross national income inequality and population health. Using one tailed test to test the hypothesis that income inequality harms the health.

1.7.5 Theories of health inequalities

1.7.5.1 The theory of the fundamental cause: Social Conditions as Fundamental Causes of Health Inequalities.¹ Link and Phelan (1995) developed this theory to explain why the association between socioeconomic status (SES) and mortality has persisted despite radical changes in the diseases and risk factors that are presumed to explain it. According to Link and Phelan (1995), a fundamental social cause of health inequalities has four essential features. First, it (SES) influences multiple disease outcomes. Second, it affects these outcomes through multiple risk factors. Third, it involves access to resources that can be used to avoid risks or to minimize the consequences of disease once it occurs. Fourth, the association between a fundamental cause and health is reproduced over time via the replacement of intervening mechanisms. The flexible resources (resources of knowledge, money, power, prestige, and beneficial social connections) are central to fundamental cause theory operate at both individual and contextual levels. The policy implications in the sidelines of the theory of the fundamental cause are that, to achieve greater equality in matters of life, death, and health, the connection between socioeconomic resources and health-beneficial preventive measures and treatments must be broken or diminished, by the magnitude of inequalities in socioeconomic resources themselves and/or by minimizing the extent to which socioeconomic resources by health advantage.

1.7.5.2 Theory of Health Ethics²: The answers of the questions why global health inequalities are morally problematic and why efforts to reduce them are justified, come

¹ Phelan et al. (1995), “Social Conditions as Fundamental Causes of Health Inequalities: Theory, Evidence, and Policy Implications”, American Sociological Association.

² Ruger J P (2006), “THEORY AND METHODS: Ethics and governance of global health inequalities”, BMJ Publishing Group.

from a theory of health ethics. The ethical claims have the power to motivate, delineate principles, duties and responsibility for achieving common goals. The ethical principles include the intrinsic value of health to well-being to and equal respect for all human life, the importance of health for individual and the population as whole.

Mamdouh Gabr¹ argued that the Health Ethics evolved into four phases during the last few decades. The four phases are as traditional ethics, bioethics, health policy ethics and ethics in relation to human rights. Considering the ethical implications of the major determinants of health, major determinants include (a) the political system,(b)economic factors,(c)demographic changes, and (d) cultural diversity (role of women, global ecosystem sustainability, technological advances and as a consequence the changing pattern of disease.)

1.7.5.3 Health Inequalities and Social Capital: Portes (1998)² defined Social Capital as “it is ability to secure benefits through membership in networks and other social structures”. One of the earliest studies of social capital and health was of Durkheim(1897), who showed that social integration was inversely relate to the suicide rate in societies. The concept of social capita was introduced to the public health field by Wilkinson (1996.). *The Theory is that as societies reach a certain threshold (characterized by Omran’s epidemiological transition), health status becomes determined more by social (dis)advantage than by material scarcity (Wilkinson, 1994).* On the basis of the review of 34 articles related to social capital and health, James Macinko et al (2001) came to know that social capital has been applied in four ways in the health literature:(1) as an explanatory pathway in the relationship between income inequality and health status;(2) as a factor in the study of social networks and health; (3) as a mediator of the performance of health policies or reforms; and (4) as synonymous with social deprivation or social cohesion in relationship with violence and crime.

¹ Gabr Mamdouh. “Health Ethics, Equity and Human Dignity”, Cairo University Egypt.

⁷ Portes, A. 1998. Social Capital: Its Origins and Applications in Modern Sociology, Annual Review of Sociology.

1.7.5.4 The Rationing Principles¹: There are three categories of the main substantive rationing principles- Need principles, Maximizing Principles, and Egalitarian Principles.

Need Principles: These require that health care be distributed in proportion to “need”. There is no consensus on the definitions of “need”, but the most common strategy is to define need in terms of the degree of ill health. ***Maximizing Principles:*** According to maximizing principles, justice requires that health care should be distributed so as to bring about the best possible consequences. A broader maximizing principle is to maximize wellbeing or flourishing, which includes aspects of wellbeing other than health. ***Egalitarian Principles:*** According to egalitarian principles, health care resources should be allocated so as to reduce inequalities in health. Most authors who advocate egalitarian principles would in fact not pursue equality as a sole objective, but would rather combine the goal of equality with other principles of justice.

1.7.5.5 The Fair Innings Principle²: Allan Williams advocated this principle which reflects that everyone is entitled to some normal span of health (usually expressed in life years, e.g “three score year and ten”) and anyone failing to achieve this has been cheated, whilst anyone getting more than this is 'living on borrowed time'. According to him there are four important characteristics of the 'fair inning notion'. First, it is outcome based not process-based or resource-based. Second, it is about a person's whole life-time experience, not about their state at any particular point in time. Third, it reflects an aversion to inequality finally, it is quantifiable. The analysis suggests that this notion of intergenerational equity requires greater discrimination against the elderly than would be dictated simply by efficiency objectives. Williams further argues that in order to capture the full flavor of this kind of thinking, the concept of a 'fair innings' needs to be extended beyond simple life expectancy to embrace quality-adjusted life expectancy. Otherwise, it will not be possible to reflect the view that a lifetime of poor quality health entitles people to special consideration in the current allocation of health care, even if their life expectancy is normal.

¹ Cookson Richard and Dolan Paul (2000), “Principles of Justice in Health Care Rationing”, Journal of Medical Ethics.

² Williams Allan (1997), Intergenerational Equity: An Exploration of the ‘Fair Innings’ Argument, Health Economics.

1.7.5.6 Sen's Capability Approach ¹He refers to capabilities as the “real opportunity to accomplish what we value”. JP Ruger (2006) argued that the answer of the question 'why global health disparities are morally problematic and why efforts to reduce them are justified?'; comes from Sen's capability approach. On recognizing the interrelationship between health and other social ends, this approach emphasizes the importance of health for individual agency- the ability to live a life we value. Basic capabilities such as health are prerequisites to other capabilities.

¹ Sen. A.1983, 'Commodities and Capabilities', Amsterdam, North-Holland

1.8 Objectives-

The present study is concentrated on the followings objectives-

- To examine the prevalence of the morbidity across the population of Bihar and Gujarat.
- To examine the pattern of the utilization of health care services across population in two states.
- To examine the degree or extent of variation in utilization of health care services across the population of two states.
- To examine the magnitude and the pattern of out of pocket expenditures on medical treatment across the population of these two states.

1.9 Research Questions-

- What are the differential morbidity patterns across social groups in these two states?
- Do education and income levels contribute to these patterns?
- What is the extent of gap in health care utilization across social groups in these states?
- How do these gaps respond to the rate of economic growth?
- What are the individual and community levels determinants of health care utilization?

1.10 Data Base

Data from the Survey on morbidity and health care by the National Sample Organization (NSSO) from its 60th round survey (2004) have been used. The followings variables are taken to show the inequalities in utilization of the health care services-

- Prevalence of ailments in last 15 days
- Treatment taken on medical advice.
- Annual hospitalization rate.
- Untreated ailments.
- Reasons for not treatments.

- Sources of medical care- public/private health facilities(inpatient/outpatient care)
- Average medical expenditure and other expenditure

1.11 Methodologies

The followings methodologies are to used for the present purpose-

$$\text{Morbidity Prevalence} = \frac{\text{No. of persons reporting ailments in a particular category} * 1000}{\text{Total no .of persons in that category}}$$

$$\text{Hospitalization Rate} = \frac{\text{No. of persons hospitalized in a particular category} * 1000}{\text{Total no .of persons in that category}}$$

Concentration Index-

Concentration Index is defined with reference to the concentration curve which comprises graphs on the x-axis the cumulative percentage of sample, ranked by living standards, beginning with the poorest, and on the y-axis the cumulative percentage of the health variable corresponding to each cumulative percentage of the distribution of the living standard variable. In present study, it was assumed that first category of socio-economic variable taken were considered of the lowest rank and the last one at the highest rank in the order. Following formula¹ has been used for computation of Concentration Index-

$$C.I. = (P_1L_2 - P_2L_1) + (P_2L_3 - P_3L_2) + \dots + (P_{T-1}L_T - P_TL_{T-1}) \dots$$

Where, p- cumulative percentage of the sample

L (p)-corresponding concentration curve ordinate

T –No. of socio-economic groups

Logistic Regression

The following variables are to be considered for the purpose of the Binary Logistic Regression

¹ Wag staff A. (2008), ‘Analyzing Health Equity Using Household Survey Data: A Guide to Techniques and Their Implementations,’ *The World Bank*.

Dependent variables-

Whether ailing in last 15 days (Yes=1 and No=0)

Whether hospitalized (Yes=1 and No=0)

Whether treatment taken on medical advice (Yes=0 and No=1)

Independent variables-

Social variables:-

- Age
- Sex
- Residence
- Social groups
- Religious groups
- Level of education

Economic Variables:-

- Occupation (activity status)
- Income (MPCE Quintiles)
- Expenditure on treatment

1.12 Scheme of Chapters

The present study comprises six chapters. The first chapter contains introduction, statement of problem, Literature Review, Research Questions, Objectives, Database and Methodology.

Second chapter namely Socio-Economic Inequalities in Bihar and Gujarat: An Overview basically gives background of socio-economic aspects.

Third chapter contains pattern of morbidity and hospitalization across population of Bihar and Gujarat delineated on the basis of socio-economic parameters.

Fourth chapter deals with inequalities in health care utilization assessing variables viz type of hospitals, proportion untreated ailments and reasons for no treatment across population by its socio-economic backgrounds in both states.

Chapter fifth is concerned to examine magnitude and pattern of out of pocket

expenditures for medical treatment in these two states.

The sixth chapter which is the last chapter deals with summary and conclusions of entire study.

1.13 Summary of Literature Review

Health is a broad and multidimensional concept which depends upon a number of factors that directly or indirectly affect the state of health. The utilization of health care facilities is one of the various aspects a sum total of health. A wide range of literatures are needed even to understand this aspect of health. Attempts were done to cover such wide range of literatures comprising studies done in the country and from abroad. Starting from *socio-economic inequalities and development processes in India* and get close to the prominent *theories dealing to inequalities in health*. The literature under very first category may be summarized as the development processes in India must have increased socio-economic inequalities significantly and have isolated the depressed classes from main stream of development.

The literatures under the category of *Socio-economic inequalities and health in India* came with conclusion that the health of individuals depend upon the socio-economic conditions of the individuals and improve in the socio-economic conditions do improve the health of individuals. It was observed that there was positive relationship between socio-economic status (SES) and health care utilization while going through the literatures under category of *relationship between socio-economic status and utilization of health care facilities*.

While going through the literatures such as *the factors affecting the utilization of health care services* , a hosts of factors were identified that affects utilization of health care facilities in particular and the state of health in general. The different scholars have listed a different set of factors that affect the utilization health services. But most of the factors are common. it is worthy to reproduced the combined set of factors which may be listed as follows-(1) Demographic factors(age, sex marital status) (2)Ecological and Environmental factors, (3)socio-psychological factors such as beliefs and support and (4)socio-economic factors such as education and SES. *Social Inequalities in Health Care Utilization* may be summarized that there exists social gradient in utilization of health

care services in particular and attainment of health in general.

The **Black Report** (1980) paved the ways to study the relationship between the social class and the health. The literatures related to *Economic Inequalities in Utilization of Health Care* were taken into consideration. Very few literatures were vague on issue of positive relationship between income and utilization of health care facilities. Majority of the literatures convey the positive relationship between income of the individuals and utilization of health facilities as well as health outcome. At end the literatures as *theories of health inequalities* were taken into consideration. One can summarize the themes of all theories as the health is the fundamental need of the individuals.

Chapter 2

Socioeconomic Inequalities in Bihar and Gujarat: An Overview

2.1 Introduction

The socio-economic inequalities are one of the major causes that affect the utilization of health care services by the population. The inequalities in care health care and achievement in health status may be attributed to the inequalities in income, social and cultural developments, and to many other factors. There is an uneven economic development of the Indian states whose differential affect is visible on health care utilization and overall achievement in health status.

Gujarat is among the richest states of India. It stood at fifth position in terms of per capita income at current price (1999-00) in 2004-05. The per capita income at constant prices has been estimated at Rs.16878 in 2004-05, higher than the National average of Rs.12416. The per capita income at current prices has been estimated at Rs.28355 in 2004-, higher than the National average of Rs.26672. The Net State Domestic Product (NSDP) at factor cost at current price (2004-05) in 2004-05 has been estimated at Rs.172265 corers. The percentage of population below poverty line in this state was 12.5 in 2004-05. Per capita consumer expenditures (Rupees per month per person) at current prices in 2004-05 were Rs.644.90 and Rs.1205.80 for rural and urban populations respectively. The head count ratios in year were 16.8 in 2004-05. Literacy rate was 69.14 % (2001). The infant mortality rate was 57 per thousand as per the vital statistics based on SRS 2003.

Contrary to Gujarat, Bihar is one the most poor states of India. It stood at 21st position in terms of per capita income with the sum Rs.7467 at current prices (1990-00) in 2004-05. The Net State Domestic Product (NSDP) at factor cost at current prices (2004-05) is estimated at Rs. 68791 crores in 2004-05. The percentage of population below poverty line in this state was 32.5 in 2004-05. The consumer expenditures (Rupees per month per

person) at current prices in 2004-05 were Rs.445.00 and Rs.729.50 for rural and urban areas respectively. The head count ratio was 41.4 in 2004-05. Sex ratio was 921 females per 1000 males. The state of Bihar remained far behind the other states of Indian territories in terms of most of indices to measure socio-economic development. Unfortunately, Bihar has the lowest literacy rate and more over, female literacy rate is more critical according to census of India, 2001.

2.2 Poverty and inequalities

2.2.1 Head Count Ratio by type of place of residence

Table 2.2.1 gives the poverty incidence (Head count ratio) in Bihar and Gujarat in rural and urban areas separately. As evident from the given data total poverty incidence in Bihar was more than two time of that of in Gujarat. On ranking the states according to poverty incidence i.e. from starting from poorest to less poor states, Bihar stood at the second position. It means Bihar is the second poorest state of India union. The rural urban differential in poverty incidence was observed in both of the state. But it is more pronounced in case of Bihar as compared to that of Gujarat.

Table 2.1: Poverty Incidence- Head Count Ratio, 2004-05

States	Rural	Urban	Total	Rank of the states(total)
Bihar	42.1	34.6	41.1	2
Gujarat	19.1	13	16.8	11

Source: Planning Commission of India, 2007.

2.2.2 Percentage of population below poverty line by two different methodologies

Table 2.2 depicts the percentage population below poverty line at two point of time computed by two distinct methodologies. Without going to genesis in differences of methodologies adapted to delineate poor people, we will rather focus to overall findings by these two methods. As per Lakdawala methodology, we see that the percentage of population below poverty line in Bihar was substantially higher than Gujarat and the National average. From 1993-94 to 2004-05, the percentage of population below poverty line declined by 25.3, 30.6 and 23.0 percentages for Bihar, Gujarat and the nation as a

whole respectively. The percent decline in the percentage of population below poverty line as shown by Tendulkar methodology, was 10.0, 15.9 and 17.9 for Bihar, Gujarat and all India respectively.

Table 2.2: Percentage of Population below Poverty Line

States	Methodologies			
	Lakdawala Methodology		Tendulkar Methodology	
	1993-94	2004-05	1993-94	2004-05
Bihar	55	41.1	60.5	54.4
Gujarat	24.2	16.8	37.8	31.8
All India	36	27.5	45.3	37.2

Source: Data Book for DCH, Planning Commission

Adam Wagstaff¹ argued that within countries, poor people have worse health outcomes than better off people. Poor people are caught in a vicious circle wherein poverty breeds ill-health, ill-health maintains poverty.

2.2.3 Consumer Expenditure at current prices by residence

Table 2.2.3 provides the consumer expenditure (rupees per month per person) at current prices. It was found that the consumer expenditure in Bihar at current price in the year of 1993-94 was Rs.218 and Rs.353 for rural and urban areas respectively. These consumer expenditures in Gujarat for the same were Rs.303 and Rs.454 for rural and urban areas respectively. At the current price for the year 2004-05 in Bihar, the consumer expenditure in rural and urban areas was Rs. 445 and Rs.730 respectively. The rural – urban differential in consumer prices was notice in the same at one point of time in the same state. Addition to this at same point time, the consumer expenditure was higher for rural areas of Gujarat as compared to the rural areas of Bihar at the same point of time. Similarly the consumer expenditure of urban areas of Gujarat was quite higher than that of the urban areas of Bihar. It implies that the overall consumer expenditure in Bihar was quite less than that of Gujarat and populations of Bihar enjoy lesser freedom in terms of consumer expenditure.

¹ Wag staff A. Poverty and health. Bulletin of the World Health Organization 2002, 80 (2)

Table 2.3 Consumer Expenditures (Rupees per month per person) at current prices

States	Rural		Urban	
	1993-94	2004-05	1993-94	2004-05
Bihar	218.3	445	353.03	729.5
Gujarat	303.32	644.9	454.18	1205.8
All India	281.4	579.2	458.04	1104.6

Source: Data Book DCH, Planning Commission of India

2.2.4 Gini Coefficient of distribution of consumption by residence

Table 2.4 gives the Gini Coefficient of distribution of consumption separately for rural and urban areas at two points of time.

Table 2.4 Gini Coefficient of Distribution of Consumption

States	1993-94		2004-05	
	Rural	Urban	Rural	Urban
Bihar	0.22	0.31	0.17	0.31
Gujarat	0.24	0.39	0.25	0.32
All India	0.28	0.34	0.25	0.35

Source: Data Book DCH, Planning Commission of India

2.3 Inequalities in Education

2.3.1 Percent enrolment by social groups in Bihar and Gujarat

Percent enrolment at particular level of education is more refined measure to study situation of education of the population. As shown in the given table, only 1.3% of the eligible ST population was enrolled at primary level schools, and it reduced to just 1% at next level. Other backward classes had the highest enrolment figures followed by SC and ST population of Bihar. In case of % girl enrolment again, other backwards classes had higher proportion and girls from ST population had the least representation in Bihar.

Table 2.5 SC/ST/OBC enrolment

Social Groups	Bihar		Gujarat	
	Levels of Schools		Levels of Schools	
	Primary	Upper Primary	Primary	Upper Primary
% SC enrolment	16.2	11.6	7.4	7.9
% SC girls enrolment	41.3	34.3	47.9	45.7
% ST enrolment	1.3	1	19.1	15.8
% ST girls enrolment	41	36.4	48.3	45.5
% OBC enrolment	62.1	58	49.8	46.3
% OBC girls enrolment	44.5	38.2	47	43.1

Source: State Report Cards, 2005-06, NUEPA

The continuation rate was least among the SC girls in Bihar. Enrolment rate of ST children was quite better in Gujarat in comparison to their counterpart in Bihar. Lesser SC children were enrolled at both levels of schools in Gujarat in comparison to that of Bihar. But in case of SC girls' enrolment Gujarat had shown better performance. In Gujarat, children from other backward classes had highest enrollment rate which was followed by the children from the ST population. Improved enrollment of ST children may attributed to various national flagship programmes such as Sarva Shiksha Abhiyan ,SSA (mid day meal, free books and incentives of scholars) to attract the children from depressed classes such SC/ST, But lower enrollment rate of SC children is issue of serious concern.

2.3.2 Enrolment Ratios (GER, NER) in Bihar and Gujarat

Gross Enrollment Ratio (GER) is more refined statistical measure to determine to total enrollment within a country or province in a specific level of education, regardless of age (UNSECO). Net Enrollment Rate(NER) at specific level of education(here elementary level of education) is the number of children of official elementary school age who are enrolled at specific level of education as a percentage of the total children of the official age group. In our case except NER at primary level, all measures at all are higher in Gujarat in comparison to that of Bihar. This indicates that there are substantial inequalities in enrollment even at elementary level of education across two states of Indian union.

Table 2.6 Enrollment Ratio, Bihar and Gujarat

School Levels	Enrollment ratio	
	Bihar	Gujarat
GER Primary	92.44	100.3
GER Upper Primary	30.42	49.91
NER Primary	84.13	78.89
NER Upper Primary	26.46	36.64

Source: State Report Cards, 2005-06, NUEPA

Table 2.7 Highest Educational Level, Men

States	Highest educational level(in percent)				
	No education	Primary	Secondary	Higher	Total
Bihar	24.5	14.3	46.4	14.8	100
Gujarat	14.1	16.1	58.5	11.3	100
All India	14.4	15.4	54.4	15.4	100

NFHS-3, 2005-06

2.3.3 Highest Education Level by Sex

Table 2.7 and 2.8 provide the highest level of education for men and women respectively. It was found that the percent men with no education were 24.5 and 14.1 in Bihar and Gujarat respectively. Surprisingly, in the proportion of men with higher education was more in Bihar as compared to that Gujarat. Though the difference was just 3% it was very remarkable thing for the state like Bihar which lag behind all the state of Indian union in term of literacy. Except this figure Gujarat was ahead of Bihar at every level of educational attainment.

As the educational attainment of women is concerned it was observed that at every level of educational attainment women from Gujarat were much more ahead of that Bihar. The women educational attainments do have very significant impact of health of children. In Bihar infant mortality rate(as discussed later) was much higher than that other state. One of the reasons for this be low educational attainment of women in Bihar.

Table 2.8 Highest Educational Level, Women

States	Highest educational level(in percent)				
	No education	Primary	Secondary	Higher	Total
Bihar	54.9	9.5	31	4.6	100
Gujarat	32.6	13.8	45.6	7.9	100
All India	32	14.3	43.3	10.4	100

NFHS-3, 2005-06

SY Choo et al (2007)⁵concluded their study as that the lower educational classes had qualitative and quantitative disadvantages in utilizing the health care services for cancer in the last year of life.

Abdullah Alguwaihes et al (2009) ⁶ in their study found that several health care utilization and self-care behavior measures for individuals with diabetes are independently associated with educational attainment. Therefore, patients with low educational attainment are at risk for a poorer quality of diabetes care. The scholars accept that education is the *MAGIC BULLET* for reducing fertility rates, infant mortality rates and maintaining overall health status. The maternal education in particular has very strong bearing on health of mother and their siblings. The scholars have suggested three broad pathways of influence, linking maternal schooling to child mortality, that result in greater utilization of modern health services have been suggested: educated women are better able to break away from tradition to utilize modern means of safeguarding their own health and that of their children(Caldwell and Caldwell,1988); educated women are better able to utilize what is available in the community to their advantage (Barrera 1990 ,Caldwell, 1990); and educated women may be able to make independent decision regarding their own and children's health leading to greater utilization of modern health facilities (Caldwell, 1979; Caldwell, 1986)

⁵ Choo SY et al (2007), 'Educational differences in health care utilization in the last year of life among South Korean cancer patients', Journal of Prev Med Public.

⁶ Alguwaihes Abdullah et al (2009), 'Educational Attainment is Associated with Health Care Utilization and Self-Care Behavior by Individuals with Diabetes', the Open Diabetes Journal, 2009,

2.4 Inequalities in Health Attainment in Bihar and Gujarat

2.4.1 Infant mortality by sex in Bihar and Gujarat

Table 2.9 gives the infant mortality rate by sex of the children. It was IMR was higher in Bihar as compared to Gujarat and the national average. The gender differential in infant mortality was evident from the given data. The sex differential in mortality was more prominent in Gujarat as compared to that in Bihar and the national average.

Table 2.9 Infant mortality rate by sex, 2004

States	Male	Female	Total
Bihar	60	63	61
Gujarat	50	57	53
All India	58	58	58

Source: SRS Bulletin, April 2006

2.4.2 Infant mortality rate by sex and residence

Table 2.10 gives the infant mortality rate by sex separately in rural and urban areas. The sex differential in infant mortality was observed in rural and urban areas. But the sex differential in urban areas more prominent and pronounced in urban areas as compared to that rural areas. As per the given data, in rural areas of Gujarat there was no sex differential in IMR but for the same state in urban areas the difference of IMR of male and female children was 15 points which was very substantial.

Table 2.10 Infant mortality rate by sex and residence, 2004

States	Rural			Urban		
	Male	Female	Total	Male	Female	Total
Bihar	61	65	63	44	50	47
Gujarat	62	62	62	30	48	38
All India	64	63	64	39	40	40

Source: SRS Bulletin, April 2006

In Bihar, the sex differential in IMR in rural and urban areas was 4 and 6 respectively, whereas in Gujarat, this differential was 0 and 15 respectively in rural and urban areas.

The infant mortality rate (IMR) is one the most important indicators of the

socioeconomic development of any country or community. Level of infant mortality shows how much any country or community is concerned for its population. According to Mosley and Chen (1984) infant Child mortality is usually determined by biological, demographic, socio-economic and Environmental factors. In populations with no discrimination against either sex biomedical factors are the major determinants of sex differential in infant or child mortality and these are higher for males than for females (Coale, 1991).

2.4.3 Infant mortality rates by social groups

Table 2.11 provides infant mortality by social groups across the population of Bihar and Gujarat as well at national average. IMR of SCs and Others class of social groups in Bihar as higher than that of same class of Gujarat. But OBCs people of Bihar were at advantageous position in terms of IMR as compared to that Gujarat as IMR of OBCs of Bihar was lesser than OBCs of Gujarat.

Table 2.11 Infant mortality rates by social groups, 2005-06

(For the 10-year period preceding the survey)

States	Social Groups(Castes/Tribes)			
	SC	ST	OBC	OTHERS
Bihar	71	-	57.2	82.2
Gujarat	65.4	86	66.5	47.3
All India	64.4	62.1	56.6	48.9

Source: NFHS-3, State Reports

Several earlier studies suggest that the infant mortality is the function of socio-economic factors addition to many other important factors. Social class gradient is visible in infant mortality, to say higher caste groups have lower infant mortality rates. P M Kulkarni et al. (2006)¹ found that higher IMR were absorbed among SCs followed by STs and Others in Bihar. But in Gujarat STs were infant were more impoverished followed by others. The

¹ P M Kulkarni et al (2006), Health Status and Access to Health Care Services- Disparities among Social Groups in India, *Indian Institutes of Dalit Studies*, Vol.1(4).

higher IMRs among others (non SC/ST/Others) is quite difficult to be explained because higher castes are considered to be educated and well off which have inverse relationship with infant mortality. Paul H Wise (2003)¹ claimed that the infant mortality rate will always be a compelling social mirror, reflecting the recognition that social inequalities are not only expressed as hardship but also as death.

2.5 Life Expectancy and Human Development

2.5.1 Life Expectancy at Birth by Sex in Bihar and Gujarat

Table 2.12 shows the life expectancy of populations by their sex. It was found that the life expectancy of male was higher than that of female in Bihar in year 2000-2004. But in the same year female life expectancy was higher than male ones in Gujarat. Even at national life expectancy female was higher in the year 2000-2004. From year 2000-2004 to year 2002-2006, the life expectancy of both male and female was reported to increase. In Population where there is no discrimination against women, the life expectancy of women is higher than that of male ones due to biological advantage that women have got. Low life expectancy women than men indicates there exists gender differential in terms of health.

Table 2.12 Life Expectancy at Birth in Bihar, Gujarat and India

States	2000-2004		2002-2006	
	Male	Female	Male	Female
Bihar	61.8	59.9	62.2	60.4
Gujarat	62.7	64.8	62.9	65.2
All India	62.1	63.7	62.6	64.2

Source: SRS, based Abridge Life Tables, 2002-06

2.5.2 Human Development Index by Social Groups

Table 2.13 gives human development index by social in Bihar, Gujarat and in the country as whole. HDI is a multidimensional concept and include three development indicator say

¹ Paul H.Wise (2003), 'The anatomy of a disparity in infant mortality', *The Annual Review of Public Health* 4:341-62.

life expectancy, mean years of schooling and per capita income. As it HDI reflects over all well being for the countries and it may be calculated for particular population also.

Table 2.13 Human Development Index among Social Groups, 2000

States	Social Groups			
	SC	ST	Non- SC/ST	All
Bihar	0.195	0.201	0.301	0.279
Gujarat	0.371	0.311	0.419	0.406
All India	0.303	0.270	0.393	0.366

Source: Discussion Paper Series -18, UNDP, India, January, 2007

HDI also reflects how much any country is concerned for overall well being of her people. India ranked at 119th among 169 countries of the world according to HDI published by UNDP in 2010. Though in last decade it registered high GDP growth but it was not translated into improvement in quality of life of its people. Inter region and inter groups disparities are the characteristics features of human development index that was shown above. Bihar is far behind Gujarat as well as national average in terms of quality of life of its people. It reflects the saga of uneven regional development in Indian territories as well as exclusive and differential development of Indian social classes.

2.6 Summary

Socio-economic inequalities in Bihar and Gujarat were traced by different data sets. From these data sets, the indicators like head count ratio, percent population below poverty line, consumer expenditure at current prices, Gini coefficient of distribution of consumption, percent enrolment, GER and NER, Highest educational level, IMR, Life expectancy and HDI. The most of the development indicators shows their poor level in Bihar as compared to that of Gujarat. In some cases the gender differences in Bihar was noticeably low as compared to that of Gujarat. In few cases rural- urban differential in Bihar was less than that of Gujarat. The analyses of data taken under consideration suggest that the population of Bihar enjoyed lesser freedom in terms of level of development.

Chapter 3

Pattern of Morbidity and Hospitalization

3.1 Introduction

Morbidity is defined as departure from a state of physical or psychological well-being, resulting from disease, illness, injury, or sickness. P.Duraisamy (1998)¹ holds that there is considerable disagreement among researchers on how to define and measure morbidity since it is highly subjective and based on perception and reporting. Johansson (1991) pointed out that the concept 'morbidity' has more than one meaning, and it is complex, multidimensional and difficult to define and measure, because it has strong cultural character which permits their meaning to change over time and space. WHO has tried to provide simple way for measuring morbidity. According to the World Health Organization (WHO), morbidity could be measured in terms of (1) number of persons who were ill, (2) illness these persons experienced and (3) the duration of these illnesses. The present enquiry on morbidity and utilization of medical services is the third in the row and it has been carried out in the 60th round of the NSS during January to June, 2004. The morbidity rate (per 1000 of persons reporting ailment (PAP: proportion of ailing persons) during last 15 days) is the estimated proportion of persons reporting ailment suffered at any time during the reference period and are not strictly the prevalence rates as recommended by the Expert Committee on Health Statistics of WHO. It is worthy to clarify that the WHO defines prevalence rate as the ratio between the numbers of spells of ailment suffered at any time during the reference period and the population exposed to risk. It measures the frequency of illness prevailing during the reference period, whereas the morbidity rate that was used for the present purpose is the number of persons reporting ailments during a 15-day period per 1000 population. The morbidity rate that was calculated for the present purpose was based on self-reported morbidity data, rather than on medical examination. So these (spell of different ailments) do not likely to reflect the objective illness-status of the patients, particularly the number of disease a patient is

¹ Duraisamy P. (1998), 'Morbidity in Tamil Nadu: Levels, Differentials and Determinants,' Economic and Political Weekly.

afflicted with. So, only number per 1000 of ailing persons is used as measure of morbidity rate in this dissertation.

3.1.1 Morbidity prevalence by type of place of residence

S Ghosh et .al (2009) found that the morbidity prevalence rate was reported higher in the urban areas than in the rural areas. Some other studies found contrasting pattern of evidences about disease burden between rural and urban population with some reporting greater burden among rural population than in urban (Gumber and Kulkarni, 2000; Duggal and Amin, 1989; DILIP 2002 etc.).

Table 3.1: prevalence of ailment in last 15 days per thousand populations by type of place of residence

States	place of residence		Total
	Rural	Urban	
Bihar	53	63	54
Gujarat	69	78	72
All India	88	99	91

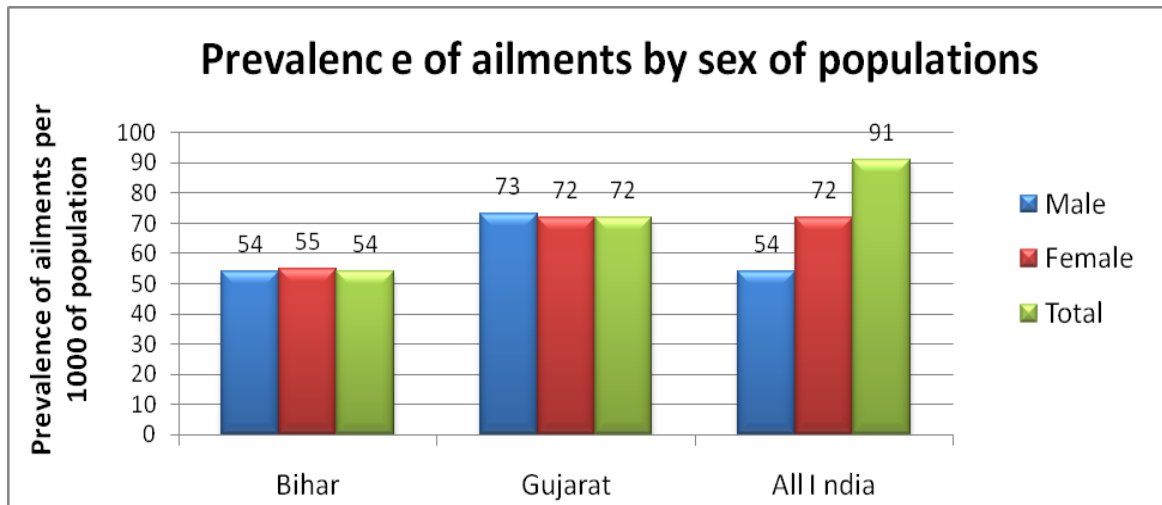
Source: NSS 60th round

The above table shows the morbidity pattern across the population residing in rural and urban areas of Bihar, Gujarat and in overall population of the country. It was found that morbidity rate was higher in urban areas as compared to rural areas in Bihar and Gujarat as well as in the country as a whole. Morbidity rate was lower in both states than the national average for total population as a whole. The morbidity rate in rural and urban areas of both states was lower than morbidity rate in rural and urban areas of the national average. Higher morbidity rate in urban areas might be due to higher perception of illness by urban population. It is true that people living urban areas more aware of health problems than their rural counterpart. So, they are in better position to report their illness as compared to illiterate unaware persons of the rural areas.

3.1.2 Morbidity Prevalence by the sex of the population

The scholar like Iyer (2000); Kannan, et al.(1991); Krishnaswami(2004) hold the view that gender differences are observed with women reporting significantly lower levels of morbidity than men. This suggests under-reporting of ailments among women.

Figure 3.1: Prevalence Ailments in last 15 days per thousand populations by sex of the population



Source –NSS 60th round

The above figure depicts sex differential in morbidity pattern across the population of Bihar, Gujarat and overall country. It was observed that female reported higher prevalence of ailment in Bihar as compared to their male counterpart. But, the situation was reverse in Gujarat where morbidity rate was higher among male respondent than the female ones. At all India level, morbidity rate was found higher for female population as compared to male population. Though women are more disease resistance than male ones but women's body is more complex in structure and differed in some biological process than that of men. So women are more vulnerable to some sort of ailments. This is why higher morbidity rate is expected among women. If prevalence rate of ailment for women of any population group is lower than that of men of the same population group, it indicates underreporting of ailment by women of that population group.

3.1.3 Prevalence of ailment by age groups of population

Age of the individual has direct bearing on morbidity rate of the individual. It is well established fact that at the both extremes (extremely younger and older ages) the

probability of falling ill is higher as compared to middle age groups. The evidence of disaggregated morbidity prevalence in India showed a ‘J’ shaped relationship between age and morbidity, an indication that elders and children are susceptible to higher prevalence of illness (Kannan, et al, 1991; Shariff, 1995; Gumber, 1997; NSSO, 1998). Patel U.V., et al (2004) ¹ performed a retrospective study of Diphtheria cases in Rajkot of Gujarat and found that of total cases, children under five accounted for 62%, while the children of school going age constituted 38%. Male children predominated in fewer than five, while female children predominated above five years age groups.

Table 3.2: Prevalence of ailment in last 15 days per thousand populations by age group of the population

States	Age Groups				
	0-14	15-29	30-44	45-59	60+
Bihar	60	24	31	65	183
Gujarat	58	33	56	92	318
All India	74	49	79	128	310

Source: NSS 60th round

Table 3.2 provides prevalence of morbidity by age groups of populations. In younger age group (0-14) morbidity rate in Bihar was found to be higher as compared with same age group of population in Gujarat. The morbidity rate in both states for younger age group was lower than the national average. Turning towards the population of aged persons, we found that morbidity rate for aged persons were higher in Gujarat as compared to Bihar and the national average. This prevalence rate of ailment for aged persons was very low in Bihar as compared to Gujarat and the national average.

3.1.4 Prevalence of Ailments by Social Groups

Paul Henry (2001) ² observed that it is well accepted that health outcomes vary with social class position. This systematic difference applies to both morbidity and mortality rates with lower social class experiencing a wide array of greater health problems and

¹ Patel U.V, et al (2004), ‘A Retrospective study of Diphtheria Cases, Rajkot, Gujarat,’ *Indian Journal of Community Medicine*.

² Henry Paul (2001), ‘the Pathways through Which Social Class Impact Health Outcomes,’ *Academy of Marketing Science Review*.

probability of earlier death. This disparity becomes evident at birth and continues throughout the life cycle. Vani K. Borooah (2007)¹ held the view that the social gradient to health is essentially a western construct and there had been very little investigation into developing like India. By his study he found that the social group to which people in India belonged had a significant effect on their health outcomes. Compared to elderly Hindus, elderly Dalits, OBC Muslims, and non- OBC Muslims were (after imposing all the controls) more likely to be in poor health by 2.6, 5.5, and 8.1 points respectively.

Table 3.3: Prevalence of ailments in last 15 days per population by social groups

States	Social Groups				Total
	STs	SCs	OBCs	Others	
Bihar	49	57	54	52	54
Gujarat	59	71	65	86	72
All India	58	88	88	106	91

Source: NSS 60th round

Table 3.3 provides morbidity rate by social groups. It was found that there was the highest prevalence rate among SCs in Bihar which was followed by OBCs. But in Gujarat, Others Class reported to have the highest morbidity rate which was followed by SCs. At national level others class witnessed the highest prevalence rate which was followed by SCs and OBCs, and STs stood at bottom in terms of reporting illness of any kind. Higher prevalence rate among SC Bihar does not mean that SCs in Bihar are more concerned of health problems than rest of social groups but it means that they are in poor health and that is why their reporting rate was higher than rest of the social groups. Taking particular social group at a time and on observing prevalence rate in states it was found that in Bihar all social groups reported lesser morbidity rates as compared same social group in Gujarat and even at national level. Table 3.7 gives prevalence of ailments among social groups living in rural and urban areas separately. In rural areas of Bihar morbidity rate was higher among OBC that was followed by SCs whereas in rural areas of Gujarat morbidity rate was higher among others class which was followed by SCs. Similarly at national level, higher prevalence rate was observed among others class but it

¹ Borooah Vani K. (2007), inequality in Health outcomes in India: The Role of Caste and Religion, Munich Personal RePEc Archive

was followed by OBC. Turning to the urban areas we observed some unexpected results i.e. SCs reported higher morbidity rate in Bihar as compared to remaining social groups of states. In urban areas of Gujarat STs were reported higher morbidity rate of all social groups.

3.1.5 Prevalence of ailments by general education level of population

Education has great influence on the occurrence of illness and utilization of health care facilities. There are sufficient evidences (Duraisamy, 1998; Ghosh, 2007; Navaneethan, 2006) that suggest that reported morbidity prevalence is inversely associated with educational attainment. It is well established argument that well educated persons are in a position to take more precautions against disease that are ruining their lives. David M. Cutler et.al (2007¹) found that educated people have lower morbidity rates from the most common acute and chronic, diseases, and independent of basic demographic and labor market forces, or family background indicators. They also observed that the relationship between health and education is a complicated one, with a range of potential mechanisms shaping the connection between education and health. Table 3.8 provides prevalence of ailments by general education level of population. It was found that persons with no education reported higher prevalence of ailments in Gujarat (97 per 1000) in comparison to Bihar (65 per 1000). These two states were lagging behind the national average where out of one thousand persons 108 persons reported of suffering of any kind of ailments in last 15 days.

Table 3.4: Prevalence of ailments in last 15 days per thousand populations by General Education level of the populations

States	General Education Level					
	No Education	Literate and Primary	Middle	Secondary	Higher	Total
Bihar	65	38	42	31	50	54
Gujarat	97	63	43	59	66	72
All India	108	78	77	80	81	91

Source: NSS 60th round

Similar situation was observed in case of persons with all successive level of education

¹ Cutler David M, et.al (2007), ' Education and Health', National Poverty Center Policy Brief

i.e. there was lower morbidity rate among population of Bihar as compared to population of Gujarat at successive higher level of education. In turn it was lower in Gujarat as compared to national average at successive level of higher education. In Bihar as level of education was increasing, morbidity rate was decreasing and again increased for higher education. It may be explained that persons with no education or persons who are just literate are not so precautious about health. They do not even care of their personal hyiegene conditions. That is why they often fall ill and hence higher morbidity rate was observed among them. Contrary to persons with no education or with few years of education, people who are well educated are quite concerned for their health. They report even minor sufferings and that is why morbidity rate was observed higher among well educated persons. As far Gujarat and nation as a whole is concerned morbidity rate was higher among the persons having education level of diploma/certificates. The reasons for higher morbidity rate among people with education level of diploma/certificate are not clear. Perhaps it may be due to nature of occupation.

3.1.6 Morbidity Prevalence by MPCE Quintiles of the Population

Monthly per capita expenditure was used as proxy of level of living of the population. Timothy D. Baker (1996)¹ observed that there is no direct casual relationship of economic level with morbidity, but acts through series of more or less closely correlated variables such as age, sex, health practices, nutrition, housing, availability of medical care and so forth. S. Ghosh et.al (2009)² observed that the monthly per capita consumption expenditure (MPCE) quintile which represents the economic condition of the households showed a positive relationship with prevalence of morbidity.

Table 3.5 provides morbidity prevalence across the population by MPCE quintiles. It was found that for the lowest MPCE quintile (0-20) morbidity prevalence in Bihar (prevalence of any ailments was 35 per 1000) was lower than that of Gujarat (prevalence of any ailments was 55 per 1000). For the same quintile, morbidity prevalence at national level was higher than Bihar and Gujarat. The prevalence of any ailments at national level

¹ Baker Timothy D.(1996), 'Problems in Measuring the Influence of Economic Levels on Morbidity', *A.J.P.H*

² Ghosh S. et al(2009), Morbidity in India: Trends, Patterns and Differentials, *Journal of Health Studies*

was 65 per 1000. Similar pattern was observed at successive increasing quintile values i.e. morbidity prevalence was lower in Bihar than Gujarat and in Gujarat in turn lower than the national average. In Bihar, Gujarat and even at the national level morbidity prevalence was the highest for the highest quintiles.

Table 3.5: Prevalence of ailment in last 15 days per 1000 population by MPCE Quintiles of the population

States	MPCE Quintiles					
	0-20	20-40	40-60	60-80	80-100	Total
Bihar	35	50	61	67	68	54
Gujarat	55	72	71	80	91	72
All India	65	82	90	109	129	91

Source: 60th round

It is interesting to note that on average, there was a direct relationship between MPCE Quintiles and prevalence morbidity in the areas taken into consideration. In other words we can say that as the as the income level of population was increasing, proportionate reporting of ailments was also increasing.

3.1.7 Morbidity Prevalence by Usual Activity status of population

Table 3.6 provides proportion of ailing persons across the population of Bihar and Gujarat by their usual activity status. It was found that persons worked as regular salaried/wage employee reported higher morbidity prevalence which was followed by persons who were out of labor and others in Bihar. But the lowest morbidity prevalence in Bihar was observed among persons who were unemployed. In Gujarat the highest morbidity prevalence was reported by persons who were out of labor force and others which were followed by persons who were unemployed. At national level the highest morbidity prevalence was reported by persons who were out of labor force and others. No clear relationship was observed between usual activity status and morbidity prevalence in Bihar. But in case Gujarat one is at least in a position to say that those tend to be in earning position reported higher morbidity prevalence. At national again it is difficult to draw any clear relationship between usual activity status of the individual and morbidity prevalence.

Table 3.6: Prevalence of ailments in last 15 days per thousand populations by usual activity status of the population

States	Usual Activity Status					total
	Self employed	regular salaried/wage employee	casual wage labor	Unemployed	Not in Labor force	
Bihar	48	65	35	7	59	54
Gujarat	66	45	42	71	85	72
All India	82	77	66	59	100	91

Source: NSS 60th round

3.1.8 Morbidity prevalence in NSS Regions of Bihar and Gujarat

Figures 3.2 and 3.3 depict the morbidity prevalence in NSS Regions of Gujarat and Bihar respectively. Out of five regions in Gujarat, the highest proportion of ailing persons (81 per 1000) was found in the plain southern region which was followed by the plain northern where proportion of ailing persons was 80 per thousand. The lowest morbidity prevalence (49 per thousand) was reported in the eastern region of Gujarat. People living three NSS regions of Gujarat viz plain southern, plains northern and eastern region reported lower morbidity prevalence than the state average (72 per 1000) and in all the NSS regions of Gujarat morbidity prevalence was lower than the national average(91 per 1000).

Figure 3.2: Morbidity Prevalence in NSS Regions of Gujarat

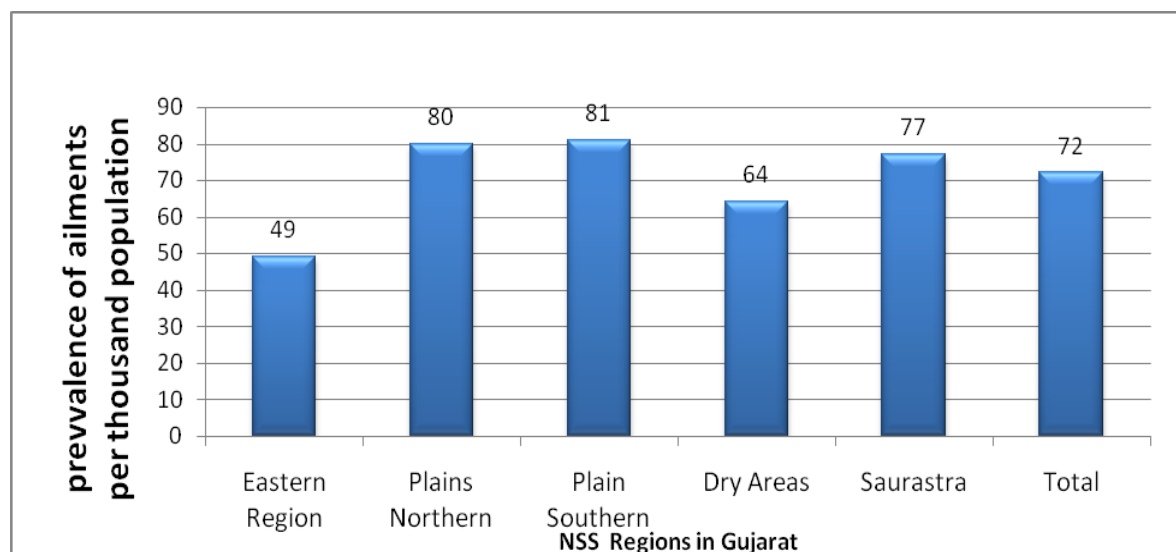
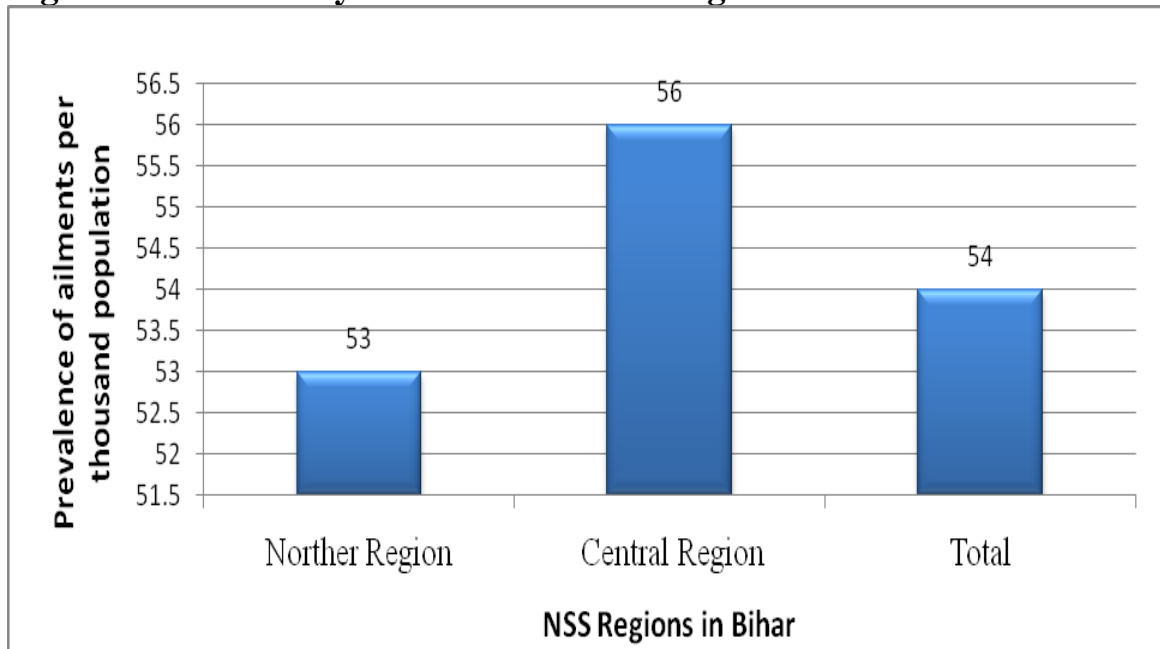


Figure 3.3: Morbidity Prevalence in NSS Regions of Bihar



Source: NSS 60th round

Bihar is delineated in two NSS regions such as northern region and southern region. Morbidity prevalence was higher in the central region (56 per 1000) as compared to the Northern region (53 per 1000). Morbidity was higher in the Central region even than the state average (54 per 1000). Neither of the two regions of Bihar was equal to or larger than the morbidity prevalence of that the national average which was 91 per 1000.

3.2 Pattern of Hospitalization across the population of Bihar and Gujarat

3.2.1 Introduction

According to NSS 60th round (2004-05, morbidity and health care and condition of the aged) one was considered hospitalized if one had availed of medical services as an door patient in any hospital (such as public hospitals, community health centers and primary health centers if provided with beds, ESI hospitals private hospitals, nursing homes etc). The rate of hospitalization was derived from the parameter 'whether hospitalized during last 365 days? This rate was calculated by hospitalized persons in a particular group per thousand populations of the persons in that group. The variations in rate of hospitalization was assessed through varying socio-economic characteristics such as type of place of

residence, sex, age group, social groups, religious groups, general educational level, usual activity status, standard of living in terms MPCE. The variations in the rate of hospitalization were also assessed by NNS Regions in respective states which were taken into consideration.

3.2.2 Hospitalization by the type of place of residence

Table 3.7 gives the differential rates of hospitalization in rural and urban areas of Bihar, Gujarat and at the national average. It was found that there was no difference in the rate of hospitalization in rural and urban areas of Bihar. The rate of hospitalization in the rural and urban areas was also not differed from the aggregate rate of hospitalization of the state.

Table 3.7 Annual rate of hospitalization (hospitalization per thousand populations) by the type of place of Residence

States	Type of place of Residence		Total
	Rural	Urban	
Bihar	10	10	10
Gujarat	27	35	30
All India	22	30	24

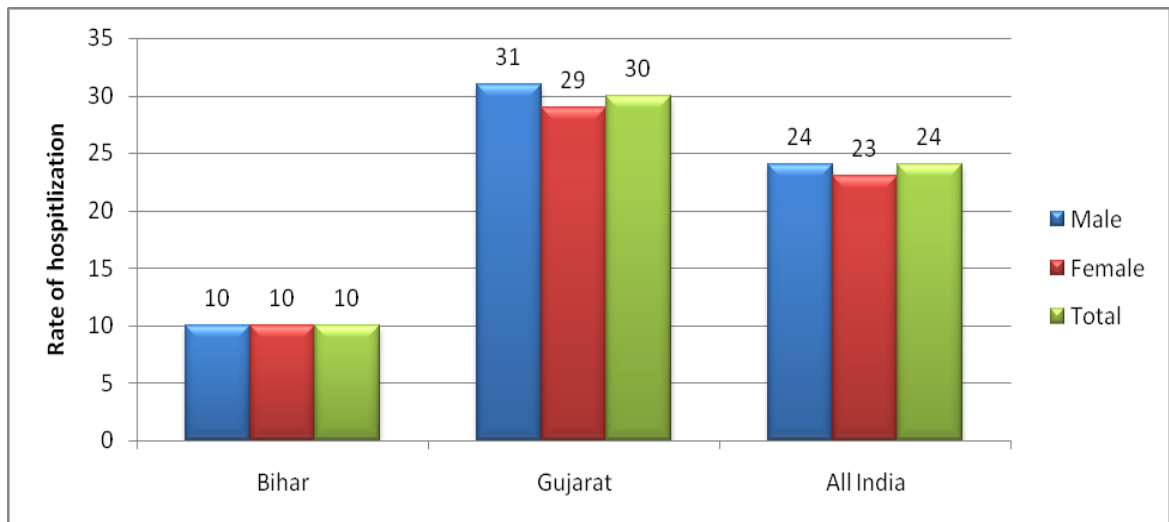
Source: NSS 60th round

On the other hand, in Gujarat the hospitalization rate (hospitalized persons per thousand populations) higher in urban areas as compared to that rural areas and its urban figure was also higher than that of the state average. At national level too, the hospitalization rate was higher in urban areas than its rural counterpart. The higher hospitalization rates in urban areas may be attributed to availability of basic infrastructures in urban areas which attract ailing persons to be hospitalized as per requirements of the needy persons seeking treatment. The lower rate of hospitalization rates in the rural areas does mean necessarily that they fall sick lesser in comparison to their urban counter rather insufficient medical facilities lead lower rate of hospitalization in the rural areas.

3.2.3 Hospitalization by Sex

No gender inequality was observed in terms of rate of hospitalization in Bihar as evident from the figure 3.4 given underneath. It does mean that women in Bihar were empowered and had gender equality in every walks of the life at least in principle. Rather, it summaries the situation of backwardness of the population in terms of health seeking behavior. The poor infrastructure in terms of availability of sources of health care and connectivity were likely to discourage the people to visit to the hospitals.

Figure 3.4 Annual rate of hospitalization (hospitalization per thousand populations) by Sex



Source: NSS 60th round

But in case of Gujarat and at national average, the gender inequality in hospitalization was evident from the data. The differences in rate of hospitalization between male and female were no substantial i.e. (31 male and 29 female per thousand of their population were hospitalized). Similarly at national level the difference in hospitalization rate was not substantial. Out of thousand male 24 male were hospitalized whereas out of thousand female 23 female were hospitalized at the national level.

3.2.4 Hospitalization by age group of the population

Table 3.8 represents the annual rate of hospitalization by age groups. Taking age group first we find that hospitalization rate in Bihar for the younger age group (0-14) was the lowest(5 per thousand) as compared to Gujarat and the nation as a whole wherein hospitalization rates were 18 and 13 per thousand respectively. Now, moving to the older

age group (60+) again it was found that hospitalization rate was the lowest in Bihar (30 per thousand) as compared to Gujarat (84 per thousand) and the national aggregate (61 per thousand).

Table 3.8 Annual rate of hospitalization (hospitalization per thousand populations) by Age groups (in years)

States	Age groups(in years)					
	0-14	15-29	30-44	45-59	60+	Total
Bihar	5	9	12	18	28	10
Gujarat	18	24	29	47	84	30
All India	13	19	26	40	61	24

Source: NSS 60th round

As the age was increasing, the rate of hospitalization was also increasing with age. Thus, there was a direct relationship between age group of the individuals and the rate of hospitalization. T.R.Dilip ¹ in his study of Kerala came across the similar findings i.e. *the hospitalization rate was much higher in older age (50 per thousand in those aged 0-14 and 155 per thousand population in those aged 60 years)*. With aging the immunity of body of the human being to fight against diseases get reduced naturally as the human species are mortal after all. They are more prone to various diseases as compared to their adult counterpart. Some life style diseases more likely to be associated with aged persons. With aging mobility as well as physical activities are decreased and these also add to falling sick and get hospitalized among the aged persons. Despite these many other factors are associated with higher rate of hospitalization in aged persons.

3.2.5 Hospitalization by Social Groups

Table 3.9 provides rate hospitalization by social groups. In Bihar the highest hospitalization rate was reported by others (13 per thousand) followed by SCs (10 per thousand). But in Gujarat the highest hospitalization rate was reported by SCs (39 per thousand) followed by others (31 per thousand). There was no direct relationship between

¹ Dilip T.R.(2002), 'Understanding levels of morbidity and hospitalization in Kerala, India,' *Bulletin of the World Health Organization*

rate of hospitalization and the social classes in Bihar and Gujarat i.e. there was no such evident that higher social groups in social status reported higher rate of hospitalization. But at aggregate national level, the social gradient in rate hospitalization may be clearly observed i.e. the social groups who are at bottom of social status reported higher rate of hospitalization.

Table 3.9 Annual rate of hospitalization (hospitalization per thousand populations) by Social groups

States	Social Groups				Total
	STs	SCs	OBCs	Others	
Bihar	6	10	9	13	10
Gujarat	17	39	30	31	30
All India	15	22	25	27	24

Source: NSS 60th round

3.2.6 Hospitalization by Religious Groups

Table 3.10 Annual rate of hospitalization (hospitalization per thousand populations) by religious groups

States	Religions			
	Hindu	Muslims	Others	Total
Bihar	10	7	8	10
Gujarat	30.06	29.78	29.5	30
All India	23	23	38	24

Source: NSS 60th round

As evident from the above table 3.10, rate of hospitalization was higher among the Hindus (10 per thousand populations) in Bihar followed by the others (8 per thousand populations) whereas in Gujarat rate of hospitalization was equal among all the religious groups. On the other hand at national level higher rate of hospitalization was reported by non Hindu and Muslims (38 per thousand populations) followed by the Hindus and the Muslims having equal figures (23 per thousand population).

3.2.7 Hospitalization by General Education Level

Table 3.11 represents rate of hospitalization by general education level. It was found that in Bihar hospitalization rate was higher for those having secondary and higher education (17 per thousand populations) followed by those with middle education(12 per thousand). In Gujarat hospitalization rate was higher among the people those were literate (35 per thousand populations). At the national level higher hospitalization rate was reported among people having secondary educational level followed by middle and higher education level persons.

Table 3.11 Annual rate of hospitalization (hospitalization per thousand populations) by general education level

States	General Education Level					
	No Education	Literate and Primary	Middle	Secondary	Higher	Total
Bihar	9	10	12	17	17	10
Gujarat	35	24	29	33	23	30
All India	23	21	27	31	27	24

Source: NSS 60th round

It is well- documented that education is one of the greatest correlates of health: the more educated live longer, have fewer days of sickness and also report be in better health than the less educated (Grossman & Kaestner, 1997 or Preston & Taubman, 1994). Jacob Nielsen Arendt (2006)¹ in his study of the Danish population provided the estimates of the casual impact of education on hospitalization and found that the observed education-related differences in hospitalization are casual for women, whereas we only find evidence of a casual effect for men on selected diagnoses. In the present no such casual relationship was noticed as persons with lower education level reported higher rate of hospitalization (in Gujarat 33 and 23 per thousand populations for secondary and higher education respectively).

¹ Jacob Nielsen Arendt (2006), 'In sickness and in health- Till education do us part: Education effects on hospitalization., *Economics of Education Review*.

3.2.8 Hospitalization by MPCE Quintiles

Table 3.12 table provides rate of hospitalization by standard of living (defined in terms of MPCE). As evident from the given table there was lower hospitalization rate among poor people (for low MPCE Quintiles) in Bihar, Gujarat and even at national level and there was higher rate of hospitalization for rich people.

Table 3.12 Annual rate of hospitalization (hospitalization per thousand populations) by MPCE Quintiles

States	MPCE Quintiles					Total
	0-20	20-40	40-60	60-80	80-100	
Bihar	8	8	9	11	16	10
Gujarat	22	26	33	30	44	30
All India	15	18	25	32	38	24

Source: NSS 60th round

In Bihar for lower standard of living the hospitalization rate was 8 per thousand and rose to two times for the richest persons (16 per thousand populations) and it rose from 22 to 44 and 15 to 38 per thousand populations for Gujarat and the nation respectively. Thus, the direct relationship was established between income and rate of hospitalization in the present study. But Patrizia Schifano et al (2009)¹ in their study of four cities of Italy found that there was an inverse association between income level and the use of hospitalization in four Italian cities.

3.2.9 Hospitalization by Usual Activity Status

Table 3.13 provides annual rate of hospitalization by usual activity status in study areas. It was found that hospitalization rate in Bihar for unemployed people (31 per thousands) followed by people having regular wages or fixed salaries. In Gujarat the highest rate of hospitalization was reported by self-employed persons followed persons which were out of labor force.

¹ Schifano Patrizia (2009), 'Temporal and geographical heterogeneity of the association between socioeconomic position and hospitalization in Italy: an income based indicator,' *International Journal for equity in health*.

Table 3.13 Annual rate of hospitalization (hospitalization per thousand population) by Usual Activity Status

States	Usual Activity Status					
	Self-Employed	Regular wage/salaried employee	Casual Labor	Unemployed	Not in Labor Force	Total
Bihar	13	18	7	31	9	10
Gujarat	33	28	25	18	31	30
All India	25	32	22	38	23	24

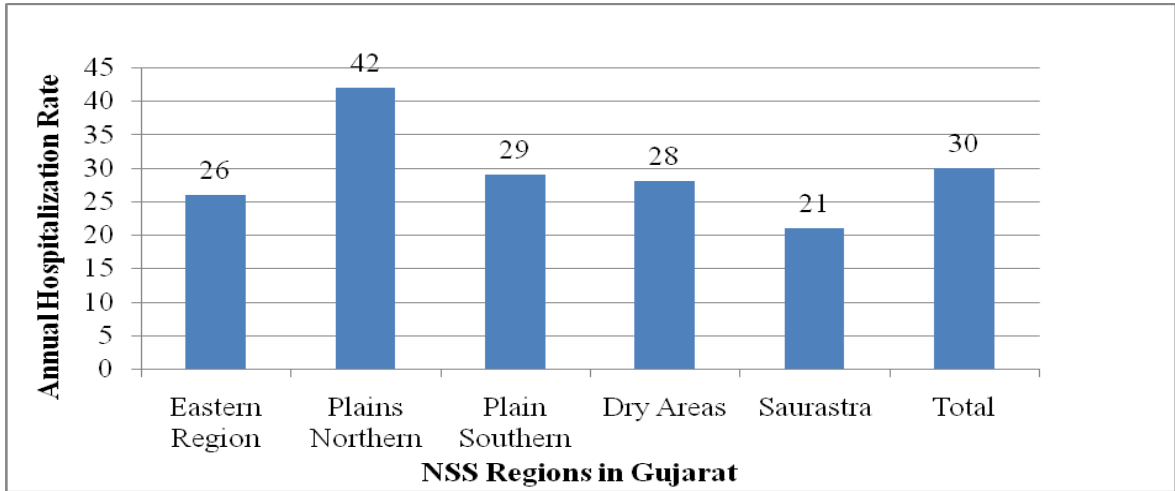
Source: NSS 60th round

As evident from given data, the highest rate of hospitalization was reported by persons who were unemployed (38 per thousand populations) and followed by regular wages/salaried employee (32 per thousand populations). Following Wagstaff (1986) the demand for health care depends on the existing stock of health capital, the wage rate, the price of medical care, age, a vector of environmental variables, and education. Hospitalization is also consequence of neglected investment in health. The higher the individual investment in health, the lower the actual demand for hospitalization will be. Now, on following these arguments we are in a position to derive some inferences from the present study. These arguments are valid in case of hospitalization in Bihar and in the country as a whole. It means unemployed persons are not in a position to invest in health so their state of health remains poor and hence they have to visit hospitals trips which improve the health of individuals. But such arguments are not valid in case of Gujarat as the higher hospitalization rate among the population who fall in self employed category which may be taken as fixed income in comparison to unemployed and casual labor.

3.2.10 Hospitalization in NSS Regions of Bihar and Gujarat

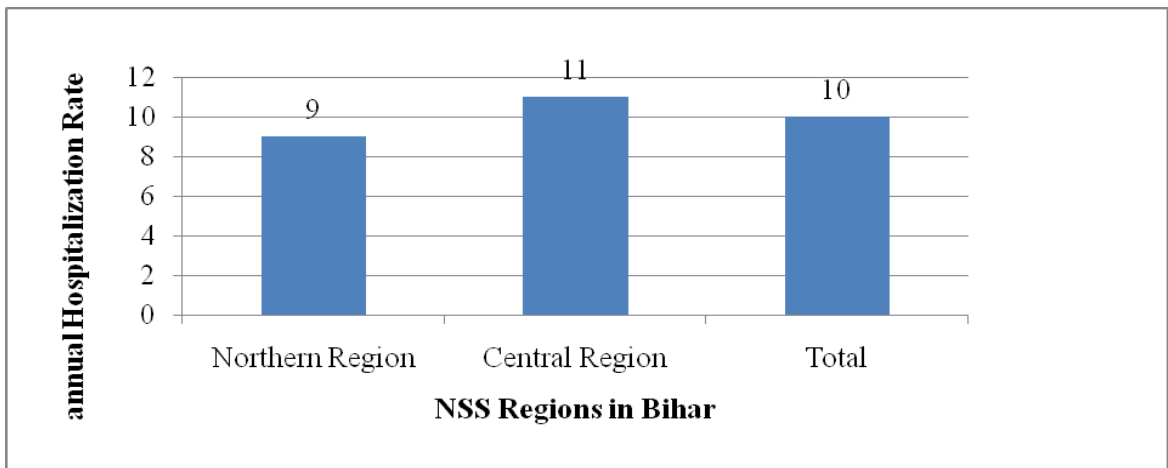
Figures 3.5 and 3.6 depict the rate of hospitalization in NSS Regions of Gujarat and Bihar respectively. Taking NSS Regions of Gujarat first it was found that the highest rate of hospitalization was reported in the Plains Northern (42 per thousand populations) which was followed the Plain Southern Region of Gujarat (29 per thousand populations).

Figure 3.5 Annual rate hospitalization in NSS Regions of Gujarat



Source: NSS 60th round

Figure 3.6 Annual rate of hospitalization in NSS Regions of Bihar



Source: NSS 60th round

The lowest rate of hospitalization was reported in the Saurashtra Region of Gujarat. Even terrain consequent connectivity is likely to cause higher rate of hospitalization in the Plain Regions of Gujarat. It is worthy to note that in those NSS Regions of Gujarat where rate of hospitalization was lower the proportionate untreated cases were higher as evident from proportion untreated cases dealt in the next chapter. As far as rate of hospitalization is concerned in the NSS Regions of Bihar it was higher in the Central Region (11 per thousand populations) followed only other NSS Region which is the Northern where every 9 persons out of one thousand reported hospitalization. Unlike in Gujarat in Bihar higher rate of hospitalization was reported in the region (the Central

Region) wherein untreated cases were also higher in comparison to second region i.e. the Northern Region.

Table 3.14 Results of Concentration Indices for ailing and hospitalized persons across socio-economic groups in Bihar and Gujarat

socio-economic groups	Concentration Indices for ailing persons in		Concentration Indices hospitalized persons in	
	Bihar	Gujarat	Bihar	Gujarat
Social Groups	-0.0127	0.0674	0.0578	0.0365
STs	0.0004	0.0030	0.0009	0.0132
SCs	-0.0055	0.0006	-0.0032	0.0094
OBCs	-0.0075	0.0637	0.0601	0.0139
Others	0	0	0	0
General Education Level	-0.1182	-0.1390	0.0888	-0.0488
No Education	-0.0701	-0.0553	0.0089	-0.0430
Literate and Primary	-0.0185	-0.0618	0.0179	-0.0067
Middle	-0.0274	-0.0190	0.0460	0.0095
Secondary	-0.0021	-0.0030	0.0159	-0.0085
Higher	0	0	0	0
Usual Activity Status	0.0578	0.0945	-0.0451	0.0025
Self-Employed	0.0007	-0.0038	0.0014	-0.0025
Regular salaried/wage labor	-0.0056	-0.0098	-0.0121	-0.0089
Casual labor	-0.0011	0.0005	0.0035	-0.0008
Unemployed	0.0638	0.1077	-0.0378	0.0146
Others	0	0	0	0
MPCE Quintiles	0.1301	0.0892	0.1311	0.1259
0-20	0.0134	0.0124	-0.0022	0.0071
20-40	0.0359	0.0093	0.0087	0.0264
40-60	0.0438	0.0241	0.0377	0.0149
60-80	0.0370	0.0434	0.0869	0.0775
80-100	0	0	0	0

Source: Computed from NSS 60th round

3.3 Interpretations of Results of Concentration Indices for ailing and hospitalized persons across socio-economic groups in Bihar and Gujarat

Prevalence of Morbidity- In terms of social groups, the prevalence of morbidity was disproportionately concentrated among STs in Bihar as evident from negative sign in concentration index. The positive sign of concentration index in Gujarat indicates that concentration curve line below the line of equality and it means that morbidity prevalence is smaller among STs. In terms of general education level, concentration index have negative sign in both states which indicates higher concentration of morbidity prevalence among persons having no education but C.I. is more nearer to zero in Bihar which means there is lesser inequality in Bihar as compared to that Gujarat in terms of prevalence of morbidity by education level.

In terms of usual activity status, C.I. is more nearer to zero in case of Bihar as compared to that of Gujarat with positive sign which means there is smaller concentration of morbidity prevalence among persons of activity status self-employed in both states. In terms of monthly per capita expenditure, C.I. is more nearer to zero in Gujarat as compared to that of Bihar with positive sign in both states. It means concentration of morbidity prevalence is smaller among the poorest people and inequality is lesser in Gujarat.

Hospitalization – in terms of social groups, C.I is more nearer to zero in Gujarat with positive in both states which indicates that C.C is below the line of equality. It means concentration of hospitalization is smaller in STs and inequality is lesser in Gujarat.

In terms of education level, C.I. has negative sign in Gujarat indicating that C.C. lies above the line of equality and concentration of hospitalization is higher among those having no education. But in case of Bihar, C.C curve lies below the line equality and concentration of hospitalization is smaller among those having no education. There is higher inequality in Gujarat in terms of hospitalization by education level that of Bihar.

In terms of usual activity status, hospitalization is disproportionately concentrated among those who are self-employed. Inequality in hospitalization is lesser in Gujarat as compared that of Bihar. In terms of MPCE Quintiles, C.C lies below the line equality indicating that concentration of hospitalization is smaller among the poorest. As C.I is nearer to zero in Gujarat so, inequality in hospitalization is lesser in Gujarat in terms of MPCE Quintiles.

Table 3.15 Results of Binary Logistic Regression taking ‘Whether Ailing’ as a Dependent Variable, Bihar

Variables	B	S.E.	Sig.	Exp(B)
Type of place of Residence				
Rural(Ref)				
Urban	-0.059	0.083	0.476	0.943
Sex				
Male(Ref)				
Female	0.199	0.07	0.004	1.221**
Age Groups				
0-14(Ref.)				
15-29	-1.621	0.085	0.000	0.198***
30-44	-2.048	0.107	0.000	0.129***
45-59	-1.592	0.103	0.000	0.204***
60+	-0.918	0.094	0.000	0.399***
Social Groups				
STs(Ref.)				
SCs	0.208	0.314	0.507	1.232
OBCs	0.189	0.101	0.062	1.209
Others	0.174	0.078	0.025	1.19*
Religions				
Hindu(Ref.)				
Muslims	0.548	0.739	0.458	1.729
Others	0.528	0.743	0.478	1.695
General Education Level				
No Education(Ref.)				
Primary and Literate	0.762	0.22	0.001	2.143**
Middle	0.274	0.223	0.218	1.316
Secondary	0.378	0.23	0.101	1.459
Higher	0.325	0.225	0.149	1.384
Usual Activity Status				
Self Employed(Ref.)				
Regular/salaried wage labor	-0.443	0.098	0.000	0.642***
Casual Labor	0.129	0.215	0.549	1.137
Unemployed	-0.589	0.125	0.000	0.555***
Not in labor force	-0.312	0.466	0.503	0.732
MPCE Quintiles				
0-20				
20-40	-0.738	0.1	0.000	0.478***
40-60	-0.569	0.106	0.000	0.566***
60-80	-0.214	0.09	0.017	0.807*
80-100	-0.139	0.088	0.113	0.870

p* < 0.05, p** < 0.01, p*** < 0.001

Table 3.16 Results of Binary Logistic Regression taking ‘Whether Ailing’ as a Dependent Variable, Gujarat

Variables	B	S.E.	Sig.	Exp(B)
Type of place Residence				
Rural(Ref.)				
Urban	0.058	0.077	0.452	1.059
Sex				
Male(Ref.)				
Female	0.406	0.075	0.000	1.501***
Age Groups				
0-14(Ref.)				
15-29	-2.296	0.095	0.000	0.101***
30-44	-2.306	0.116	0.000	0.1***
45-59	-1.615	0.108	0.000	0.199***
60+	-0.94	0.096	0.000	0.39***
Social Groups				
STs(Ref.)				
SCs	-0.202	0.123	0.101	0.817
OBCs	-0.057	0.112	0.611	0.944
Others	-0.106	0.077	0.169	0.9
Religious Groups				
Hindus(Ref.)				
Muslims	-0.01	0.223	0.965	0.99
Others	0.095	0.241	0.693	1.1
General Education Level				
No Education(Ref.)				
Literate and primary	0.422	0.179	0.018	1.526*
Middle	0.163	0.177	0.357	1.177
Secondary	0.118	0.182	0.517	1.125
Higher	0.024	0.183	0.897	1.024
Usual Activity Status				
Self employed(Ref.)				
Regular salaried wages	-0.686	0.099	0.000	0.504***
Casual labor	-0.742	0.155	0.000	0.476***
Unemployed	-0.811	0.132	0.000	0.444***
Not in labor force	-0.197	0.477	0.68	0.821
MPCE Quintiles				
0-20(Ref.)				
20-40	-0.499	0.131	0.000	0.607***
40-60	-0.233	0.115	0.042	0.792*
60-80	-0.198	0.104	0.058	0.821
80-100	-0.118	0.099	0.234	0.889

P* < 0.05, p** < 0.01 p*** < 0.001

Table 3.17 Results of Binary Logistic Regression taking ‘Whether Hospitalized’ as a Dependent Variable, Bihar

Variables	B	S.E.	Sig.	Exp(B)
Type of place of Residence				
Rural(Ref.)				
Urban	0.326	0.086	0.000	1.386***
Sex				
Male(Ref.)				
Female	0.276	0.073	0.000	1.318***
Age Groups				
0-14(Ref.)				
15-29	-1.571	0.1	0.000	0.208***
30-4	-0.802	0.098	0.000	0.448***
45-59	-0.222	0.096	0.02	0.801*
60+	0.056	0.097	0.566	1.057
Social Groups				
STs(Ref.)				
SCs	-0.126	0.336	0.708	0.881
OBCs	0.118	0.097	0.222	1.125
Others	0.096	0.073	0.188	1.1
Religious Groups				
Hindus(Ref.)				
Muslims	-0.305	0.534	0.568	0.737
Others	-0.376	0.54	0.486	0.686
General Education Level				
No Education(Ref.)				
Literate and Primary	0.237	0.173	0.17	1.268
Middle	0.202	0.174	0.245	1.224
Secondary	0.144	0.179	0.421	1.155
Higher	0.163	0.172	0.344	1.177
Usual Activity Status				
Self-Employed(Ref.)				
Regular/wage salaried	-0.481	0.089	0.000	0.618***
Casual labor	-0.413	0.201	0.04	0.662*
Unemployed	-0.767	0.114	0.000	0.465***
Not in labor force	-0.023	0.301	0.94	0.977
MPCE Quintiles				
0-20(Ref.)				
20-40	-0.392	0.091	0.000	0.676***
40-60	-0.415	0.099	0.000	0.66***
60-80	-0.273	0.087	0.002	0.761**
80-100	-0.286	0.086	0.001	0.752**

P* < 0.05, p** < 0.01, p*** < 0.001

Table 3.18 Results of Binary Logistic Regression taking ‘Whether Hospitalized’ as Dependent Variable, Gujarat

Variables	B	S.E.	Sig.	Exp(B)
Type of place Residence				
Rural(Ref.)				
Urban	0.012	0.076	0.878	1.012
Sex				
Male(Ref.)				
Female	0.364	0.074	0.000	1.44***
Age Groups				
0-14(Ref.)				
15-29	-1.407	0.105	0.000	0.245***
30-44	-0.886	0.11	0.000	0.412***
45-59	-0.634	0.112	0.000	0.531***
60+	-0.091	0.105	0.385	0.913
Social Groups				
STs(Ref.)				
SCs	0.125	0.117	0.283	1.134
OBCs	0.197	0.108	0.069	1.217
Others	0.12	0.077	0.119	1.128
Religious Groups				
Hindus(Ref.)				
Muslims	0.221	0.248	0.371	1.248
Others	0.258	0.264	0.33	1.294
General Education Level				
No Education(Ref.)				
Literate and Primary	0.526	0.183	0.004	1.691**
Middle	0.337	0.181	0.063	1.401
Secondary	0.373	0.181	0.039	1.452*
Higher	0.248	0.182	0.172	1.281
Usual Activity Status				
Self-Employed(Ref.)				
Regular/wage salaried	-0.501	0.098	0.000	0.606***
Casual labor	-0.512	0.14	0.000	0.599***
Unemployed	-0.388	0.115	0.001	0.678**
Not in labor force	-0.552	0.469	0.239	0.576
MPCE Quintiles				
0-20(Ref.)				
20-40	-0.482	0.126	0.000	0.618***
40-60	-0.387	0.114	0.001	0.679**
60-80	-0.292	0.103	0.005	0.747**
80-100	-0.344	0.101	0.001	0.709**

3.4 Interpretation of Results of Binary Logistic Regression taking ‘whether ailing’ as Dependent Variable in Bihar and Gujarat

Dependent variable = whether ailing (Yes=1, No=0)

Independent variables-

Type of place of residence, Sex, Age groups, Social groups, Religious groups General Education Level, Usual Activity Status and MPCE Quintiles

As evident from tables 3.15 and 3.16 the persons living in urban areas of Bihar are less likely to have morbidity prevalence as compared to those living in rural areas. Contrary to this, persons living in urban areas of Gujarat are more likely to have morbidity prevalence as compared to those living in rural areas of Gujarat. Female population of Bihar are more likely to have morbidity prevalence as compared to male ones and this relationship is significant ($p < 0.01$). Female population of Gujarat are also more likely to have morbidity prevalence as compared to male ones of the same state which is highly significant ($p < 0.001$).

As far as the relationship between age and morbidity prevalence is concerned earlier studies reveal that morbidity prevalence is higher at two extreme ends of age groups (0-14 and 60+). As evident from present study all age groups in Bihar are less likely to have morbidity prevalence as compared to age group 0-14 and these are highly significant ($p < 0.001$). similar result was observed in case of Gujarat remaining all age groups are less likely to have morbidity prevalence as compared to reference age group (0-14) and these are highly significant ($p < 0.001$). In terms of social groups, SCs, OBCs and Others are more likely to have morbidity prevalence as compared to STs Population of Bihar. But the result is significant only for others class of social group ($p < 0.05$).

In case Gujarat, remaining social groups are less likely to have morbidity prevalence as compared to STs and relationship is not significant for any of the social groups. In terms of religion, the Muslims and the others are more likely to have morbidity prevalence in Bihar as compared to the Hindus of the same state. In Gujarat the Muslims are less likely to have morbidity prevalence as compared to the Hindus and the rest of religious groups categorized as others are more likely to have morbidity prevalence as compared to that of

Hindus of the same state. In terms of education level the relationship between primary and literate education level and morbidity prevalence is significant in both states at $p < 0.01$ and persons falling in category of primary and literate level of education are more to have morbidity prevalence as compared to persons having no education at all. The persons falling under remaining categories of education attainment are more likely to have morbidity prevalence as compared to persons with no education in both states.

In terms of usual activity status in Bihar, those with fixed income (regular salaried/wage labor) less likely to have morbidity prevalence in as compared to that of those with self employed and it is significant at $p < 0.001$. The casual labor is more likely to have morbidity prevalence as compared to self employed persons. The unemployed persons are less likely to have morbidity prevalence as compared to self employed persons it is very significant ($p < 0.001$). Those who are out of labor force are less likely to have morbidity prevalence as compared to self employed. In case of Gujarat, persons falling in remaining categories of activity status than reference category (self employed) are less likely to have morbidity prevalence as compared to that self employed category. The relationship is significant for all except those who are not in labor force at $p < 0.001$.

In terms of monthly per capita expenditure in case of Bihar persons falling in MPCE Quintiles 20-40, 40-60, 60-80 and 80-100 are less likely to have morbidity prevalence as compared to reference category 0-20 and these are significant at $p < 0.001$, $p < 0.001$ and $p < 0.05$ for MPCE Quintiles 20-40, 40-60 and 60-80 respectively. In Gujarat in terms of Monthly per capita expenditure it was found that persons falling MPCE Quintiles 20-40, 40-60, 60-80 and 80-100 are less likely to have morbidity prevalence as compared to persons falling in reference category (0-20) and result is significant for MPCE Quintiles 20-40 and 40-60 which are significant at $p < 0.001$ and $p < 0.05$ respectively.

3.5 Interpretation of Results of Binary Logistic Regression taking ‘whether Hospitalized’ as a Dependent Variable in Bihar and Gujarat

Dependent variable = whether hospitalized (Yes=1, No=0)

Independent variables- these are same as for ‘Whether Ailing’

it is depicted by the table 3.17 persons living in urban areas of Bihar are more likely to be hospitalized in a year as compared to persons living in rural areas of Bihar and result is

highly significant at $p < 0.001$. In Gujarat too, persons living in urban areas are more likely to be hospitalized those living in rural areas of the state. In terms of sex of the population female from both state are more likely to be hospitalized as compared to male ones and result is highly significant at $p < 0.001$ in each case.

In terms of age groups in Bihar, age groups 15-29, 30-44 and 45-59 are less likely to be hospitalized as compared to reference age category (0-14) and result is significant at $p < 0.001$, $p < 0.001$ and $p < 0.02$ respectively for age groups 15-29, 30-44 and 45-59. The aged persons (60+) are more likely to be hospitalized as compared to persons of age group 0-14. In case Gujarat, persons of all age groups are less likely to be hospitalized as compared to persons of age group 0-14 and result is highly significant ($p < 0.001$) for age groups 15-29, 30-44 and 45-59. In terms of social groups in case Bihar, persons of SCs class of social group are less likely to be hospitalized as compared to the persons belonging to the reference category (STs). OBCs and Others are more likely to be hospitalized as compared to reference category. In Gujarat all categories of social groups are more likely to be hospitalized as compared to STs which is reference category. In terms of religion in Bihar, the Muslims and the others category of religious groups are less likely to be hospitalized as compared to the Hindus. In Gujarat the Muslims and others are more likely to be hospitalized as compared to the Hindus.

In terms of general education level in case Bihar all categories of education level are more likely to be hospitalized as compared to persons having no education. In Gujarat persons falling in all categories of educational level are more likely to be hospitalized as compared to the persons with no education. The result is significant literate and primary and secondary categories of level of education at $p < 0.01$ and $p < 0.05$ respectively. In terms usual activity status in case Bihar, persons with all activity status are less likely to be hospitalized as compared to persons with activity status of self employed category which is reference category. The result is highly significant for person falling in categories of regular salaried/wage labor and unemployed at $p < 0.001$. The result is also significant for persons falling in casual labor category at $p < 0.05$. In case Gujarat too, persons with all activity status are less likely to be hospitalized as compared to persons with activity status of self employed and result is highly significant ($p < 0.001$) for activity status of regular salaried/ wage labor, casual labor and for those who are out of

labor force. In terms of MPCE Quintiles in case of Bihar, persons falling in all MPCE Quintiles are less likely to be hospitalized as compared to the lowest quintiles which are significant category. The results is highly significant for MPCE Quintiles 20-40 and 40-60 at $p < 0.001$. The result is also significant for MPCE Quintile 60-80 and 80-100 at $p < 0.01$. In case of Gujarat too persons falling in all MPCE Quintiles are less likely to be hospitalized as compared to the lowest quintile (0-20) and result is significant for MPCE Quintile 20-40 at $p < 0.001$ and for MPCE Quintiles 40-60, 60-80, and 80-100 at $p < 0.01$.

3.6 Summary

Morbidity prevalence was reported higher in the urban areas of Bihar, Gujarat and even at national level. Gender differential in morbidity prevalence was observed significantly in both of the states. The morbidity rate was reported to vary with age groups of the individual. At both ends of age groups (the lowest age group (0-14) and the age group (60+)), prevalence of morbidity was reported higher as persons under these age groups are more vulnerable to diseases. The result was found to be highly significant. As far as morbidity prevalence is concerned across the social groups, it is the highest among SCs in Bihar and that of in Gujarat among other class of social groups. In terms of educational attainment the highest morbidity prevalence was observed among persons with no education both of states (Bihar, Gujarat) and even at national level. In both state a direct relationship was established between morbidity prevalence and standard of living in terms of monthly per capita expenditure. In Bihar persons with fixed income reported high prevalence of ailments whereas in Gujarat those who are out of labor force reported the highest morbidity prevalence. A regional variation in morbidity prevalence was observed in NSS Region of Gujarat. The plains southern region reported higher morbidity prevalence and the eastern region stood at bottom with morbidity rate of 49 per thousands. Regional variations in morbidity prevalence was observe in NSS regions Bihar where higher morbidity prevalence was reported in central region as compared northern region.

No rural-urban differential in rate of hospitalization was observed in Bihar. But in Gujarat rate of hospitalization was higher in urban areas as compared to rural areas of the same state. There is no sex differential in rate of hospitalization in Bihar. On the other hand,

rate of hospitalization was higher for male population than female ones in case of Gujarat. Rate of hospitalization is directly related to increasing age groups of the population. In Bihar, the highest rate of hospitalization was reported among others category of social group followed by SCs. But in Gujarat, the highest rate of hospitalization was reported by SCs. At national level, 'others' category occupied the top spot. In terms of religion, the highest rate of hospitalization was observed among the Hindus in Bihar whereas in Gujarat no difference in rate of hospitalization was observed among religious groups. At national level, 'others' category of religious group reported the highest rate of hospitalization. In Bihar, persons having secondary and higher level of their educational attainment reported higher rate of hospitalization. In Gujarat, higher rate of hospitalization was observed among persons having no education. There is a direct relationship between rate of hospitalization and level of education in both of states and even at national level. In Bihar, those having no employment reported higher rate of hospitalization followed by those having fixed income.

In Gujarat, self-employed persons reported the highest rate of hospitalization followed by those who are not in labor force. At national level too, those who are unemployed reported the highest rate of hospitalization. In terms of standard of living (delineated by MPCE Quintiles), there is direct relationship between standard of living and rate of hospitalization in Bihar and in the country as a whole. But such relationship is not established in case of Gujarat. Overall, rate of hospitalization in Bihar is very low as compared to that of Gujarat and at the national average. As per results of Concentration index for morbidity prevalence, inequalities are higher in Bihar in terms of social groups and MPCE Quintiles. But in Gujarat, inequalities are higher in terms of general education level and usual activity status. For hospitalization, inequalities are higher in Bihar in terms of social groups and usual activity status and in Gujarat in terms of general education level and MPCE Quintiles.

Chapter 4

Inequalities in Health Care Utilization

4.1 Introduction

This chapter deals with differential in using sources of health care (private and public), untreated ailments and reasons for no treatment across the population of Bihar and Gujarat. The very first parameter i.e. the type of hospitals used by the population was taken in relation to medical treatment received as inpatient of hospital during the last 365 days. On the other hand, the parameter untreated ailments was derived from *whether treatment taken on medical advice* in relation to particulars of spells of ailments of household members during the last 15 days (including hospitalization) and *reasons for no treatment* is also taken in relation to spells of ailments during 15 days. The selection of these three parameters may be justified on the basis that they are feasible to use and directly reveal the behavior of population to utilize the health care facilities. These three parameters were addressed through socio-economic characteristics such as type of place of residence, sex, age group, social groups, religious groups; general education level, usual activity status and MPCE Quintiles (say 0-20, 20-40, 40-60, 60-80 and 80-100). These three variables were analyzed one by one taking source of medical care first.

4.1.1 Sources of Health Care

The sources of health care were addressed through the type of hospitals to which the individuals visited to seek the treatments. The type of hospitals comprised of public hospitals which included PHC/sub-centre/CHC and public dispensary including CGHS/ESI; and private hospitals. For the sake of convenience the type of hospitals were put into two categories – Public and Private categories. Several study showed that private health sector accounts for over 70 percent of all primary medical care and over 40 percent of all hospital care (NSS 1987, Duggal and Amin 1987, NCAER 1992, George et al 1992). The higher contribution of health care from the private sector is not in favor of national interests because it is imperative that the affluent are better position to use these private health care services. Bhore's Committee (1943) criticized the participation of the private sector in health care in same line.

4.1.2 Use of Sources of Health Care by Type of Place of Residence

Table 4.1 represents medical treatment received in two different types of hospitals in rural and urban areas in Bihar, Gujarat as well as at all India level. It was found that the people who needed treatment, majority of them whether from rural and urban areas visited to private hospitals. In rural areas of Bihar, those who needed treatment, 86 percent of them got treatment from private hospitals whereas in urban areas its proportion was comparatively lesser (79 percent). In Gujarat, the proportion of people who visited private hospitals was 69 percent and 74 percent in rural and urban areas respectively. At all India level, the proportion of people who used private hospitals for treatment was 59 percent and 62 percent in rural and urban areas respectively. It worthy to seek the reasons of why higher proportion of people from Bihar were using private hospitals in comparison to people of Gujarat. This may be attributed to irregularities of public sector hospitals in functioning. Due to mass illiteracy in Bihar, people are unaware of the structure of government facilities at different administrative levels.

Table 4.1 Percent Medical treatment received as inpatient in hospitals by type of place of residence

States	Type of place Residence				Total	
	Rural		Urban		Public Hospitals	Private Hospitals
	Public Hospitals	Private Hospitals	Public Hospitals	Private Hospitals		
Bihar	14	86	21	79	15	85
Gujarat	31	69	26	74	29	71
All India	41	59	38	62	40	60

Source: NSS 60th round

4.1.3 Use of Sources of Health Care by sex

In Bihar, there was no difference in using private and public hospitals by sex. Equal proportion of male and female were found to visit in public hospitals (15 percent) and private hospitals (85). Though, it was not larger but gender differences in taking treatment from public and private hospitals were found in Gujarat. The proportion of male patients was higher than that of female patients by 1 percent who used private hospitals for the treatment of ailments during 365days. This is evident from the table 4.2 at national level higher proportion of women patients visited to private hospitals. But the

difference was meager.

Table 4.2 Percent Medical treatment received as inpatient in hospitals by Sex

States	Sex of population			
	Male		Female	
	Public Hospitals	Private Hospitals	Public Hospitals	Private Hospitals
Bihar	15	85	15	85
Gujarat	28	72	29	71
All India	41	59	40	60

Source: NSS 60th round

4.1.4 Use of Sources of Health Care by Age Groups

Table 4.3 depicts the situations for medical treatment received as inpatient in public and private hospitals by age groups of the population. In Bihar, people of age group 30-44 had higher proportion (90 percent) who visited to the private hospitals followed by age group 15-29 and 85 percent of this age group reported to visit to the private hospitals. Turning to Gujarat, we found that people of age group 0-14 had higher proportion (81 percent) who visited to the private hospitals that was followed by the population classified in age group 30-44(76 percent).

Table 4.3 Percent Medical treatment received as inpatient in hospitals by Age Groups

States	Type of hospitals	Age Groups				
		0-14	15-29	30-44	45-59	60+
Bihar	Public	16	15	10	18	17
	Private	84	85	90	82	83
Gujarat	Public	19	35	24	37	27
	Private	81	65	76	63	73
All India	Public	40	42	40	41	40
	Private	60	58	60	59	60

Source: NSS 60th round

At the national level, the differences to visit public and private hospitals were not as great as in case of two states for each age group. On average, 60 percent people reported to visit to private hospitals almost for each age group.

4.1.5 Use of Sources of Health Care by Social Groups

After observing table 4.4 we can easily say that there was no difference among three social groups viz SCs, OBCs and Others in use of private hospitals in Bihar. These social groups reported to use private and public hospitals in equal proportion. But the result in case of STs who visited hospitals was different as compared to the rest of the social groups of the same state. Though, higher proportion of STs People used private hospitals than those used public hospitals but the difference was not as large as in case other three social groups. At this juncture, obviously one can ask why three social groups reported equal proportion in use of private hospitals in Bihar?. It is very difficult to explain this without evidence. But one can say that poor functioning of public hospitals enforce people to move to the private hospitals.

Table 4.4 Percent Medical treatment received as inpatient in hospitals by Social Groups

States	Social Groups							
	ST		SC		OBC		Others	
	Public	Private	Public	Private	Public	Private	Public	Private
Bihar	42	58	15	85	15	85	15	85
Gujarat	42	58	48	52	27	73	19	81
All India	58	42	55	45	36	64	35	65

Source: NSS 60th round

In Gujarat, people from ‘Others’ social group had higher proportion (81 percent) who used private hospitals and which were followed by OBCs having proportion of 73 percent. In case STs Population there was no difference in both states that used private hospitals. It is worthy to note that in Gujarat and at national level social gradient was observed in use of private hospitals. It is to say that the proportion of population who used private hospitals was decreasing from the others to STs. It reduced to 58 percent (of STs) from 81 percent (of others) in case of Gujarat whereas at the national level it reduced to 42 percent (of STs) from 65 percent (of others).

4.1.6 Use of Sources of Health Care by Religious Groups

Table 4.5 represents the differential use of public and private hospitals by religious groups. In Bihar Hindus had higher proportion that used private hospitals and these were followed by Muslims. On the other hand, in Gujarat, Other religious group had higher proportion who visited to private hospitals followed Muslims ones.

Table 4.5 Percent Medical treatment received as inpatient in hospitals by Religious Groups

States	Religious Groups					
	Hindus		Muslims		Others	
	Public	Private	Public	Private	Public	Private
Bihar	15	85	19	81	23	77
Gujarat	29	71	23	77	21	79
All India	41	59	42	58	33	67

Source: NSS 60th round

4.1.7 Use of Sources of Health Care by General Educational Level

It is believed that better educated persons are in better position to use the existing health facilities. Table 4.6 represents percentage of people who visited to private and public hospitals by their general education level.

Table 4.6 Percent Medical treatment received as inpatient in hospitals by General Educational Level

States	Type of hospitals	General Educational Level				
		No Education	Literate and Primary	Middle	Secondary	Higher
Bihar	Public	16	14	19	11	8
	Private	84	86	81	89	92
Gujarat	Public	29	31	31	21	20
	Private	71	69	69	79	80
All India	Public	43	44	40	30	22
	Private	57	56	60	70	78

Source: NSS 60th round

It is evident from the given table that on an average (except middle level of education in Bihar), there was direct relationship between level of education and use of private

hospitals for medical treatment in areas taken into consideration. It is imperative to note that as level of education increases, individuals' perception about self reported health also increases. They have better understanding to make decisions to use private or public health facilities as they find them feasible.

4.1.8 Use of Sources of Health Care by MPCE Quintiles

It is very pertinent to study the relationship between sources of medical treatment availed by and income level of individuals. It is evident from the various studies that the affluent people usually prefer private health service providers for better and timely treatment. But poor people have to dependent on public health facilities. But in case of Bihar as shown in table 4.7 majority of poor people (defined in terms of MPCE Quintiles) used private hospitals for treatment. This may be attributed to the poor public health care infrastructure that enforced patients to shift to the private health service providers (Mudit Saxsena)¹. In Gujarat as well at national average, the situations were not as in Bihar.

Table 4.7 Percent Medical treatment received as inpatient in hospitals by MPCE Quintiles

States	MPCE Quintiles									
	0-20		20-40		40-60		60-80		80-100	
	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private
Bihar	11	89	15	85	16	84	15	85	19	81
Gujarat	46	54	31	69	26	74	19	81	20	80
All India	53	47	47	53	40	60	35	65	23	77

Source: NSS 60th round

In Gujarat and at all India level, as the income (defined in terms of MPCE) of the population was increasing, their proportion to use private hospitals also reported to increase as evident in the table 4.7. Therefore, one can say that there is direct relationship between standard of living (defined in terms of MPCE) and use of private hospitals in Gujarat and even at national level. Why rich people prefer to utilize the private health services? Answer to this query is very simple and direct. The infrastructure at public

¹ Mudit Saxsena, 'Utilization of Private Sector in Healthcare in India', *South Asian Journal of Preventive Cardiology*.

hospitals is not sufficient. The individuals have to face lots of hardship to avail required health services. The patients and relative have to wait for long for their term. If some ones have sufficient money why to become part of crowd and face difficulties. So, they prefer to visit private service provider where they don't have to face such problems which money makes vanishes.

4.1.9 Use of Sources of Health Care by Usual Activity Status

Table 4.8 represents percent medical treatment received as inpatient in hospitals by usual activity status of population. It was found that in each category there was higher proportion of people who visited to the private hospitals. In case of Bihar, only 4 percent people used public hospitals those who were unemployed. It is our surprise to note that no person in Gujarat used public health facilities that were unemployed.

Table 4.8 Percent Medical treatment received as inpatient in hospitals by Usual Activity Status.

States	Type of hospitals	Usual Activity Status				
		Self-Employed	Regular salaried/wages	Casual	Unemployed	Not in Labor Force
Bihar	Public	21	21	11	4	14
	Private	79	79	89	96	86
Gujarat	Public	22	34	39	0	28
	Private	78	66	61	100	72
All India	Public	38	39	50	44	39
	Private	62	61	50	56	61

Source: NSS 60th round

On observing the given it is very difficult to draw some relationship between usual activity status and type of hospitals used by the ailing persons. But thing can be noted from the above table is that the proportion of people who used private hospitals in all categories of usual activity status was higher in Bihar reduced to lower at national level through Gujarat. The unemployed category of the usual activity status was exception to this trend.

4.2 Untreated Ailments and its Pattern across population of Bihar and Gujarat

4.2.1 Introduction

The proportion of untreated ailment was derived from whether treatment taken on medical advice in relation to particulars of spells of ailment of household members during the last 15 days including hospitalization. It is very important parameter to investigate the proportion of ailments of the individuals which remain untreated. It shows the poor health status of the population as it is living with one or more than one ailments irrespective of the nature of ailments and reasons for no treatment.

4.2.2 Untreated ailments by Type of Place of Residence

Table 4.9 represents percent untreated ailments across the population of Bihar, Gujarat and even at the national level. It was found that the percent total untreated ailments in Bihar were higher than that of Gujarat and the national average. It means larger proportion of Bihar was living with one or more untreated ailments as comparison to the population of Gujarat and the national average. On bifurcating the untreated cases into rural urban segments we found that the rural population reported higher proportion of untreated cases in comparison to their urban counter part.

Table 4.9 Percent untreated ailments during the last 15 days by type of place of residence

States	Type of place of Residence		Total
	Rural	Urban	
Bihar	19.3	12.3	18.5
Gujarat	15.7	7.0	12.4
All India	17.7	10.7	15.7

Source: NSS 60th round

The rural- urban difference for untreated ailments was higher in Gujarat as compared to Bihar and the national average. It shows there was higher gap between rural and urban population of Gujarat in terms of getting treatments for ailments.

4.2.3 Untreated ailments by Sex

Table represents percent untreated ailments during the last 15 days by Sex. It was found that male reported higher proportion of untreated ailments in Bihar and Gujarat. But at national level proportion of women was slightly higher than men who did not get treatment of their ailments. In case of Gujarat, the difference between male and female was larger as comparison to that difference in Bihar and at national level in terms of untreated cases. It is worthy to note that lesser proportion of women from Gujarat reported untreated ailments in comparison to women from Bihar and that of the country as whole. This indicates that women from Gujarat were in more comfortable condition to seek treatment and live lesser suffering of ailments.

Table 4.10 Percent untreated ailments during the last 15 days by Sex

States	Sex of population		Total
	Male	Female	
Bihar	18.6	18.3	18.5
Gujarat	14.0	10.8	12.4
All India	15.5	15.8	15.7

Source: NSS 60th round

4.2.4 Untreated ailments by Age Groups

Table 4.10 represents percent untreated ailments during the last 15 days by age group of the population taken under study. It was found that aged persons reported higher proportion that remained with untreated cases in both states with higher proportion of untreated ailments among aged in Bihar.

Table 4.11 Percent untreated ailments during the last 15 days by Age Groups

States	Age Groups					Total
	0-14	15-29	30-44	45-59	60+	
Bihar	17.3	23.7	11.7	12.1	26.8	18.5
Gujarat	7.4	8.6	6.9	15	19.6	12.4
All India	15.1	17.2	13.5	12.7	18.8	15.7

Source: NSS 60th round

For younger age group (0-14), higher proportion of untreated cases were found in

Bihar(17.3 percent) whereas Gujarat had even less than half untreated cases(7.4) of Bihar in the same age group. For only one age group i.e. 45-59, proportion of persons remained untreated was higher in Gujarat as compared to persons of same age group from Bihar. On observing scene of untreated ailments, it is difficult to draw any relationship between age group and untreated ailments at least in Bihar and Gujarat and even at the national level.

4.2.5 Untreated ailments by Social Groups

Table 4.12 represents percent untreated ailments across the population of Bihar and Gujarat by social groups residing in that states. In Bihar, SCs reported higher proportion of untreated ailments (24.1 percent) followed by STs (19.4) and others reported the least untreated ailments among all the four social groups. In case of Gujarat, STs reported higher proportion of untreated ailments (29 percent) followed by OBCs and here also the others had the least proportion (9.4).

Table 4.12 Percent untreated ailments during the last 15 days by Social Groups

States	Social Groups				
	STs	SCs	OBCs	Others	Total
Bihar	19.4	24.1	19.3	8.9	18.5
Gujarat	29	9.7	11.8	9.4	12.4
All India	22.2	18.8	15.5	13.4	15.7

Source: NSS 60th round

STs of Gujarat were in more vulnerable conditions in terms of getting treatment as a substantial proportion (29 percent) did not get treatment of their ailments which is matter of grave concerned. On an average, the social gradient may be noticed in terms of untreated ailments. It is to say that the higher social classes reported lesser proportion of untreated ailments. Thus, there was inverse relationship between the social class and the untreated ailments. Such relationship was not so clear in case of Gujarat but it was very much pronounced and clearer in case of Bihar and at national level. It is well established fact that STs/SCs are deprived section of our society. It once reflected in terms of proportion untreated ailments in two states and even at the national level.

4.2.6 Untreated ailments by Religious Groups

As shown in table 4.13, Hindus reported higher proportion of remained untreated in two states and even at the national level. In case of Gujarat, only 7 percent of ailing persons from the Muslim religion remained untreated as compared to 16.6 percent and 15.8 percent in Bihar and at national level respectively. It indicates that the Muslims were at advantageous position in terms of getting treatment in Gujarat as compared to Bihar and the national average.

Table 4.13 Percent untreated ailments during the last 15 days by Religious Groups

States	Religious Groups			
	Hindu	Muslims	Others	Total
Bihar	18.7	16.6	14.7	18.5
Gujarat	13.2	7	2.1	12.4
All India	16	15.8	12.1	15.7

Source: NSS 60th round

4.2.7 Untreated ailments by General Educational Level

There are positive health consequences related to increased education and the effect of education seems to be the same for both men and women across most health outcomes (David M Culter and Adriana Lleras-Muney). Similar results were obtained in present study except for few exceptions in case of higher education in states.

Table 4.14 Percent untreated ailments during the last 15 days by General Educational Level

States	General Education Level					Total
	No Education	Literate and Primary	Middle	Secondary	Higher	
Bihar	19.7	18.6	11.5	7.4	10.1	18.4
Gujarat	16.4	11	5.7	4	6.3	12.4
All India	18.4	14.7	12.1	10.4	7.7	15.7

Source: NSS 60th round

As the level of education is increasing, the proportion untreated ailments is decreasing in Bihar, Gujarat and even at the national average. The proportion higher untreated cases for higher education in Bihar and Gujarat is very difficult explain why did happen there. Decrease of proportion untreated ailments very clear and pronounced up to secondary education but it goes for higher education in Bihar and Gujarat. But the inverse relation between the level of education and the untreated ailments was very clear and pronounced in case of the nation as whole.

4.2.8 Untreated ailments by MPCE Quintiles

Cutler and Lleras-Muney explored that greater financial resources may enable more access to health care. It would be interesting to see what kind relationship is going to be established in our present study. In the present study monthly per capita expenditure was used as the proxy of income-cum- standard of living. It is worthy to note that the poor population (defined in terms of lower MPCE) reported higher untreated ailments.

Table 4.15 Percent untreated ailments during the last 15 days by MPCE Quintiles

States	MPCE Quintiles					Total
	0-20	20-40	40-60	60-80	80-100	
Bihar	20.9	18.9	19.8	17.4	12.8	18.5
Gujarat	14.6	14.8	11.7	13.6	4.8	12.4
All India	21.7	17.6	16.3	10.1	9.7	15.7

Source: NSS 60th round

As income level of population is increasing, the proportion of untreated ailments is decreasing except few exceptions. Hence, the indirect relationship is being established between monthly per capita expenditure and untreated ailments. In Bihar, almost one percent increased from MPCE category 20-40 to 40-60 in untreated ailments. Otherwise, there was indirect relationship between income level and untreated cases in Bihar. In case of Gujarat, relationship between income level and untreated ailments was not clear as it increased 0.2 percent from MPCE category 0-20 to 20-40 and reduced to 11.7 for MPCE category 40-60 and reduced to 4.8 percent for richer persons. It is very difficult to derive relationship between level of income and untreated ailments in Gujarat. The indirect

relationship between these two was very clear and pronounced at the national level as evident from the given table 4.15.

4.2.9 Untreated ailments by Usual Activity Status

Table 4.16 represents proportion of untreated ailments during the last 15 days by usual activity status of the population taken under study. In Bihar, the unemployed persons reported higher proportion of untreated ailments (84.3 percent) followed by the casual labor (28.3 percent). Obviously, unemployed people find themselves unable to manage financial resources to get treatment of their ailments. In similar fashion casual labor don't have certain of their income and they also find themselves in miserable conditions to get treatment of their ailments. In Gujarat, those who were casual labor reported higher proportion of untreated ailments followed by self employed individuals. Again at national level, unemployed persons have higher proportion reporting untreated ailments followed by casual labor.

Table 4.16 Percent untreated ailments during the last 15 days by Usual Activity Status

States	Usual Activity Status					Total
	Self-Employed	Regular salaried/wages	Casual	Unemployed	Not in Labor Force	
Bihar	13	10.3	28.3	84.3	18.6	18.5
Gujarat	13.1	2.5	22.9	12.6	11.6	12.4
All India	14.9	12.8	19	24.3	15.6	15.7

Source: NSS 60th round

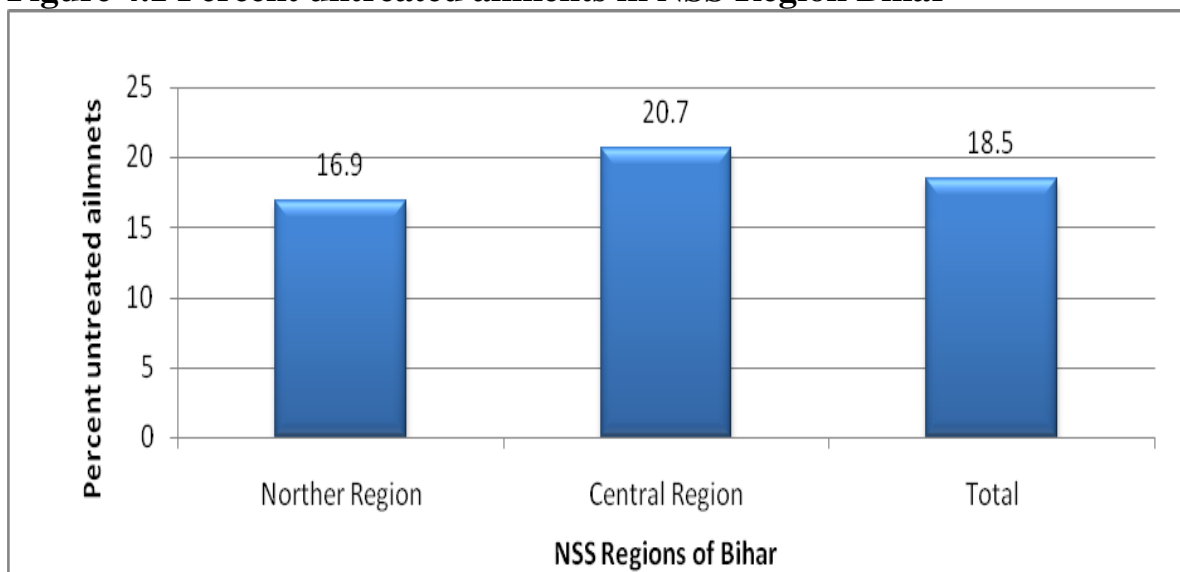
Those persons who had fixed income reported lesser proportion of untreated ailments in comparisons to persons who were unemployed or there was uncertainty in their earning (casual labor). So, this indicates there is inverse relationship between fixed income and untreated ailments.

4.2.10 Untreated ailments by NSS Regions of Bihar and Gujarat

Figures 4.1 and 4.2 show the differential distribution of untreated ailments (in percent) in NSS Regions of Bihar and Gujarat respectively. In case of Bihar, the untreated ailments were higher in the central region and it was higher than the state average. The central

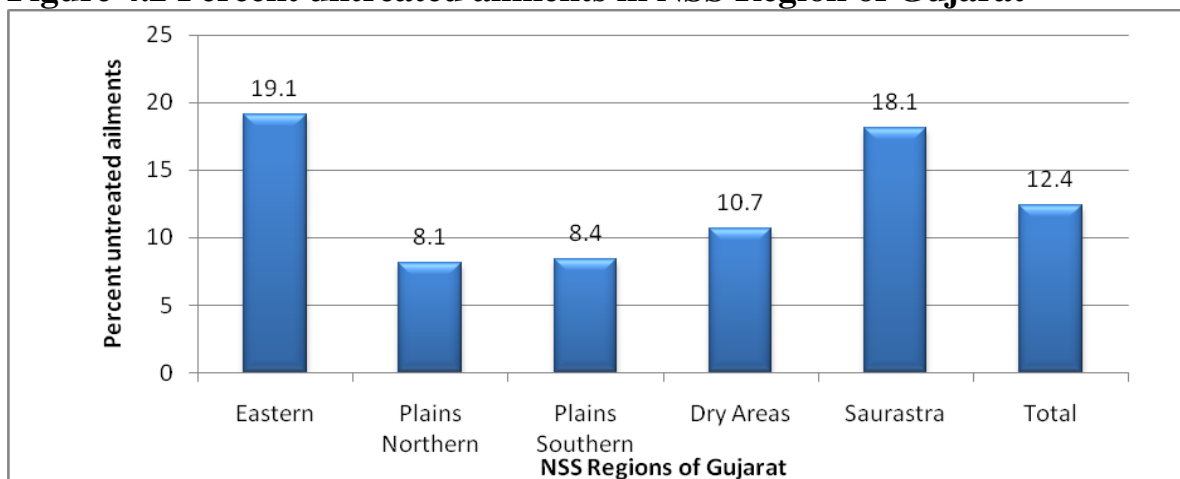
NSS Region of Bihar comprises mostly those districts (Kaimur, Jehanabad, Aurangabad, Gaya etc) where terrain was uneven (plateaus) and development processes are still in initial phase. Additions to individuals limitations, such mentioned reasons may attributed to higher untreated ailments in the central region.

Figure 4.1 Percent untreated ailments in NSS Region Bihar



Source: NSS 60th round

Figure 4.2 Percent untreated ailments in NSS Region of Gujarat



In Gujarat, higher untreated ailments were reported in the eastern region followed by Saurashtra. These two regions reported higher untreated ailments than the state average. The remaining three regions viz Plains Northern, Plains Southern and Dry Areas reported lesser untreated ailments the state average. Uneven terrain causing poor health infrastructure in the Eastern region and wet land and marshy topography in the Saurashtra

are reasons which may be attributed to higher untreated ailments in these regions. The Plain Regions had been in advantageous position in that respects.

4.3 Reasons for no treatment

4.3.1 Reasons for no treatment by type of place of residence

Tables 4.18 and 4.19 provide reasons for no treatment in the rural and urban areas of Bihar and Gujarat respectively. It is to note that the proportion of persons who reported that ailments are not serious is 48 and 81 percent in rural and urban areas of Bihar respectively. But these proportions are 55 and 79 percent in rural and urban areas of Gujarat respectively.

Table 4.17 Reasons for no treatment type of place of residence in Bihar

Type of place of residence	Reasons for no treatment(in percent)				
	No medical facility available in the neighborhood	medical facility available but lack of faith	long waiting	financial reasons	ailments not serious
Rural	14.2	2.1	0.1	35.4	48.2
Urban	0	0.3	1.6	17.4	80.7
Total	12.7	1.9	0.3	33.4	51.7

Source: NSS 60th round

Table 4.18 Reasons for no treatment type of place of residence in Gujarat

Type of place of residence	Reasons for no treatment(in percent)				
	No medical facility available in the neighborhood	medical facility available but lack of faith	long waiting	financial reasons	ailments not serious
Rural	5.3	5.3	3	31.8	54.6
Urban	0	3	4.3	13.5	79.2
Total	4.4	4.9	3.2	28.5	59

Source: NSS 60th round

The proportions of persons reporting that there is no availability of medical facilities in neighborhood are 14 and 5.3 percents in rural areas of Bihar and Gujarat respectively. It implies that there is more scarcity of medical facilities in rural areas of Bihar as compared to that of Gujarat. In urban areas of the both states there is no problem of availability of health facilities as evident from responses of the individuals. Now, turning to trace the pattern of financial reason for no treatment one finds that the proportion of persons reporting financial reasons is higher in rural areas as compared to that of urban

areas in both of states. But the higher proportions of persons of rural and urban areas of Bihar reported financial reasons for no treatment as compared to the persons living in rural and urban areas of Gujarat. Long waiting for treatment is reported higher in urban areas as compared to rural areas in the both states. One of the reasons of this is concentration of medical facilities in urban areas and higher influx of rural population to seek treatment in the health facilities of urban areas.

4.3.2 Reasons for no treatment by sex

Tables 4.3.3 and 4.3.4 depict the reasons for no treatment in rural and urban areas of Bihar and Gujarat. It is found that higher proportion of female than male from both states reported that there is no medical facility available in the neighborhood. The lack of faith is higher among female of Gujarat as compared to that of Bihar. Higher proportion of male from Gujarat reported of long waiting as compared to male from Bihar.

Table 4.19 Reasons for no treatment by Sex in Bihar

Sex	Reasons for no treatment(in percent)				
	No medical facility available in the neighborhood	available but lack of faith	long waiting	financial reasons	ailments not serious
Male	7.9	3.7	0	28.9	59.5
Female	18	0	0.6	38.4	43
Total	12.7	1.9	0.3	33.4	51.7

Source: NSS 60th round

Table 4.20 Reasons for no treatment by Sex in Gujarat

Sex	Reasons for no treatment(in percent)				
	No medical facility available in the neighborhood	available but lack of faith	long waiting	financial reasons	ailments not serious
Male	3.6	1.8	5.5	13.5	75.5
Female	5.5	9.3	0	49.8	35.4
Total	4.4	4.9	3.2	28.5	59

Source: NSS 60th round

The proportions of male and female who feel that the ailments are not serious are 60 and 43 percents in Bihar and 76 and 35 percents in Gujarat. It means higher proportion of male from Gujarat and higher proportion of female from Bihar reported that ailments are not serious. As far as the financial reason is concerned for no treatment, the higher proportion of female than male in both states reported it as obstacle for treatment of their

ailments. But the proportion of female who reporting financial reasons as cause for no treatment is higher in Gujarat than that of Bihar. It implies that women in Gujarat are in more vulnerable conditions in terms of availing money for treatment of their ailments, they are suffering of.

4.3.3 Reasons for no treatment by Age Groups

Tables 4.22 and 4.23 provide proportion of persons who responded for reasons for no treatment by age groups in Bihar and Gujarat respectively. Persons of age group 15-29 have higher in Bihar who reported that there is no medical facility in the neighborhood. Whereas persons of age group 0-14 have proportion who reported for no medical facility in the neighborhood. In case of Bihar as the age is increasing proportion of persons is the least that had lack of faith in medical facility.

Table 4.21 percentage of persons responding reasons for no treatment by age groups in Bihar

Age Groups	Reasons for no treatment				
	no medical facility available in the neighborhood	available but lack of faith	long waiting	financial reasons	ailments not serious
0-14	21.3	5.1	0	15	58.6
15-29	26.7	0.3	0	20.5	52.5
30-44	15.6	0	0	12.8	71.7
45-59	5.4	0	2.5	23.5	68.6
60+	0.3	0	0	66.7	33
Total	12.7	1.9	0.3	33.4	51.7

Source: NSS 60th round

Table 4.22 percentage of persons responding reasons for no treatment by age groups in Gujarat

Age Groups	Reasons for no treatment				
	no medical facility available in the neighborhood	available but lack of faith	long waiting	financial reasons	ailments not serious
0-14	12.2	6.3	1.8	10.1	69.7
15-29	0	0	0	26.2	73.8
30-44	0	0	24.7	32.7	42.6
45-59	0.2	16.3	0	56.7	26.8
60+	4.8	1.5	1	22.9	69.8
Total	4.4	4.9	3.2	28.5	59

Source: NSS 60th round

In case of Gujarat, persons of age group 45-59 have higher proportion that had lack of faith in medical facility. In Gujarat, persons of age groups 0-14 and 60+ have higher proportion who reported that the ailments are not serious. As far as financial reasons is concerned, persons of age group 60+ in Bihar and age group 45-59 in Gujarat have proportion who reported financial reasons for not treatment of their ailments respectively.

4.3.4 Reasons for no treatment by Social Groups

Table 4.24 and 4.25 depict the reasons for no treatment by social groups in Bihar and Gujarat respectively. In Bihar, SCs have the highest proportion who reported of lack of medical facility in the neighborhood. But in Gujarat, others class of social group have the highest proportion who reported that there was no medical facility in the neighborhood.

Table 4.23 Percentage of persons responding for reasons for no treatment by Social Groups in Bihar

Social Groups	Reasons for no treatment				
	no medical facility available in the neighborhood	available but lack of faith	long waiting	financial reasons	ailments not serious
STs	5.9	0	0	0	94.1
SCs	17	3.2	0.2	34.3	45.3
OBCs	10	1.4	0	38.3	50.3
Others	12.7	0.3	2	6.6	78.4
	12.7	1.9	0.3	33.4	51.7

Source: NSS 60th round

In terms of lack of faith, SCs have the highest proportion that had lack of faith in available health facilities in both of the states. In terms of severity of ailments STs in Bihar and SCs in Gujarat have higher proportion who felt that the ailments were not so serious to get treatment. As perception ailments differ according to the socio-economic level of individual.

The STs and SCs are remaining at bottom in terms of socio-economic development so they are ignorant to their ailments due to low perception level. That is why proportion of STs and SCs are higher in terms of accessing the severity of ailments.

Table 4.24 Percentage of persons responding reasons for no treatment by Social Groups in Gujarat

Social Groups	Reasons for no treatment				
	no medical facility available in the neighborhood	available but lack of faith	long waiting	financial reasons	ailments not serious
STs	6.9	2.4	0	51.8	38.9
SCs	0	8.6	0	1.7	89.7
OBCs	0	7.5	7.8	25.7	59
Others	10	2.4	0	14.4	73.2
Total	4.4	4.9	3.2	28.5	59

Source: NSS 60th round

4.3.5 Reasons for no treatment by Religious Groups

As evident from table 4.26, the Muslims have the highest proportion that reported for no medical facility in the neighborhood and also have lack of faith in the existing facilities in Bihar. But in Gujarat, the Hindus have the highest proportion in terms of same variables.

Table 4.25 Percentage of persons responding reasons for no treatment by Religious Groups in Bihar

Religious Groups	Reasons for no treatment				
	no medical facility available in the neighborhood	available but lack of faith	long waiting	financial reasons	ailments not serious
Hindus	12.3	1.3	0.3	32.5	53.6
Muslims	15.4	5.9	0	39.5	39.3
Others	0	0	0	100	0
Total	12.7	1.9	0.3	33.4	51.7

Source: NSS 60th round

Table 4.26 Percentage of persons responding reasons for no treatment by Religious Groups in Gujarat

Religious Groups	Reasons for no treatment				
	no medical facility available in the neighborhood	available but lack of faith	long waiting	financial reasons	ailments not serious
Hindus	4.7	5	2.6	30.6	57.2
Muslims	0	4.3	11.5	0	84.2
Others	4.4	4.9	3.2	28.5	59
Total					

Source: NSS 60th round

In terms of crowding and waiting for own term, the Muslims have the highest proportion in Gujarat who experienced that they have to wait long in ques for their turn to get

treatment of their ailments. In terms of financial reasons in Bihar, others have the highest proportion who reported for financial reasons followed by the Muslims but in case of Gujarat the Hindus have the highest proportion who reported that the financial reasons are obstacle in getting treatment. In Bihar higher proportion of Hindus reported that the ailments were not serious whereas in Gujarat Muslims have higher to report that the ailments are not serious to get treatment. As explained earlier the perception of ailments depends upon the socio-economic level of individuals. It is evident from various studies that the Muslims are one of the depressed categories of Indian population. Higher proportion of the Muslims reporting for non severity of their ailment mean that they are unable to percept the ailments and they are ignorant to their ailments due to their low socio-economic level of development.

4.3.6 Reasons for no treatment by General Education level

Table 4.28 and 4.29 show the proportions of persons responding for reasons for no treatment by level of education in Bihar and Gujarat respectively. Taking financial reasons as one of the important causes for not treatment, it was found that those who were illiterate have the highest proportion responding for financial reasons in Bihar.

Table 4.27 Percentage of persons responding reasons for no treatment by general education level in Bihar

Education level	Reasons for no treatment				
	no medical facility available in the neighborhood	available but lack of faith	long waiting	financial reasons	ailments not serious
No education	14.1	2.6	0.1	44.1	39
Literate and Primary	12	0	0	0.9	87.1
Middle	0	0	4.1	1.9	94
Secondary	0	1.8	0	2.8	95.3
Higher	0	0	0	0	100
Total	12.8	1.9	0.3	32.9	52.1

Source: NSS 60th round

Table 4.28 percentage of persons responding for reasons for no treatment by general education level in Gujarat

Education level	Reasons for no treatment				
	no medical facility available in the neighborhood	available but lack of faith	long waiting	financial reasons	ailments not serious
No education	5.4	5.6	0	34.2	54.8
Literate and Primary	1.8	2.5	16.8	10.6	68.3
Middle	0	0	0	0	100
Secondary	0	11	0	36.5	25.5
Higher	-	-	-	-	-
Total	4.4	4.9	3.2	28.5	59

Source: NSS 60th round

In case of Gujarat, persons with secondary education as their educational attainment have higher proportion to respond for financial reasons for not treatment of their ailments. Educated persons are assumed to earn more than uneducated persons. So, they are supposed to expend more for health as compared to uneducated ones in the country like our wherein out of pocket expenditure have much higher contribution in health care expenditure. So, higher proportion of responses by uneducated for financial reasons for no treatment is obvious.

4.3.7 Reasons for no treatment by Usual Activity Status

Table 4.29 Percentage of persons responding for reasons for no treatment by usual activity status in Bihar

Usual Activity status	Reasons for no treatment				
	no medical facility available in the neighborhood	available but lack of faith	long waiting	financial reasons	ailments not serious
self employed	0	0	0.8	5.1	94.1
regular salaried/wage labor	0	0	0	0	100
casual labor	0	0	0	44.9	55.1
unemployed	0	0	0	0	100
others	17.1	2.6	0.2	36.4	43.7
Total	12.7	1.9	0.3	33.4	51.7

Source: NSS 60th round

Table 4.29 and 4.30 provide the percentage of persons responding for reasons for no treatment of their ailments by their usual activity status in Bihar and Gujarat respectively. It is unworthy to interpret the results in terms of availability, lack of faith, long waiting and nature of ailments due problem of sample size. So, it is worthy to interpret the results in terms of financial reasons. In case of both states those who are casual labor have higher proportion responding for reasons for no treatment are financial ones. Casual labor has to face of misery of seeking work on daily basis. Their source of income is uncertain depending upon getting work on the day. As in country like ours where out of pocket expenditure on health has much more share than the public expenditure. Thus, due to meager and uncertain income the casual labor find themselves unable to expend to get treatment of ailments and that is why they reported the financial reasons as obstacle in treating their ailments.

Table 4.30 Percentage of persons responding for reasons for no treatment by usual activity status in Gujarat

Usual Activity status	Reasons for no treatment				
	no medical facility available in the neighborhood	available but lack of faith	long waiting	financial reasons	ailments not serious
self employed	0	0.6	0	25	74.3
regular salaried/wage labor	0	0	0	0	100
casual labor	0	0	15.1	65.3	19.5
unemployed	-	-	-	-	-
others	6.9	7.6	1.2	20.7	63.7
Total	4.4	4.9	3.2	28.5	59

Source: NSS 60th round

4.3.8 Reasons for no treatment by MPCE Quintiles

Table 4.31 Percentage of persons responding for reasons for no treatment by MPCE Quintiles in Bihar

MPCE Quintiles	Reasons for no treatment				
	no medical facility available in the neighborhood	available but lack of faith	long waiting	financial reasons	ailments not serious
0-20	6.9	5.3	0	45.7	42.2
20-40	1.4	3.6	0.3	51.4	43.3
40-60	24.8	0	0	26.7	48.6
60-80	18.8	0	0	13.6	67.6
80-100	12.4	0.4	2.3	13	71.9

Source: NSS 60th round

Table 4.32 Percentage of persons responding for reasons for no treatment by MPCE Quintiles in Gujarat

MPCE Quintiles	Reasons for no treatment				
	no medical facility available in the neighborhood	available but lack of faith	long waiting	financial reasons	ailments not serious
0-20	5.9	2.8	7.8	32.9	50.7
20-40	7.2	0.4	0	35.6	56.8
40-60	2.2	17.5	0	31.9	48.4
60-80	0	4.7	1.5	10.4	83.4
80-100	0	6.7	13.4	11.5	68.4

Source: NSS 60th round

As evident from the tables 4.31 and 4.32 those persons falling in the MPCE Quintiles 40-60 in Bihar and 20-40 in Gujarat have the highest proportion to respond that there is no medical facility in the neighborhood. In terms of lack of faith, persons falling in MPCE Quintiles 40-60 in Gujarat and the poorest persons from have the highest proportion who reported for having lack of faith in the existing medical facility in their neighborhood. As far as the financial reasons are concerned poorer people (MPCE Quintile 20-40) have the highest proportion who blaming financial reasons for not treatment of their ailments in of the states. It is followed by persons have the lowest standard of living in terms of MPC Quintiles.

Table 4.33 Concentration Indices for type of hospitals and untreated ailments in Bihar and Gujarat

socio-economic groups	Concentration Indices for type of hospitals in		Concentration Indices untreated ailments in	
	Bihar	Gujarat	Bihar	Gujarat
Social Groups	0.0027	0.0752	-0.1317	-0.1697
STs	0.0005	-0.0012	0.0006	-0.0212
SCs	0.0019	0.0267	-0.0348	-0.0466
OBCs	0.0004	0.0497	-0.0975	-0.1019
Others	0	0	0	0
General Education Level	0.0086	0.0126	-0.0614	-0.1906
No Education	0.0026	-0.0021	-0.0073	-0.0593
Literate and Primary	-0.0024	-0.0018	-0.0222	-0.0557
Middle	0.0051	0.0130	-0.0223	-0.0576
Secondary	0.0033	0.0034	-0.0096	-0.0180
Higher	0	0	0	0
Usual Activity Status	0.0113	-0.0063	0.0158	-0.0343
Self-Employed	0.0000	-0.0022	-0.0004	-0.0063
Regular salaried/wage labor	0.0022	-0.0069	0.0103	0.0176
Casual labor	0.0009	0.0004	0.0006	-0.0002
Unemployed	0.0082	0.0025	0.0053	-0.0454
Others	0	0	0	0
MPCE Quintiles	-0.0147	-0.5548	-0.0639	-0.1164
0-20	-0.0022	-0.1159	-0.0056	0.0008
20-40	-0.0023	-0.1948	-0.0004	-0.0201
40-60	-0.0023	-0.0299	-0.0191	-0.0033
60-80	-0.0079	-0.2142	-0.0388	-0.0939
80-100	0	0	0	0

Source: Computed from NSS 60th round

4.4 Interpretation of Results of Concentration Index for type of hospitals and untreated ailments across socio-economic groups in Bihar and Gujarat

Type of Hospitals- in terms of social groups, positive sign of concentration index indicates that concentration curve lies below line of equality which means concentration of using private hospitals is smaller among STs and inequality is higher among Gujarat than Bihar as evident from value of concentration index. In terms of general education, concentration curve (C.C.) lies below line of equality as it is evident from positive sign of concentration index. Since value of concentration index is more nearer to zero in Bihar so, inequality is lesser in Bihar in terms of general education level. As far as usual activity is concerned, use of private hospitals is disproportionately concentrated among self-employed persons. In Bihar, C.C lies below line of equality indicating use of private hospitals is more concentrated among others. In terms of MPCE Quintiles, use private hospitals are disproportionately concentrated among the poorest in both states. But inequality is lesser in Bihar as compared to Gujarat in terms of MPCE Quintiles.

Untreated Ailments- in terms of social groups, untreated ailments are disproportionately concentrated among STs in both states as evident from negative sign of concentration index. But inequality is lesser in Bihar as of value concentration index is more nearer to zero in Bihar than in Gujarat. In terms of general education level, since concentration index is negative in both states so untreated ailments are disproportionately concentrated among persons having no education and concentration curve lies above the line of equality. In terms of usual activity status, untreated ailments are disproportionately concentrated among self-employed persons and concentration curve lies above the line of equality in case of Gujarat. But in case of Bihar, concentration curve lies below the line of equality as the sign of concentration index is positive. It means the concentration of untreated ailments is smaller among self-employed persons. In terms of standard of living (MPCE Quintiles), untreated ailments are disproportionately concentrated among the poorest of population in both states. The concentration curve lies above the line of equality. But inequality in untreated ailments is higher among Gujarat as compared to that of Bihar because concentration index in Bihar is nearer to zero than in Gujarat.

4.34 Results of Binary Logistic Regression for type of hospitals in Bihar

Variables	B	S.E.	Sig.	Exp(B)
Type of place of Residence				
Rural				
Urban(Ref.)	0.484	0.227	0.033	1.622*
Sex				
Male(Ref.)				
Female	0.174	0.186	0.351	1.19
Age Groups				
0-14(Ref.)				
15-29	-0.069	0.257	0.788	0.933
30-44	0	0.249	0.998	0.999
45-59	0.682	0.261	0.009	1.979**
60+	0.1	0.239	0.676	1.105
Social Groups				
STs				
SCs	-0.843	0.695	0.225	0.431
OBCs	-0.145	0.245	0.555	0.865
Others	0.134	0.196	0.495	1.143
Religion				
Hindus(Ref.)				
Muslims	-19.324	29540	0.999	0
Others	-19.657	29540	0.999	0
General Education Level				
No Education(Ref.)				
Literate and Primary	-1.197	0.537	0.026	0.302*
Middle	-0.812	0.539	0.132	0.444
Secondary	-1.077	0.555	0.052	0.34
Higher	-0.424	0.551	0.441	0.655
Usual Activity Status				
Self-Employed				
Regular salaried/wage labor	-0.735	0.215	0.001	0.48**
Casual labor	-0.88	0.475	0.064	0.415
Unemployed	0.012	0.326	0.972	1.012
Others	0.824	0.99	0.405	2.28
MPCE Quintiles				
0-20				
20-40	0.68	0.269	0.011	1.974*
40-60	0.345	0.252	0.171	1.412
60-80	0.339	0.258	0.189	1.403
80-100	0.349	0.241	0.149	1.417

P<0.05*, P<0.01**, P<0.001***

4.35 Results of Binary Logistic Regression for type of hospitals in Gujarat

Variables	B	S.E.	Sig.	Exp(B)
Type of Place of Residence				
Rural				
Urban	0.554	0.159	0.000	1.741***
Sex				
Male				
Female	-0.011	0.151	0.94	0.989
Age Groups				
0-14				
15-29	0.956	0.226	0.000	2.6***
30-44	0.085	0.226	0.706	1.089
45-59	0.059	0.219	0.789	1.06
60+	-0.147	0.201	0.465	0.863
Social Groups				
STs				
SCs	-0.51	0.235	0.03	0.6*
OBCs	-0.951	0.214	0.000	0.386***
Others	-0.291	0.164	0.077	0.748
Religions				
Hindus				
Muslims	0.181	0.492	0.714	1.198
Others	-0.08	0.527	0.88	0.923
General Education Level				
No Education				
Literate and Primary	-0.842	0.457	0.065	0.431
Middle	-0.984	0.448	0.028	0.374*
Secondary	-0.527	0.449	0.241	0.591
Higher	-0.486	0.453	0.283	0.615
Usual Activity Status				
Self employed				
Regular salaried/wage labor	0.291	0.199	0.144	1.338
Casual labor	-0.543	0.274	0.047	0.581*
Unemployed	-0.197	0.211	0.35	0.821
Others	19.776	17660	0.999	38800
MPCE Quintiles				
0-20				
20-40	-1.213	0.263	0.000	0.297***
40-60	-0.652	0.245	0.008	0.521**
60-80	-0.58	0.242	0.016	0.56*
80-100	-0.343	0.232	0.14	0.71

P<0.05*, P<0.01**, P<0.001***

4.5 Interpretation of results of binary logistic regression for type of hospitals in Bihar and Gujarat

Dependent variable- Type of hospitals (Private hospitals=1, Public hospitals=0)

Independent variables- Type of place of residence, Sex, Age groups, Social groups, Religious groups, General education level, usual activity status, and MPCE Quintiles.

It is evident from table 4.34 that persons living in urban areas of Bihar are more likely to get treatment from private hospitals as compared to persons living in rural areas of Bihar and result is significant ($p < 0.033$). In case of Gujarat too, persons living in urban areas are more likely to get treatment from private hospitals as compared to their rural counterpart and result is highly significant ($p < 0.001$).

In terms of sex, female are more likely to use private health facilities as compares to the male ones. In Gujarat, female are less likely to use private health facilities as compare to male population living in Gujarat. In terms of age groups, persons of age groups 15-29 are less likely to get treatment in the private hospitals as compared to persons of age groups 0-14 in Bihar. But persons of these age groups are more likely to use private health facilities as compared to reference age group in Gujarat and result is highly significant ($p < 0.001$). Persons of age groups 30-44, 45-59 and 60+ are more likely to get treatment in the private health facilities as compared to persons of reference age in Bihar. In Gujarat persons of age groups 30-44 and 45-59 are more likely to use private health hospitals as compared to persons of age groups 0-14 whereas persons of age group 60+ are less likely to use private hospitals as compared to persons of reference age group.

In terms of social groups, SCs and OBCs are less likely to use private health facilities as compared to STs in Bihar but others are more likely to use private health facilities in same state as compared to STs of that state. In Gujarat SCs, OBCs and others are less likely to get treatment in private hospitals as compared to STs of that state and results are significant for SCs and OBCs at $p < 0.05$ and $p < 0.001$ respectively. In terms of religion, it is worthy to not interpret the results as the magnitudes of standard error are crossing over 2 in Bihar. But such problem does not occur in case of Gujarat. The Muslims and the others religious groups are more and less likely to get treatment from private health facilities respectively as compared to the Hindus of the same state. In term of general

education level, persons with education level of literate and primary are less likely to use private health facilities as compared to persons having no education (reference category) in Bihar and result is significant ($p<.05$). Persons with education level of middle, secondary and higher are less likely to use private hospitals as compared to persons with no education in Bihar. In case of Gujarat, persons of all level of general education are less likely to get treatment in the private health centers but result is significant only for persons having middle level of education($p<0.05$).

In terms of usual activity status, persons having fixed (regular salaried/wage labor) are more likely to visits to the private health facilities to get treatment with reference to persons of self-employed category in Gujarat. Persons whose usual activity status is as casual labor and unemployed are less likely to utilize private hospitals than persons of self employed status and result is significant for persons whose usual activity is casual labor ($p<0.05$). In case of Bihar, persons with usual activity status as regular salaried and casual labor are less likely to get treatment in the private hospitals as compared to the persons of usual activity status as self-employed and result is significant for persons having usual activity status regular salaried/wage labor ($p<0.001$). Persons with activity status unemployed and others are more likely to get treatment in the private health centers.

In terms of monthly per capita expenditure, in case of Bihar, persons falling in MPCE Quintiles 20-40, 40-60, 60-80 and 80-100 are more likely to get treatment in the private hospitals as compared to persons of MPCE Quintiles and result is significant is for persons falling MPCE Quintile 20-40 ($p<0.011$). In case of Gujarat, persons falling all MPCE Quintiles are less likely to visits to the private hospitals as compared to persons belonging to reference category of MPCE Quartiles. The result is highly significant for MPCE Quintiles 20-40(0.001). The results are also significant for MPCE Quintiles 40-60 and 60-80 category of MPCE Quintiles at $p<0.01$ and $p<0.05$ respectively.

4.36 Results of Binary Logistic Regression for untreated ailments in Bihar

Variables	B	S.E.	Sig.	Exp(B)
Type of Place Residence				
Rural(Ref.)				
Urban	-0.023	0.209	0.913	0.977
Sex				
Male(Ref.)				
Female	-0.08	0.163	0.621	0.923
Age Groups				
0-14(Ref.)				
15-29	0.067	0.195	0.732	1.069
30-44	0.387	0.255	0.129	1.472
45-59	-0.165	0.262	0.529	0.848
60+	-0.189	0.236	0.425	0.828
Social Groups				
STs(Ref.)				
SCs	1.394	0.66	0.035	4.032*
OBCs	0.851	0.263	0.001	2.342**
Others	0.558	0.22	0.011	1.747*
Religions				
Hindus(Ref.)				
Muslims	-2.57	1.474	0.081	0.077
Others	-2.401	1.482	0.105	0.091
General Education Level				
No education(Ref.)				
Literate and Primary	-0.29	0.565	0.608	0.748
Middle	-0.31	0.569	0.586	0.733
Secondary	-0.461	0.596	0.439	0.63
Higher	-0.843	0.609	0.166	0.43
Usual Activity Status				
Self-employed(Ref.)				
Regular salaried/wage labor	-0.014	0.237	0.953	0.986
Casual labor	-0.144	0.601	0.81	0.866
Unemployed	0.338	0.275	0.219	1.403
Others	2.195	0.963	0.023	8.983*
MPCE Quintiles				
0-20(Ref.)				
20-40	0.176	0.251	0.483	1.192
40-60	-0.257	0.26	0.324	0.774
60-80	0.127	0.245	0.604	1.135
80-100	-0.125	0.251	0.62	0.883

P<0.05*, P<0.01**, P<0.001***

4.37 Results of Binary Logistic Regression for untreated ailments in Gujarat

	B	S.E.	Sig.	Exp(B)
Variables				
Type of Place of Residence				
Rural(Ref.)				
Urban	0.399	0.25	0.111	1.49
Sex				
Male(Ref.)				
Female	0.561	0.209	0.007	1.752**
Age Groups				
0-14(Ref.)				
15-29	-1.309	0.268	0.000	0.27***
30-44	-0.982	0.37	0.008	0.374**
45-59	-0.975	0.345	0.005	0.377**
60+	-0.253	0.269	0.347	0.776
Social Groups				
STs(Ref.)				
SCs	1.237	0.3	0.000	3.444***
OBCs	-0.19	0.333	0.567	0.827
Others	0.056	0.23	0.807	1.058
Religions				
Hindus(Ref.)				
Muslims	1.436	1.492	0.336	4.202
Others	1.131	1.535	0.461	3.1
General Education Level				
No Education(Ref.)				
Literate and Primary	0.014	0.73	0.985	1.014
Middle	-0.248	0.72	0.73	0.78
Secondary	-0.81	0.785	0.302	0.445
Higher	-0.859	0.819	0.294	0.424
Usual Activity Status				
Self employed(Ref.)				
Regular salaried/wage labor	-0.368	0.271	0.174	0.692
Casual labor	-1.584	0.887	0.074	0.205
Unemployed	0.285	0.301	0.343	1.33
Others	-0.656	1.291	0.611	0.519
MPCE Quintiles				
0-20(Ref.)				
20-40	0.427	0.483	0.377	1.532
40-60	0.566	0.472	0.231	1.76
60-80	0.61	0.469	0.194	1.84
80-100	0.794	0.443	0.073	2.212

P<0.05*, P<0.01**, P<0.001***

4.6 Interpretation of results of binary logistic regression for untreated ailments in Bihar and Gujarat

Dependent variable: whether treatment taken on medical advice (treatment taken on medical advice=0 and No=1)

Independent variable: type of place of residence, sex, age groups, social groups, religious groups, general education level, usual activity status monthly per capita expenditure.

As shown in table 4.36 people living in urban areas of Bihar are less likely to be remaining with untreated ailments as compared to people living rural areas of Bihar. But in case of Gujarat, people living in urban areas are more likely to live with untreated ailments. In terms of sex of the population in Bihar, female are less likely to live with untreated ailments as compared to their male ones and result is significant related ($p < 0.01$). In case of Gujarat, female are more likely to remain with untreated ailments as compared to male populations of the same state.

In terms of age groups, age categories 15-29 and 30-44 are more likely to remain with untreated ailments as compared to reference category in Bihar. Persons of age categories 45-59 and 60+ are less likely to remain with untreated ailments as compared to reference age category. In case of Gujarat, persons of all age categories are less likely to remain with untreated ailments as compared to reference age category and result is highly significantly related for age category 15-29 ($p < 0.001$). In terms of social groups in Bihar, persons of all social groups are more likely to remain with untreated ailments as compared to STs and the results are significantly related at $p < 0.05$, $p < 0.01$ and $p < 0.05$ respectively for social classes SCs, OBCs and Others. In case of Gujarat, SCs and Others are more likely to remain with untreated ailments as compared to STs. But, OBCs are less likely to remain with untreated ailments as compared to reference social group. The result is significantly related ($p < 0.001$).

In terms of religious groups in Bihar, the Muslims and the others are less likely to remain with untreated ailments as compared to reference category of the religious group which is the Hindu. In Gujarat, the Muslims and the others are more likely to live untreated ailments as compared to the Hindus which are reference category. In terms of general education level in Bihar, persons of all level of education are less likely to live untreated ailments as compared persons with no education. But in case of Gujarat, persons having

their education level as literate and primary are more likely to remain with untreated ailments as compared to persons having no education as their general level of education. But persons having their general education level as middle, secondary and higher are less likely to remain with untreated ailments as compared to persons having no education. In terms of usual activity status in Bihar, persons of activity status as casual labor and regular salaried/wage labor are less likely to live with untreated ailments as compared to person of self-employed category. In case of Gujarat, persons of usual activity status as regular salaried/wage labor, casual labor and others are less likely to live with untreated ailments as compared to persons having self-employed as their usual activity status. But persons who are unemployed are more likely to remain with untreated ailments as compared to persons of self-employed category. In terms of MPCE Quintiles in Bihar, persons falling MPCE Quintiles 20-40 and 60-80 are more likely to live with untreated ailments as compared persons falling in the lowest MPCE Quintiles which is reference category. But persons who fall in MPCE Quintiles 40-60 and 80-100 are less likely to live untreated ailments as compared to reference category. In case of Gujarat, persons belonging to all MPCE Quintiles are more likely to remain with untreated ailments as compared to persons belonging to reference category i.e 0-20.

4.7 Summary

Three variables viz type of hospital, untreated ailments and reasons for no treatment were assessed in this chapter by their background characteristics such as type of place of residence, sex, age groups, social groups, religious groups, general education level, usual activity status and MPCE Quintiles. The proportion of people using private were 86, 69 and 59 percents in Bihar, Gujarat and in the country respectively. In urban areas too, Bihar have the highest proportion to use of private hospitals followed Gujarat and this in turn followed by the national average. In Bihar, there was no sex differential in use private hospitals in Bihar but in case Gujarat, slightly higher proportion of persons were using private hospitals.

The proportions of persons using private was higher in age group 30-44 in both states but at national level age differential was observed in use of private hospitals. The result was significant in age groups 30-44($p<0.01$) and 15-29 ($p<0.001$) in Bihar and Gujarat respectively. In Bihar, STs had the least proportion to use private health facility but

remaining three groups had equal proportion of (85 percent) of using private health facilities. In Gujarat, others class of social group have proportion to use private health facility (81 percent). STs had been at bottom in terms of using private hospitals in both of states and even at national level. The results was significant for SCs ($p<0.05$) and OBCs ($p<0.001$) in Gujarat. In terms of religion, the Hindus and the others had the highest and the lowest proportion of use of private health facility in Bihar whereas in Gujarat, the others led in use of private health facilities. In terms of general education level, highly educated persons had highest proportion for use of private hospitals in Bihar, Gujarat and even at national level. The result was significant ($p<0.05$) for persons having middle level of education in Bihar.

In terms of usual activity status unemployed persons were found to use private health facilities in higher proportion. This probably happened due to small sample size of unemployed persons. But result was significant for casual labor ($p<0.05$) and others ($p<0.05$) in Bihar and Gujarat respectively. In terms of standard of living (MPCE Quintiles), the poorest strata of Bihar had the highest proportion of using private hospitals but in Gujarat, persons falling in MPCE Quintile 60-80 had higher proportion to use private hospitals. The results was significant only for MPCE Quintile 20-40 ($p<0.05$) but results were significant for MPCE Quintiles 20-40 ($p<0.001$), 40-60 ($p<0.01$) and 60-80 ($p<0.01$) in Gujarat.

There was rural- urban differential in terms of untreated ailments in Bihar, Gujarat and even in the country wherein higher proportion of untreated was observed in rural areas. Male population in Bihar and Gujarat had higher proportion who were living with untreated ailments as compared to their rural counterpart and result was significant ($p<0.01$) in Gujarat. On average there was direct relationship between untreated ailments age of the individuals result was significant in Gujarat for age groups 15-29 ($p<0.001$) 30-44 ($p<0.01$) and 45-59 ($p<0.01$). in terms of social groups, untreated ailments were higher among SCs and STs in Bihar and Gujarat and result was significant in Bihar for SCs ($p<0.05$) OBCs ($p<0.01$), and Others ($p<0.05$) and in Gujarat for SCs ($p<0.001$).

In terms of religious groups, the proportions of untreated ailments were higher among the Hindus and the lowest among others in Bihar, Gujarat and in the country as well. In terms of general education level, uneducated persons reported higher proportion of untreated

ailments in Bihar, Gujarat and in the country. In terms of usual activity status, in Bihar unemployed persons had higher proportion of untreated ailments while in Gujarat casual labor reported higher proportion of untreated ailments. In terms of standard of living delineated on the basis of MPCE Quintiles, on average, the as the income level of people were increasing proportion of untreated ailments was decreasing in Bihar, Gujarat and even in the country.

On summarizing the reasons for no treatment it is worthy to note that out of several reasons counted for no treatment for ailments financial reasons may be considered most important for getting treatment as out of pocket expenditure is much more than state expenditure on health. So it is worthy to trace the variation of financial reasons by varying socio-economic conditions. Higher proportion of people from rural areas reported financial reasons for no treatment of their ailments. Higher women than male ones reported financial reasons for no treatment and their proportion was higher in Gujarat than in Bihar.

In terms of social groups, OBCs and STs had higher proportion who felt that financial reasons were obstacle for treatment of their ailments in Bihar and Gujarat respectively. Person of religious categories the Hindus and the Muslims had higher proportion reported financial reasons for no treatment in Bihar and Gujarat respectively. Uneducated persons in Bihar and persons of secondary education in Gujarat had higher percentage who reported financial reasons for not getting treatment of ailments they were suffering of.

In terms of usual activity status of the population, casual labor had higher percentage in both of states who blame financial reasons for not getting treatment. On tracing variation of financial reasons across standard of living (MPCE Quintiles), the poorest section of population of Bihar had higher percentages who blame financial reasons for not get treatment of sufferings. In case of Gujarat, persons falling poorer (MPCE Quintile 20-40) quintiles blame more to financial reasons for no treatment of their ailments. Moreover, results of concentration indices show higher inequality across social groups, general education level, usual activity status and MPCE Quintiles in Gujarat in terms of using private hospitals. But in terms of untreated ailments, higher inequality was observed across social group, general education level, usual activity status and MPCE Quintiles in Gujarat.

Chapter 5

Magnitude and pattern of Out-of-Pocket Expenditures on Medical Treatment

5.1.1 Introduction

WHO defines out of pocket expenditure as any direct outlay by households, including gratuities and in – kind payments, to health practitioners and suppliers of pharmaceuticals appliances, and other goods and services whose primary intent is to contribute to the restoration or enhancement of the health status of individuals or population groups. It is a part of private health expenditure. Following Indrani Gupta¹, ‘Health care finance in developing and low income countries is still predominantly based on out-of-pocket payments, and the lack of prepayment mechanisms like insurance. In the absence of insurance, an illness not only reduces welfare directly, it also increases the risk of impoverishment due to high treatment expenditures.’ According to the figures published in the medical journal Lancet, private expenditure on health in India is close to 78% and most of the medical expenses incurred by an average Indian are paid from their pocket. Adding further to this story, the paper² points out that public spending on health is merely 0.94 % of the gross domestic product(GDP) and it is the among the lowest in the world. Furthermore, most of the expenditure (74%) was incurred for outpatient treatment, and not for hospital care. Only 26% was for inpatient treatment. Purchasing drugs accounted for 72% of the total private out-of- pocket expenditure.

The present chapter tried to envisage the average medical and other expenditures per hospitalization case as inpatient of hospitals during the last 365 days and per treated person as outpatient of hospitals during last 15 days across the population of Bihar and Gujarat. Recalling that admission for treatment of ailment and discharge thereof from the hospital was considered as case of hospitalization irrespective of the duration of stay in

¹ Gupta Indrian(2009), Out-of- pocket Expenditures and Poverty : Estimates from NSS 61st Round , paper presented for consideration of Expert Group on Poverty , Planning Commission

² AK Shiv Kumar et al(2011), Financing health care for all: Challenges and Opportunities, Volume 377, Issue 9766, pp.668-679, Lancet

the hospital. Total expenditure incurred for medical treatment received during the reference period(15 days for non-hospitalized and 365 days for hospitalized treatment) included expenditure on items like- bed charge, medicines, materials for bandage, plaster, etc, fees for the services of medical and Para-medical personnel, charges for diagnostic tests operation and therapies, charges of ambulance , costs of oxygen, blood , etc. All other type 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 were excluded from medical expenditure and these collectively designated as other expenditure.

5.1.2 Average Medical and Other Expenditures by type of place of Residence

Table 5.1.1 shows the average medical and other expenditures incurred per hospitalization case as inpatient of hospitals during 365 days by type of place of residence of populations. It was found that the average medical expenditure per hospitalization case was Rs.6655 and Rs.14674 in rural and urban areas respectively in Bihar and this expenditure was Rs.5408 and Rs. 8303 in rural and urban areas respectively in Gujarat.

Table 5.1.1 Average medical and other expenditures (in Rs) per hospitalization case as inpatient of hospital during 365 days by Residence of populations

States	Type of Place of Residence			
	Rural		Urban	
	Medical Expenditure	Other Expenditure	Medical Expenditure	Other Expenditure
Bihar	6655	758	14674	1033
Gujarat	5408	449	8303	485
All India	5695	530	8851	516

Source: NSS 60th round

At national level, the average medical expenditure in rural and urban areas was Rs.5695 and 8851 respectively. It was seen that for medical expenditure there was higher other expenditure in both rural and urban areas. Bihar being a poor state as it is evident from lower standard of living in terms of lower MPCE as compared to Gujarat having higher standard of living in terms of MPCE. But average medical expenditure was higher in

rural and urban areas in Bihar than that of in Gujarat. One of the reasons for this may be attributed to lesser utilization of public health facilities due to its miserable conditions that discourage people to use public health facilities.

5.1.3 Average Medical and Other Expenditures by Sex

There was gender bias in medical expenditure which was reflected in the table 2.1.2 given underneath. The average medical expenditure per hospitalization case was Rs. 8247 and Rs.6374 for male and female respectively in Bihar. But in Gujarat, average medical expenditure was Rs.7099 and 5463 for male and female respectively. The differences in average medical expenditure between male and female were Rs.1873, Rs.1636 and Rs.814 in Bihar, Gujarat and at national level respectively. It implied that lesser sum of money was spent by female than male in Bihar as compared to the female in Gujarat and even by the aggregate of female population of the country.

Table 5.1.2 Average medical and other expenditures (in Rs) per hospitalization case as inpatient of hospital during 365 days by Sex

States	Sex			
	Male		Female	
	Medical Expenditure	Other Expenditure	Medical Expenditure	Other Expenditure
Bihar	8247	884	6374	667
Gujarat	7099	511	5463	386
All India	6909	544	6095	472

Source: NSS 60th round

5.1.4 Average Medical and Other Expenditures by Age Groups

As evident from the table 5.1.3, the highest average medical expenditure was observed for age group 30-44 which was Rs.9615 which was followed by age group 60+ for which average medical expenditure was Rs.9517. As per the data there was no direct or indirect relationship was observed between the average medical expenditure and the age groups in Bihar. In Gujarat the average medical expenditure was increasing with increasing age i.e. it was Rs.3449, Rs.4528, Rs.7333, Rs.7701 and Rs.8709 for age groups 0-14, 15-29, 30-44, 45-59 and 60+ respectively. Thus, there was clear direct relationship between the average medical expenditure and age groups in Gujarat. The direct relationship was also observed at national level between the average medical expenditure and the increasing

age group. Meerding et al. ¹ observed that after the first year of life, health care costs are lowest for children, rise slowly throughout adult life, and increases **exponentially** after age of 50 years.

Table 5.1.3 Average medical and other expenditures (in Rs) per hospitalization case as inpatient of hospital during 365 days by Age Groups

States	Age Groups(in years)									
	0-14		15-29		30-44		45-59		60+	
	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.
Bihar	4789	411	6044	669	9615	878	7248	994	9517	1050
Gujarat	3449	353	4528	482	7333	367	7701	505	8709	547
All India	3470	320	5970	502	7357	621	7927	554	7963	549

Source: NSS 60th round

5.1.5 Average Medical and Other Expenditures by Social Groups

Table 5.1.4 depicts average medical and other expenditures incurred per hospitalization case as inpatient of hospitals during 365 days by social groups. In Bihar the lowest and the highest average medical expenditure (Rs.2259 and Rs.12020) was among STs and Others class of social groups respectively. But in Gujarat the lowest average medical expenditure was observed among SCs (Rs. 3018) and that of the highest among Others (Rs.9646). At national level, the lowest average medical expenditure was reported among STs Class of social groups which was Rs. 3742, as compared to Bihar and Gujarat.

¹ Meerding et al (1998), 'Demographic and epidemiological determinants of healthcare costs in Netherlands: cost of illness study', BMJ, 317(7151).

Table 5.1.4 Average medical and other expenditures (in Rs) per hospitalization case as inpatient of hospital during 365 days by Social Groups

States	Social Groups							
	STs		SCs		OBCs		Others	
	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.
Bihar	2259	184	4021	392	6472	686	12020	1308
Gujarat	3229	364	3018	309	5332	445	9646	545
All India	3742	408	4533	393	6108	509	8452	585

Source: NSS 60th round

It is worthy to note that *the social gradient* was clearly visible in average medical expenditure and other expenditures. It means the social group which was placed to the bottom in the social hierarchy reported the lowest average expenditure for treatment as compared to those who were placed at the top of the social hierarchy. The lowest average expenditure was reported by the vulnerable section of society (STs and SCs) increased via OBCs to the highest for others class of the social groups.

5.1.6 Average Medical and Other Expenditures by Religious Groups

The table 5.1.5 shows the differential average medical and other expenditure by religious groups. It was found that the Muslims reported higher average expenditure than the Hindus in Bihar but others reported the highest average medical expenditure per hospitalization case in the same state. On turning to pattern of average expenditure in Gujarat, it was found that the Muslims reported the lowest average expenditure per hospitalization case as compared to the rest of the religious groups the state.

Table 5.1.5 Average medical and other expenditures (in Rs) per hospitalization case as inpatient of hospital during 365 days by Religious Groups

States	Religious Groups					
	Hindus		Muslims		Others	
	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.
Bihar	7100	738	9577	1155	12577	1032
Gujarat	6208	460	4840	296	13074	745
All India	6441	529	5679	485	8323	552

Source: NSS 60th round

At the national level, the expenditure pattern of the Muslims was similar to the that of

Gujarat i.e the Muslims reported the lowest average medical expenditure for their state of sickness as compared to other religious groups. On account of the above evidence, one can say that the Muslims in Bihar were in better position as compared to those in Gujarat and in the country as whole in terms of making expenditure on medical treatment. Others religious group was dominated by the population of Christian and the Sikh. These two groups are considered well off as compared to the Hindus and the Muslims. The level of education is also higher among them. So it is imperative that they are in better position to spend more to get rid of ailments from existing health facilities which is supposed to private ones. Low expenditure on health care indicates that either individual is in good health so no need for expenditure on health or being in poor health and unable to afford expenditure on health care.

5.1.7 Average Medical and Other Expenditures by General Education Level

Table 5.1.6 shows the differential average medical and other expenditures by individual level of education. It was found that as the level of education was increasing the average medical expenditure was also increasing. There was exception to this trend in Bihar from education level literate and primary to middle as it got reduced from Rs 7740 to Rs. 6762.

Table 5.1.6 Average medical and other expenditures (in Rs) per hospitalization case as inpatient of hospital during 365 days by Religious Groups

States	General Education Level									
	No Education		Literate and Primary		Middle		Secondary		Higher	
	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.
Bihar	5381	596	7740	624	6762	805	12492	1826	19987	1264
Gujarat	4311	365	5773	443	5826	585	11067	581	29197	676
All India	4653	414	5528	484	6335	544	10315	638	19754	1164

Source: NSS 60th round

The direct relationship between average medical expenditure and education level may be attributed to two reasons. First, educated ones are supposed to be more aware of health

problems as compared to uneducated ones. Second, educated ones are supposed to earn more than uneducated ones. That is, higher educated persons are in better position to spend more on health. This has been evident from the various studies done earlier which established relationship between state of health and education.

5.1.8 Average Medical and Other Expenditures by Usual Activity Status

Table 5.1.7 depicts the average medical and other expenditure incurred per hospitalization case as inpatient of hospitals during 365 days by usual activity status of the populations. As evident from the given table it was found that those persons having fixed income (regular/salaried employee) were in better position to spend on ailments as their average medical expenditure was quite higher than those persons having no fixed income in Bihar, Gujarat and even in the country as a whole.

Table 5.1.7 Average medical and other expenditures (in Rs) per hospitalization case as inpatient of hospital during 365 days by Usual Activity Status

States	Usual Activity Status									
	Self Employed		Regular/Salaried Employee		Casual Labor		Unemployed		others	
	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.
Bihar	9960	796	12076	2789	4168	514	5714	405	7086	758
Gujarat	8868	497	9384	575	3119	404	4330	786	6160	452
All India	7494	578	10474	668	3336	350	5816	686	6612	524

Source: NSS 60th

The lowest average medical expenditure was reported by those who were casual labor and their average medical expenditure was Rs.4168, Rs. 3119 and Rs. 3336 in Bihar, Gujarat and the country respectively. One can see that the lowest expenditure in three cases were almost of one third that of the highest expenditure.

5.1.9 Average Medical and Other Expenditures by MPCE Quintiles

Table 5.1.8 depicts the differential average medical and other expenditure by the standard of living of the populations in terms of MPCE (monthly per capita expenditure). It was found that the richest persons reported the highest average expenditure for their treatment of their ailments as compared to poor persons.

Table 5.1.8 Average medical and other expenditures (in Rs) per hospitalization case as inpatient of hospital during 365 days by MPCE Quintiles

States	MPCE Quintiles									
	0-20		20-40		40-60		60-80		80-100	
	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.
Bihar	5461	480	5148	488	7305	933	6739	856	14472	1381
Gujarat	2884	325	4489	375	4659	437	8336	479	11638	668
All India	3815	399	4786	454	5164	457	7283	556	12861	724

Source: NSS 60th round

In Bihar there was no direct relationship between standard of living and average medical expenditure as evident from the given data populations falling in MPCE quintiles 20-40 reported lesser expenditure (Rs.5148) as compared to those falling in MPCE quintiles 0-20 having average medical expenditure Rs.5461. Similarly persons falling in higher quintiles 60-80 than lower quintiles 40-60 reported lesser average medical expenditure. Turning to expenditure pattern of Gujarat and the country as whole one found that there was direct relationship between average medical expenditure and standard of living in terms of MPCE. It means people with standard of living reported higher expenditure on health. Thus, a direct relationship was established between both.

5.2. OUTPATIENT EXPENDITURE

These expenses come under category of cost of non- hospitalized treatment. These expenses incurred for the treatment of ailing persons as a whole irrespective of the number of spells and type of ailments during the period of 15 days.

5.2.1 Average medical and other expenditure by type of place residence

Table 5.2.1 gives the average medical and other expenditure per treated persons as outpatient of hospitals for rural and urban areas separately. It was found that the average medical expenditure was Rs.305 and Rs.317 for rural and urban areas respectively in case of Bihar.

Table 5.2.1 average medical and other expenditure per treated person as outpatient of during 15 days by type of place of residence

States	Type of Place of Residence			
	Rural		Urban	
	Medical Exp.	Other Exp.	Medical Exp.	Other Exp.
Bihar	305	47	317	55
Gujarat	206	36	399	29
All India	257	27	306	20

Source: NSS 60th round

This expenditure for rural and urban areas in Gujarat was Rs.206 and Rs.399 respectively. In each case average medical expenditure in urban areas was higher than that of rural areas. It implies that urban people were spending larger to cure their treatment. The average expenditure for non- hospitalized for rural areas was higher in Bihar and that of for urban areas was higher in Gujarat. The rural urban differential in average expenditure for not hospitalized treatment was more pronounced in Gujarat as compared to Bihar and the country as a whole.

5.2.2 Average medical and other expenditure by Sex

Table 5.2.2 depicts the average medical and others expenditure for non hospitalized treatment for male and female separately. The average medical expenditure for male and female was Rs. 324 and Rs.287 respectively in Bihar and Rs. 325 and Rs.229 respectively in Gujarat.

Table 5.2.2 average medical and other expenditure per treated person as outpatient of during 15 days by Sex

States	Sex			
	Male		Female	
	Medical Exp.	Other Exp.	Medical Exp.	Other Exp.
Bihar	324	46	287	49
Gujarat	325	36	229	30
All India	288	26	254	25

Source: NSS 60th round

As evident from the above table higher expenditure for male and female was reported in Gujarat and Bihar respectively. The average differential expenditure between male and female was more pronounced in case of Gujarat as compared to Bihar and the national average.

5.2.3 Average medical and other expenditure by Age Groups

Table 5.2.3 shows the average medical and other expenditure per treated persons as outpatient of hospital during 15 days by age groups.

Table 5.2.3 average medical and other expenditure per treated person as outpatient of during 15 days Age Groups of the populations

States	Age Groups(in years)									
	0-14		15-29		30-44		45-59		60+	
	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.
Bihar	281	48	274	26	405	86	278	30	354	47
Gujarat	224	28	191	41	504	37	281	28	233	34
All India	205	22	275	30	310	29	330	25	278	24

Source: NSS 60th

As evident from the data the highest average expenditure per treated person incurred for age group 30-44 in Bihar and Gujarat. These expenditures were Rs.405 and Rs.504 in Bihar and Gujarat respectively. Contrary to this the highest average medical expenditure at national level was for age group 45-59 and this amount was Rs.330. there was no any direct or indirect relationship was observed between age group and average medical expenditure among none of the cases taken under consideration. On average other expenditure was directly associated with medical expenditure i.e other expenditure was higher where medical expenditure was higher.

5.2.4 Average medical and other expenditure by Social Groups

Table 5.2.4 depicts average medical and other expenditure incurred per treated person as outpatient of hospital during 15 days. The highest average medical expenditure was reported by OBCs followed by others in Bihar. Their average expenditure was Rs.356 and Rs.315 for OBCs and others respectively.

Table 5.2.4 average medical and other expenditure per treated person as outpatient of during 15 days Social Groups of the populations

States	Social Groups							
	STs		SCs		OBCs		Others	
	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.
Bihar	216	7	177	13	356	63	315	47
Gujarat	96	25	196	18	245	34	371	39
All India	176	20	232	23	253	26	320	27

Source: NSS 60th round

SCs stood at bottom in Bihar with average medical expenditure of Rs.177. In Gujarat and in the country as a whole others class of social groups stood at top followed by OBCs. The average medical expenditure was Rs. 371 and Rs. 320 for others in Gujarat and in the country respectively while for OBCs it was Rs.245 and Rs.253 in Gujarat and in the country respectively. STs of Gujarat and of the country as whole stood at bottom in terms of availing expenditure on health to treat their ailments. As OBCs in Bihar at top in terms of expenditure so, one can say that no social gradient was observed in Bihar. But in Gujarat and in the country as whole social gradient was clearly observed in terms of availing expenditure on health. It means there exist hierarchy among social groups in making expenditure for treatment of ailments.

5.2.5 Average medical and other expenditure by Religious Groups

Table 5.2.5 gives the differential average medical and other expenditure per treated person as outpatient of hospitals during 15 days by religious groups of the populations. It was found that the Muslims in Bihar reported higher average expenditure for treatment of ailments as compared to the Hindus. But others category of religious group reported the highest expenditure which Rs. 483 as compared to that of Muslims which was Rs .435.

Table 5.2.5 average medical and other expenditure per treated person as outpatient of during 15 days Religious Groups of the populations

States	Religious Groups					
	Hindus		Muslims		Others	
	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.
Bihar	287	38	435	112	483	23
Gujarat	279	33	275	34	245	22
All India	273	26	270	25	259	21

Source: NSS 60th round

In Gujarat and in the country as a whole the Hindus reported higher average expenditure as compared to Muslims and the Hindus were ahead of the Muslims and the others. 'Others' category of religious which was comprised of non Hindu and Muslims were in miserable conditions in terms of expenditure in Gujarat and in the country as whole in terms of outpatient expenditure.

5.2.6 Average medical and other expenditure by General Education Level

Table 5.2.6 provides average medical and other expenditure per treated person as outpatient of hospital during 15 days by general education level of populations.

Table 5.2.6 average medical and other expenditure per treated person as outpatient of hospital during 15 days General Education Level of the populations

States	General Education Level									
	No Education		Literate and Primary		Middle		Secondary		Higher	
	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.
Bihar	278	41	411	77	341	28	218	38	562	135
Gujarat	203	30	253	30	265	54	723	27	396	45
All India	233	24	249	24	299	27	414	26	498	48

Source: NSS 60th round

It was found that those with higher education level reported the highest average medical expenditure for treatment of their ailments which was followed by those who had just literate and primary of their general education level in case of Bihar. In case Gujarat the highest average expenditure was reported by persons having secondary level of education followed by those having higher education as general education level. Under such circumstances there does not exist direct relationship between the average medical expenditure and level of education across the population of Bihar and Gujarat. But at national level there exists direct relationship between the average medical expenditure and level of education of the individuals. It means the level education increased, the average medical expenditure also increased.

5.2.7 Average medical and other expenditure by Usual Activity Status

Table 5.2.7 provides the differential average medical and other expenditures by usual activity status of the populations for per treated person as outpatient of hospital during 15 days.

Table 5.2.7 average medical and other expenditure per treated person as outpatient of hospital during 15 days Usual Activity Status of the populations

States	Usual Activity Status									
	Self Employed		Regular /Salaried Employee		Casual Labor		Unemployed		Not in labor force	
	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.
Bihar	325	52	470	72	304	45	598	83	298	46
Gujarat	320	37	1232	23	162	24	65	0	234	34
All India	290	30	479	27	210	21	271	22	260	25

Source: NSS 60th round

In Bihar the highest average medical expenditure was reported by the persons who were unemployed and this was Rs.598 per treated person and this was followed by persons who had fixed income (Regular/salaried employee) and average medical expenditure under this category was Rs.470 per treated person. In Gujarat and in the country the highest average medical expenditure was reported by persons having regular /salaried and their expenditure was Rs. 1232 and Rs.479 in Gujarat and in the country respectively. Higher average expenditure on treatment by unemployed persons in Bihar indicates that these persons were likely to in poor health so, they have to spend more to cure the ailments. It is pertinent question that how they managed their expenditure as they did not have source of income. One probable answer to this may be means of debt through which they might have managed their expenditures.

5.2.8 Average medical and other expenditure by MPCE Quintiles

Table 5.2.8 gives the average medical expenditure per treated person as outpatient of hospitals during 15 days by MPCE Quintiles of the populations. It was found that the average medical expenditure per treated person in Bihar was the highest for the highest quintile groups (80-100) which was Rs.526 and that of in Gujarat and in the country as a whole was Rs. 580 and 424 respectively.

Table 5.2.8 average medical and other expenditure per treated person as outpatient of hospital during 15 days MPCE Quintiles of the populations

States	MPCE Quintiles									
	0--20		20-40		40-60		60-80		80-100	
	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.	Med. Exp.	Other Exp.
Bihar	303	46	240	40	283	40	275	44	526	84
Gujarat	181	38	230	27	231	36	281	33	580	29
All India	204	22	260	25	251	26	273	25	424	32

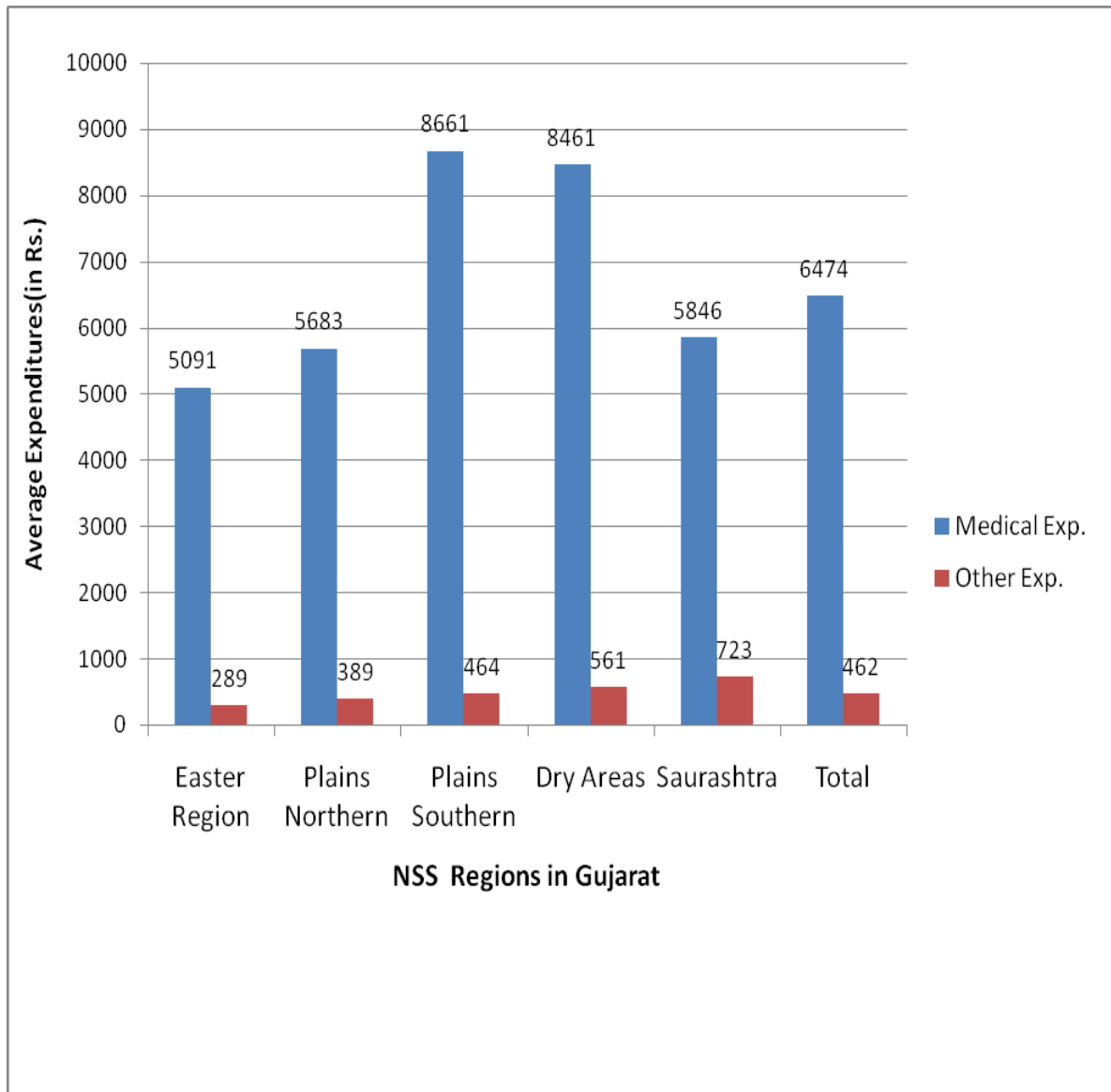
Source: NSS 60th round

There was no direct relationship between the average medical expenditure and standard of living in Bihar because people belonging to lower quintile groups reported higher expenditure as compared people belonging to higher quintiles. The average medical expenditure for quintile 0-20 was Rs. 303 that of for quintile 20-40 was Rs.20-40. The situations were quite different in Gujarat and in the country as a whole wherein as the standard of living in terms of monthly per capita expenditure was increasing the average medical expenditure for treating ailments was also increasing. Thus, there was direct relationship between the average medical expenditure and standard of living in terms of monthly per capita expenditure. How individual's income is related to individual's health, was discussed by Wagstaff and Doorslaer.¹ They hold views that there are two type of effects (a) **relative income**, in which an individual's health not only depends on her own income level but also the distance between her income and the incomes of others in society; and (a) **relative rank**, in which an individual's health depends on not only her own level of income but also the rank (or position) that level of income confers in the social hierarchy.

¹ Wagstaff A, van Doorslaer E (2000), 'Income inequality and Health: what does the literature tell us?', Annu Rev Public Health, pp.543-67.

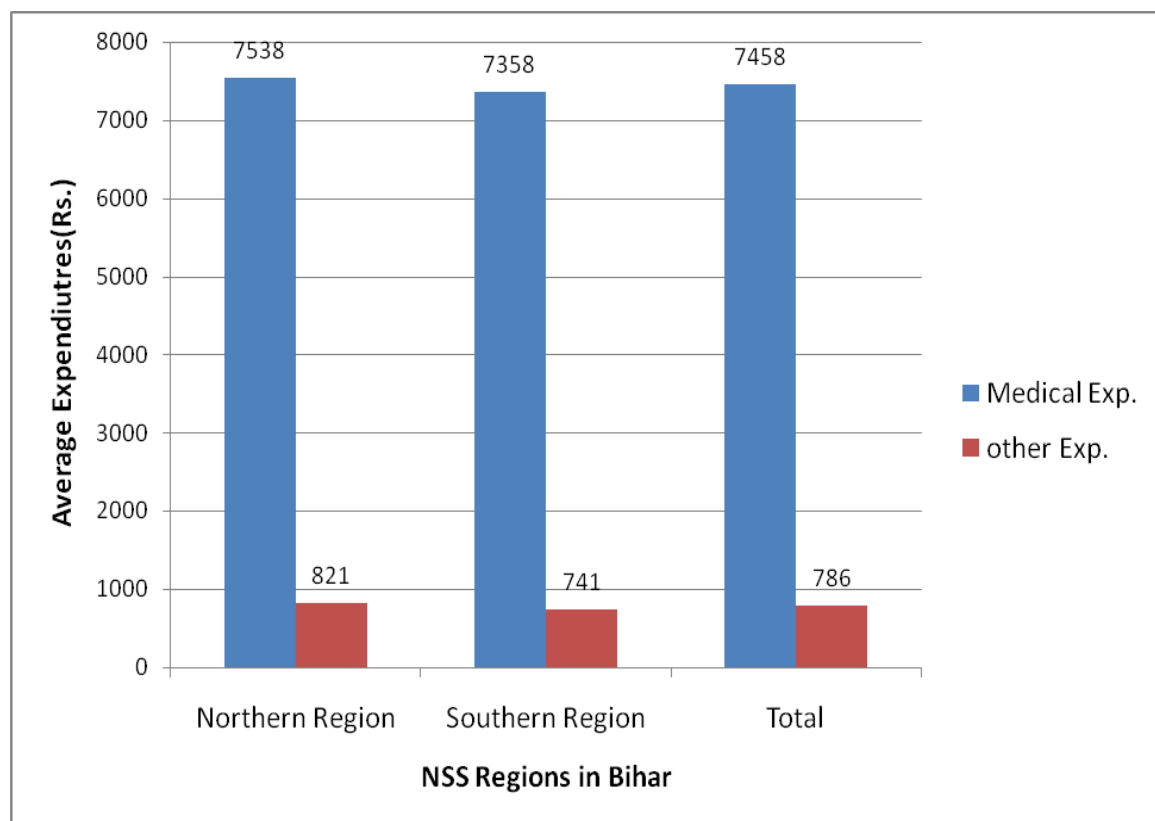
5.2.9 Average Medical and other expenditures in NSS Regions of Gujarat and Bihar

Figure 5.1 Average Medical and other expenditures in NSS Regions of Gujarat



Source: NSS 60th round

Figure 5.2 Average Medical and other expenditures in NSS Regions of Bihar



Source: NSS 60th round

It is evident from above figures; the highest expenditure on medical treatment was reported by persons living in the plains southern region followed by Dry Areas and the least expenditure was observed in the Eastern Region of Gujarat. Only two regions viz Plains southern and Dry Areas reported greater expenditure than the state average. In terms of other expenditure, the highest expenditure was reported in Saurashtra followed by Dry Areas and the least expenditure in the Eastern Region of Gujarat.

In case of Bihar, the expenditure was higher in the Northern Region than that of the Southern Region. The expenditure in the Southern Region was higher than the state average. In terms of other expenditure, it was found that the pattern of other expenditure was similar to that of medical expenditure in the NSS Regions of Bihar. The difference between the highest and the lowest was more pronounced in the NSS Regions of Gujarat than that of Bihar.

5.3 Summary

There was rural-urban differential in expenditures on medical treatment in both states. But expenditures in rural and urban areas of Bihar were higher than that of in Gujarat. Similarly, expenditures were also higher in rural and urban areas of Bihar than that of Gujarat. There was sex differential in expenditure on medical treatment higher for male than female in both states. But these expenditures were higher for both male and female in Bihar than in Gujarat. Similar observations were in case of other expenditures.

There was a direct relationship between medical expenditure and age groups in both states e.i. as age of the individual increased, the expenditures for treating their ailments also increased indicating that with increasing age individual are more susceptible to disease. In terms of other expenditures too, one can note direct relationship between expenditures and increasing age groups. In terms social groups, comparatively, there were lesser expenditures among depressed classes (STs and SCs) than that of OBCs and other class of social groups. It does mean that STs and SCs were in better and no need of treatment and consequent expenditures. But it meant that these classes were unable to afford costly expenditures in the private sectors which are the characteristics feature of Indian health care. In terms of religious group, the Muslims in Bihar reported higher expenditures than the Hindus. But the Muslims in Gujarat were observed to expend lesser than the Hindus of that state which indicates the Muslims in Gujarat were in miserable conditions in terms of expending on health care. The indirect expenditure too was higher among the Muslims in Bihar and among the Hindus in Gujarat.

On average, there was a direct relationship between education level and expenditure incurred on medical treatment as inpatient of hospitalization. It means that the educated ones are more concerned for their health and able to expend more to acquire better health. In case of usual activity status of individuals, it is worthy to note that those having fixed income spend more to acquire better health. Following same agreement it becomes very difficult to find why unemployed reported higher expenditures on treatment. As far as standard of living and expenditure on health is concerned, it was found that there was no direct relationship between standard of living and expenditures for treatment in Bihar. But in Gujarat, there was a direct relationship between medical expenditure and their standard of living in terms of monthly per capita expenditure.

It was higher in rural areas than in urban areas of Bihar but was lower in rural areas than in urban areas of Gujarat in terms of outpatient hospitalization. There was gender differential in terms of expenditure on medical care i.e. male reported higher expenditure than female ones in both states taken into consideration. Indirect expenditures were higher for female in Bihar and for male in Gujarat. In terms of age group, there was no direct relationship between age groups and expenditure incurred for treatment of ailments in both states.

The highest expenditure for medical treatment was reported among OBCs and the least among SCs class of social groups. But in case of Gujarat, STs and others classes of social groups reported the least and the highest expenditures on treatment respectively which indicates that those who are at the bottom in social order are unable to afford for health care. In terms of religious groups, in Bihar, the Muslims reported higher expenditure than that of the Hindus but in Gujarat the Muslims lags behind the Hindus but not at bottom in terms of expenditure because others reported the least expenditure on health care.

In case of general education level, there was no direct relationship between expenditures and education level as it found in case of inpatient hospitalization. The least and the highest expenditure on health care were reported among persons having secondary and higher education respectively in Bihar but in Gujarat among persons having no education and secondary education as their highest level of education respectively.

The highest medical expenditure was reported among unemployed but the least among others in Bihar having no direct relationship between expenditure and certainty of income. In case of Gujarat, those having fixed income reported higher expenditure than those having uncertain income. In terms of standard of living (MPCE Quintiles), the richest persons reported the highest expenditures in both states but the direct relationship between expenditure on health care and the standard of living was observed only in Gujarat.

Chapter 6

Summary and Conclusions

6.1 Summary and Conclusions

This dissertation deals with inequalities in health care utilization across population of Bihar and Gujarat which was delineated on the basis of socio-economic characteristics. Data for the present study was taken from the survey on 'Morbidity, Health Care and the Condition of the Aged' by the National Sample Organization from its 60th round (2004, Report No.507). This study attempted to assess morbidity prevalence, annual rate of hospitalization, sources of medical care (private and public), proportion of population living with untreated ailments, reasons for no treatment and average medical and other expenditure for health care by varying type of place of residence (rural-urban), sex, age groups, social groups, religious groups, general education level, usual activity status, and standard of living in terms of MPCE Quintiles.

Rural-urban differential was observed in terms of morbidity prevalence in both states. Morbidity prevalence was likely to be higher in urban areas than in rural areas of Gujarat but it was likely to be lower in urban areas than in rural areas of Bihar. Significant gender differential was observed in terms of prevalence of morbidity in both states i.e. there was higher morbidity prevalence among female than male ones in both states. Pregnancies and consequent complexities may be one of the reasons for higher morbidity prevalence among female than male ones. There was age differential in terms of morbidity prevalence i.e persons of higher age groups were less likely to be ill as compared to persons falling in the lowest age groups(0-14) in both states.

In terms of social groups, morbidity prevalence was disproportionately concentrated among STs in Bihar but it was smaller among STs in Gujarat. In terms of general education level it was found that inequality in morbidity prevalence was higher in Gujarat than in Bihar. In terms of usual activity status too, inequality in prevalence of morbidity was higher in Gujarat than in Bihar. But in terms of standard of living (MPCE Quintiles), inequality in prevalence of morbidity was higher in Bihar as compared to that of in Gujarat.

In terms of hospitalization, in Bihar observed figures don't show rural-urban differential but in Gujarat there was rural-urban differential evident from the rate of hospitalizations in that state. But the results of bivariate analysis show significant rural-urban differential in terms of hospitalization in both states wherein persons living in urban areas were more likely to be hospitalized in a year than persons living in rural areas in both states. More female than male were likely to be hospitalized in a year in both states. One of the reasons may be pregnancies and consequent complexities that caused higher hospitalization among female than male population in both states.

In case of social groups, SCs were less likely to be hospitalized than STs but OBCs and others were more likely to be hospitalized than STs in Bihar. But in Gujarat SCs, OBCs, and others were more likely to be hospitalized than STs of that states. Inequality in terms of hospitalization was higher among social groups in Bihar than among social groups in Gujarat. In terms of general education level, the rate of hospitalization was disproportionately concentrated among STs in Gujarat but it was smaller among STs in Bihar. In terms of usual activity status, persons of all remaining categories of usual activity status were less likely to be hospitalized than self employed persons in both states.

As far as inequality in hospitalization by usual activity status is concerned, it was disproportionately concentrated among self employed in Bihar but it was smaller in that category in Gujarat. It may be said that the inequality in terms of hospitalization was higher among persons of different usual activity status in Bihar as compared to that of in Gujarat. In terms of monthly per capita expenditure, it was found that richer persons were less likely to be hospitalized than the poorest persons in both states. But inequality in terms of hospitalization by monthly per capita expenditure was higher in Bihar as compared to that of Gujarat.

There was regional differential in terms of hospitalization in NSS Regions of Bihar and Gujarat but differences between the highest and the lowest were more pronounced in the NSS Regions of Gujarat than that of Bihar. In terms of morbidity prevalence too, there was regional differential in NSS Regions of both states. But it is worthy to note that regional differential was more pronounced in NSS Regions of Gujarat than in the NSS Regions of Bihar which was evident from the larger difference between the highest and

the lowest morbidity prevalence.

On tracing pattern of use of health care facilities as inpatient hospitalization in a year it was found that the proportion of person using private hospital was 85 and 71 percents in Bihar and Gujarat respectively. There was rural-urban differential in use of health care services. The persons living in urban areas of both states were more likely to use private health facilities. There was gender differentiation in terms of use of private health facilities in both states. More women from Bihar and lesser women from Gujarat reported to use private health facilities.

In terms of age groups, the proportion of person using private hospitals was higher in age groups 30-44 and 0-14 in Bihar (90 percent) and Gujarat (81 percent) respectively. Regression Analysis of type of hospitals reveals that persons of age group 15-29 were less likely to use private hospitals and persons of other age groups were more likely to use private hospitals than persons of age group 0-14 in Bihar. But in Gujarat, age persons (60+) were less likely to use private hospitals and persons of other age groups were more likely to use private hospitals than the youngest age group.

In terms social groups, binary logistic regression analysis reveals that SCs and OBCs were less likely to use private hospitals than STs but others were more likely to use private hospitals than STs in Bihar. In Gujarat, all social groups were less likely to use private hospitals in comparison to STs. Concentration Index shows that there was higher inequality among social in Gujarat than in Bihar in terms of use private hospitals. In case of religious groups, the Muslims were more and the others were less likely to use private hospitals than the Hindus in Gujarat.

In terms of general education level, persons of all level of educations were less likely to use private hospitals than the persons having no education in both states. Concentration Index shows that there was higher inequality in Bihar than in Gujarat in terms of use of privates hospitals by the population delineated on the basis of general education level.

In terms of usual activity status, persons of categories of regular salaried/wage labor and casual labor were less likely to use private hospitals than self employed persons unemployed and others were more likely to use private hospitals than self employed in Bihar whereas in Gujarat those who were regular salaried/wage labor and others were more likely to use private hospitals than self employed but those who were casual labor

and unemployed were more likely to use private hospitals than self-employed persons. Concentration Index shows that use of private hospital was disproportionately concentrated among self-employed persons in Gujarat but concentration of use private hospitals was smaller among self employed persons in Bihar. In standard of living (MPCE Quintiles) Binary logistic regression analysis reveals that persons falling remaining all MPCE Quintiles in Bihar were more likely to use private hospitals than the poorest persons of that state. But in Gujarat, persons of all remaining MPCE Quintile were less likely to use private hospitals than the poorest persons of state. Concentration index shows that concentration of use of private hospitals was more concentrated among poorest persons in both states but inequality was higher in Gujarat than in Bihar in terms of use private hospitals by population delineated on the basis of standard of living.

The proportion of persons remained untreated was 18.5 and 12.4 in percents in Bihar and Gujarat. There was rural – urban differential in terms of untreated ailments in Bihar and Gujarat wherein the proportion of persons was higher in rural and urban areas in Bihar than in Gujarat who remained untreated. In both states higher proportion of persons in rural areas than urban remained untreated. There was gender differentiation in terms of untreated ailments and higher proportion of male than female remained untreated in both states. Aged persons from both states reported higher proportion of untreated ailments as compare to their younger generations.

In terms of social groups, higher proportion of untreated ailments was found among SCs and STs in Bihar and Gujarat respectively. Concentration index shows that untreated ailments were disproportionately concentrated among STs in both states but inequality was higher in Gujarat than in Bihar in terms of untreated ailments among social groups. in terms of religious groups, binary logistic regression reveal that the Muslims and other were less likely to remained untreated than the Hindus in Bihar but these two religious categories were more likely to remained untreated than the Hindus in Gujarat.

In terms of general education level, persons belonging to all categories of general education were less likely to remain with untreated as compared to persons having no education in Bihar but in Gujarat persons who were falling under category of literate and primary education were more likely to remain untreated as compared to persons having no education. Concentration Index shows that untreated ailments disproportionately

concentrated among persons having no education in both states but inequality in terms of untreated ailments was higher in Gujarat than in Bihar among persons delineated on the basis of general education level.

In terms of usual activity status, those who were regular salaried/wage labor and casual labor were less likely to remain with untreated ailments than those who were self employed but those who were unemployed and others were more likely to live with untreated ailments as compared to self employed persons in Bihar. In Gujarat persons who were regular salaried/wage labor, casual labor and others were less likely to live with untreated ailments than self employed persons. But unemployed persons were more likely to live with untreated ailments. Concentration Index shows that untreated ailments were disproportionately concentrated among self employed persons in Gujarat but it was smaller among self –employed in Bihar. as far as inequality is concerned it was higher in Gujarat in terms of untreated ailments among persons delineated on the basis their usual activity status.

In terms of monthly per capita expenditure, in Bihar those falling under MPCE Quintile 40-60 and 80-100 were more likely to remain with untreated ailments than the poorest persons. But persons falling in MPCE Quintiles 0-20 and 80-100 were less likely to live with untreated ailments than the poorest persons. In case of Gujarat, persons falling under all categories of MPCE Quintiles were more likely to remain with untreated ailments than the poorest persons of Gujarat. Concentration Index shows that untreated ailments were disproportionately concentrated among the poorest persons in both state but inequality was higher in Gujarat than in Bihar in terms of untreated ailments among population delineated on the basis of standard of living.

There was regional differentiation in terms of untreated ailments among the population in NSS Regions of Bihar and Gujarat. It was found that the proportion of the highest and the least untreated ailments was found in the eastern and the plain regions in Gujarat respectively. In Bihar, the highest and the least untreated ailments were found in the central and the regions respectively.

As far as reason for no treatment was concerned, there was rural-urban differential in terms of reasons for no treatment taking financial reasons as prominent ones. In both states, persons living in rural areas had higher proportion of reporting financial reasons

for no treatment that of living in urban areas. Higher proportion of male than female in both states blame financial reasons for no treatment. Persons of age groups 60+ and 45-59 years had higher proportion in Bihar and Gujarat respectively who blame financial problems for no treatment.

OBCs and STs had higher proportion in Bihar and Gujarat respectively who felt financial reasons for not treatment of their ailments. The Muslims and the Hindus in Bihar and Gujarat respectively had higher proportion of blaming financial reasons for untreated ailments they were suffering of. In terms of education level, persons having no education and having secondary education had higher proportion of untreated ailments in Bihar and Gujarat respectively. Casual labor in both states blame financial problems for their untreated ailments. Higher proportion of persons from 20-40 MPCE Quintiles felt that financial reasons were major stumbling block for treatment of their ailments.

There was rural-urban and sex differential in terms of expenditure on medical treatment in both states. Aged persons had to spend more for treatment than younger ones in both states. The depressed classes (STs/SCs) reported lesser expenditure than OBCs and others. In terms of religious group, the Muslims in Bihar reported higher expenditures than the Hindus. But the Muslims in Gujarat were observed to expend lesser than the Hindus of that state which indicates the Muslims in Gujarat were in miserable conditions in terms of expending on health care. On average, there was a direct relationship between education level and expenditure incurred on medical treatment as inpatient of hospitalization. There was direct relationship between expenditure on medical treatment and standard of living in Gujarat but not in Bihar. In terms of usual activity status, those who were casual had the lowest expenditure for medical treatment in both states.

There were regional differences in terms of expenditure on health care. It was found that the highest and the lowest expenditure on medical treatment in Gujarat were found in the plains southern and the eastern region respectively. But in Bihar, the highest expenditure was found in the northern region. The differences on medical treatment were more pronounced in NSS Regions than in the NSS Regions of Bihar.

6.2 Policy Implications

Health is one of the fundamental needs of the individuals. Capability and efficiency of individual depends upon his/her sound health. State of health determines degree of output by individuals. At global level, India ranked low in terms of overall health outcome as compared to other countries. Whatever be the status of health in India is characterized by inequalities in terms of rural-urban, regional disparities, gender difference, social groups, religious groups, standard of living etc. The disparities in health and health care utilizations may be attributed to structural nature of Indian society. After independence, policies to address inequality and to enhance health status of the populations were formulated and implemented but the better results are being still awaited.

Education is one of the most important factors that affect state of health of population. It is evident from the present study that the morbidity prevalence was higher among persons having no education. It means persons having no education lack awareness in terms of their health care. Bihar is one of the states where literacy is the least. Though, mass media has its role to increase awareness among for better health. But several studies have revealed that education acts as *Magic Bullet* for improvement of state of health of individual. Moreover, education leads for better employment which leads for comparatively higher income than uneducated persons. In country like India, individual income is very important for health care. So, to improve the level of education of individual should get priority to improve the state of health individual and consequently for population.

Private players are playing major roles to provide health facilities to populations which are evident from higher proportion of population using private hospitals. It reflects that health facilities provided by public sector are proving to be inadequate to attract masses. So, infrastructure and quality of services of public health facilities should be improve so that individuals will be to avail these services.

Out of pocket expenditure on health is one of major issue and challenge for Indian health sector. Though, poor is one of the poorest states of Indian Territory but out of pocket expenditure here is higher than that of in Gujarat. Now, questions arise from where people of Bihar managed this huge expenditure on health. Probably people are selling their belongings and get subjected to severe indebtedness to meet these requirements. Out

of pocket expenditure should be discouraged by improving the functioning of public health facilities.

Inequalities in terms of utilization of health care services were higher among some socio-economic groups in Bihar and among some socio-economic in Gujarat. Say for example inequality in terms of untreated ailments was higher among social groups of Gujarat than that of Bihar. So, target based approach to eradicate inequality among social or other socio-economic groups should be addressed to attain the equity in health.

In order to get better health outcome basic determinants of health such as sanitation and hygiene, nutrition and safe drinking water, elementary education, Panchayati Raj Institutions and Rural Development should be addressed. Provision of AYUSH is one of the great initiations in right direction to provide better health care. Only provisions of services does not yield good out but there should be effective monitoring of its implementation and failing of which should be taken seriously by the administration.

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