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Economics of health care utilisation: a study of self-reported morbidity and health seeking patterns in the districts of Cooch Behar and Jalpaiguri, West Bengal, India

ECONOMICS OF HEALTH CARE UTILISATION

A STUDY OF SELF-REPORTED MORBIDITY AND HEALTH SEEKING PATTERNS IN THE DISTRICTS OF COOCH BEHAR AND JALPAIGURI, WEST BENGAL, INDIA

AMLAN MAJUMDER

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Cooch Behar

Economics of health care utilisation

We have witnessed radical changes in infrastructure of health services and pattern of utilisation of care over the years in all parts of the country. An enquiry into the fact would unveil some of the important alterations like introduction of user fees or more specifically hike in fees structure in the public health facilities, emergence of numerous private sources of care and growing preference for alternative systems of medicine among rural and urban mass. Important research questions at this point are that whether demand for public health facilities has decreased or whether pattern of morbidity has changed or whether people's perception on illness has altered leading to a change in the appeal towards a particular type of care or system of medicine. The present study investigates such research questions empirically in the rural and urban areas of Cooch Behar and Jalpaiguri districts, West Bengal, India.

The study is based on primary data collected through interview technique. It has three facets: morbidity analysis, study of preference for a care, and multivariate analyses on utilisation of care comprising logistic regression analysis and multiple classification analysis.

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Economics of Health Care Utilisation

A Study of Self-reported Morbidity and Health Seeking Patterns in the districts of Cooch Behar and Jalpaiguri, West Bengal, India

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To

My father, Shri Ram Nath Majumder

Who served the community in and around Pundibari (Cooch Behar CD Block II)

For most of his working life

As Registered Medical Practitioner

Contents

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This book is based on my doctoral research which was accomplished during 2003-2006 under the University of North Bengal, Darjeeling, India. The thesis was approved by the University on 03 July 2007 and the degree diploma was awarded on 11 March 2008. Although I have not been able to restructure my dissertation in the form of a book and publish it formally in the past several years, various portions of it were disseminated widely through various channels, like academic seminars, conferences, journals and my personal website (http://amlan.co.in). As a result of these, over the years I have received numerous enquiries from students, scholars and professionals from India and abroad in regard to issues addressed by me. Thanks to this academic persuasion, lately I have decided to publish a revised version of it in the form of an E-book following the spirit of 'better late than never'.

In various stages of my work I have taken help from a number of persons and organisations in numerous ways. I have received moral support and encouragement from my parents, other family members, relatives and friends, employer and colleagues. I am grateful to them. I have visited and used the libraries and / or documentation facilities of National Institute of Health and Family Welfare, New Delhi; International Institute for Population Sciences, Mumbai; Population Foundation of India, New Delhi; and Università di Pavia, Italy. I am highly indebted to these Institutions / Universities. I would like to take the opportunity to say that the methodological portion of this work has been presented in a Ph. D. Conference on *Research in Economics: Aims and Methodologies* at the Università di Pavia, Italy in September 2004. I am grateful to the organisers of the conference and participants for comments and suggestions. I am indebted to the University Grants Commission (India), Eastern Regional Office, Kolkata for providing me with fund (vide reference no. F.PHW 083 / 03-04-ERO dated 12 March 2004) to carry out such a research project successfully. I convey my sincere gratitude to the external and internal Examiners, Academic Referees, authorities and staff members of the University of North Bengal including my Supervisor and Co-supervisor on the occasion of publishing this version of E-book based on my doctoral research.

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1 Introduction

1.1. Introduction

The International Conference on Primary Health Care, co-sponsored by WHO and UNICEF at Alma Ata, Russia in 1978, expressed the need for urgent action by all governments, all health and development workers, and the world community to protect and promote the health of all the people of the world. The Conference strongly affirmed that the main social target in the coming decades should be the attainment of a level of health by all people of the world that will permit them to lead a socially and economically productive life (WHO 1978). India is a signatory to the Alma Ata Declaration and was committed to attain the goal of 'Health for All' by the Year 2000 through the universal provision of primary health care services. Experience gained within the country and outside led the Government to outline a long-term perspective plan for achieving the 'Health For All' goal (GOI 1997). The National Health Policy was officially adopted by the Parliament in 1983 (see GOI 1983, Kashyap 1987). The Government started concentrating on the development of rural health infrastructure to provide primary health care services to about 74 per cent rural population, which had by and large remained neglected (GOI 1997). Though health status improved considerably over the decades, (VHAI 1997, GOI 2002) and considerable progress has been made in developing infrastructure (GOI 2002), local action for achieving the goal has not been squared up with that of global thinking (Singh 2000). There has been a slippage in achieving the goal by 2000 (see Srinivasan 2000, Sood 2000). The call at present is to achieve it by 2025. This setback is a clear indication of gradual but sure decay in the health services of the country. The fact is reflected in the deep introspection and the consequent proclamation of National Health Policy 2002

(GOI 2002). All these developments lead us to rethink about the demand and supply aspects of health care or more specifically the sustainability of the public health care system in this era of neo-liberal economic policies of privatisation and globalisation.

1.2. Systems of medicine in India

India has a rich, centuries-old heritage of medical and health sciences. However, over the centuries, with the intrusion of foreign influences and mingling of cultures, various systems of medicine evolved and have continued to be practiced widely. The Allopathic system of medicine gained popularity under the British rule and made a major impact on the entire approach to health care in the country after independence (GOI 1983). At present with the mainstream system of Allopathy five other alternative systems of medicine such as Ayurveda, Homoeopathy, Naturopathy and Yoga, Siddha, and Unani, are practiced officially (GOI 2002). Origin and growth of such systems are presented below very briefly.

Ayurveda means the science of life. Literally, 'Ayur' means life and 'Veda' means knowledge or wisdom. It is one of the oldest formulated systems of medicine, which contributed to the development of contemporary medical science. It is considered divine in origin and is widely practiced in south-eastern Asia, especially in Bangladesh, India, Nepal, Pakistan, and Sri Lanka. There are scattered references to health, as well as to diseases in the Vedas (the book of wisdom) especially in the Rig Veda and Atharvaveda. Atharvaveda has as many as 114 hymns, which describe the treatment of diseases. Ayurveda originated from this Veda, which is the most ancient text and gives more information than any other existing literature (Kurup 1983).

Homeopathy is the youngest medical science and it has been in the service of mankind for almost two centuries. Its main emphasis is on the remedial agents in illness and in health. It is a low cost system using only non-toxic drugs (GOI 1993). It is used to treat both acute and chronic diseases, but its greatest

contribution lies in its successful treatment of chronic illness that have become difficult to manage by orthodox methods (Vithoulkas 1983).

Naturopathy is not mainly the system but a way of life. It is often referred to as drugless treatment of diseases (GOI 1993). In some countries 'naturopathy' simply singles out those practitioners of traditional medicine who concentrate on very simple formulae involving water treatments, dietetics and fasting, faith healing, with a background of philosophic and even religious attitudes. Elsewhere, the naturopath operates on a very clinical basis, utilising all the latest diagnostic and treatment techniques used by latter-day practitioners of natural therapeutics. So, effectively, naturopathy for some people means all the forms of non-allopathic medicine, which depend on 'natural' remedies and treatments (Bloomfield 1983).

Yoga is a traditional science, which helps us to coordinate body and mind more effectively. It enables a person to maintain tranquillity of mind and greater calmness in the conscious state and is perhaps the easiest and safest method to promote mental health. It can also be used as a preventive and curative technique for the management of various psychic and psychosomatic disorders. Although yoga had been described in the Veda about 4000 years ago, it was presented by Patanjali in an abridged form about 2500 years ago. Since then a large number of commentaries and books have been written to explain more clearly how one can promote mental health through the different practices of Yoga (Udupa 1983).

The Siddha system of medicine owes its origin to the Dravidian culture, which is of the pre-vedic period. An examination of the ancient literature would reveal that the Vedic Aryas owed allegiance to the cult of Siva and the worship of the phallus (linga), which was later absorbed by and incorporated into the Vedic culture. The Siv cult was associated with its medical counterpart, the Siddha system of medicine, which is mainly therapeutic. Mercury, sulfur, iron, copper and gold, bitumen, white, yellow and red arsenic, and other minerals as well as vegetable poisons are extensively used in the pharmacopoeia of the Siddha tradition. The Siddha system of medicine is prevalent in the southern states of

India, Malaysia, Singapore and Sri Lanka where the Dravidian civilization was dominant (Kurup 1983).

Unani Tibb or Graceo-Arab medicine may be traced to that system of Greek Medicine, which was developed during the Arab civilization. The Muslims still call it Unani (Ionian) medicine out of adherence to its true historical derivation, whereas European historians would call it Arab medicine. It is now practiced in the Indo-Pakistan subcontinent (Said 1983). In India, the Unani system of medicine became available after the development of contacts with the Islamic culture.

Allopathy or the allopathic system of medicine is defined as that discipline of medical care advocating therapy with remedies that produce effects differing from those of the disease treated. The primary point of separation of Allopathy from traditional medical system, from which it is evolved millennia ago, is unclear but its earliest beginnings would appear to include the detailed descriptions of a number of medical conditions found in the Vedic hymns. Further growth of the modern allopathic system occurred with the keen observations of a few giant figures, including Aretaeus of Cappadocia, Hippocreates of Greece, and Ibn Sina (Avicenna) of Persia, whose descriptive writings on medical conditions were followed by an ever-increasing number of European practitioners and observers. These were aided by the establishment of the great universities at Padua and Paris and their offspring at Cambridge and Oxford (Canary 1983).

1.3. Health care infrastructure in India

The experience and concern in health development and primary health care in India dates back to the Vedic period. ‘Arogya’ or health was given high priority in daily life. The wards ‘chikitshala’ and ‘arogyashala’ have been used by different scholars during the reign of Emperor Ashok. India’s rich heritage of medical care is reflected from the evidences of Indus Valley Civilization and works of various scientists during the Buddhist and subsequent periods, which formed the basis of the writings of Charaka and Susruta (Kashyap 1987, Porwal 1990). Development

of health care infrastructure in the modern age began by the European and for the European during the period of colonial expansion. The first western type hospital in India was built at Cochin (Kerala) in the year 1506 by a Portuguese, Fransisco-de-Almadia for the Portuguese only. The East India Company established western type of hospital in Chennai (formerly Madras) in 1664, in Mumbai (formerly Bombay) in 1667, and in Kolkata (formerly Calcutta) in 1707. These hospitals were initially created for the company staff and the Europeans staying in India. Only in 1792, Indians were allowed to avail this facility, besides English people. Before 1835 no medical college was established, therefore, there was no Indian doctor in those existing hospitals. The first medical college for the Indians came into existence in 1835. After that all the three presidencies (Bombay, Calcutta, and Madras) had their medical colleges by 1847. These colleges were governed at the instruction of Royal British Medical Council. Between 1847-1900, the number of medical colleges increased from 3 to 14. The primary aim of the establishment of all these institutions was to maintain the health status of the British forces as well as the civilians of English origins staying in India. Few rich and elite Indians belonging to aristocratic families, or who were in government jobs also availed these services. An ordinary and poor person could not get either medical education or medical treatment. There were no primary health centres in British India (Banerjee 1985 and 1991, Faizi 1998).

Health care programme appraisal in India started just before its independence. Government of India appointed the Bhore Committee in 1943, which submitted its report in 1946. The report of this committee provides the basis for Primary Health Care System in independent India. The Committee found that the low state of public health was mainly due to the absence of environmental hygiene, adequate nutrition, adequate preventive and curative health services and intelligent co-operation from the people themselves. The curative and preventive health services were totally inadequate. There was only 1 (one) doctor for 6,300 people and 1 (one) nurse for 43,000, 1 (one) health visitor for 4,00,000 and 1 (one) midwife for

60,000 people. Roughly one-fourth the total number of doctors was in Government service, the rest being mostly in urban areas as private practitioners. Again, there were only 70 to 80 women medical officers in public service engaged purely in maternity and child welfare work. Very few of them were medical graduates (Kashyap 1987).

Soon after, a number of committees have been appointed for the improvement of health and family planning programmes at the national level (Committee on Public health Act, 1953-55; Mudaliar Committee, 1959-61; UN Mission on Population Activities, 1961; Committee on Multipurpose workers under Health and Family Planning Programmes, 1972-73; etc.). Different qualitative changes have also taken place in different Five Year Plan periods (GOI 1983, Kashyap 1987).

In response to the Alma Ata Declaration of 1978, Government of India made a critical review of the approaches adopted during the previous Five Year Plans while formulating the Sixth Five Year Plan (1980-85). Based upon this, a long-term perspective plan was outlined by the Government for achieving the "Health for All" goals. The National Health Policy was officially adopted by the Parliament in 1983. "Health for All" principles and strategies were also incorporated in the Sixth (1980-85) and Seventh (1985-90) Five Year Plans. The stress in the National Health Policy was on the preventive, promotive and rehabilitative health services to the people, thus representing a shift from medical care to health care and from urban to rural population. The main objective was to place the health of the people in the hands of the people through the primary health care approach (GOI 1997).

The plan of establishing health centres originated in 1951, when India initiated the process of planned development to raise the living standards of her people. Subsequently, the program of establishing Primary Health Centres in each Community Development Block having a population of 60,000 to 80,000 was launched as an integral part of the Community Development Programme. Over the

years the health services organisation and infrastructure have undergone extensive changes. Progressive changes have been introduced into the program over the Sixth and Seventh Five Year Plan period when the national norms of population coverage were adopted. The thrust has been on qualitative improvement in the health services through strengthening of physical facilities like provision of essential equipment, supply of essential drugs and consumables, construction of buildings and staff quarters, filling up of vacant posts of medical and paramedical staff and in-service training of staff (GOI 1997).

In India primary health care services are provided through a network of integrated health and family welfare delivery system. In 1951, India became the first country in the world by establishing a nationwide network of family planning services to check population growth. At the beginning, the programme has been the responsibility of the Ministry of Health. In 1966, a full-fledged Department of family Planning was established within the Ministry and it was renamed as Ministry of Health and Family Planning. Initially the programme was started with a very cautious approach namely, the Clinical (Cafeteria) Approach. Under this approach family planning personnel used to wait for eligible couples to come to the clinics for advice and supplies. As the approach could not make any significant achievement due to lack of demand for family planning services in the society, focus has been shifted to a **H**ealth centre operated **I**ncentive based **T**ime bound **T**arget oriented **S**terilisation focused (HITTS) approach (Srinivasan 2000). However, experience gained within the country and outside led the policy makers to realise that the health of women in the reproductive age group and of small children (up to 5 years of age) is of crucial importance for effectively tackling the problem of growth of population. This has led to change of the name of the programme from Family Planning to Family Welfare in 1977 (GOI 1998a). The universal Immunisation Programme (UIP) started in 1985-86 to check mortality and morbidity among infants and young children due to Vaccine Preventable Diseases. Various other programmes also started under the Maternal and Child

Health (MCH) programme during the Seventh Plan. And all these programmes were brought under one umbrella namely, Child Survival and Safe Motherhood Programme (CSSM) and implemented from 1992-93. This was taken a step further when ICPD, Cairo recommended unification of all Reproductive and Child Health care services (GOI 1994). RCH programme in India is nothing but CSSM programme with two more additional components: specialised health care services for Reproductive Tract Infection (RTI) and Sexually Transmitted Diseases (STD), and specialised health care needs for the adolescents (GOI 1998b).

The public health care delivery system in India at present has a three-tier structure: primary, secondary, and tertiary.

1.3.1. Primary health care institutions

The primary tier has been developed to provide health care services to the vast majority of rural people. It comprises three types of health care institutions: Sub-Centre (SC), Primary Health Centre (PHC) and Community Health Centre (CHC). According to the national norms of population coverage there should be one Sub-Centre for 5000 population in plain area and for 3000 in hilly / tribal area; one Primary Health Centre for 30,000 population in plain area and for 20,000 in hilly / tribal area; and one Community Health Centre for 1,20,000 population in plain area and for 80,000 in hilly / tribal area.

1.3.1.1. Sub Centres (SC): SC is the first contact point between health workers and village community. SC is run by two paramedical staff and one voluntary worker. The staffing pattern for Sub Centres: Health Worker (Female) /Auxiliary Nurse Midwife, ANM (1), Health Worker (Male) (1) and Voluntary Worker (1). Total: 3.

1.3.1.2. Primary Health Centre (PHC): PHC is the first contact point between village community and doctor. A PHC is manned by a Medical Officer supported by 14 paramedical and other staff. It acts as a referral unit for 6 SCs. It has 4-6 beds for patients. The activities of PHC involve curative, preventive and promotive care and Family Welfare Services. Staffing Pattern for Primary Health Centre (PHC): Medical Officer (1), Pharmacist (1), Nurse Mid-wife (Staff Nurse) (1),

Health Worker (Female) / ANM (1), Health Educator (1), Health Assistant (Male) (1), Health Assistant (Female) / LHV (1), Upper Division Clerk (1), Lower Division Clerk (1), Laboratory Technician (1), Driver (Subject to availability of vehicle) (1) and Class IV (4). Total: 15.

Table 1: National norms of population coverage for health care institutions

Centre	Population coverage	
	Plain Area	Hilly/Tribal Area
Sub-Centre	5000	3000
Primary Health Centre	30000	20000
Community Health Centre	120000	80000

Source: Bulletin on Rural Health Statistics, December 1997

1.3.1.3. Community Health Centre (CHC): CHCs work as referral centres for PHCs. It is manned by four medical specialists i.e., Surgeon, Physician, Gynaecologist and Paediatrician supported by 21 paramedical and other staff. It has 30 in-door beds with one Operation Theatre (OT), X-Ray, Labour Room and Laboratory facilities. Staffing pattern of a CHC: Medical Officer either qualified or specially trained to work as Surgeon, Obstetrician, Physician and Paediatrician. One of the existing Medical Officers similarly should be either qualified or specially trained in Public Health (4), Nurse Mid-Wives (7), Dresser (1), Pharmacist / Compounder (1), Laboratory Technician (1), Radiographer (1), Ward Boys (2), Dhobi (1), Sweepers (3), Mali (1), Chowkidar (1), Aya (1) and Peon (1). Total: 25.

1.3.2. Shortfall in the primary health care institutions

Primary health care system is however, suffering from serious shortfall in terms of physical plants, equipment and manpower. Table 2 shows availability and shortage of medical personnel in the primary health care system in India. It is well evident from the table that scope for utilising specialised health care is very restricted in the primary health care system.

According to Bulletin on Rural Health Statistics (GOI 1997), nearly 40, 50, and 70 per cents of the required physical plants, medical personnel and

paramedical staff respectively, were available in the primary health care system of West Bengal in mid-1997.

Table 2. Availability of manpower in the primary health care system

Resource	Required	In position	Shortfall (%)
Medical Specialists	11652	3731	67.98
Paediatrician	2913	448	84.62
Physicians	2913	586	79.89
Obstetrician	2913	777	73.32
Surgeons	2913	797	72.64
Doctors at PHCs	23179	25418	-

Source: Health Information 2000, Ministry of Health and Family Welfare, Government of India

1.3.3. Secondary and tertiary health care institutions

The secondary tier, which is primary to the urban mass (GOI 2002), includes medical care provided by the specialists at the district and sub-divisional hospitals. Tertiary health care encompasses sophisticated services provided by the super-specialists at medical colleges and specialised hospitals (VHAI 1997).

1.3.4. Private sources of care

Private sources of care may be divided into two broad groups: institutional and non-institutional. Institutional sources include private hospitals, private health care research institutes, nursing homes, private clinics, etc. Non-institutional sources include doctors and medical specialists of public health care institutions who do private practice, indigenous practitioners of Allopathy or alternative or even unrecognised systems of medicine, chemists, druggists, etc. Though very limited, private sources of care also include sophisticated cyber clinics, which are run by various Ayurvedic and Homeopathic pharmaceutical companies and various centres of Yoga and natural remedies and are operated from the major Indian commercial cities or places of religious interests. However, private sources of care are very uneven in both quantity and quality and their presence is parallel to the public health care system.

Other types of care, which strictly do not fall in any of the above categories, are various promotive care emanating through different media or other sources.

1.4. An introduction to the study area

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

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

The district of Jalpaiguri lies between 26^0 16' and 27^0 0' north latitude and between 88^0 4' and 89^0 53' east longitude. Looking like an irregular rectangle, the district is bounded in the north by Bhutan and the district of Darjeeling, on the south by the district of Rangpur of Bangladesh and the district of Cooch Behar, on the west by the district of Darjeeling and Bangladesh and on the east by Assam.

The district has been so named after its principal town Jalpaiguri. The name Jalpaiguri is said to have derived from 'Jalpai' or olive tree and 'Guri' or place meaning thereby, the place abounds with the olive trees. The name Jalpaiguri might as well be associated with 'Jalpes', i.e. 'Siva', the presiding deity of the entire region from time immemorial. Headquarters of the district is Jalpaiguri. The

total area of the district is 6227 sq. kms. Of the total area nearly 28 per cent is covered by dense forest, 20 per cent is under tea plantation, and 5 per cent is used for agricultural activities.

1.5. Status of health in the study area

Table 3 shows some crucial health indicators of India and some other selected countries according to HDR 2004. Two countries (Norway and Iceland) have been selected from the top and two other (Niger and Sierra Leone) have been selected from the bottom of the list, which have been prepared by UNDP according to HDI score. Two other transitional economies (China and Russian Federation) have also been selected to compare the results with those of India. The figures show that India is somewhat at mid-way to the desired level of development.

Table 3. Some health indicators in India and other selected countries

Country	HDI Rank	IMR (2003)	TFR (2000-05)	LE (2003)
Norway	1	3	1.8	79.4
Iceland	2	3	2	80.7
Russian Federation	62	16	1.3	65.3
China	85	30	1.7	71.6
India	127	63	3.1	63.3
Sierra Leone	176	166	6.5	40.8
Niger	177	154	7.9	44.4

Source: Human Development Report 2005
IMR: Infant Mortality Rate, TFR: Total Fertility Rate, LE: Life expectancy at Birth

There is no unique source of data from which we can compare status of health at national, state, and district levels. Moreover, conventional health indicators like infant mortality rate, maternal mortality ratio, life expectancy at birth, etc. are not available at district level for Cooch Behar and Jalpaiguri districts. However, we have RHS-RCH Phase I & II each of which provides maternal and child health care related information of all the Indian districts (50 per cent in each phase) in 1998 and 1999 respectively. Table 4 shows utilisation rates of some maternal

health care services in Cooch Behar, Jalpaiguri, West Bengal, and India. As data on health services utilisation also reflect status of health of a population (see VHAI 1993), we will assess health status of Cooch Behar and Jalpaiguri from such information. These are computed figures form the data files of eligible currently married women in the 15-44 age-group who experienced at least one live birth since 01 January 1996.

Table 4. Utilisation of maternal health care[Ψ] according to RHS-RCH

Phase	Place	Rural				Urban			
		IFA	TT	CU	ANC	IFA	TT	CU	ANC
I	Cooch Behar	69	81.3	28.8	20.6	50	81.8	59.1	22.7
	West Bengal	58.5	79.8	45	27.8	60.9	87.1	71.5	41
	India	*46.8*	*56.5*	*27.8*	*19*	*59*	*75.6*	*61.1*	*39.6*
II	Jalpaiguri	69.4	71.2	32.6	22.8	46.7	90	83.3	36.7
	West Bengal	53.3	76.6	39.1	21.8	52.6	87.1	75.9	41.5
	India	*42.2*	*59.2*	*26.7*	*17.1*	*56.9*	*77.4*	*59.2*	*38.1*

[Ψ]: Percentage of eligible women in the reference period (01 January 1996 – 31 December 1998)
RHS-RCH: Reproductive and Child Health Project
IFA: Taken iron folic acid tablets / syrup during pregnancy
TT: Taken 2 tetanus toxoid injections during pregnancy
CU: Went for at least 3 antenatal check up
ANC: Antenatal care (3 check-ups, 2 tetanus toxoid injections and iron folic tablets / syrup)

Table 5. Availability of health facilities in rural areas of the districts

Health facility	Cooch Behar		Jalpaiguri	
	Per village	Per 1000 pop	Per village	Per 1000 pop
Hospital	0.044	0.025	0.174	0.056
Dispensary	0.045	0.026	0.145	0.047
PHC	0.096	0.056	0.015	0.005
SC	0.129	0.075	0.165	0.053
Registered Private practitioner	0.031	0.018	0.052	0.017

Source: Census 1991, pop: population

It is clear from the above tables that both the districts of Cooch Behar and Jalpaiguri remain above the average national level in terms of utilisation of different types of maternal care. However, if we compare the state level figures, both the districts lie below the average line. Figures of the rural areas are also lying far below than those of urban areas. Within each category (rural / urban), rates of antenatal check-up and utilisation of complete antenatal package is very low. These poor rates of utilisation of maternal care indicate poor status of health in this region of North Bengal. This is one of the main reasons why we have focused on Cooch Behar and Jalpaiguri.

We have also presented data on pattern of utilisation of maternal health care according to type of facility from the Rapid Household Survey, Phase I & II as shown in Table 6. Though availability of health facilities differs sharply in both the districts, pattern of utilisation is almost similar. Cooch Behar, formerly a princely state, has a good public health care infrastructure, where health facilities are distributed evenly throughout the district. It is also to be noted that administrative areas (for example, size of villages in terms of areas and population, numbers of households in sampled villages in table 16) are also small in the district as compared to those of Jalpaiguri. On the contrary, primary health care infrastructure is not good in Jalpaiguri as in Cooch Behar. Table 5 shows some health facilities (hospital and dispensary of which are not equivalent to those of table 6; in table 5 those may include private facilities also) available in Cooch Behar and Jalpaiguri.

We see better availability of primary health facilities in Cooch Behar as compared to those of Jalpaiguri. As Jalpaiguri has many tea gardens and each of which has private dispensary or hospitals, the relevant figures are higher in the district. In table 6, we see that majority of the respondents (63.1 per cent) in the rural areas of Cooch Behar utilised services at village level sub-centres.

Table 6. Places of visit for ANC in Cooch Behar and Jalpaiguri

Health Facilities	Cooch Behar*				Jalpaiguri**			
	Rural		Urban		Rural		Urban	
	n	%	n	%	n	%	n	%
GH	4	2.1	3	21.1	9	4.9	4	21.4
GH, GD	-	-	-	-	-	-	-	-
GH, PHC	-	-	-	-	1	0.3	-	-
GH, SC	3	1.8	-	-	-	-	-	-
GH, SC, PDH	-	-	-	-	-	-	-	-
GH, PDH	1	0.4	-	-	-	-	2	10.7
GD	9	5.3	2	15.8	-	-	-	-
GD, SC	1	0.7	-	-	-	-	-	-
GD, SC, PDH	1	0.4	-	-	-	-	-	-
GD, PDH	3	1.8	-	-	-	-	1	3.6
PHC	-	-	-	-	12	6.6	-	-
PHC, SC	1	0.4	-	-	1	0.7	-	-
PHC, PDH	-	-	-	-	1	0.3	1	7.1
SC	112	63.1	1	5.3	81	44.3	1	3.6
SC, PDH	21	12.1	1	10.5	13	7.0	-	-
SC, Other	1	0.7	-	-	-	-	-	-
PDH	20	11.0	5	42.1	60	32.8	8	46.4
PDH, Other	-	-	-	-	1	0.3	-	-
Other	1	0.4	1	5.3	3	1.7	1	3.6
Total	178	100	12	100	182	100	18	100

* *RHS-RCH-I,* ** *RHS-RCH-II*
ANC: Antenatal care, GH: Govt. Hospital/Community Health Centre/Rural Hospital, GD: Govt. Dispensary, PHC: Primary Health Centre, SC: Sub-Centre, PDH: Private Doctor/Hospital

In the urban areas, however, respondents preferred private hospitals or doctors (42.1 per cent). In rural areas of Jalpaiguri, 44.3 per cent of the respondents have utilised sub-centres and nearly 33 per cent private hospitals or doctors. The figures of utilisation of private facilities in both the rural and urban areas of the district are slightly higher than those of Cooch Behar. However, although we see differentiable provision of health facilities in both the districts, we observe similar pattern of utilisation of health care in this geographical region. Moreover, as significant percentages of population of these two districts belong to scheduled caste and tribe categories, pattern of utilisation my also vary according to these attributes. There may also be significant differences in preference for care

according to different alternative systems of medicines as we observe usually in our locality and which has not been explored by other scientific studies. All these lead us to explore further to find the true picture of the health care economy by examining the pattern of utilisation of care of this region.

1.6. Statement of the problem

We have witnessed radical changes in infrastructure of health services and pattern of utilisation of care over the years in all parts of the country. An enquiry into the fact would unveil some of the important alterations like introduction of user fees or more specifically hike in fees structure in the public health facilities, emergence of numerous private sources of care and clear preference for alternative systems of medicine among rural and urban mass. Important research questions at this point are that whether demand for public health facilities has decreased or whether pattern of morbidity has changed or whether people's perception on illness and the art of healing have altered leading to a change in the appeal towards a particular type of care or system of medicine. The present study investigates such research questions empirically in the rural and urban areas of Cooch Behar and Jalpaiguri districts in West Bengal, India.

1.7. Location of the problem in the theoretical context

Economists began to turn their attention to the matters concerning the efficiency in the health service sector around the end of the 1950s (Culyer 1971). However, there was no consensus in literature in regard to application of appropriate tolls (positive or normative) in analysis of health care. Much of the controversies waned when Fuchs (1966) defined health service sector as health care industry, which provides different types of outputs such as medical services, hospitality or hotel services and validation services (fitness certificates, etc.) to people utilising different inputs. These services are output of the health care industry measured in terms of utilisation of health facilities, e.g., number of cases treated, hospital admission, etc. (Feldstein 1967a, Feldstein 1967b). The inputs of health care industry as categorised by Fuchs (1966) are: labour

input (manpower), physical capital (plant and equipment), and intermediate goods and services (drugs, bandages, etc.). Empirical studies within this framework of supply side economics of health care began with the work of Feldstein (1967a). He opened new avenues of research by estimating Cobb-Douglas type production function of hospitals for the British National Health Service. Studies in the demand side of health care economics also follow a similar framework, which considers a set of non-economic factors such as age, gender, education, culture, etc. with the economic ones (see Feldstein 1967b, Feldstein 1979). Utilisation of health services depends both on demand and supply of consumers and providers (Lee and Mills 1983). Studies on utilisation of health services fall under a mixed demand-supply framework.

1.8. Interdisciplinary relevance

The problem of health services utilisation should be analysed in an interdisciplinary framework as it has been dealt with not only by the economists but also by the anthropologists, demographers, doctors, geographers, sociologists and others. Among the geographers, Lefever (1926) was probably the first person to apply mechanical and mathematical tools to solve social problems regarding geographic location of some kind. Contemporary medical geographers have systematically studied how geographical accessibility to a health facility affects utilisation of health care. Since 1950s demographers have also started focusing on acceptance of different family planning methods and utilisation of maternal and child health care in connection with the so-called population explosion in the developing countries. Since 1970s, social and medical anthropologists also applied their minds to patients' perspectives and conceptions about illness and medicine to study how patients comply with the sick role – how they perceive the causes of their condition and make choices regarding the use or non-use of different kinds of health care (Herzlich and Pierret 1985). Within this sphere of research, conceptual frameworks have been developed to put some order into the mass of possible interacting variables, which affect health services utilisation.

1.9. Rationale of the approach

Historically, utilisation of public health facilities in India is very low. According to Operation and Research Group (ORG 1987), level of utilisation of public health facilities in rural India is 37 per cent. National Health Policy-2002 states that the current level of utilisation of public health facilities is less than 20 per cent (GOI 2002). District level reports of Rapid Household Survey – Reproductive and Child Health Project (RHS-RCH) for Cooch Behar and Jalpaiguri (MODE 1998, 1999) show, on an average, very low levels of utilisation of maternal and child health care services. The reports as such also reveal very high degrees of inequalities in utilisation between rural and urban population. The Report of Inspiration (2002) for Cooch Behar states that in spite of high incidence rates of disease, a sizeable proportion of health seekers prefer quacks and primary level public health facilities. However, RHS-RCH has not covered all sections of population and also not considered all types of illness or disease. Moreover, the Baseline Survey in Cooch Behar under Health Awareness Programme (Inspiration 2002) has been conducted in rural areas of the district only. The district of Jalpaiguri is yet to see such a study. It is also not possible to put the above two surveys in the theoretical and conceptual framework mentioned in the previous section. The research and sampling designs and overall essence of those projects would put lots of conceptual, theoretical and methodological constraints. The present study will address the research questions, conceptual, theoretical and methodological issues and look forward to contribute significantly a gamut of new knowledge to the existing literature.

1.10. Specific aims of the study

The specific aims of this study are to:

- Analyse the incidence and prevalence of morbidity from patients' perception.
- Analyse the pattern of health care utilisation.
- Study pattern of health care expenditure.
- Investigate how different socio-economic, demographic, geographic, psychological and other factors contribute to the probability of utilising health care and make it a successful event.
- Analyse patient's preference for a type of care and system of medicine.
- Propose effective measures towards appropriate matching of people's desire and the mettle of health care economy to safeguard our common future.

two

2 Review of literature

2.1. Introduction

Literature in the field of health economics is mostly normative in nature consisting of studies on welfare aspects of medical care, what public health policy ought to be or studies being based upon the value judgments in health care. Positive studies based on econometric techniques, empirical evidence, and other quantitative techniques are less extensive and more exotic. Moreover, most of the positive studies have been directed at the evaluation of health care technologies. These include cost benefit analysis, cost effectiveness analysis, and cost utility analysis. All these techniques need adequate knowledge and information about the available alternative health care technologies (Hutton 1994, see also Drumond et al. 1997), which are not easily available in a developing country like India. However, the problem of health services utilisation has been dealt with by scholars in many different ways as presented in the following sections.

2.2. Health services utilisation

Among the economists, Martin S. Feldstein (1967a) began his work with one set of explanatory variables: availability factors. In his model for aggregate planning, he included demographic characteristics, income, cost, etc. Another noted economist, Paul J. Feldstein (1979) included the factors like incidence of illness, cultural-demographic characteristics with the economic ones. Sociologists and anthropologists on the other hand have presented a very elaborated and systematic classification of the explanatory variables (see Andersen 1968, Kroeger 1983, Andersen 1995). In the present study, we have decided to follow a framework,

which has been modified after Kroeger (1983), where a broad categorisation of factors includes the following:

- Characteristics of the disorder and their perception (need factors),
- Characteristics of the subject (predisposing factors), and
- Characteristics of the service (enabling factors).

2.2.1. Characteristics of the disorder (Need factors)

Type, stage and intensity of illness, number of spells, duration of illness episode, identification of the disease, and aetiological considerations affect utilisation of health services. Pathak et al. (1981) found that higher the severity of perceived morbidity, the higher the degree of utilisation of services in a rural area of Nagpur in India. Germano (1986) showed a varied pattern of utilisation for different types of illness in their different stages in a rural set up in Kenya. In the Solenzo Medical District in Burkina Faso, Sauerborn et al. (1989) found that most of the seriously ill patients overcame the barriers of cost and access to use professional health service. In their study, severity of disease is one of the most important determinants of health seeking behaviour. Sodani (1997, 1999) found significant positive association between duration of illness episode and demand for health care in TSP region of Rajasthan in India. Study by Dunlop et al. (2000) on Canada's universal health care system demonstrated positive relationship among health need (measured by perceived health status and number of health problems) and the use of primary care services. Table 7 presents findings of studies in this category in very brief.

The quest of prohibiting the causes of disease also plays important role in choosing a particular type of care or system of medicine. Kroeger (1983) has presented a detailed review on aetiological concept and type of disease in Africa, Asia and Latin America. In Africa, the dichotomy between magical-supernatural and physical-empirical diseases was found to be related to different folk strategies of treatment. In India, preference for modern health care would depend on particular illness. In rural India and Taiwan, people with mental illness resorted more particularly to traditional healers. In Latin America, illness deemed to

possess supernatural causes were treated by folk specialists, while others, such as infections were treated at home. In some cases, patients went to doctors to gain relief from the symptoms and to the folk healer to remove the cause of the disease.

Table 7. Characteristics of disorder and their perception

[Stage and intensity of illness: 1, Number of spells: 2, Duration of illness episode: 3, Identification of the disease: 4] ⇒ Utilisation of services

Author	Year	Place	Findings			
			1	2	3	4
Pathak et al.	1981	Nagpur, India	√	-	-	-
Germano	1986	Kenya	√	-	-	√
Sauerborn et al.	1989	Africa	√	-	-	-
Sodani	1997	Rajasthan, India	-	-	√	-
Dunlop et al.	2000	Canada	-	√	-	√

√: The issue is addressed

2.2.2. Characteristics of the subject (Predisposing factors)

'Characteristics of the subject' means background characteristics of the morbid persons and their households. These are also termed as 'predisposing factors' in literature. Predisposing factors are those, which are supposed to make an individual susceptible towards a specific action or behaviour or experience. Different factors in this category are following.

- Family characteristics (age, gender, household size, marital status)
- Social Structure (education, employment, ethnicity)
- Culture
- Assets / Affordability of a household (land, livestock, cash income)

2.2.2.1. Family characteristics: Age, gender, household size, and marital status are very important determinants of utilisation of health services. Feldstein (1979) argued that although population characteristics may not affect each of the components of medical care in the same manner, they are important in explaining variations in the use of medical services. According to him, as illness is an unexpected occurrence, it may be considered as a random event, but it has a fair degree of predictability with respect to age and gender. As age increases, incidence

of illness increases and morbidity patterns change. The need for medical care also differs among men and women. So, the pattern of utilisation of health care will also vary with age and gender. The relationship between age and use of medical services, however, is neither simply linear nor is the same for each type of medical services. As age-specific death rates show U-shaped curve in developing countries and J-shaped curve in developed countries (see Bhande and Kanitkar 1999), pattern of utilisation of care is also supposed to show similar relationship with age. This aspect of U-shaped age-utilisation relationship has been addressed by Aday (1972) and Faizi (1996). Pathak et al. (1981) found that utilisation varies in different age groups and the difference between various age groups is statistically significant. From their study it can be observed that utilisation initially increases in the younger age groups, but decreases drastically in the older age groups. From Sodani's study (1997), the U-shaped relationship can be checked in both rural and urban areas for all the three districts in the TSP region of Rajasthan. However, in his multiple regression analysis most of the linear and log-linear models show significant positive coefficients (sometimes negative but not significant) meaning that expenditure on health care increases with age.

Marital status and size of the household also affect utilisation of health care. Single persons generally use more hospital care than married persons do (Feldstein 1979). Married women in the reproductive age group, on the other hand, are likely to demand more medical care.

Size of household affects utilisation of health care in two ways. In large families, the interaction with the social network may be more intensive than in small ones. In rural Korea, the size of family is one of the most significant factors in governing the use of services (Koreger 1983). A larger family has less income per capita (although not necessarily proportionately less) than does a small family with the same income (Feldstein 1979). So, demand for medical care may be less in larger families. Study by Yesudian (1989) in Madras, India also supports the

fact that larger families have difficulties in utilising health care. Table 8 shows glimpses of studies in this category.

Table 8. Family characteristics and utilisation of care

[Age: 1, Gender: 2, Family size: 3, Marital status: 4] ⇒ Utilisation of services						
Author	Year	Place	Findings			
			1	2	3	4
Aday	1972	USA	√	-	-	-
Feldstein	1979	Canada*	√	√	√	√
Pathak et al.	1981	Nagpur, India	√	-	-	-
Kroeger	1983	Germany*	√	-	√	-
Yesudian	1989	Madras, India	-	-	√	-
Faizi	1996	Bihar, India	√	-	-	-
Sodani	1997	Rajasthan, India	√	-	-	-

*√: The issue is addressed, * Conceptual studies*

2.2.2.2. Social Structure: Impact of education, employment and ethnicity towards utilisation of services is universally acceptable. According to Pathak et al. (1981), education of a person is an important determinant of values, beliefs, attitudes and goals. Since these factors influence behaviour, education influences the use of health services through similar mechanism. Better education leads to a better understanding of one's environment including disease and processes related to it. Occupation of an individual also affects utilisation of health care as it is related to income. A daily wage earner is likely to save less from his or her limited income and has fewer funds to meet accidental expenditure on health services utilisation.

Abu-Zeid and Dann (1985) conducted a pilot study on health services utilisation and cost in Islamia, Egypt, which revealed low utilisation pattern for the maternal and child (MCH) services and for the health services of the primary health care units (PHCUs) in general. Low socio-economic status and educational level have been among the main reasons behind low utilisation of these services. Garg (1985) found significant positive association between education and utilisation of modern medical care. Amin et al. (1989) used data of two surveys conducted in 1976 and 1987 in the Companiganj area of rural Bangladesh. The

study found that the preference for formally trained modern practitioners was positively, and the preference for informally trained modern practitioners was negatively associated with the socio-economic status as reflected in the household's education or occupational status.

Elo (1992) investigated the hypothesis that whether female schooling influences the use of maternal care services in Peru. The findings are found consistent with the hypothesis. Becker et al. (1993) examined the determinants of use of maternal and child health services in Metro Cebu, The Philippines. They have considered four dependent variables in the maternal and child health care category and a set of nineteen independent variables from the socio-economic, demographic characteristics and accessibility to health care. For all health care outcomes higher parental education, and particularly maternal education, was associated with increased utilisation of services in both urban and rural areas. With education, employment status, ethnicity and religion also play important role in Indian context. Respondents in the higher caste groups are more likely to use health care as compared to their scheduled caste / scheduled tribe counterparts. Trakroo (1993) examined health-seeking behaviour of scheduled caste population in rural areas of Meerut district in Uttar Pradesh, India. He found that non-scheduled caste mothers utilised the maternal and child health services better than scheduled caste mothers. Using data from National Family Health Survey-I, Gobindasamy and Ramesh (1997), found positive relationship between mother's schooling and utilisation of maternal and child health (MCH) services across cross-cultural settings in India. In their bivariate analyses, in the country as a whole, only half of births to illiterate women received antenatal care, compared with 79 per cent of births to literate women with less than middle-school education and more than 90 per cent of births to women with at least middle school education. Similar or stronger differentials by maternal education were observed for tetanus toxoid injections, iron folic acid tablets and utilisation of delivery care services. In the multivariate analyses it has been observed that education is one of

the many indices of socio-economic status that has strong positive relationship with utilisation of various maternal health care services. Positive relationship has also been found between mother's education and utilisation of child health care. For India as a whole and also for north India work-status (two categories: working and not working, the latter being the reference category), caste (two categories: scheduled caste / tribe and non-scheduled caste / tribe, the latter being the reference category) and religion (three categories: Hindu, Muslim and other, the first being the reference category) were found as significant determinants of utilisation of all types of maternal health care services. Kavitha and Audinarayana (1997) examined how utilisation of some selected antenatal, natal and postnatal services are affected by different socio-economic and demographic variables in rural areas of Tamil Nadu, India. The study found women's education to be the crucial factor, which has shown a significant and positive effect on antenatal check-up, use of iron and folic acid tablets and place of delivery.

Celik and Hotchkiss (2000) investigated how different socio-economic factors affect women's use of maternal health care services in Turkey. In their study with other socio-economic factors, educational attainment, ethnicity (three categories: Turkish, Kurdish and others), have positive and statistically significant impact on the use of prenatal care and birth delivery assistance (Kurdish women are less likely to use prenatal care). Occupation of the household head has no significant impact on use of care. Dunlop et al. (2000) found that Canadians with low education are less likely to visit specialists than those with higher education. Matsumura and Gubhaju (2001) examined how women's status and household structure affect the utilisation of maternal health services in Nepal. They have considered three types of dependent variables: prenatal care from modern source, place of delivery (home vs. health facility) and professional assistance from modern source and a set of independent variables related to women's status and household structure. They have estimated logistic regression models for the above three dependent variables for both urban and rural areas. Additionally, as majority

of the population in Nepal live in rural areas, separate models were fitted for women only in rural areas. In the model for prenatal care, of the individual level characteristics, educational level of women is the only variable that has a positive and significant relationship with prenatal care. In case of the model for delivery care, education and occupation of women have positive and significant association with the place of delivery. In the model for professional assistance (in rural and urban areas), education, work status and job type; and in the rural area education and work status have significant influence to receive modern assistance at delivery. Important studies in this category are shown below.

Table 9. Social structure and pattern of utilisation of care

[Education: 1, employment: 2, ethnicity: 3] ⇒ Utilisation of services					
Author	Year	Place	Findings		
			1	2	3
Pathak et al.	1981	Nagpur, India	√	√	-
Abu-Zeid, and Dann	1985	Africa	√	-	-
Garg	1985	India	√	-	-
Amin et al.	1989	Bangladesh	√	√	-
Elo	1992	Peru	√	-	-
Becker et al.	1993	Philippines	√	-	-
Trakroo	1993	Merut, India	-	-	√
Gobindasamy and Ramesh	1997	India	√	-	-
Kavitha and Audinarayana	1997	Tamil Nadu, India	√	-	√
Celik and Hotchkiss	2000	Turkey	√	-	√
Dunlop et al.	2000	Canada	√	-	-
Matsumura and Gubhaju	2001	Nepal	√	√	-

√: The issue is addressed

2.2.2.3. Culture: Basu (1990) has done one longitudinal study with focus on cultural background as a variable affecting the level and kind of utilisation of existing health care services in Delhi. The study has been conducted in a resettlement slum in Delhi during 1985-1986 taking two groups of population with two different cultural backgrounds. One group has origin in eastern Uttar Pradesh and another group has in Tamil Nadu. The hypothesis has been that cultural or

regional identity has an important bearing on the knowledge, attitudes and practices relevant to the use of health care facilities. The study found that important cultural differences exist in the medical services sought for childbirth and in the treatment of morbidity in children of different ages and sexes.

2.2.2.4. Affordability of a household: Very few studies have examined the relationship between family income or wealth and utilisation of health care. Studies on health care expenditure, in general, found that families with higher incomes have greater expenditures for medical care. However, the percentage of income spent on medical care declines as income increases meaning that income elasticity of demand is less than one (Feldstein 1979). Sodani (1997) has taken household income and number of living rooms as a measure of household wealth. He has estimated linear and log-linear models for each of the three districts in the TSP region of Rajasthan. He has found mixed results. Sometimes the coefficients of income and living rooms are positive and sometimes negative. Positive signs convey the affordability of the household. Affluent households spend more on health. The negative signs indicate that economically better placed households spend more on good health habits and also take early care of the ill members, which reduces the expenditure on illness.

Celik and Hotchkiss (2000) found that household wealth (owning a car, having a flush toilet and having a modern floor) was positively associated with the use of prenatal care and birth delivery assistance but their effect was statistically significant with the acceptance of birth delivery assistance. Dunlop et al. (2000) found that Canadians with low income are less likely to visit specialists than those with moderate and high incomes. Important studies are shown below.

Table 10. Affordability of a household and utilisation of care

Assets / Affordability of a household ⇒ Utilisation of services			
Author	Year	Place	Findings
Feldstein	1979	Canada*	Income elasticity of demand is less than one
Abu-Zeid and Dann	1985	Africa	Positive relationship
Sodani	1997	India	Mixed results
Celik and Hotchkiss	2000	Turkey	Positive relation with having a car, flush toilet and modern floor
Dunlop et al.	2000	Canada	Positive relationship

* *Conceptual study*

2.2.3. Characteristics of the service (Enabling factors)

Characteristics of the service are nothing but the health service system factors or factors in the supply-side economics of health care, which have important bearing regarding the use or non-use or acceptability of different types of care. Five possible facets of the one health service system are following.

- Availability of health facilities
- Accessibility to health care
- Appeal (opinion and attitudes towards traditional and modern healers)
- Quality of care
- Cost or price of care.

2.2.3.1. Availability of health facilities: In Feldstein's (1967a) formulation, one hospital's production function takes the shape of a Cobb-Douglas production function where output is measured in terms of cases treated or number of hospital admission, and inputs are measured in terms of physical quantities of items used by hospitals such as medical and paramedical stuff, plant and equipment, drugs and bandages, etc. He estimated production functions for different input specifications and also compared the results with those obtained from other alternative estimation methods. However, we find one section important where he estimated production functions for hospitals of different size. He has fitted five production functions for four size quartiles and for all hospitals taken together with five availability factors: nursing, medical, beds, drugs and dressings and housekeeping. The results were

very important for policy implications. For all the production functions elasticity coefficients of medical inputs, beds and drugs and dressings are positive, meaning that hospital output increases with respect to increase in inputs. The coefficient of medical inputs rises substantially with hospital size. This implies that additional expenditure on medical stuff is more effective in large hospitals than in smaller ones. The elasticity of output with respect to beds falls markedly with increased hospital size. All the production functions show decreasing returns to scale, meaning that output would increase proportionately less than the increases in input. Feldstein (1967b) also developed a 'complete-system of econometric models' to observe conveniently how the health care system responds to differences in bed availability, demographic characteristics, income, etc.

Frost and Francis (1979) explained variability in hospital admission for British National Health Service by availability of beds with district level data for 17 districts. There were three independent variables in their model: available beds, consultant, and population. They have concluded that estimated elasticity of actual and potential admissions with respect to available beds was not significantly different from one, with none of the elasticities for the other explanatory variables proving significant.

Planning Commission, Government of India (1999) has done one evaluation study on functioning of community health centres in eight States in India: Bihar, Haryana, Madhyapradesh, Maharashtra, Orissa, Rajasthan, Tamil Nadu, and Uttar Pradesh. The Commission has estimated several econometric models and ultimately accepted one considering its statistical soundness. It has found that total number of doctors in a CHC (Coefficient: 0.46) and percentage of specialists present in CHC (Coefficient: 0.06) are positively related with utilisation rate of CHC services. Table 11 (appears below) summarises findings in this category.

Table 11. Availability of health facilities and utilisation of care

Availability of health facilities ⇒ Utilisation of services			
Author	Year	Place	Findings
Feldstein	1967a	UK	Utilisation increases with manpower, plant and equipment, and drugs.
Feldstein	1967b	UK	Utilisation increases with availability of bed.
Cuttani	1976	India	Positive relationship.
Frost and Francis	1979	UK	Elasticity of bed is not significantly different from one.
Amin et al.	1989	Bangladesh	Availability of drugs increases utilisation in public health facilities.
Sauerborn et al.	1989	Africa	Availability of drugs is an important service related determinant.
Vogel and Stephens	1989	Africa	Availability of pharmaceuticals is important.
Government of India	1999	India	Utilisation increases with number of doctors and specialists.

2.2.3.2. Accessibility to health care: Increased distance between residents and health care providers is commonly thought to decrease the utilisation of health care. This barrier effect of distance is assumed to be greater for those with reduced access to transportation, and for those living in sparsely populated areas where distances between residences and facilities are large (Nemet and Bailey 2000). Studies on health services utilisation in general have found a negative (distance-decay) relationship between remoteness of a health facilities and utilisation of services. Anthropologists on the other hand, argued that low degree of geographical accessibility of modern health services is supposed to be a major argument for the use of traditional resources in health care delivery (Kroeger 1983).

Rao et al. (1972) argued that introduction of public transport systems will reduce the cost of traveling to towns, and thereby increase the number of people utilising medical and health care facilities in South India. Ramachandran and Shastri (1983) found that there are no significant differences in the distance

travelled for treatment among various occupation groups in Karnataka, India. However, large farmers have a tendency to receive treatment from farther places than other groups, and artisans tend to get treatment within villages. Airey (1989) examines the effects of road improvements on in-patient catchments for two mission hospitals in Kenya. The study utilised records of two hospitals for 1983 (before the improvement of road) and 1986 (after the completion of improvement). The study found strong distance-decay (negative) relationship in both 1983 and 1986. He has estimated a negative exponential function, which suggests that per capita utilisation declines at a rate of about 2 per cent per kilometre for both the hospitals. However, there was no significant impact of improvement of road network on pattern of utilisation. Rao and Richard (1989) shown that the distance from the town to be a very important factor in the utilisation of medical care services.

Sodani (1997, 1999) found positive relationship between distance covered by a patient to reach one health facility and health care expenditure. Planning Commission, Government of India (1999) found that area coverage of a CHC and mean distance of PHCs from the CHCs are negatively related to utilisation of cate.

Mooney et al. (2000) investigated whether lengthy travel distances may explain why relatively few veterans in the United States use VA hospitals for impatient medical / surgical care. They have considered four categories of independent variables: veteran characteristics (number of veterans per postal zip code area by age and eligibility), density of eligible veterans (per square mile according to different income categories), access to facilities (distance to VA and non-VA alternative in miles) and characteristics of most non-VA alternative (has medical resident, member of the Council of Teaching Hospitals and number of beds). The study found that use of VA care decreases with increase in travel distance only up to about 15 miles, after which use is relatively insensitive to further increases in distance. Major findings are summarised below.

Table 12. Accessibility to health care and utilisation of services

Accessibility to health care ⇒ Utilisation of services			
Author	Year	Place	Findings
Rao et al.	1972	India	Introduction of public transport is positively related with utilisation
Ramachandran and Shastri	1983	Karnatak, India	No significant relationship between distance travelled and utilisation
Freeman et al.	1983	Africa	Inverse relationship
Airey	1989	Africa	Utilisation declines at a rate of about 2 % per kilometres (negative relationship)
Rao and Richard	1989	India	Distance from town is an important factor
Government of India	1999	India	Area coverage of a CHC and mean distance between PHCs and CHCs are negatively related with utilisation
Sodani	1999	India	Positive relationship with expenditure
Mooney et al.	2000	USA	Distance-decay relationship up to 15 miles

CHC: Community Health Centre, PHC: Primary Health Centre

However, recent theoretical developments in the geography of health set the stage to discuss a more nuanced relationship between distance and health care utilisation. Nemet and Baily (2000) think that the implication that human behaviour is recursively bound up with how individuals use places and derive meaning from these interactions. Distance then may take different meaning to different individuals. It is important to consider how an elderly population 'construct' the barrier effects of distance in experience of rural life. They operationalised the idea by working out activity space for each individual. In order to do so they considered trips to groceries, etc. and followed the method developed by Lefever (1926). The study found statistically significant association between utilisation and location of physician relative to activity space. They concluded that variation in utilisation rates seems more closely linked to a broader web of spatial relations – the activities of daily life - than any marker (distance).

2.2.3.3. Opinion and attitudes towards traditional and modern healers: As we have kept one separate section to analyse patients' preference for a type of care or

system of medicine, appropriate review on opinion and attitudes towards traditional and modern healers or system of medicine is presented in that section.

2.2.3.4. Quality of care: The notion of quality of care, which has been characterised as a social construct or a multifaceted concept, takes different meaning. These meanings vary across actors, professionals, managers, governments, users, among others and in relation to the type of care under consideration as well as to the social and technological context in which the care is delivered. Among these approaches, the analysis of user perception of quality offers a useful complement to those evaluations conducted from the point of view of professionals or public health authorities (Haddad et al. 1998).

According to Donabedian (1980), the doctor-patient relationship particularly in the areas of patient's access to information about their health care, in some quarters the patient's satisfaction with availability and accessibility of services is considered a valid indicator of the quality of the medical care. The importance of doctor-patient information exchange has been boosted up by Schoenbaum (1998). He feels that the art of medicine is equally important as the science of it. The science of medicine is what determines the process most likely to help a patient recover from a clinical condition. One facet of the art of medicine is enhancing the ability of physicians to establish trusting relationships with patients, relationships that will enhance compliance with scientific practices and lead to better outcomes. Probably many physicians simply find it easier to order a test or treatment than to have a 'difficult' discussion with the patient. ICPD, Cairo has also recommended increased access to quality reproductive health services (UNFPA 1995). The recommended indicators of quality of care include: provider-client information exchange, provider competence, interpersonal relations, and mechanisms to encourage continuity of medical care.

Quantitative studies solely on quality of care have a distinct platform in literature. Quality of care as a component in studies on health services utilisation is less known. We have reviewed one study in the first category where Qatari and

Haran (1999) tried to find out the determinants of user's satisfaction with primary health care settings and services in Saudi Arabia. They have considered 10 components of service quality and their constituents: environment structure, waiting area structure, waiting time, consultation time, activities, privacy measures, confidentiality measures, attitude, explanation and perceived outcome. They found that waiting area structure (satisfaction with situation, space, furniture, set-up, cleanliness, privacy, availability of drinking water, availability of bathrooms, availability of health education materials), confidentiality measures and environmental structure (satisfaction with building conditions, cleanliness, set-up, staffing, furniture, technical facilities, working hours, working shifts) were the areas that caused more concern to service users.

Table 13. Quality of care and utilisation of services

Quality of care ⇒ Utilisation of services			
Author	Year	Place	Findings
Dhar	1979	India	Important factors are: general cleanliness, that of linen and improving water supply in bathrooms.
Donabedian	1980	USA	Doctor-patient relationship is important
UNFPA	1995	USA*	Four points are: provider-client information exchange, provider competence, interpersonal relations, and mechanisms to encourage continuity of medical care.
Boscarino	1996	USA	There might be positive and negative biases associated with patient's perceptions.
Schoenbaum	1998	UK*	Art of medicine is equally important as the science of it.
Qatari and Haran	1999	Saudi Arabia	Waiting area structure, confidentiality measures and environmental structure were the areas that caused more concern to service users.

* *Report and / conceptual study*

In the second category, in Dhar's study (1979), patients gave suggestions for improving general cleanliness of the hospitals, cleanliness of linen and improving

water supply to bathrooms. Boscarino (1996) investigated the research question that whether perceived overall quality could influence hospital occupancy. The study did not find any satisfactory result. Moreover, the study found that there might be positive and negative biases associated with patient's perceptions. The study concluded that researcher should use quality indicators with caution. Table 13 shows the concerned areas, which affect utilisation of services.

2.2.3.5. Costs of Care: The price of a service and use of that service are, according to economic theory, inversely related: as price reduces, purchase or use of the service increases. Knowledge of price elasticity of demand for medical services is, therefore, of great importance. Cost of care is divided into three parts: the reduction in market income caused by disease, the reduction in longevity caused by disease, and the reduction in psychological well-being caused by disease, often labelled 'pain and suffering,' even when there is no reduction in market income. The reduction in market income has at least four sub-components: the cost of medical treatment, the loss of labour market income from an episode of illness, the loss of adult earning power from episodes of disease in childhood, and the loss of future earnings from premature mortality (WHO 2001). Studies, in general, take the following components: doctors fee, hospital admission fee, cost of drug, cost of medical test, cost of surgery as direct cost and cost of special diet, cost of transport, tips, rituals, monetary loss of earnings to patient due to illness and loss of earnings to accompanying persons for providing support as indirect cost (Weisbord 1960, Vinni 1983, Sodani 1997). However, the effect of price or costs towards utilisation of health services has not been explored so much in developed and in developing countries because of the complexity of the concept in health care. In many developed countries, part or the entire price is paid by the third party payer or by the government on patient's behalf. Any estimate of price elasticity of demand should be based upon the net or out-of-pocket price paid by the patient. Insurance coverage represents a movement down the patient's demand curve, which increases the quantity of services demanded. Health insurance may

have positive impact on utilisation but elasticity of demand for health care with respect to health insurance does not confront to the price elasticity of demand (Feldstein 1979). Many African nations have adopted the recommendation of The World Bank on increased cost recovery for financing publicly provided health services and gradually introducing user fees (Shaw and Martha 1995). However, utilisation dropped in many instances after user fees were introduced. When quality improvements were coupled with the introduction of user fees, utilisation increased after fees were raised (Reerink and Sauerborn 1996).

Studies on impact of cost or user fees on utilisation are sparse at national level and also of the studies that have been done, the findings are mixed. Many experts in medical care have generally assumed that prices affect medical service use insignificantly (Yoder 1989). Yoder have presented seven different studies in health demand and utilisation in developing countries at sub-national level and come to the conclusion that in general the price of services does not matter, having a minimal (if any) effect on the decision to seek health care. In The Philippines and Malaysia, it was found that price had a minimal effect on the demand for health services. In Kenya, however, it was found that cash price is a deterrent to health care use. In another study in Mali, it was found that price elasticity of demand is –0.017, which suggests that there would be little or no change in the expenditure pattern as a result in changes in price, holding other things constant.

Yoder (1989) has also presented results of his study conducted in Swaziland where he has shown that price (hike in fee structure) is well sensitive to utilisation of care. In Swaziland, health care services are provided by government and church missions through not-for-profit health facilities. User fees at government health facilities were far below than those of mission hospitals. In October 1984, government introduced a new fee structure mainly to equalise the fees charged by the two sectors. He has compared average patients' attendance rates (in health facilities) of October-December 1983 and October-December 1984 and at the second stage attendance rates of January 1984 and September 1985. In the first year, after the revision of fees structure,

attendance in government facilities reduced by 32.4 per cent and in the second year 38.5 per cent. On the contrary, attendance in mission facilities has increased by 10 per cent in the first year and one per cent in the second year. The instance of government facilities clearly indicates a negative relationship between user fees and utilisation. If government and mission facilities are taken together then from January 1984 to September 1985 average attendance rates has decreased by 17 per cent. Utilisation increased in mission health facilities at the cost of that in government health facilities perhaps due to better quality of care in the former than in the latter.

Freeman et al. in Calabar, Nigeria (1983), Sauerborn et al. in Burkina Faso (1989), Celik and Hotchkiss in Turkey (2000) found respectively that cost of travel; cost of travel and drugs; health insurance as important determinants of utilisation of a care.

2.3. Morbidity

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (WHO 1946). The term morbidity, meaning the state of illness or disability in a population, is a departure from the above ideal health condition. Although death is clearly a well-defined event, illness is not. But it is state somewhere between perfect health and death whose identification depends upon both the criteria used and type of observation applied to them. Morbidity measures are of two types: self-perceived morbidity and observed morbidity. The objective and scope of the study require a measure of the first type.

Self-perceived morbidity refers to measures, which are perceived and reported by an individual, usually in response to enquiries regarding illness. Murray and Chen (1992) grouped self-perceived morbidity into four categories: symptoms and impairments, functional disability, handicap, and health service use. Morbidity surveys are found to be dependent upon the perception and reporting of symptoms and impairments by individuals. Results from such surveys are the most common form of morbidity data in developing countries. Surveys on functional disability include questions on individual's ability to carry out specific functions and tasks or on restrictions of normal activities. Handicap, as self-perceived functional

disability within a specifically defined context, attempts to measure the significance of a functional disability to an individual in a specific social setting. Because data on functional disability and handicap are rare in developing countries, levels of health service use are employed to estimate morbidity burden of a community (Murray and Chen 1992).

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

India is in the midst of an epidemiologic transition and has an epidemiological profile of a poor as well as an affluent country (Sundar 1995, Peters et al. 2002). Important 'causes of disease' studies in India at national level are based on self-perceived morbidity method. Twenty-eighth (28^{th}) Round National Sample Survey of India (NSS 1980) was dedicated on morbidity. The survey depicts that one in three Indians fell ill annually, with similar rates in urban and rural areas. Among the States, Kerala has the highest rate of reported morbidity though it was the most demographically advanced state. Citing this example and another one from USA (which shows that self-perceived morbidity in USA is several times higher than that of rural Kerala and the Indian national average) Murray and Chen (1992) has

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

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

2.4. Patient's preference for a care & Cognitive Structure

2.4.1. Patient's preference for a care

Individual preference or appeal towards a particular type of care or system of medicine is an important determinant of utilisation of health services. Each system of medicine represents more or less a distinct stage in the development of healing art in the progress of human civilisation. In India, various systems of medicine (such as Allopathy, Ayurveda, Homoeopathy, Naturopathy and Yoga, Unani, Siddha and Folk) run parallel. Though ultimate aim of individual is healing of disease or alleviating the pain, human behaviour in illness and their acceptance of mode of treatment varies (Srivastava 1976).

According to Reddy (1966), factors, which determine utilisation of modern medicine in developing countries, are lack of facilities of transport and

communication and lack of awareness of modern medicine. Indigenous system of medicine has profound hold on villagers socially and psychologically. According to Rao (1972), the reasons for thriving of indigenous system of medicine are the non-availability of manpower, equipment, medicine (drugs) and physical facilities required for modern medicine. Srivastava and Bhandari (1974) studied utilisation pattern and demand for CGHS (Central Government Health Scheme) ayurvedic dispensaries in Delhi. They found that average daily attendance of ayurvedic dispensary had been on increase from 1967 to 1973. The reasons for choosing ayurvedic system were 'lasting cure', 'no ill effects', 'more effective', and 'tried Allopathy earlier'.

Chopra (1980) argued that community responses to systems of medicine in illness depend upon cause of disease, effectiveness of treatment and time spent on cure of a disease. The popularity of Allopathy was based on the understanding that it gives faster relief and also had greater efficacy in cure of most diseases. People often resorted to a combination of system of medicine. Hans (1980) studied perception and utilisation of ayurvedic medical care by rural community in Aligarh, Uttar Pradesh. He reported that great importance is attached to ayurvedic institutions despite the availability of the allopathic services through primary health centres. The reasons for preferring ayurvedic system were 'slow but lasting cure', 'faith in the system', 'no side reaction', and 'inexpensive medicines'. Forty-three per cent of the respondents consider ayurvedic to be effective for children. Reasons for choosing homoeopathy were also similar. Eighty per cent of the respondents used Homoeopathy for selective illness.

According to Banerjee (1981), the analysis of social, economic and political determinants of the body of knowledge of the indigenous systems of medicines in India is of crucial importance. Such an analysis places the indigenous systems of medicines in an entirely different perspective. It is very unfortunate that the bulk of social scientists who have worked in the field of health culture of the rural populations in India, have been over-enthusiastic in discussing the superstitious

health beliefs and practices of these people, and they have not paid adequate attention to the powerful social, economic, and political forces which had been instrumental in causing decay and degeneration of their health culture. According to him in rural India a very unflattering image of the Primary Health Centres leads people to go to the registered medical practitioners and quacks. When they proved ineffective, then depending on the economic status of the individual and the gravity of illness, villagers actively sought help from government and private medical agencies in the town and cities. Nandan et al. (1982) in their study in a development block in Agra, Uttar Pradesh found that majority of people relied on traditional practitioners. Modern medicine was less in vogue due to high cost and technology and less number of practitioners. The traditional practitioners make significant contributions to health care of the community.

Chopra (1991) studied the perception of patients under Central Government Health Scheme (CGHS) towards Indian System of Medicine and Homoeopathy (ISM & H) in Delhi. She found that a lot of beneficiaries of CGHS specially educated and high-income groups do utilise ISM & H. However, for maternal and child health, and family welfare (MCH & FW) services they all rely on Allopathy. They are not aware that these services can be obtained from doctors in ISM & H also. Hence, they did not ask for these services. Dar (1995) did one study on common health problems among male adolescents and health services utilisation by them in an urban slum in Delhi. He found that majority of the adolescent males preferred private clinic, rests preferred clinic run by NGOs (non-governmental organisations) and few preferred chemist shop, and one told about his father who was a Hakim (Unani practitioner). The respondents were of the opinion that if services were available at free of cost, they should be tapped first.

Table 14. Opinion and attitudes towards traditional and modern healers

Author	Year	Place	Findings
Reddy	1966	India	ISM has profound hold on villagers socially and psychologically.
Kakar et al.	1972	Punjab, India	Indigenous practitioners dominate because they provide medicines (drugs) according to local customs, beliefs, and demand.
Rao	1972	India	Thriving of ISM is due to the non-availability of modern medicine.
Srivastava and Bhandari	1974	Delhi, India	The reasons for choosing ayurvedic system were 'lasting cure', 'no ill effects', 'more effective', and 'tried Allopathy earlier'.
Chopra	1980	India	Allopathy is popular as it gives faster relief and also had greater efficacy in cure of most diseases. People often resorted to a combination of system of medicine.
Hans	1980	Aligarh, India	The reasons for preferring ayurvedic system were 'slow but lasting cure', 'faith in the system', 'no side reaction', and 'inexpensive medicines', effective for children. Reasons for choosing Homoeopathy were also similar.
Nandan et al.	1982	Agra, India	Majority of people relied on traditional practitioners. Modern medicine was less in vogue due to high cost and technology and less numbers of practitioners.
Chopra	1991	Delhi, India	Beneficiaries were not aware that maternal and child health services can be obtained from doctors in ISM & H also.
Dar	1995	Delhi, India	Adolescent male preferred private clinic.
Sundar	1995	India	Utilisation of private care is highest for acute illness and that of public health facilities is very high for accidents and injuries.
Chhabra and Saraf	1997	India	In a tertiary level facility (reproductive health care seekers) illiterate people seek care for economic reasons, rich people for referral cases, reputation, availability of desired expertise, appropriate health care insurance benefit, etc.

ISM & H: Indian System of Medicine and Homoeopathy

Study by Sundar (1995) found that in both rural and urban areas the utilisation of private health facilities is highest for acute illness. In the rural areas, the utilisation of public health facilities is very high for accidents and injuries. In both rural and urban areas, with an improvement in the income status of the household, the utilisation of the public health facilities comes down and the utilisation of the private health facilities goes up. Chhabra and Saraf (1997) examined the reasons behind taking admission in tertiary level health care facility (among reproductive health care seekers) in rural Central India. They have interviewed 1120 women over 6 months. The study found that illiterate people seek care for economic reasons, rich people for referral cases. Other important reasons were reputation, availability of desired expertise, appropriate health care insurance benefit, etc. Table 14 (as above) smmarises important findings in this category.

2.4.2. Patients' or health seekers' cognitive structures

The trend to sketch respondent's cognitive structure in qualitative research is a very recent phenomenon. Literature in this field is very limited. Majumder (2000) did an exploratory study to analyse cognitive structure of male and female respondents with respect to the question of good qualities that a spouse should have. The study used free-listing technique to collect information. Verma et al. (2001) studied male sexual health problems in a slum population in Mumbai. They have used 'Free-Listing' technique (where respondents are free to express their opinion in descending order according to importance) to collect the local vocabulary used for the study items. Mondal (2003) has also used free listing technique to study the reproductive morbidity in Bardhaman district of West Bengal. Free-listing technique is particularly useful to get culturally relevant items (vocabulary) and to delineate the boundaries of a semantic or cultural domain. The technique can also be used to make inferences about patients' cognitive structure by computing 'salience' or importance of a particular opinion from the order of recall and the frequency of recall.

2.5. Research gaps

Important research gaps and scope for further research are highlighted below.

2.5.1. Dichotomy between economic and non-economic factors

There has been a dichotomised classification of the factors as economic ones and non-economic ones. Economists were of the opinion that economic factors only are relevant instruments of public policy and have more immediate value for forecasting. Non-economic factors are also important but less useful for policy purposes as they are not subject to sudden change (Feldstein 1979). Social scientists who do not support this opinion, have greatly acknowledged importance of economic as well as non-economic factors to understand the problem of low level of health services utilisation. If we closely look at the studies based on the former view, we can see that by and large those were conducted in developed countries with the consideration that there is only one system of medicine, namely Allopathy in a very well organised set-up. In India, six different systems of medicine run parallel with many other unrecognised traditional ones. However, the dichotomy between economic view and non-economic one may lead us to test whether non-economic factors are important predictors of utilisation of services and policy related instruments in Indian societies.

2.5.2. Technical and non-technical studies

Studies on health services utilisation, as reviewed in the present study, may again be classified into two broad categories. We may call one group as 'technical' to accommodate conceptual studies and those based on mathematical or econometric models. The other may be called 'non-technical' for all descriptive studies and those based on simple statistical comparisons. Though the present review of literature may not be exhaustive, if we look at the volume of technical studies across regions, we can see that majority of them were conducted either in developed nations or in Africa. If we count the number of non-technical studies we can see that most of them were conducted in India. Although the shortfall in

technical studies in India calls for immediate action, we should find some other valid reasons to do that. As the developed and developing African nations have already gained experience from empirical studies, the question at this stage is that whether the results can readily be implemented in Indian context or whether we should expedite to follow a similar path. Peters et al. (2002) put a note of caution that experience gained from the latest policy changes in North America and Western Europe cannot be simply adopted in India whose demographic and institutional realities are so different from those of high-income countries. We feel that appropriate localisation of global concepts would provide us with meaningful and reliable apparatus for a deeper insight into the problems. For example, we have mentioned earlier that many African nations have already introduced user fees in public health facilities or gradually introducing it. As a consequence of it technical studies on utilisation gained importance in Africa to examine the effect of cost and other relevant factors on utilisation of care. In India also the need for charging user fees is being greatly acknowledged. In some States including West Bengal, fees structure in secondary and tertiary levels has been revised. However, we are unaware of any effort in our country (if any) in pre-reform or post-reform period (after 1991) or in the recent past, which addressed the issue.

2.5.3. Efficacy of technical and non-technical studies

Feldstein (1967b) projected the view that crude statistical comparison of means, etc. is less useful for planning purposes. He advocated a 'complete-system of econometric models', which would answer the question – 'how do differences in variable x affect some other variable(s) in the health care system?' Very few studies in India meet Feldstein's proposition.

2.5.4. Gaps in technical studies in India

Considering technical studies in India, we see that Sodani (1997, 1999) estimated demand functions for a region in Rajasthan for all types of illness considering 11 independent variables from different categories. The dependent variable in that study is total expenditure (direct and indirect costs) on health care per patient.

However, as the sources of seeking care (or systems of medicine) are not homogenous in nature and cost of a treatment varies according to sources of care and system of medicine, in strict sense the estimated demand functions are not likely to reflect true picture. We feel that demand functions should be estimated according to type of care or system of medicine. Other technical studies (mainly by demographers) such as, Gobindasamy and Ramesh (1997), Kavitha and Audinarayana (1997), considered maternal and child health related issues. Basu (1990) addressed the issue of culture only. GOI (1999) evaluated the functioning of the CHCs incorporating availability and geographic factors only. Moreover, none of the technical studies in India examined the effect of cost or price on the pattern of health care utilisation. Except Sodani (1997, 1999), others have not incorporated affordability factors in their study. Large-scale sample surveys in recent past, such as Rapid Household Survey - Reproductive and Child Health Project, Phase I & II, National Family Health Survey – II have collected some information on type of house, toilet facility, source of drinking water, type of fuel used for cooking and lighting, household consumer durables, etc., to compute a index of standard of living. However, coefficient of this type of index in no way reflects income elasticity of demand for medical care, as many of the above factors are independent of a household income.

If we look at the sampling design of the study done by Inspiration (2002) in Cooch Behar, we find that 60 villages have been covered in the district and 10 households have been selected from each village. Of the 10 households, 7 have been selected purposively such that each has at least one infant; one household has been selected purposively such that it has one adolescent. Rest two households have been selected randomly. In such a sampling design the possibilities of bias cannot be ruled out. Moreover, as the study used one-year recall period, it has aggravated the chances of misreporting.

2.5.5. Hospital records Vs Patients' perception

The framework developed by Feldstein (1967a, 1967b) is fully and the study by GOI (1999) is partially based on hospital records. As 'patient's illness' does not coincide with the 'doctor's disease' (Herzlich and Pierret 1985), inferences of those studies are likely to lose credibility in mixed socio-economic and cultural set-up.

2.5.6. Activity space Vs. simple geographical accessorily

Nemet and Baily (2000) introduced a new concept of 'activity space' of a potential patient over the simple geographical accessibility to health care. The concept can hopefully be used in Indian contest after appropriate localisation of it as normal out-of-door trips to market place, nearest towns, etc. in the present socio-economic set-up. Moreover, simple geographical distance may be meaning less for studies based on small sample size or small geographical area either because of respondent's inability to measure the distance or because of his or her ignorance about the availability of some facility or simply because of common sources or care for all. Incorporation of the concept of activity space may however, minimise all these shortcomings.

2.5.7. Aetiology and patients' cognitive structures

Importance of aetiological considerations and appeal towards a type of care or system of medicine has been recognised greatly by the medical sociologists, anthropologists, and doctors. In India, the issue has been addressed mostly by the medical specialists while pursuing their post-graduate degree in social and community medicine. Studies on these issues are restricted in counting frequencies of patients expressing various opinions. However, to move a step further, one can use modern qualitative anthropological techniques to sketch patient's (or in true sense health seeker's or respondent's) cognitive structure with respect to their choice of a type of care or system of medicine. Though there is no appropriate masterpiece or model to follow, the work of Verma et al. (2001) on male sexual

health problems in a slum population in Mumbai may be helpful in this regard. The authors have used various anthropological techniques to get culturally relevant items (vocabulary), and computed 'salience' or importance of a particular opinion in people's mind.

However, it is to be mentioned that salience has been computed (in the above study) combining the frequency of an item with its 'average rank' in individual lists. Methodological question is that, whether the process of computing average rank is a valid action. Each individual list expresses one preference ordering where items are in ordinal scale. Characters in ordinal scale have identity and order only. They are not additives. So, computation of average rank (if expressed as fraction) is a meaningless operation. In such a situation it is necessary to develop a method, which will be free from such shortcomings.

2.5.8. Harmonising quantitative and qualitative approaches

One disadvantage of quantitative studies is that though they tell very precisely about 'what' or 'how much', they do not explain 'why'. Usually researchers try to find the clue (of 'why') from outside the models or studies. As a part of positive body of thought, though econometric models provide value-free predictions, their meaningful interpretations very often incorporate prejudice or some sort of imagination of the researchers. If a study is designed to have both quantitative and qualitative sections, the former will give reliable estimates on 'what' and 'how much' and the latter will explain 'why'. One section will be a true complement of the other.

three

3 Research design and method

3.1. Introduction

This chapter will provide information on selection of the study area, pre-testing, sources of data, sampling design, sampling procedure, sampling frame, techniques of data collection, reference to questionnaire, reference period, data processing, methods of analysing morbidity data, study of patient's choice of a system of medicine, factors affecting utilisation of services, cross tabulation, specification of the models, and conceptual framework.

3.2. Selection of the study area

Utilisation of health services varies sharply across cultures and societies in India. Important studies based on large-scale sample survey in India have been conducted either at national level or across broad regions. Studies based on small sample are also available, but those have been conducted either in northern or southern India. By and large the region under study remains unexplored. It has been decided to cover at least two districts namely, Cooch Behar and Jalpaiguri of this region to get the pattern of morbidity as well as utilisation of health care. As the district hospitals and other specialised sources of care are located in the district headquarters, it has been decided to cover Cooch Behar and Jalpaiguri towns. In order to sketch health-seeking patterns of potential users of those facilities who come directly from the adjacent rural areas or from other rural health care institutions as referral cases, it has been decided to cover Block II and Block I of the Sadar Sub-divisions of the two districts respectively.

3.3. Source of data

As the study is to analyse patients' health seeking pattern as well as epidemiological profile from the point of view of self-perceived morbidity, it has been decided to go for primary data collected through interview technique. Supplementary information on status of health, profile of the study area, etc. have been taken from RHS-RCH Phase I & II, and Census 1991 and 2001 respectively.

3.4. Pre-testing

Before finalising the questionnaire, pre-testing of a draft questionnaire has been conducted in one urban area and rural area of each of the districts. This has been very helpful to finalise the questionnaire and also to get rough ideas about incidence and prevalence of morbidity, used later to determine the sample size.

3.5. Sampling design

3.5.1. Sample size

Determination of sample size depends on a number of technical and non-technical factors. Non-technical factors are: time and resources available for the study, geographical considerations, etc. Technical factors include objective of the study, type of model to be fitted, and proportion of cases having the characteristics (under study) in the population, level of margin at which the study is designed. The level of margin for the present study is 0.05 (i.e. α=0.05). The pilot study revealed that the (annual) average period prevalence rate (proportion of persons who are exposed to the event of utilisation of care) of disease for the two districts are 0.348 and 0.489 (without multiplying by 1000) in rural and urban areas respectively. The average sizes of a household in rural and urban area of the two districts are 5.455 and 5.150 respectively (according to 1991 Census).

If 'n' is the size of a sample, P = proportion of cases having the characteristics, and Q = (1-P), then size of sample is:

$$n = \frac{Q}{P * \alpha^2}. \quad (1)$$

This will give n = 0.652 / (0.348*0.0025) ≈ 749 persons or 749 / 5.455 ≈ 140 households in rural areas and n = 0.511 / (0.489*0.0025) ≈ 418 persons or 418 / 5.150 ≈ 80 households in urban areas of each of the districts. The total sample size is 2334 persons or 440 households in the two districts. Among the large-scale household surveys, in NFHS-II, 15-60 households have been selected from each village (EIT and IIPS 1999); in RHS-RCH (Mode 1998), 20 households have been selected from each village / ward. In the present study, it has been decided to select 20 households from each mouza / village / ward. This leads us to select 140/20 = 7 mouzas / villages in rural area and 80/20 = 4 wards in urban area in each district. In order to consider non-response, etc., over-sampling of 10 per cent is done. In other words, 20 + 2 = 22 households have been selected from each mouza / village / ward leading to a total of 484 households.

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

3.5.2. Sampling procedure

The study adopts a multistage sampling technique. Different stages are as follows:

- Stage I: Cooch Behar and Jalpaiguri districts have been selected.
- Stage II: Cooch Behar and Jalpaiguri Sadar Sub-divisions have been selected.
- Stage III: CD blocks 'Cooch Behar – II' and 'Jalpaiguri – I' have been selected.
- Stage IV: Six Mouzas / villages from each CD block have been selected randomly and one mouza / village from each CD block has been selected purposively (as those were covered in the pilot study). Four wards from Cooch Behar Municipality have been selected randomly. Three wards from Jalpaiguri Municipality have been selected randomly and one ward has been selected purposively (as it was covered in the pilot study[*]).
- Stage V: Twenty-two households from each mouza / village / ward have been selected following simple systematic sampling technique.

[*] In case of Cooch Behar, Dinhata town was selected for pilot survey, which was not included in the main study.

3.5.3. Sampling frame

The main input for the sampling frames was voter lists. Voter lists are available for different polling booths, which strictly do not follow administrative domains and trailed in alphabetical order. Compiling voter list (s) of one or more booths, sampling frames have been prepared for each village / ward taking rigorous help from either present or ex-members of the Gram Panchayats or the Municipalities or local club members or persons who are actively involved in social work at grass root level.

Table 15. Population of Cooch Behar and Jalpaiguri

	Key Indicators	Cooch Behar	Jalpaiguri
1	Total Population: 2001(in thousands)	2478	3403
2	Total Population: 1991(in thousands)	2171	2801
3	Growth rate: 1991-2001 (annual exponential, %)	1.32	1.95
4	Total Households: 1991	407203	460398
5	Average size of a household: 1991	5.15	5.17

Table 16. Sampled units and number of households (1991 Census)

Cooch Behar			Jalpaiguri		
No.	Mouza / Vill / Ward	HH	No.	Mouza / Vill / Ward	HH
0003	Sajherpar Ghoramara	735	0004	Bahadur	2537
0008	Sakuni Bala	818	0005	Patkata	4371
0010	Bararangrash	1300	0007	Kharia	11757
0011	Salmara	283	0008	Mandal Ghat	2424
0014	Uttar Sibpur	373	0009	Goralbari	3979
0045	Konamalli	477	0023	Berubari	4165
0050	Bag Bhandar	119	0029	Boalmari	1131
0003	Amartala (Kalabagan)	450	0005	Samajpara	990
0005	Goalapatti	480	0007	Telipara	748
0009	Rail Gumti	400	0008	Babupara	566
0019	Sunity Road (Debibari)	600	0024	Vivekanandapara	1100

No.: Census Village/Ward number, HH: Number of households, Vill: village

Table 15 shows total population of the districts of Cooch Behar and Jalpaiguri. Fourth and fifth rows show total and average size of household in the two districts, which have been used as inputs to determine the sample size. Table 16 shows selected mouzas / villages / wards in the districts with number of households.

3.6. Tools and techniques of data collection

3.6.1. Techniques of data collection

Data have been collected through interview technique with mostly a structured and close-ended questionnaire. In one section of the questionnaire, qualitative information has been collected adopting free listing technique.

3.6.2. Different parts of questionnaire

The questionnaire has 13 sections: Identification, Household Characteristics, Background Characteristics of the Household Population, Economic Profile, Morbidity, Vital Events, Utilisation of Care, Reasons behind Choosing a Particular Type of Care / System of Medicine, Availability of Health Facilities, Accessibility to Health Care & Activity Set, Quality of Care, Expenditure, Food Habit.

3.6.3. Reference period

Data have been collected roughly for a 5-month reference period in the second half of 2003.

3.7. Methods of analysing data

The study has three facets: morbidity analysis (examination of the phenomenon of epidemiological transition, and morbidity rates), study of patient's preference for a care (sketching health seeker's cognitive structure), and estimation of contribution of different need, predisposing, and enabling factors towards utilisation of a care (multivariate analyses using binary-multivariate Logistic Regression Analysis, LRA and Multiple Classification Analysis, MCA).

3.7.1. Methods of analysing morbidity statistics

In order to carry out studies on epidemiological transition, data on morbidity are classified according to the Global Burden of Disease (GBD) study 1990 (Murray

and Lopez 1996). The observed distribution is compared with the hypothesised ones (using Chi-square statistic) to test whether epidemiological transition has taken place in rural and urban areas of Cooch Behar and Jalpaiguri districts of North Bengal.

Table 17. Classification of diseases as in GBD Study 1990

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

GBD: Global Burden of Disease

In order to compute rates of morbidity, the illnesses that exist in a population during a given time interval may first be classified as follows (see Hill 1966):

a) Illness beginning during the interval and ending during the interval.
b) Illness beginning during the interval and still existing at the end of the interval.
c) Illness existing before the beginning of the interval and ending during the interval.
d) Illness existing before the beginning of the interval and still existing at the end of the interval.

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

$$\text{Incidence Rate (annual)} = \frac{I}{P} \times \frac{365}{150} \times 1000 \quad (2)$$

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

$$\text{Period Prevalence Rate (annual)} = \frac{C}{P} \times \frac{365}{150} \times 1000 \quad (3)$$

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

Morbidity rates will be computed for rural, urban, and combined categories.

3.7.2. Method of studying of patient's choice of a care

All individual responses are tabulated according to their rank in free-lists. If there are n-numbers of opinions, those in the first, second, …., n-th ranks will get weights as follows:

$$\{(n-0)/(1+2+\ldots+n)\},\ \{(n-1)/(1+2+\ldots+n)\},\ \ldots,\ [\{n-(n-1)\}/(1+2+\ldots+n)]. \quad (4)$$

The underlying assumption behind such weighting system is that importance of each opinion in individual list decline linearly. Frequency of each opinion may vary sharply as all respondents may not mention all items. Total weight of each opinion will then be computed by simple aggregation. These may sharply vary according to their ranks and frequencies. All weights are then be aggregated to get the grand sum and weight of each opinion is expressed as a proportion or share of the grand sum. These quantities are nothing but the salience of each opinion in respondents' minds.

For example (for one individual free-list only), if there are 3 opinions in favour of Allopathy as: Permanent cure (in the first rank), Quick relief (in the second rank), and Reliable (in the third rank), then salience of

Permanent cure = $\{(3-0)/(1+2+3)\} = 0.500$,

Quick relief = $\{(3-1)/(1+2+3)\} = 0.330$,

Reliable = $\{(3-2)/(1+2+3)\} = 0.170$,

such that Σ Salience = $0.500 + 0.330 + 0.170 = 1.000$.

The above results are to be comprehended as – on an average, half (50 per cent) of the space of respondent's mind is occupied by the feeling that Allopathy leads to permanent cure, 33 per cent of the space is full by the feeling that it provides quick relief, and the rest (17 per cent) is occupied by the impression that it is reliable. Though all the above factors influence respondents to choose

allopathic system of medicine, the above method provides us with precise estimates of 'salience' or importance of each opinion in people's mind.

3.7.3. Methods of analysing factors affecting utilisation of services

Utilisation of services may be considered as an event (Béland 1988). In that case, it is binary in nature. We may assign it 1 if the event is occurred, 0 otherwise. Utilisation of care may have many dimensions. After going through data, we have found suitable to form two broad groups: utilisation of a care from modern source in consultation with doctors and medical specialists in one group, and utilisation from traditional source (including treatment from paramedical or supporting stuff and from any system of medicine except Allopathy and Homeopathy) or self-treatment or family-treatment, etc. in the other. From the above review of literature we found the following predictor variables relevant which may affect health services utilisation in Cooch Behar and Jalpaiguri: age, gender and caste of the morbid person, family size (size of a household), education of the head of the household, normal out-of-door trips by the head of the household, household cash income, type of illness, severity of illness, type of health facility, system of medicine, quality of care, and total direct costs or price of a care. However, as household cash income may always be not related to ability to pay health care, we plan to include some proxy measures of households' agricultural possessions and standard of living. In addition to this, as this particular region is far away from the important Indian cities, and as people of this region are compelled to travel a lot, we can examine whether this traveling habit has any bearing on utilisation of services. Finally, studies based on small sample survey could not explore the relationship between availability of health facilities and utilisation of care mainly because of common sources of care for many people. But one can consider place of residence as a proxy measure of availability (Elo 1992) with the assumption that in the rural areas health facilities are not easily available but available in urban areas. Definitions of the response and predictor variables are shown in table 18.

As most of the variables in our study appear to be categorical, instead of a straight line, it seems preferable to fit some kind of sigmoid curve to the observed points. Though there are many ways to define a sigmoid curve mathematically, the logistic function tends to be preferred, partly because it leads to the logit regression model and partly because it is easy to interpret (Retherford and Choe 1993). The standard form of an estimated logistic function is:

$$P = \frac{1}{1+e^{-Z}} \tag{5}$$

where z is the predictor variable, e is the base of the natural logarithm, and P is the estimated probability of occurrence of one point of the dependent variable. From equation (5) it follows that:

$$1 - P = 1 - \frac{1}{1+e^{-Z}} = \frac{e^{-Z}}{1+e^{-Z}}. \tag{6}$$

Dividing (5) by (6) we get

$$\frac{P}{1-P} = e^{Z}. \tag{7}$$

Or,

$$\Omega = \exp(Z) \tag{8}$$

where Ω (uppercase omega) $\equiv \frac{P}{1-P}$ (is called the odds).

Now, if we assume that Z, instead of being a single predictor variable, is linear function of a set of predictor variables:

$$Z \equiv \beta_0 + \beta_1 X_1 + \beta_2 X_2 + ... + \beta_k X_k. \tag{9}$$

Substituting (8) in (7) we get:

$$\Omega = \exp(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + ... + \beta_k X_k). \tag{10}$$

Now, if P be the estimated probability of utilising a care from modern source (in contrast to self-treatment and traditional ones), in odds form the model is:

$$\Omega = \Omega = \exp\left(\beta_0 + \sum\beta_{1i}\ X_{1i} + \sum\beta_{2i}\ X_{2i} + \sum\beta_{3i}\ X_{3i}\right). \quad (11)$$

The equations include need (X_{1i}), predisposing (X_{2i}), and enabling factors (X_{3i}).

The results of the above logistic regression models are transformed into simple cross tabulation of the probability of utilising any type of health care using multiple classical analysis. This involves calculation of adjusted and unadjusted values of the response variables for each category of predictor variables.

As the indicator-coding scheme is adopted throughout the analyses, for each predictor variable results of logistic regression analysis (LRA) are available for n minus one (n – 1) categories in contrast to the n^{th} category, the reference category (the first or last as specified). The advantage of multiple classification analysis (MCA) over the LRA is that in the former both adjusted and unadjusted probability values are readily available for all the predictor variables and categories. Moreover, in the regression analysis it is customary to display statistically significant results only. However, in the MCA one can include all the β-coefficients irrespective of their statistical significance (see Retherford and Choe 1993) as each probability value in the adjusted columns are based on a set of statistically significant or insignificant β-coefficients. Unadjusted probability, in the present context, means the effect of one particular variable towards pattern of utilisation of a care when all other predictor variables are absent in the model. Adjusted probability means the effect of one particular variable towards pattern of utilisation of a care when all other predictor variables are controlled at their mean values. As a result the set of controlled variables change as we move down the table.

3.7.4. Cross tabulation

In addition to the above, cross tabulation is done and clustered bar charts are prepared to present and represent the characteristics of the subject, disorder, and service.

3.7.5. Conceptual framework

The conceptual framework for the study is presented below. It has been modified after Kroeger (1983). The first node stands for perceived morbidity, which interacts with predisposing, need, and enabling factors. Nodes in the third panel display a set of possible explanatory variables, which are supposed to play significant roles in determining choice of a care. Though choice of a care has many dimensions, we have kept utilisation of a care from modern source in one category and utilisation from traditional source or self-treatment or family treatment, etc. in another as shown in the nodes in the fifth panel.

3.7.6. Definition of the variables

Definitions of the response and predictor variables are shown below all of which are categorical.

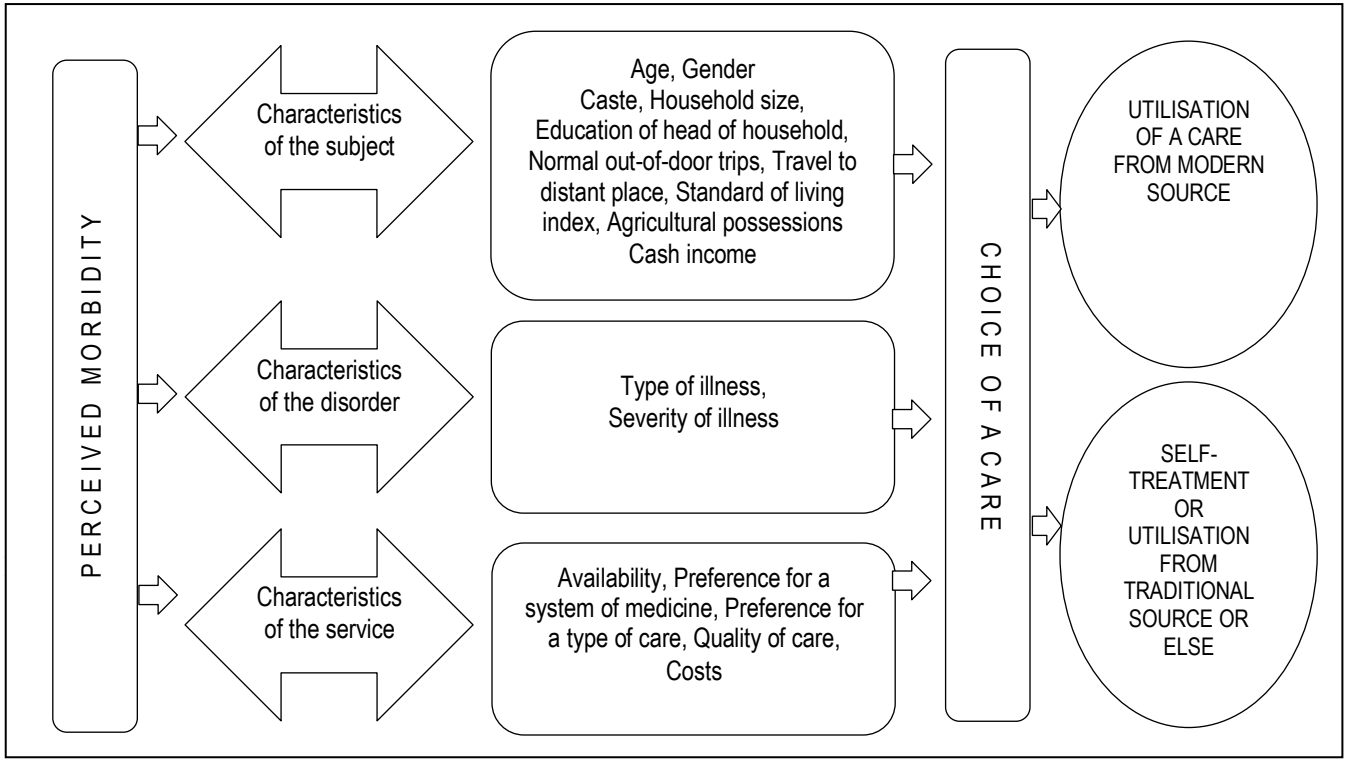


Figure 1. Conceptual framework to examine pattern of utilisation of care

Table 18. Variables in the model and definitions

Variable	Definition	Value
Utilisation of a care	Whether the household utilised care from any modern source	1 if the event occurs, 0 otherwise.
Age	Age of the morbid person	1 if age 5-14 0 otherwise; 1 if age 15+ 0 otherwise.
Gender	Gender of the morbid person	1 if female, 0 otherwise.
Caste	Caste of the morbid person (General / Scheduled Caste / Tribe)	1 if general, 0 otherwise.
Family size	Number of persons in the household	1 if size ≤ 5, 0 otherwise.
Education	Education of the head of the household	1 for illiterate and up to primary, 0 for middle and above.
Normal out-of-door trips	Number of travels by the head of the household within 10 kilometres range in a month	0 if number ≤ 4, 1 otherwise.
Travel to distant places	If the head of the household travelled beyond 500 kilometres range in past three years	1 if the event occurs, 0 otherwise.
Standard of living	A composite index based on proportion of living rooms to persons (1 if proportion ≥ 0.5, 0 otherwise), type of house (1 if pucca or semi-pucca, 0 otherwise), type of toilet facility (1 if sanitary, 0 otherwise), audio system (1 if yes, 0 otherwise), TV (1 if yes, 0 otherwise)	1 if score >3, 0 otherwise.
Agricultural possessions	If the household possesses cultivable land, milch animals, draft animals, birds, and fruit trees. For each item the score is 1 if the household possesses it, 0 otherwise	1 if score >3, 0 otherwise.

Cash income	Household monthly cash income from all sources	1 if 2000 ≤ income ≤ 4999, 0 otherwise; 1 if income ≥5000, 0 otherwise.
Type of illness	Morbidity	1 for Group II, 0 otherwise; 1 for Group III, 0 otherwise.
Severity	How sever the attack is	1 for medium, 0 otherwise; 1 for high, 0 otherwise.
Type of facility	Public / private / other	1 for public, 0 otherwise.
System of medicine	Allopathy / Homeopathy / Traditional (Traditional: Ayurvedic, Kabiraji, etc.)	1 for Allopathy, 0 otherwise; 1 for Homeopathy, 0 Otherwise.
Quality of care	Composite index on opinion on cleanliness (yes/no), whether privacy is maintained (yes/no), service provider listen to the patient/other (yes/no), service provider talk to the patient/other (yes/no), and the household is satisfied (yes/no). For each item the score is 1 if the answer is 'Yes', 0 otherwise	1 if score >3, 0 otherwise.
Costs	Total direct cost per episode	1 if 100 ≤ cost ≤ 499, 0 otherwise; 1 if cost ≥500, 0 otherwise.

four

4 Study area and the population

4.1. Introduction

In this chapter we will analyse characteristics of the subject, i.e., demographic and socio-economic characteristics of morbid persons or households with morbidity, and characteristics of the service, i.e., health service system related factors, pattern of health care expenditure, and household income. Data are presented in simple cross-tabulations and represented again somewhat differently in clustered bar charts.

4.2. Characteristics of the subject

Figure 1 shows population pyramid of the study area interpretation of which is straightforward. Table 19 shows characteristics of the subject in the rural, urban, and combined categories. Data are to be interpreted by moving down in each column of the table. We begin with age-structure. There are four age groups: the group for infants and children under age four (0-4), the young-age group (5-14), the working-age group (15-64) and the old-age group (65+). We see that proportion of morbid children is much higher in the urban areas of the districts than in the rural areas. However, proportion of persons in the working age group is higher in rural areas. Figures 2 and 3 also depict similar information.

We see that proportion of male and female population among the morbid persons is almost equal in the rural category. However, proportion of male population with morbidity is higher in the urban category.

Figure 4 shows caste composition of the morbid persons. In the rural areas more than 38 per cent of the cases of illness occurred to people belong to the

Scheduled Caste / Scheduled Tribe (SC/ST) category. This percentage figure is roughly half (17.7 per cent) in the urban areas.

Figure 5 shows family size or size of households of the morbid persons. From the table we see the majority of the morbid persons belong to the small families both in the rural and urban areas. However, average sizes of families in the rural and urban areas are: 5.4 and 5.2 respectively.

Table 19. Characteristics of the subject

Characteristics of the Subject	Category	Rural		Urban		Combined	
		n	%	n	%	n	%
Age-structure	0-4	58	17.8	50	31.6	108	22.4
	5-14	80	24.6	51	32.3	131	27.1
	15-64	124	38.2	36	22.8	160	33.1
	65+	63	19.4	21	13.3	84	17.4
Gender	Male	166	51.1	100	63.3	266	55.1
	Female	159	48.9	58	36.7	217	44.9
Caste	SC/ST	125	38.5	28	17.7	153	31.7
	General	200	61.5	130	82.3	330	68.3
Family size[1]	≤ 5	171	52.6	99	62.7	270	55.9
	> 5	154	47.4	59	37.3	213	44.1
Education[2]	≤ Primary	144	44.3	122	77.2	266	55.1
	Middle +	181	55.7	36	22.8	217	44.9
Normal out-of-door trips	≤ 4 / month	81	24.9	121	76.6	202	41.8
	5 +	244	75.1	37	23.4	281	58.2
Travel to distant place	No	163	50.2	50	31.6	213	44.1
	Yes (last 3 years)	162	49.8	108	68.4	270	55.9
Standard of living	Low	225	69.2	57	36.1	282	58.4
	High	100	30.8	101	63.9	201	41.6
Agricultural possessions	Low	69	21.2	113	71.5	182	37.7
	High	256	78.8	45	28.5	301	62.3
Income	< 2000	147	45.2	14	8.9	161	33.3
	2000 – 4999	132	40.6	46	29.1	178	36.9
	5000 +	46	14.2	98	62.0	144	29.8
Total (for each variable)	-	*325*	*100.0*	*158*	*100.0*	*483*	*100.0*

[1] Average family size: 5.4 (Rural), 5.2 (Urban); [2] Number of illiterates: 38 (Rural), 17 (urban)

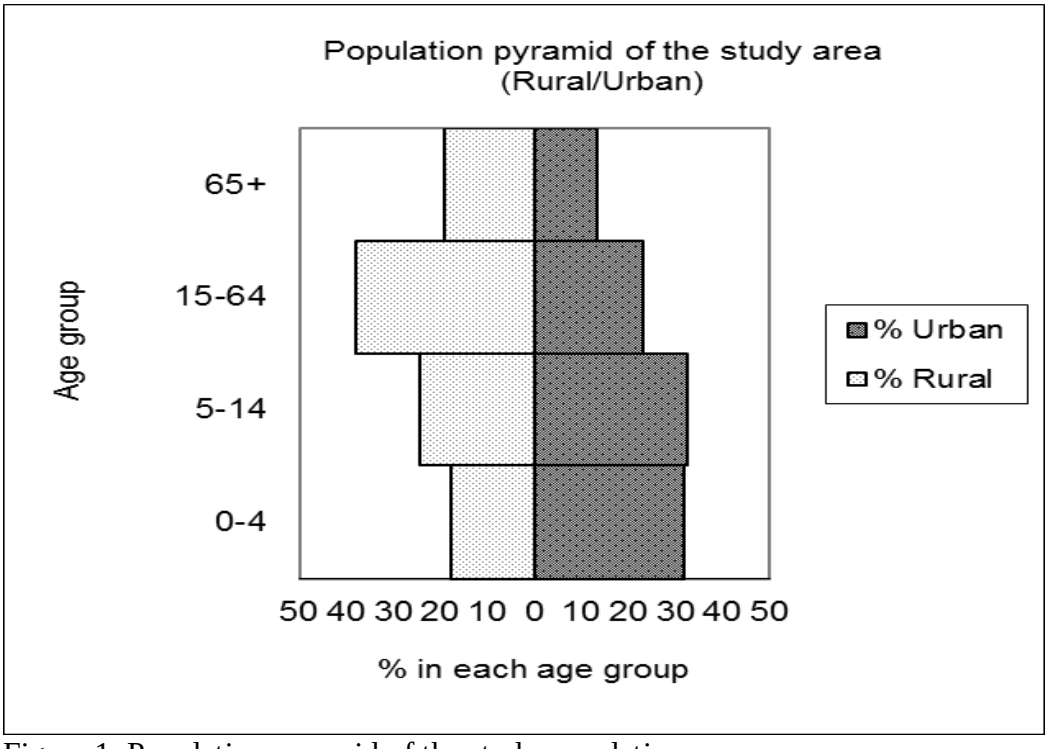


Figure 1. Population pyramid of the study population

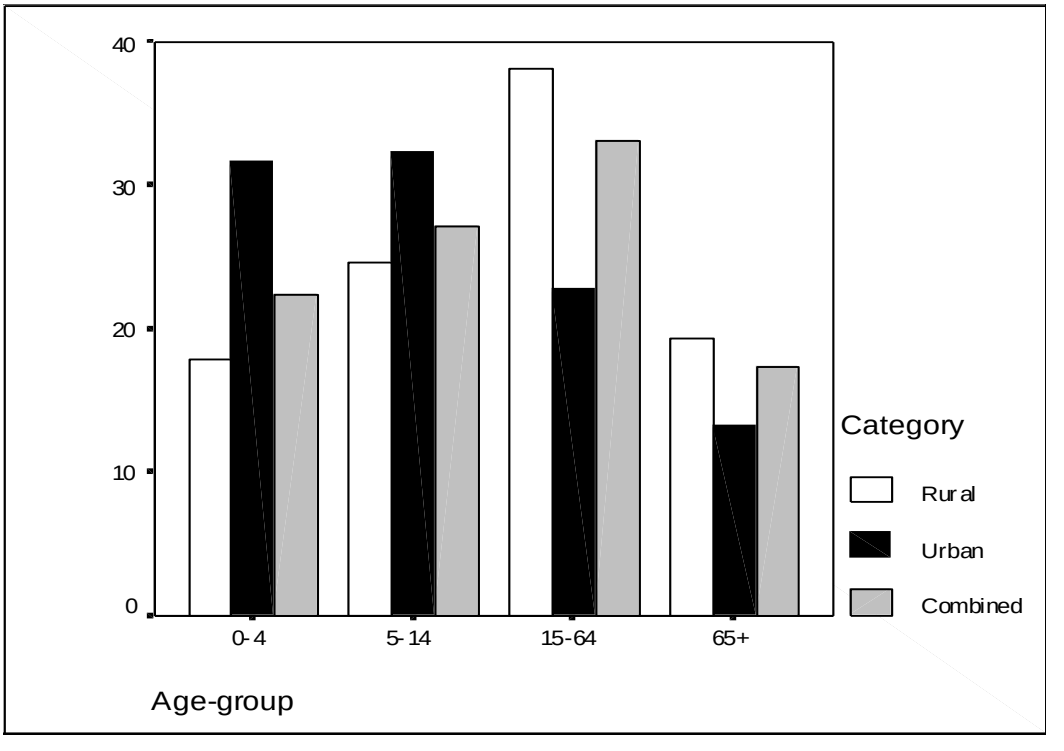


Figure 2. Age-structure of the morbid persons

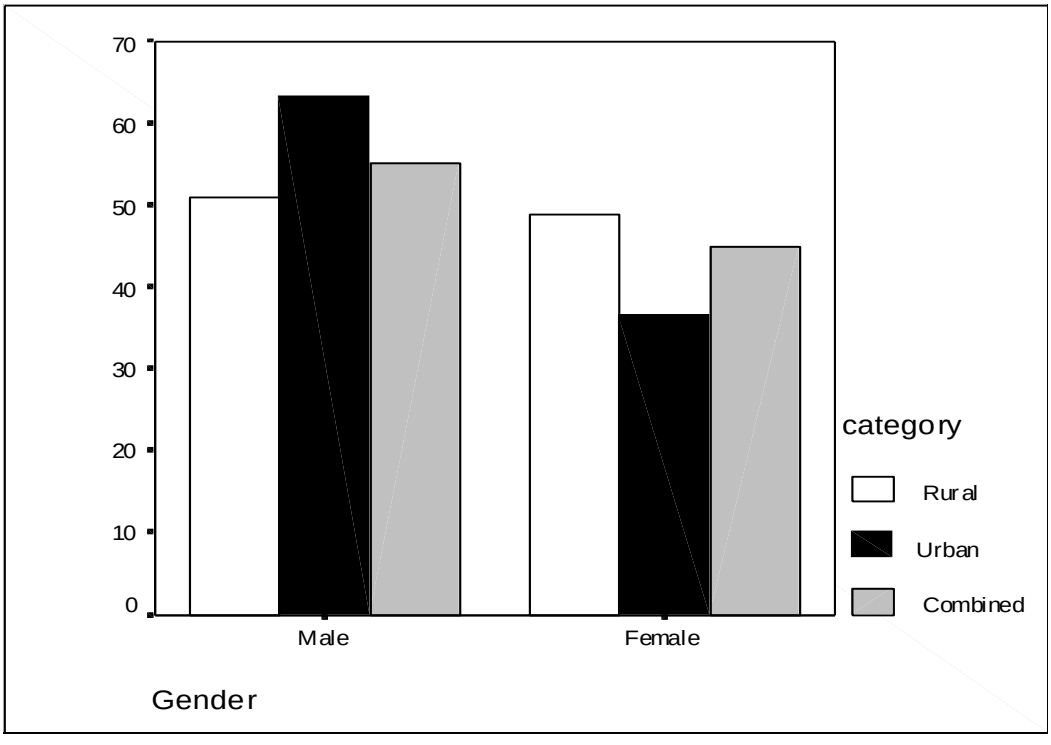


Figure 3. Gender of the morbid persons

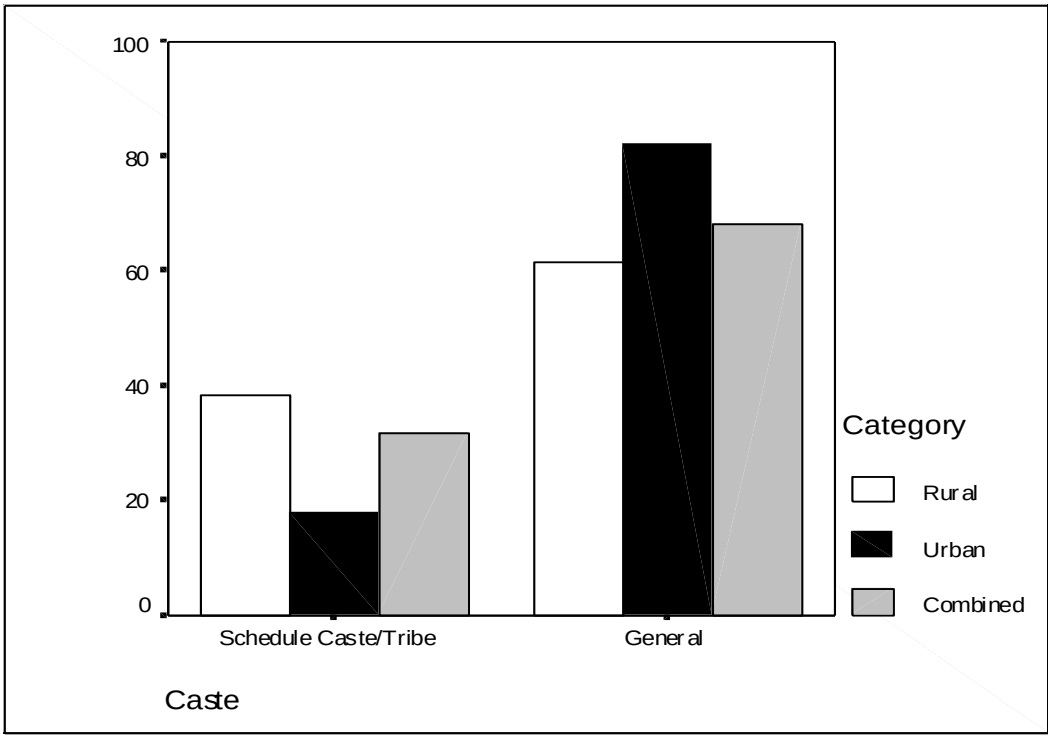


Figure 4. Caste of the morbid persons

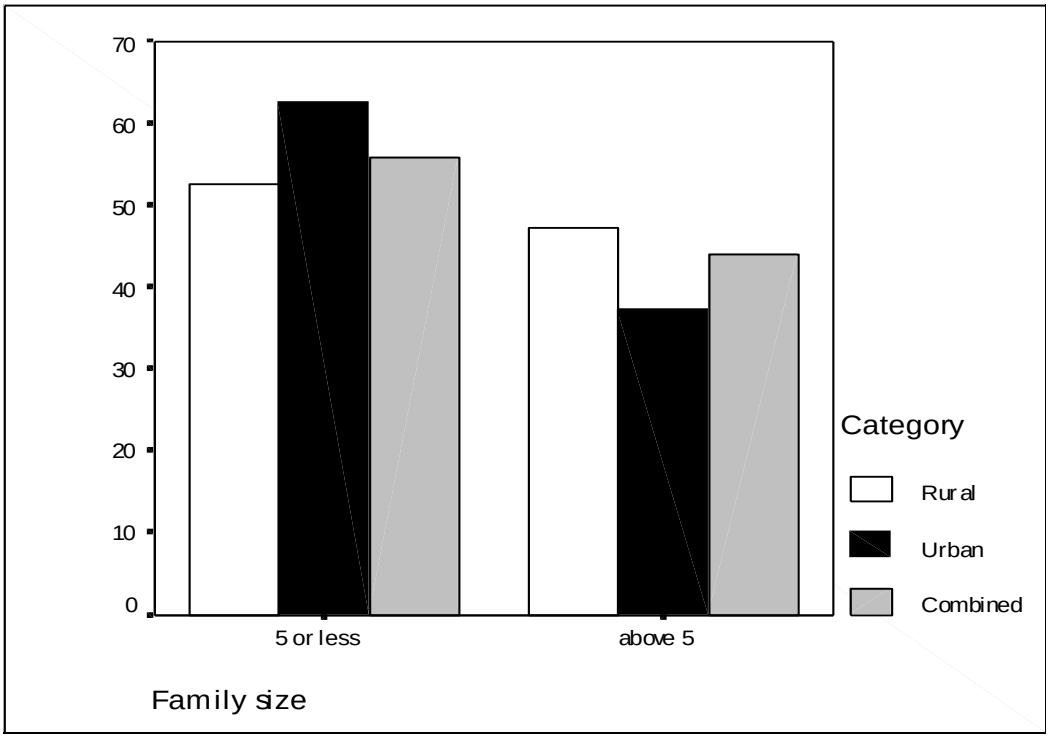


Figure 5. Family size of the morbid persons

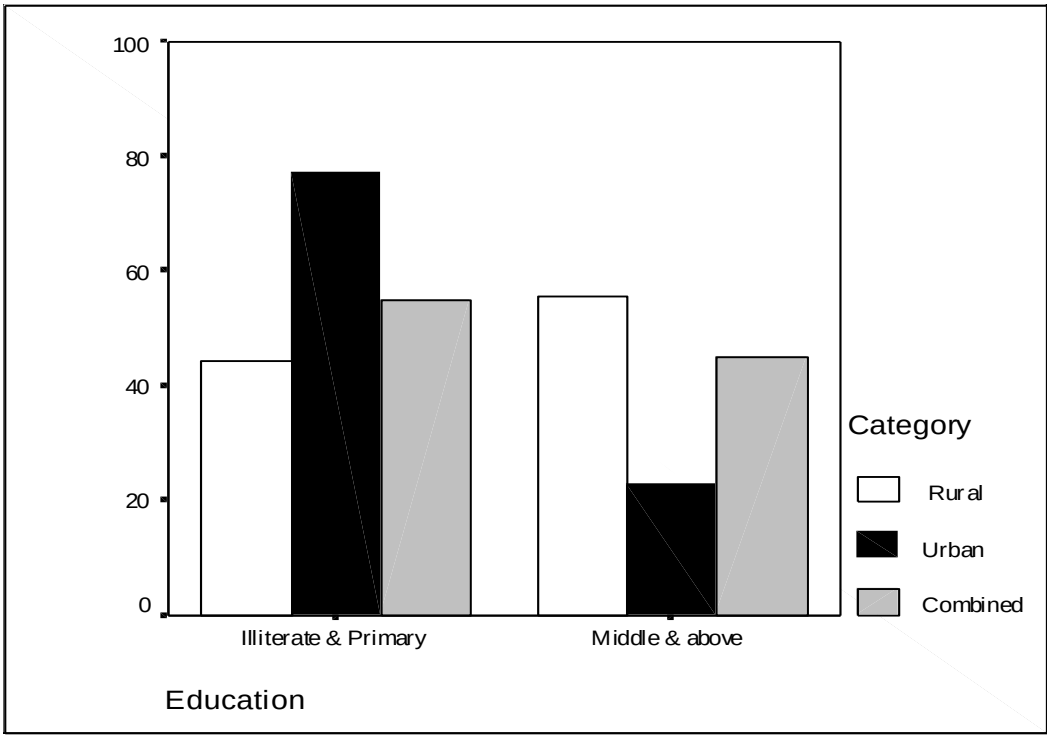


Figure 6. Education of the morbid persons

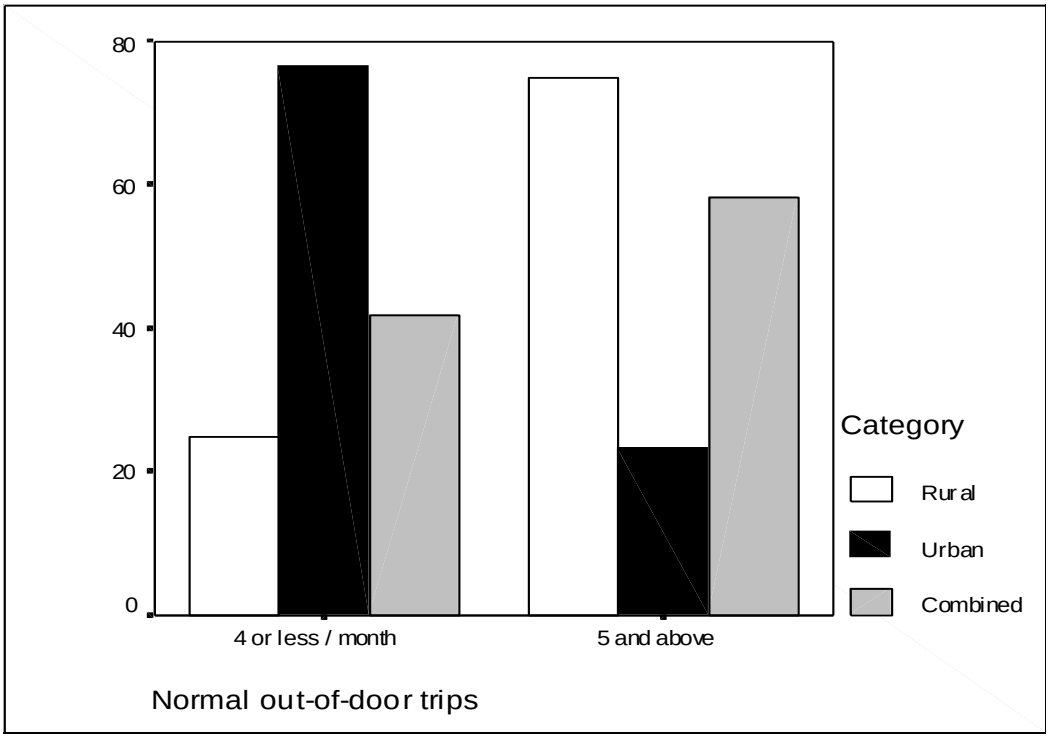


Figure 7. Normal out-of-door trips by the morbid persons

Educational backgrounds of the most of urban dwellers are poor as compared to those of their rural counterparts. However, the difference in educational background between rural and urban households is that the number (or percentage) of illiterates is less among the latter. Figure 7 depicts normal out-of-door trips by the head of the households of the morbid persons. It is clear that rural people makes more trips than urban dwellers.

Figure 8 shows long-distance travel by the head of the households of the morbid persons. Urban dwellers are seen to travel more than the rural mass. Standard of living, agricultural possessions, and cash income of the morbid persons are shown in figures 9, 10 and 11 respectively. Agricultural possessions are high among the households in rural areas; and the standard of living and cash income are high among urban dwellers.

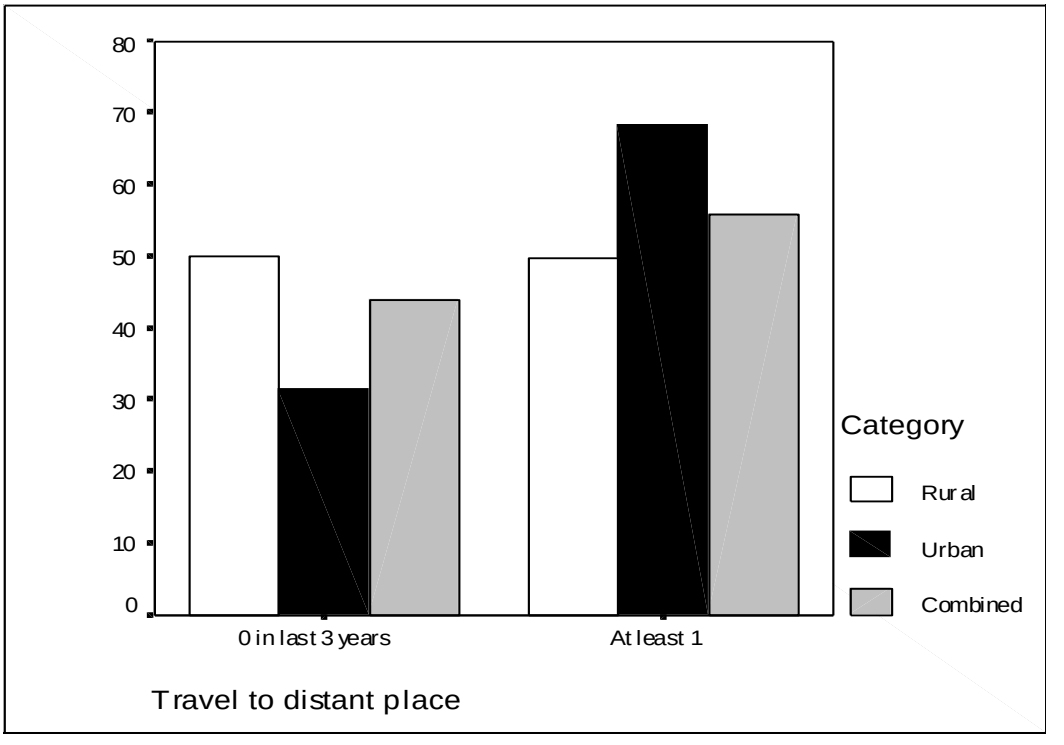


Figure 8. Travel to distant place by the morbid persons

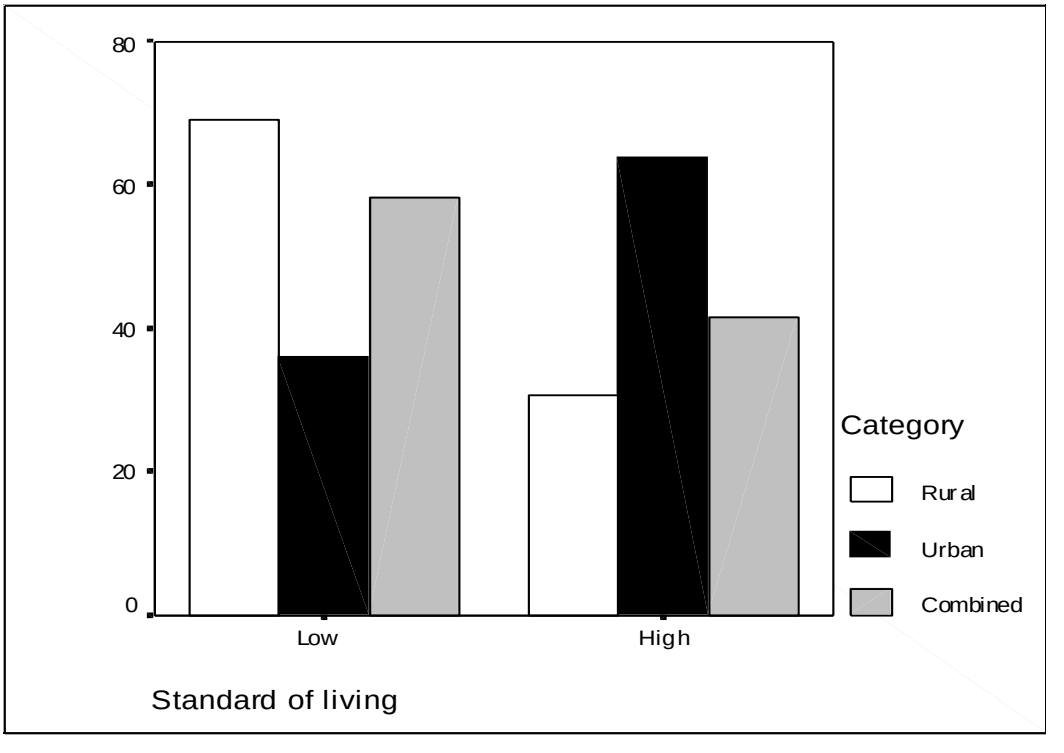


Figure 9. Standard of living of the morbid persons

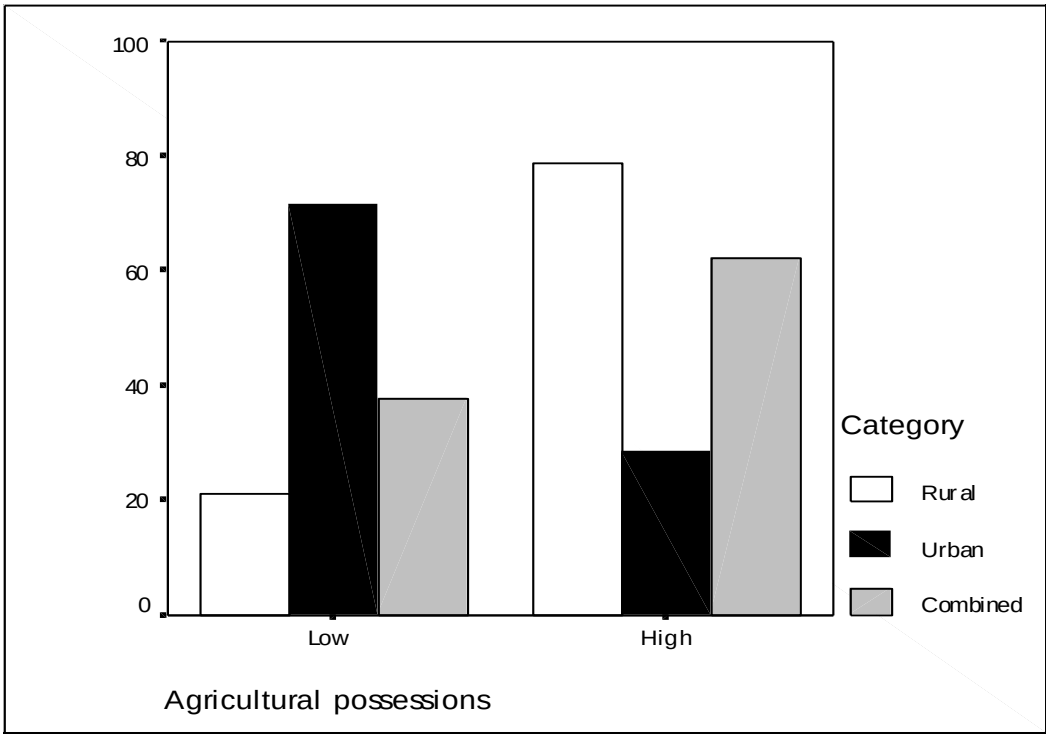


Figure 10. Agricultural possessions of the morbid persons

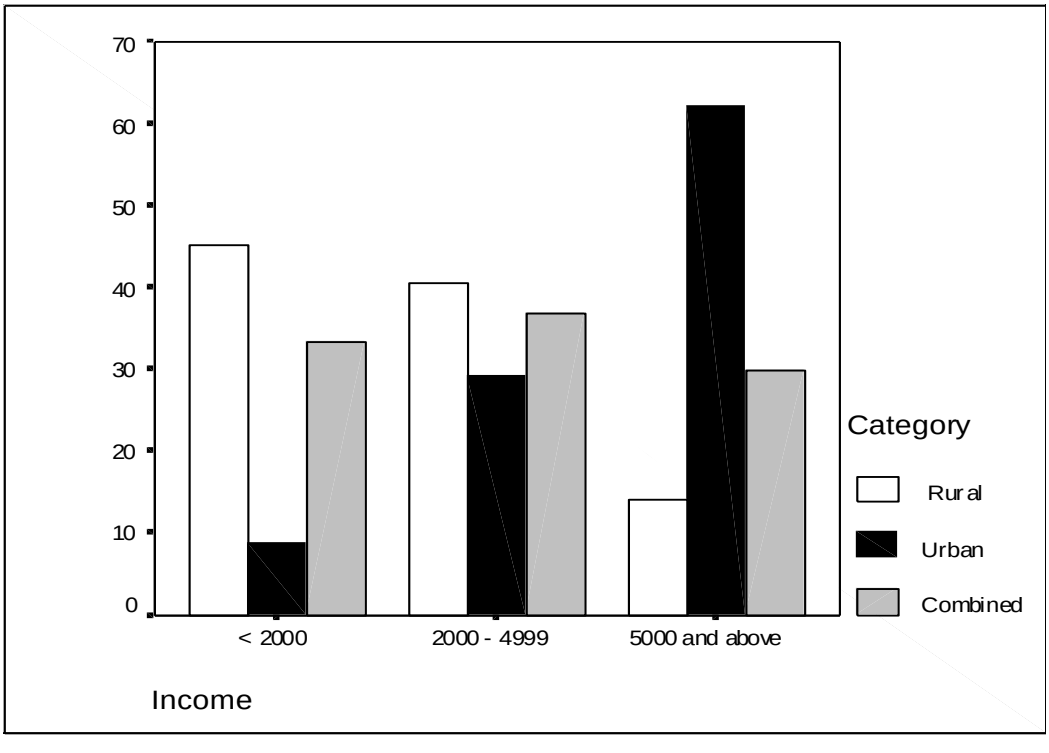


Figure 11. Cash income of the morbid persons

4.3. Characteristics of the service

Table 20 shows characteristics of the service in the rural, urban, and combined categories. In both the rural and urban category, most of the cases have been treated under the Allopathic system of medicine. Similarly, for most of the cases households seek care from private health facilities. The information of the table has been represented again in clustered bar charts as shown below (figures 12-15). Figure 14 depicts respondent's opinion on quality of care. It is seen that rural people have reported low and the urban dwellers have reported high quality of care. Figure 15 depicts cost of care per episode borne by the households. As the chart shows, for most of the cases, households paid less than Rs. 100.

Table 20. Characteristics of the service

Characteristics of the Subject	Category	Rural		Urban		Combined	
		N	%	n	%	n	%
System of medicine	Allopathy	197	60.6	92	58.2	289	59.8
	Homeopathy	70	21.5	44	27.8	114	23.6
	Traditional	58	17.8	22	13.9	80	16.6
	Total	325	100.0	158	100.0	483	100.0
Type of facility	Private	218	67.1	140	88.6	358	74.1
	Public	107	32.9	18	11.4	125	25.9
	Total	325	100.0	158	100.0	483	100.0
Quality of care	Low	248	76.3	70	44.3	318	65.8
	High	77	23.7	88	55.7	165	34.2
	Total	325	100.0	158	100.0	483	100.0
Cost*	Low	219	67.4	86	54.4	305	63.1
	Medium	67	20.6	34	21.5	101	20.9
	High	39	12.0	38	24.1	77	15.9
	Total	*325*	*100.0*	*158*	*100.0*	*483*	*100.0*

* *Low: ≤ Rs. 100, Medium: Rs. 100 - Rs. 499, High: ≥ Rs. 500,*

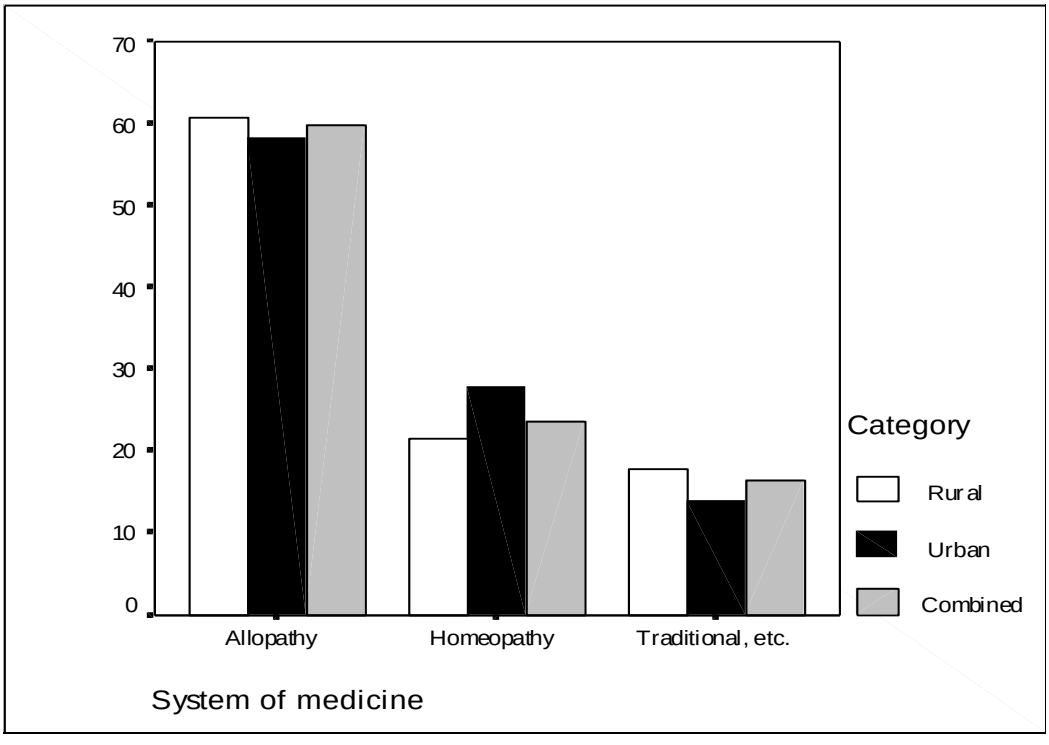


Figure 12. System of medicine preferred by the morbid persons

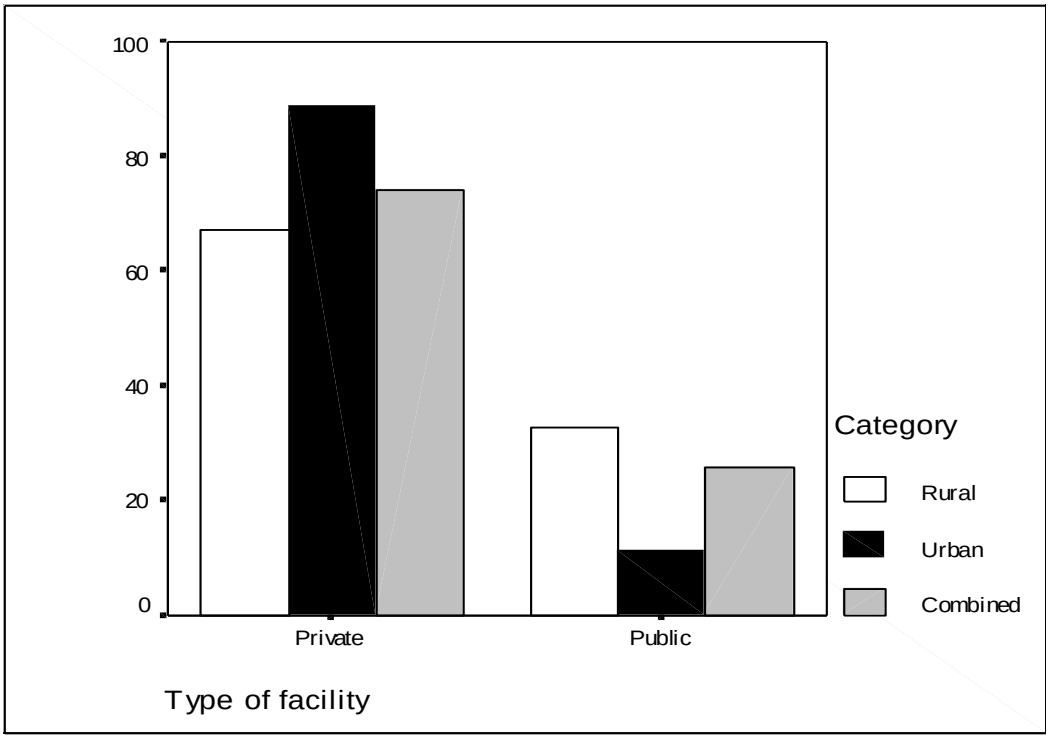


Figure 13. Type of facility preferred by the morbid persons

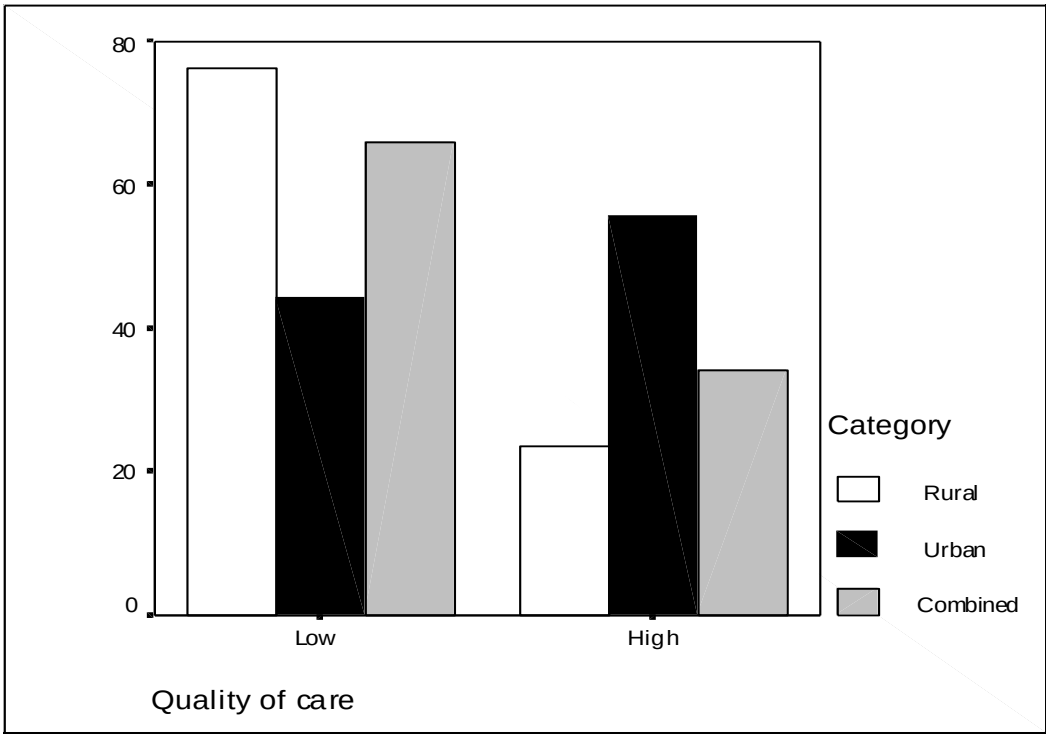


Figure 14. Quality of care perceived by the morbid persons

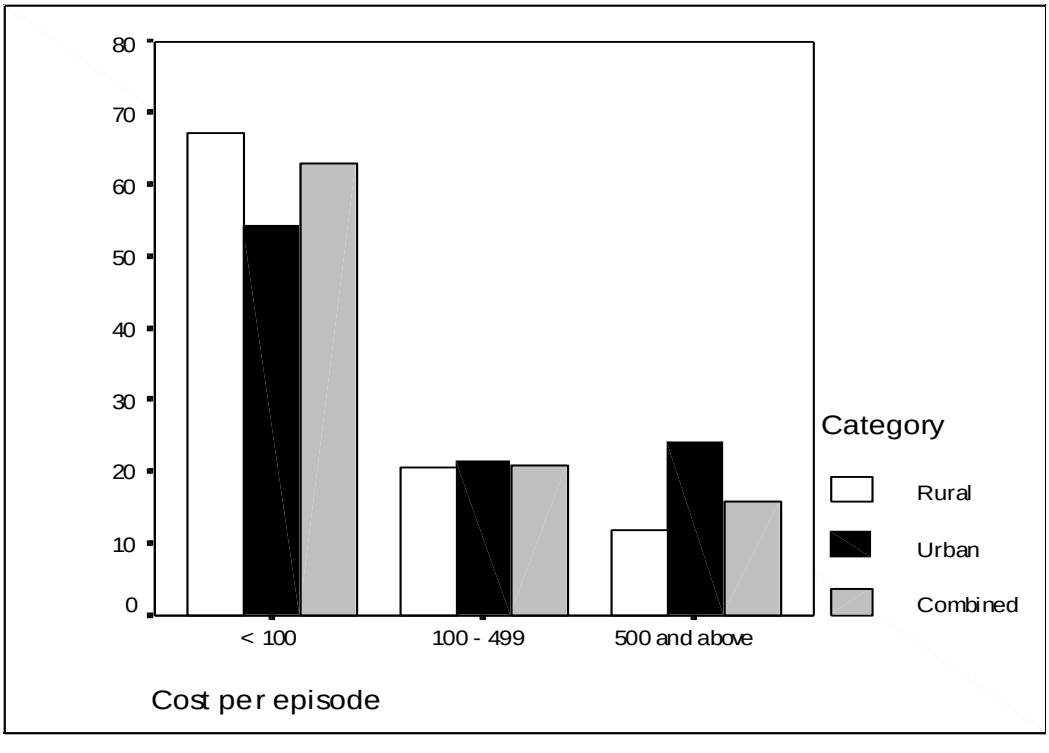


Figure 15. Cost per episode borne by the morbid persons

4.4. Pattern of health care expenditure and income

Table 21 shows cost per illness episode by households in the rural, urban, and the combined categories. In the rural areas, each household spends on an average Rs. 242 per illness episode (mean). Half of the households in the rural areas spend Rs. 60 or less per illness episode (median). However, most of the households spend Rs. 50 per illness episode (mode). In the urban areas these figures are Rs. 1468, Rs. 100, and Rs. 200 respectively.

Table 21. Descriptive statistics of cost of treatment per episode (in Rupees)

Category	n	Mean	Median	Mode	SD	Quartile		
						25	50	75
Rural	325	242.06	60.00	50	541.02	20.00	60.00	148
Urban	158	1468.04	100.00	200	3705.47	45	100	500
Combined	483	643.11	65.00	50	2236.21	30.00	65	225

Table 22. Descriptive statistics of cash income of the households (in Rupees)

Category	n	Mean	Median	Mode	SD	Quartile		
						25	50	75
Rural	325	2767.08	2200	1500	1975.40	1500	2200	3500
Urban	158	6842.21	6000	6000	4474.86	3875	6000	8000
Combined	483	4100.21	2900	4000	3578.94	1900	2900	5000

Table 23. Proportion of income spent on health care

Category	n	Mean	Median	Mode	SD	Quartile		
						25	50	75
Rural	325	0.087	0.027	0.033	0.274	0.013	0.027	0.042
Urban	158	0.215	0.017	0.033	0.828	0.012	0.017	0.063
Combined	483	0.157	0.022	0.013	0.625	0.016	0.022	0.045

Table 22 shows average cash income of the households. Table 21 shows proportion of income spent on health care. On an average one rural household spend nearly 9 per cent of its cash income per illness episode. The same for one urban household is 21.5 per cent. However, 50 per cent of the households spend 2.7 per cent or less and 1.7 per cent or less in the rural and urban areas respectively.

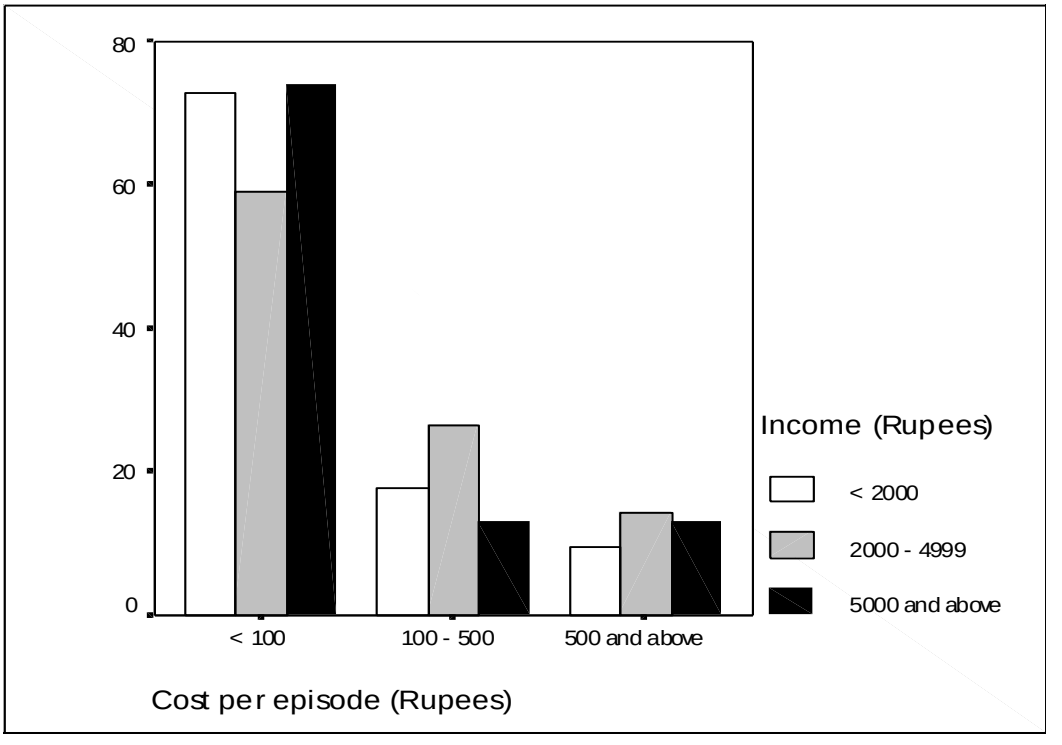


Figure 16. Expenditure pattern by income – Rural

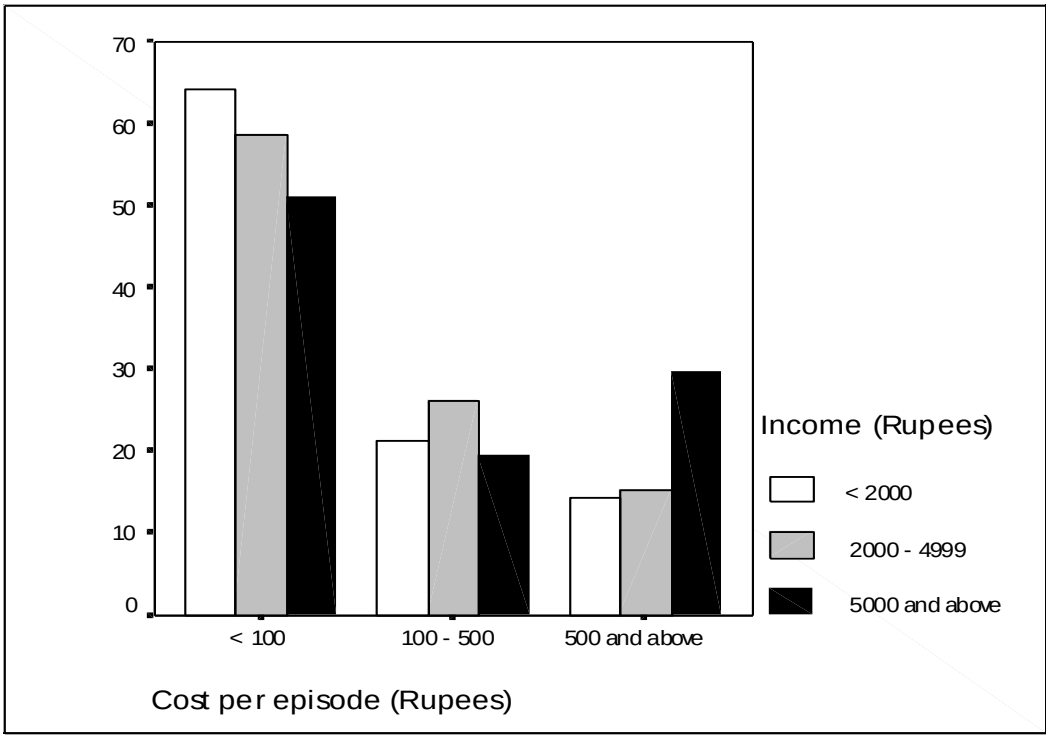


Figure 17. Expenditure pattern by income – Urban

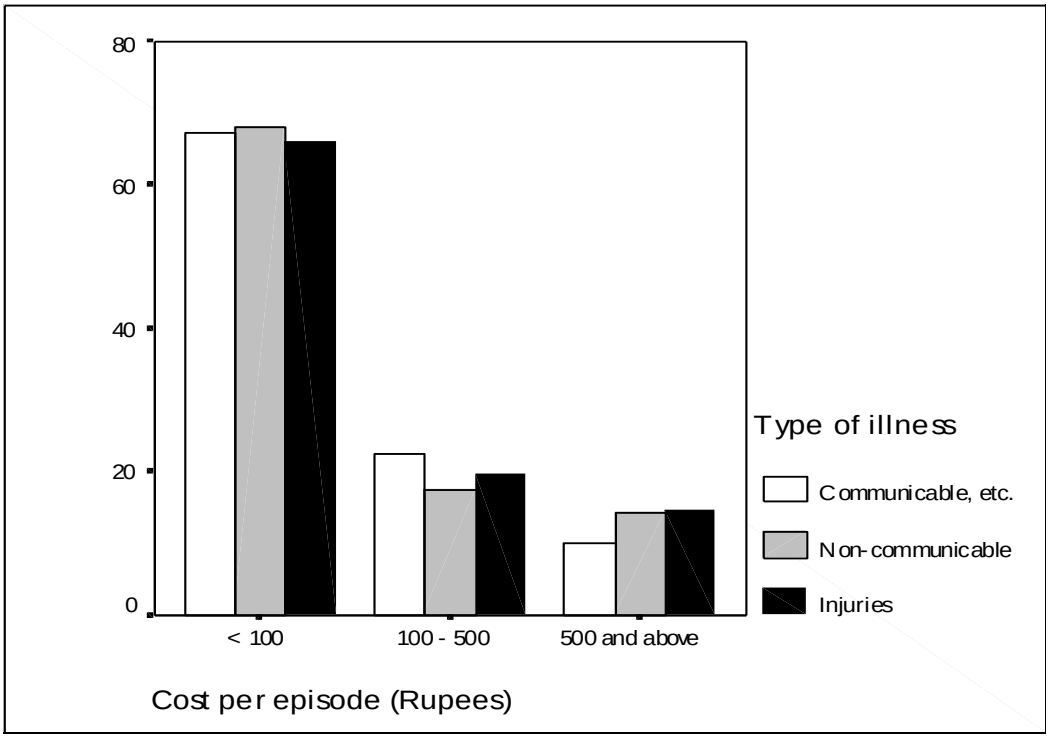


Figure 18. Expenditure pattern by type of illness – Rural

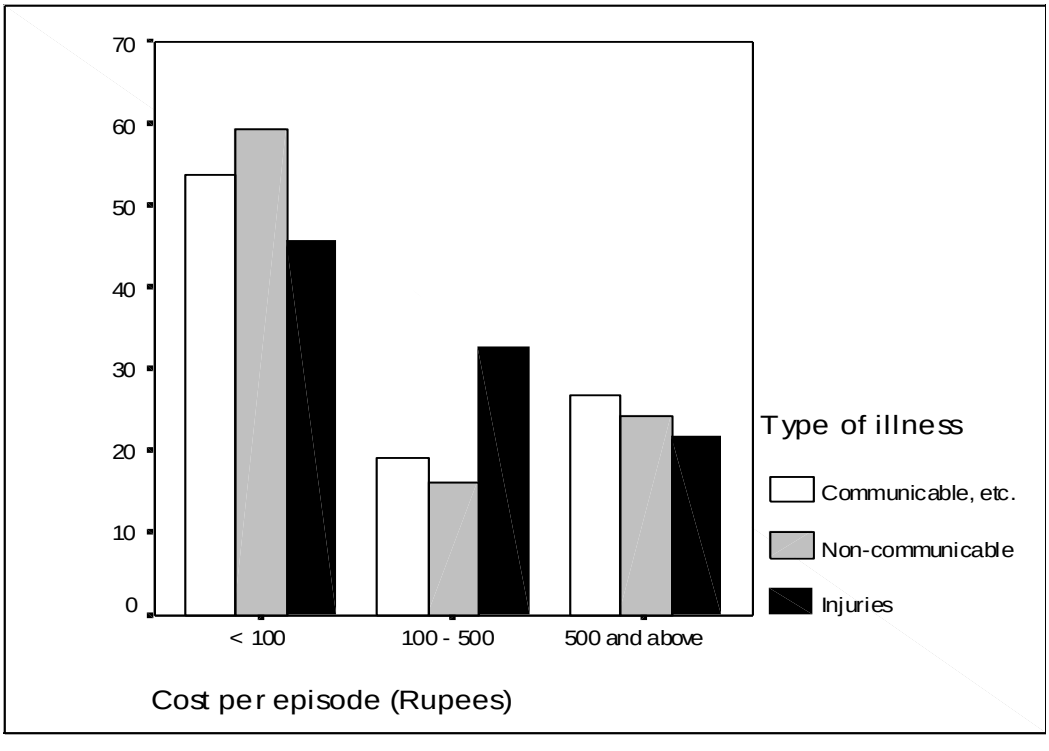


Figure 19. Expenditure pattern by type of illness - Urban

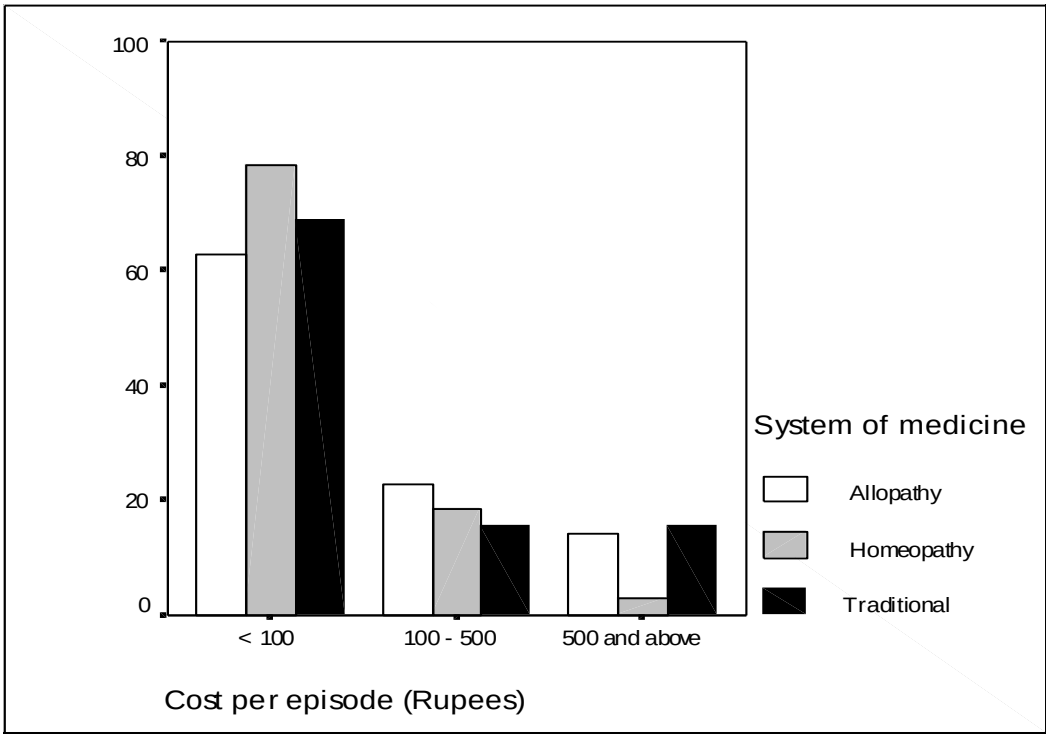


Figure 20. Expenditure pattern by system of medicine – Rural

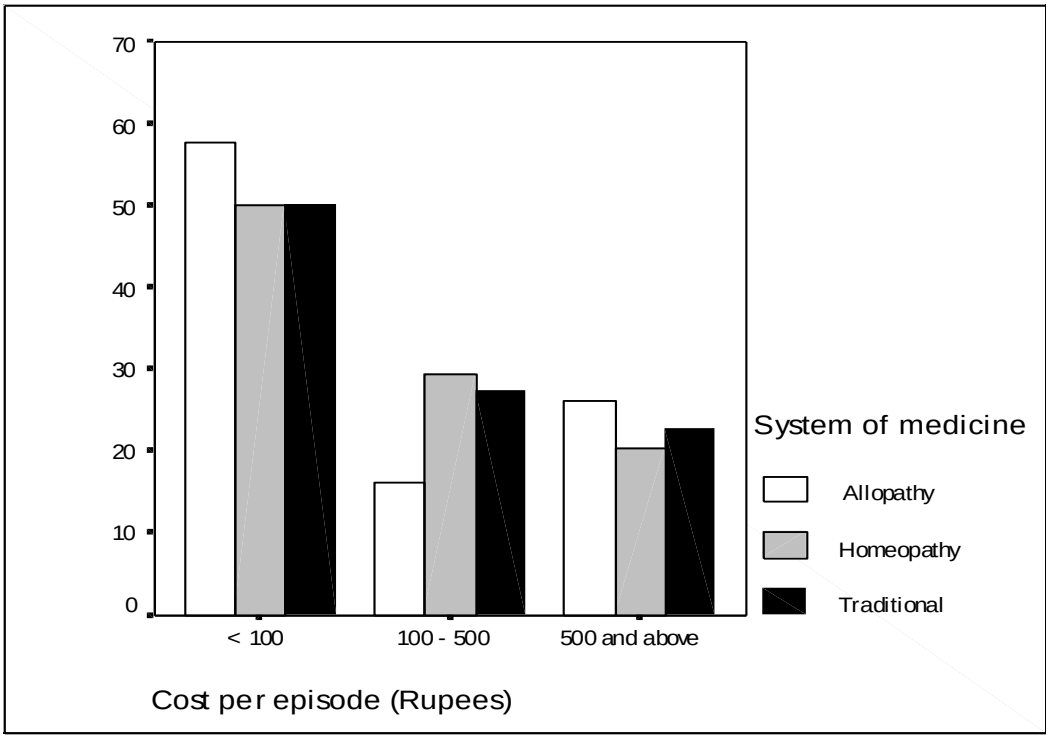


Figure 21. Expenditure pattern by system of medicine - Urban

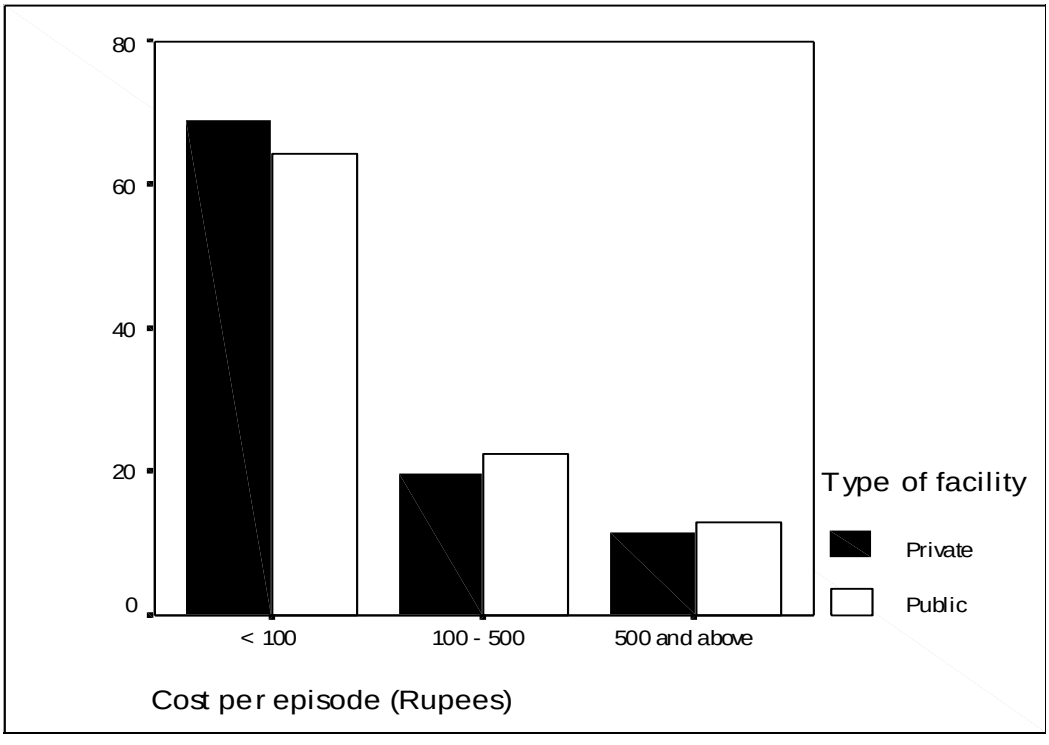


Figure 22. Expenditure pattern by type of facility – Rural

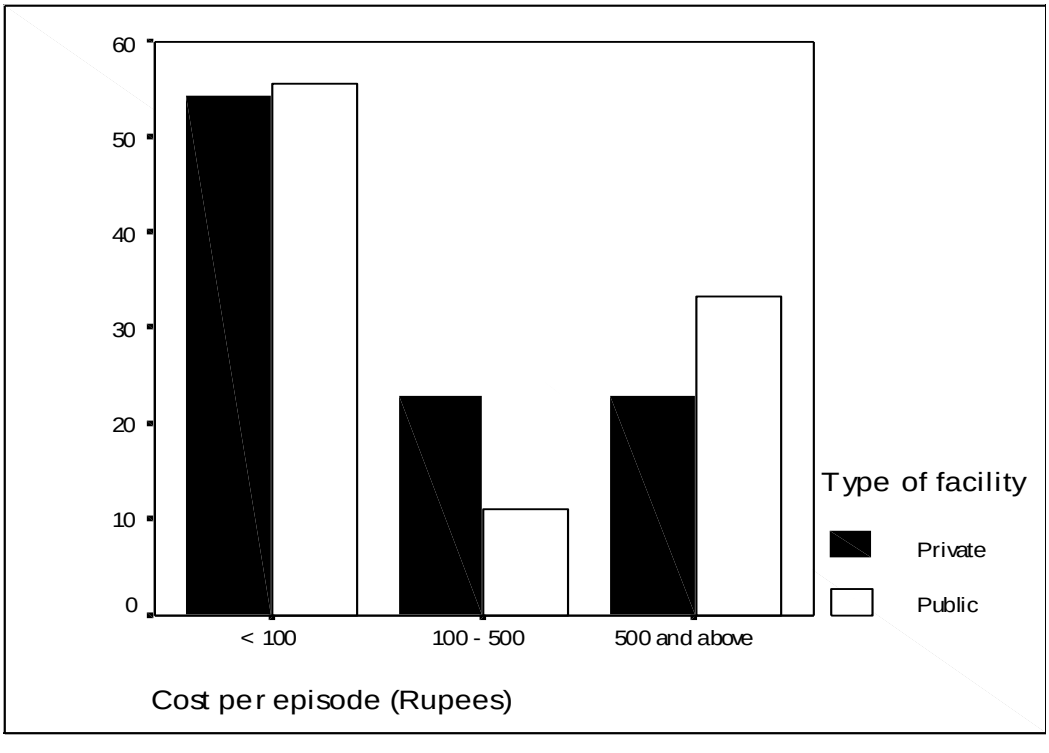


Figure 23. Expenditure pattern by type of facility - Urban

Most of the households spend 3.3 per cent of the household cash income in the rural as well as urban areas. Seventy-five per cent of the households spend 4.2 per cent or less and 6.3 per cent or less in the rural and urban areas respectively.

The above figures (16-23) show that in the rural category poor and rich households have similar pattern of expenditure. In the urban category rich households are seen to spend more. As compared to the rural areas, urban households spend more on traditional system of medicine. Also there is no sharp difference in cost according to types of care. In many cases cost of public type of care exceeds that of private type. For all types of illness in rural areas, nearly 70 per cent of the households spend Rs. 100 or less. In the urban category households are seen to spend more for the treatment of injuries with other types of illness.

4.5. Summary

In this chapter we get varied age-pattern of morbidity in both the rural and urban areas of the districts of Cooch Behar and Jalpaiguri. In the subsequent chapters we will see how utilisation pattern varies with such age-pattern of morbidity. We have seen that utilisation rates of private sources of care are high in both the rural and urban areas. However, such simple statistical comparison may not reflect true pattern of utilisation of care. From the above result we cannot say that rural people prefer private health facilities. In order to make any conclusion we have to depend on the results of the multivariate analysis.

five
5 Morbidity analysis

5.1. Introduction

In this chapter we will examine the epidemiological profile, types of illness according to characteristics of the subject and compute incidence and prevalence rates of disease. The research question to be investigated in this chapter is that – weather pattern of morbidity or epidemiological profile of this region has transformed leading to a change in the appeal towards a particular type of care or system of medicine. Simple statistical tools are adopted to examine the epidemiological profile of the districts of Cooch Behar and Jalpaiguri.

5.2. Characteristics of disorder

Table 24 and figures 24 and 25 show type of illness (characteristics of disorder) classified into three broad categories following the categorisation of Global Burden of Disease Study 1990, as shown in table 17. There are 325 cases of illness in the rural areas, out of which more than 57 per cent of the cases (187) are of communicable and related diseases. On the contrary nearly 30 per cent of the cases (97) are of non-communicable diseases. More than 12 per cent cases (41) are of intentional and unintentional injuries. In the urban areas there are 158 cases of illness. Percentages of communicable and non-communicable diseases and injuries are 16.5, 54.4, and 29.1 respectively. If we compare type of illness between rural and urban categories, we see dominance of communicable diseases in the former and dominance of non-communicable diseases in the latter. In other words, the disease profile shows that in the rural areas share of infectious disease is high and in the urban area, prevalence of non-communicable disease is high.

Table 24. Epidemiologic profile in major three categories

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

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

The figure for injuries is higher in the urban category than in the rural category. Table 24 also shows severity of illness in three categories: low, medium and high. However, we do not see any specific pattern of severity according to type of locality.

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

5.3. Type of illness and characteristics of the subject

We have presented type of illness by individual or household characteristics in the rural, urban, and combined categories as follows in the following three tables. In the rural areas there are 187, 97 and 41 cases of illness in the three broad categories of diseases (communicable, etc., non-communicable, and injuries) respectively. Of the 187 episodes of communicable diseases, nearly 20 per cent occurs among children who are in their first 4 years of age. Percentage figures corresponding to the 5-14 and 65 + age groups are also closer to the above. The figure is simply double (40.6 %) in the working age group. From these figures it is clear that the occurrence of communicable disease is the highest in the 0-4 age group (it is to be mentioned that age groups are not equal). Similarly, children in the 0-4 age group suffer most from non-communicable diseases also. Occurrence

of intentional and unintentional injuries is seen the highest for the children in the 5-14 age-group.

Table 25. Type of illness* by characteristics of the subject - Rural

Characteristics of the Subject	Category	Rural					
		Group I		Group II		Group III	
		n	%	n	%	n	%
Age-structure	0-4	37	19.8	16	16.5	5	12.2
	5-14	40	21.4	28	28.9	12	29.3
	15-64	76	40.6	32	33.0	16	39.0
	65+	34	18.2	21	21.6	8	19.5
Gender	Male	71	38.0	53	54.6	22	53.7
	Female	116	62.0	44	45.4	19	46.3
Caste	SC/ST	71	38.0	36	37.1	18	43.9
	General	116	62.0	61	62.9	23	56.1
Family size	≤ 5	108	57.8	48	49.5	15	36.6
	> 5	79	42.2	49	50.5	26	63.4
Education	≤ Primary	72	38.5	51	52.6	21	51.2
	Middle +	115	61.5	46	47.4	20	48.8
Normal out-of-door trips	≤ 4 / month	41	21.9	28	28.9	12	29.3
	5 +	146	78.1	69	71.1	29	70.7
Travel to distant places	No	92	49.2	49	50.5	22	53.7
	Yes	95	50.8	48	49.5	19	46.3
Standard of living	Low	124	66.3	70	72.2	31	75.6
	High	63	33.7	27	27.8	10	24.4
Agricultural possessions	Low	33	17.6	26	26.8	10	24.4
	High	154	82.4	71	73.2	31	75.6
Income	< 2000	86	46.0	38	39.2	23	56.1
	2000 – 4999	75	40.1	42	43.3	15	36.6
	5000 +	26	13.9	17	17.5	3	7.3
Total (each variable)		*187*	*100*	*97*	*100*	*41*	*100*

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

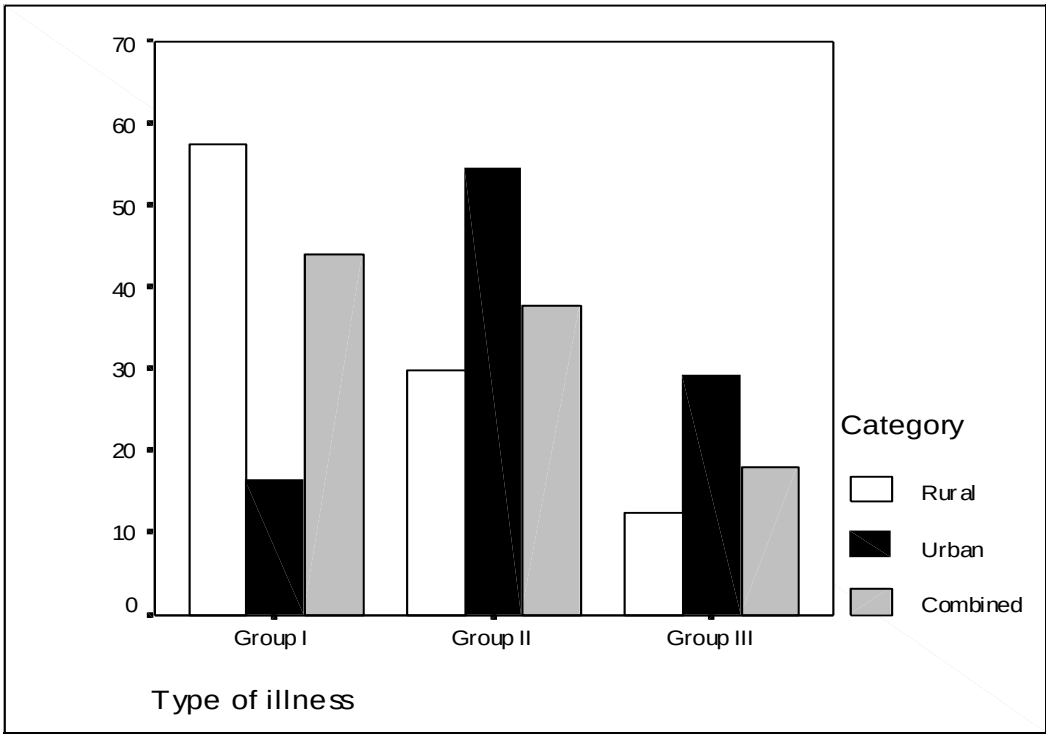


Figure 24. Type of illness of the morbid persons

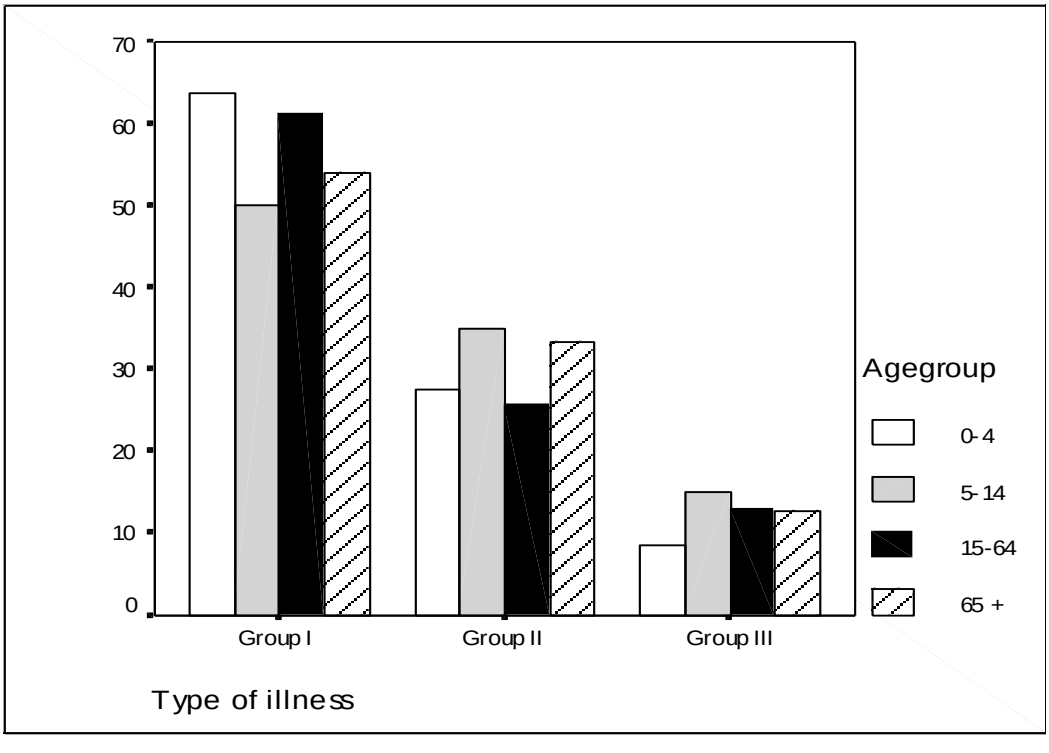


Figure 25. Type of illness of the morbid persons by age group – Rural

Table 26. Type of illness* by characteristics of the subject -Urban

Characteristics of the Subject	Category	Group I		Group II		Group III	
		n	%	n	%	n	%
Age-structure	0-4	4	15.4	31	36.0	15	32.6
	5-14	7	26.9	28	32.6	16	34.8
	15-64	10	38.5	17	19.8	9	19.6
	65+	5	19.2	10	11.6	6	13.0
Gender	Male	16	61.5	56	65.1	28	60.9
	Female	10	38.5	30	34.9	18	39.1
Caste	SC/ST	7	26.9	15	17.4	6	13.0
	General	19	73.1	71	82.6	40	87.0
Family size	≤ 5	18	69.2	51	59.3	30	65.2
	> 5	8	30.8	35	40.7	16	34.8
Education	≤ Primary	23	88.5	67	77.9	32	69.6
	Middle +	3	11.5	19	22.1	14	30.4
Normal out-of-door trips	≤ 4 / month	17	65.4	69	80.2	35	76.1
	5 +	9	34.6	17	19.8	11	23.9
Travel to distant place	No	8	30.8	27	31.4	15	32.6
	Yes	18	69.2	59	68.6	31	67.4
Standard of living	Low	10	38.5	29	33.7	18	39.1
	High	16	61.5	57	66.3	28	60.9
Agricultural possessions	Low	20	76.9	64	74.4	29	63.0
	High	6	23.1	22	25.6	17	37.0
Income	< 2000	1	3.8	8	9.3	5	10.9
	2000 – 4999	8	30.8	23	26.7	15	32.6
	5000 +	17	65.4	55	64.0	26	56.5
Total (each variable)		*26*	*100.0*	*86*	*100.0*	*46*	*100.0*

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

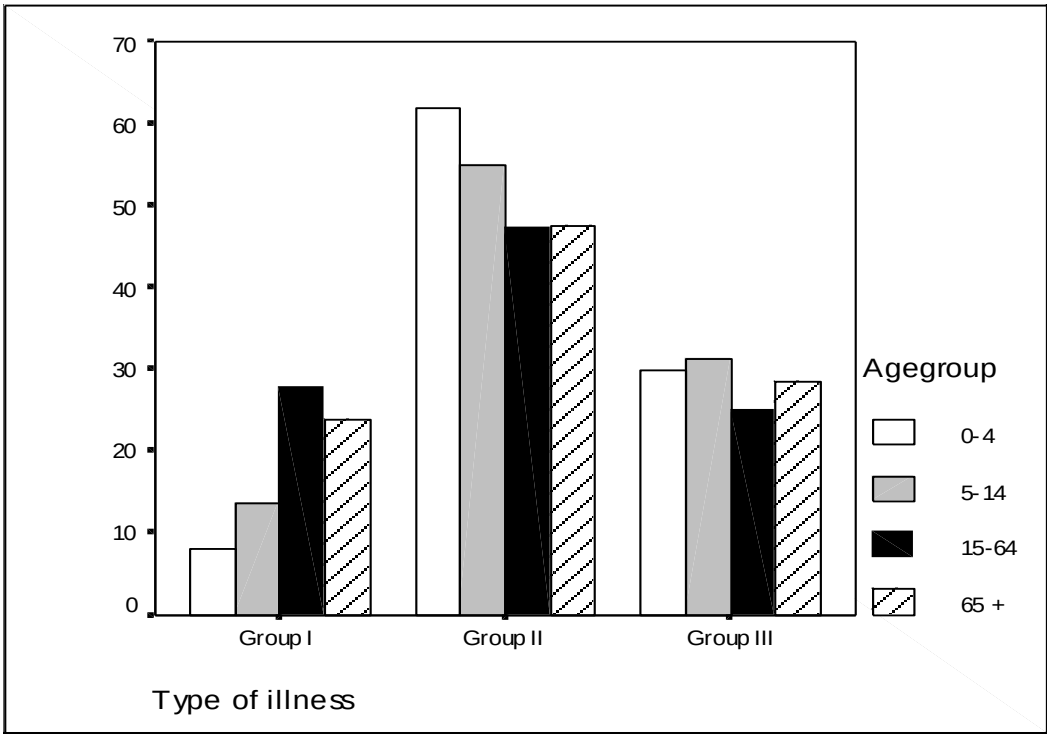


Figure 26. Type of illness of the morbid persons by age group – Urban

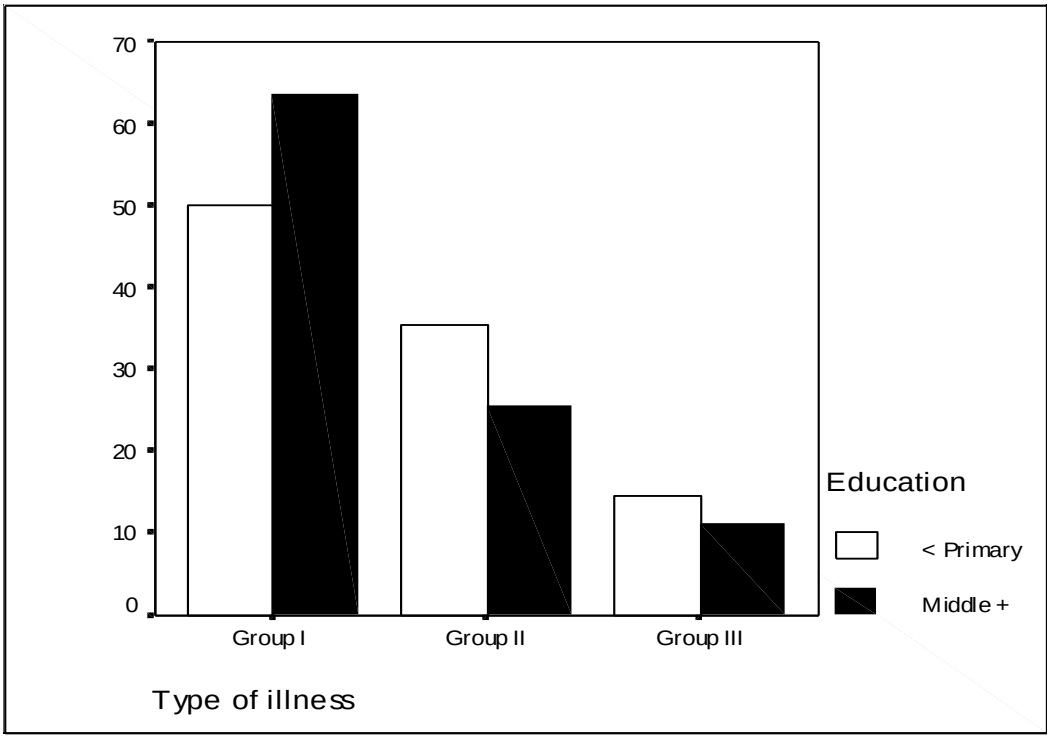


Figure 27. Type of illness of the morbid persons by education – Rural

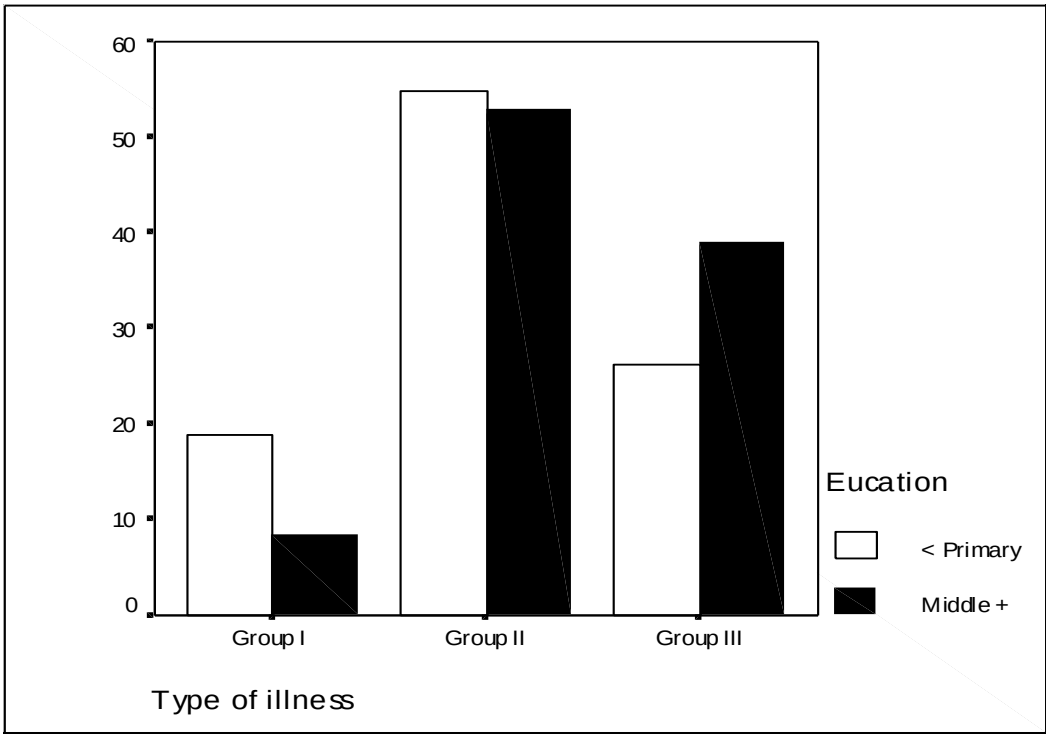


Figure 28. Type of illness of the morbid persons by education – Urban

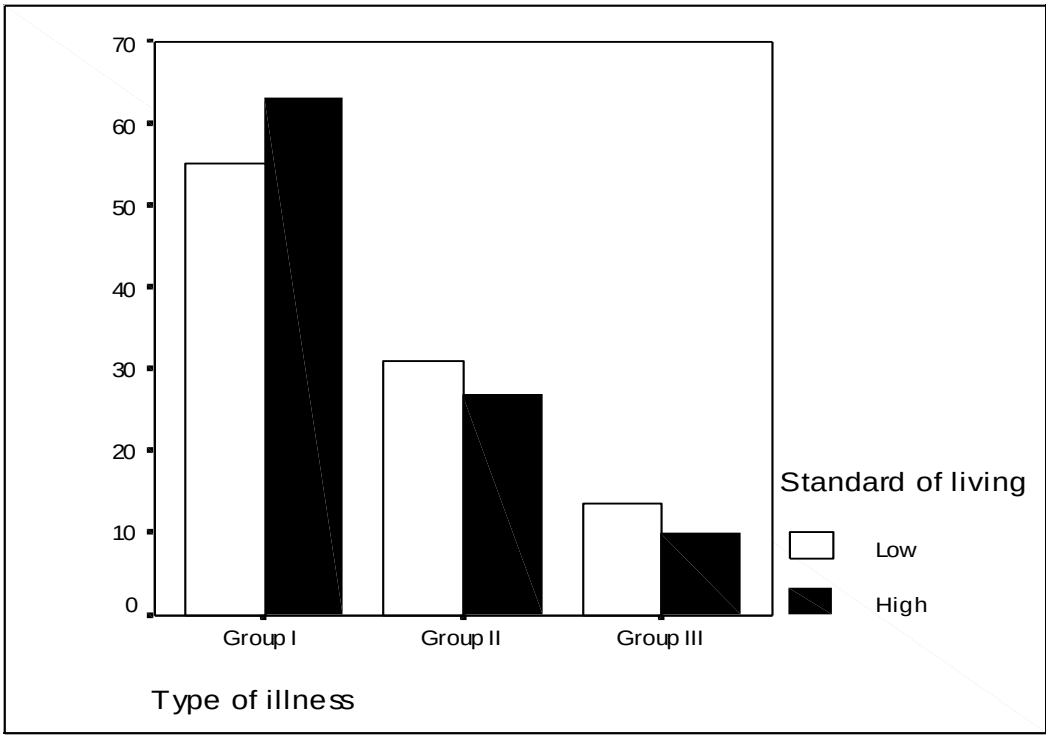


Figure 29. Type of illness of the morbid persons by standard of living – Rural

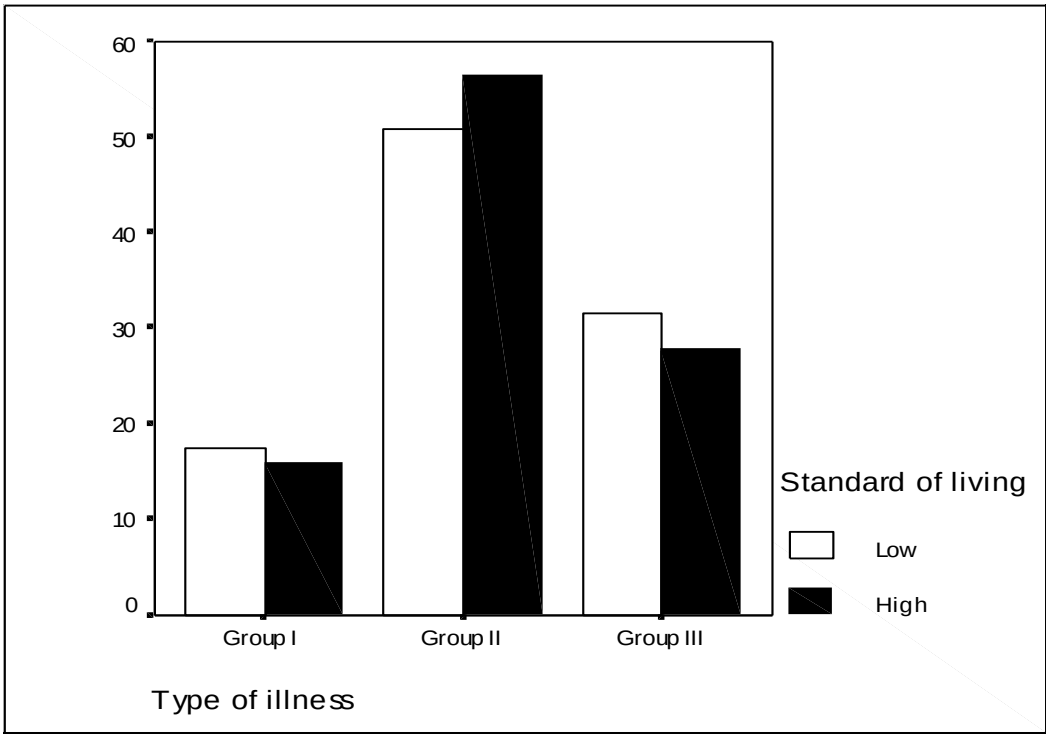


Figure 30. Type of illness of the morbid persons by standard of living – Urban

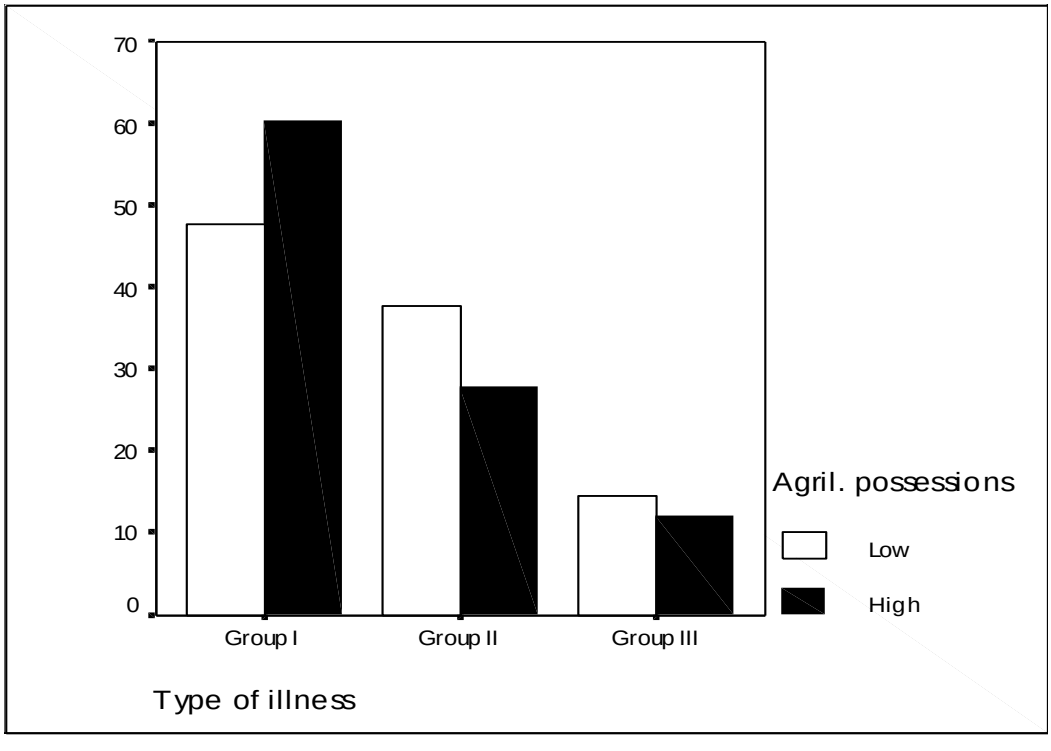


Figure 31. Type of illness by agricultural possessions – Rural

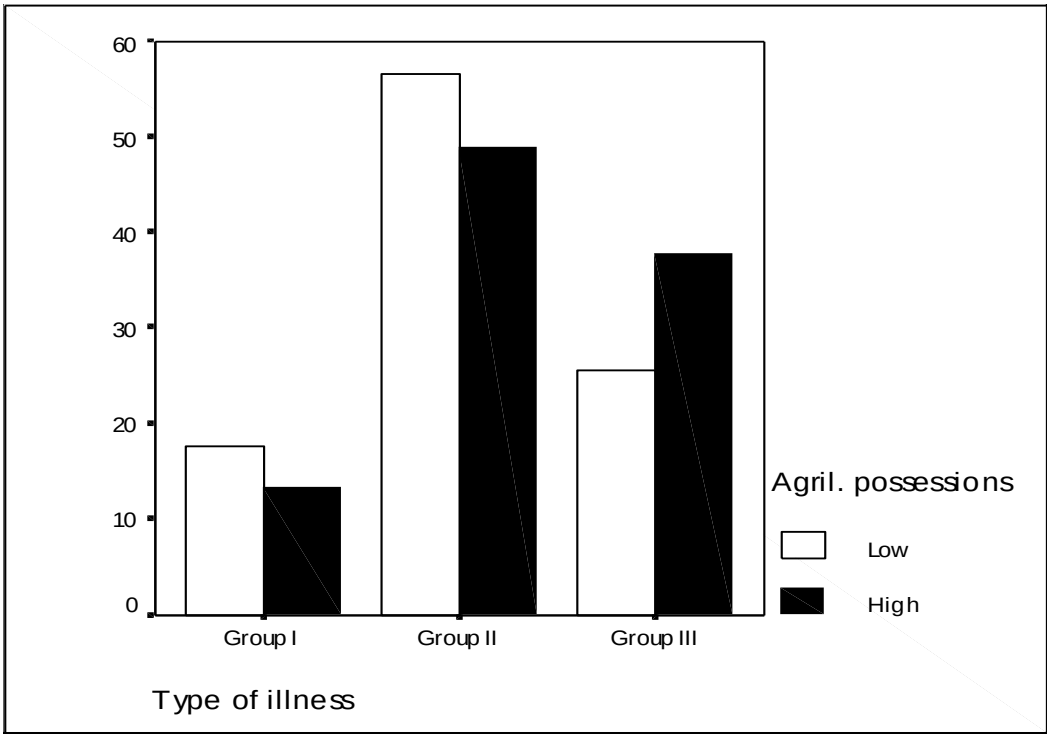


Figure 32. Type of illness by agricultural possessions – Urban

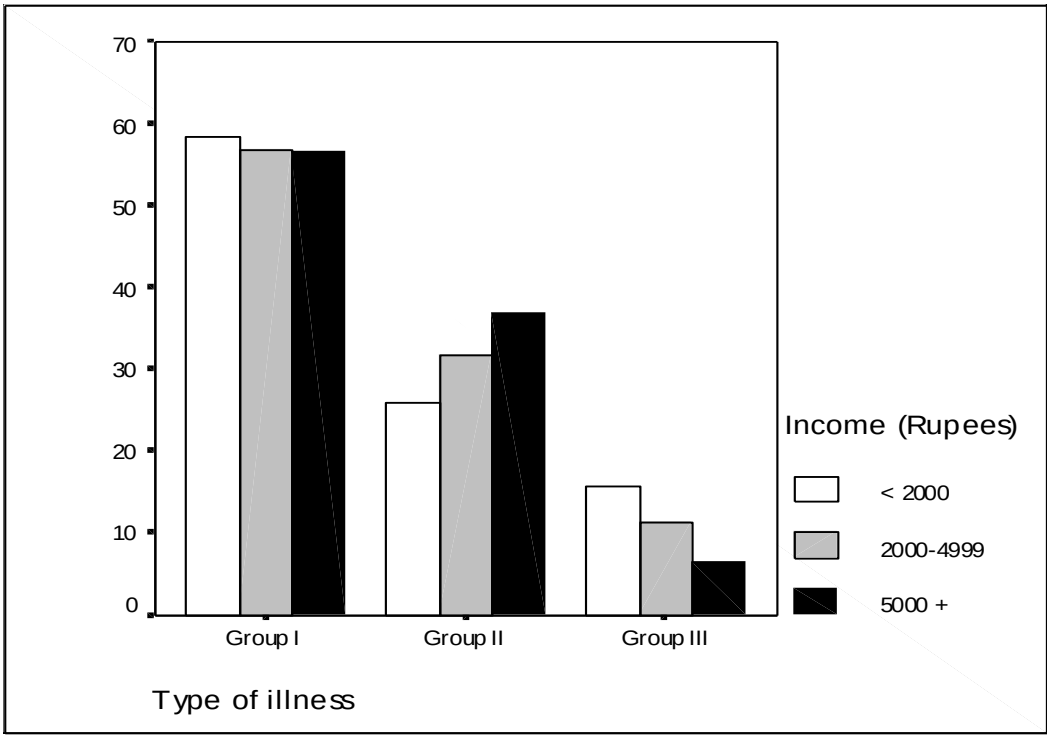


Figure 33. Type of illness of the morbid persons by cash income – Rural

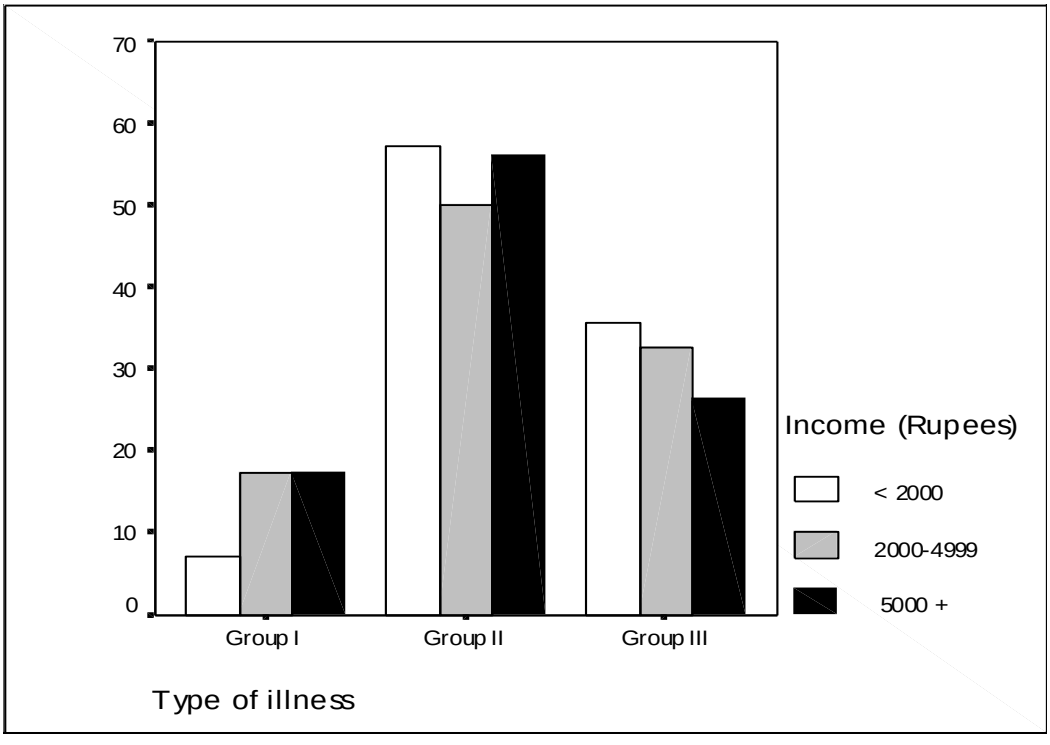


Figure 34. Type of illness of the morbid persons by cash income – Urban

Gender differences in the pattern of morbidity are also prominent. Women suffer more from diseases in the Group-I, as those include maternal and reproductive morbidity also. Men suffer more from non-communicable diseases and injuries. Members in small families (with family members 5 or less) suffer more from diseases in Group-I and in the large families (with more than 5 family members) suffer more from injuries (Group-III). Occurrence of communicable diseases, etc. is higher in the families whose heads have middle or higher levels of education. Households with higher income suffer less as compared to the poorer ones from all types of diseases.

In the urban areas people suffer more from non-communicable diseases and injuries as shown in table 26. Incidence of non-communicable diseases seems to be the highest for children in the 0-4 age group followed by children in the 5-14 age-group. Males have higher risk of suffering from all types of diseases than females. Morbidity is high in the small (with family members 5 or less) families and in families where household-heads are primarily educated or illiterate. Pattern of

morbidity with respect to household-income draws our attention. We see that incidence of diseases increases sharply with income for all types of diseases. Table 27 shows the pattern of morbidity in the combined category. Figures 26-34 support findings on this issue.

Table 27. Type of illness* by characteristics of the subject - Combined

Characteristics of the Subject	Category	Group I		Group II		Group III	
		n	%	n	%	n	%
Age-structure	0-4	41	19.2	47	25.7	20	23.0
	5-14	47	22.1	56	30.6	28	32.2
	15-64	86	40.4	49	26.8	25	28.7
	65+	39	18.3	31	16.9	14	16.1
Gender	Male	107	50.2	109	59.6	50	57.5
	Female	106	49.8	74	40.4	37	42.5
Caste	SC/ST	78	36.6	51	27.9	24	27.6
	General	135	63.4	132	72.1	63	72.4
Family size	≤ 5	126	59.2	99	54.1	45	51.7
	> 5	87	40.8	84	45.9	42	48.3
Education	≤ Primary	95	44.6	118	64.5	53	60.9
	Middle +	118	55.4	65	35.5	34	39.1
Normal out-of-door trips	≤ 4 / month	58	27.2	97	53.0	47	54.0
	5 +	155	72.8	86	47.0	40	46.0
Travel to distant place	No	100	46.9	76	41.5	37	42.5
	Yes	113	53.1	107	58.5	50	57.5
Standard of living	Low	134	62.9	99	54.1	49	56.3
	High	79	37.1	84	45.9	38	43.7
	Total	213	100.0	183	100.0	87	100.0
Agricultural possessions	Low	53	24.9	90	49.2	39	44.8
	High	160	75.1	93	50.8	48	55.2
	Total	213	100.0	183	100.0	87	100.0
Income	< 2000	87	40.8	46	25.1	28	32.2
	2000 – 4999	83	39.0	65	35.5	30	34.5
	5000 +	43	20.2	72	39.3	29	33.3
Total (each variable)		*213*	*100.0*	*183*	*100.0*	*87*	*100.0*

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

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

Households, whose heads make many normal out-of-door trips, suffer more from all types of diseases in rural areas or vice-versa. The fact is quite opposite in urban areas, where those households suffer more whose heads make few normal out-of-door trips. Rural households with (i) poor standard of living, (ii) high agricultural possessions, and (iii) low levels of income suffer more from communicable diseases. In the urban areas households with high standard of living, low agricultural possessions and high levels of income suffer more from non-communicable diseases.

From the above it is clear that burden of disease is high in all the age-groups in rural areas where people surfer more from infectious diseases. In the urban areas burden of disease is high among all for children where they suffer from non-communicable diseases. As we confirm that infectious and non-communicable diseases predominate in rural and urban areas respectively, our finding supports the phenomenon of epidemiological transition.

5.4. Incidence and prevalence of disease

Table 28. Annual incidence and prevalence rates of disease

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

Table 28 shows incidence and prevalence rates of diseases. Incidence rate of disease in the rural areas of the districts is 273.06. It conveys that 273 in every 1000 persons face new attacks annually or roughly 22 in every 1000 persons face new attack monthly. In the urban areas annual incidence rates is 165.91; in other words, roughly 14 in every 1000 persons fall ill monthly. In the combined category annual prevalence rate of disease is 234.81 per 1000.

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

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

5.6. Summary

In the rural areas communicable, maternal, perinatal and nutritional diseases and in the urban areas non-communicable diseases predominate. As of disease profile, rural areas of this region of Cooch Behar and Jalpaiguri remain in the pre-transitional stage. Urban areas remain in the second stage of epidemiological transition. Incidence and prevalence rates of disease also vary sharply according to the place of residence. As the disease profile of this region is complex, i.e., as this region has epidemiologic profile of a pre-transitional society as well as a society in the mid-transitional stage, the people of this region may have complex and diversified need for health care. We will see in Chapter 7 how this complex epidemiologic profile affects the pattern of utilisation of care.

six

6 Patient's preference for a care

6.1. Introduction

Importance of opinions and attitudes towards a type of care or system of medicine has been recognised greatly by the medical sociologists, anthropologists, and doctors. In India the issue has been addressed mostly by the medical specialists. Such studies are restricted in counting frequencies of patients expressing various opinions. However, to move a step further one can use modern qualitative anthropological techniques to sketch patient's (or respondent's) cognitive structure with respect to their choice of a type of care or system of medicine. At present in India both private and public sectors run parallel and there are six officially recognised systems of medicine, such as Allopathy, Ayurveda, Homoeopathy, Naturopathy and Yoga, Siddha, and Unani. The present chapter presents an analysis of user's perception regarding choice of a care and computes importance or salience of different opinions in their mind towards utilisation of care. It collects data following free-listing technique and adopts a simple analytical scheme for quantitative interpretation of qualitative data.

6.2. Patient's preference for different types of care

6.2.1. Preference for public type of care - Rural

Table 29 shows four opinions in favour of public type of care by 52 respondents in the rural category. It is also to be mentioned that all respondents (52) have not mentioned all items. Forty-four persons feel inexpensiveness (cheap) of public care is important. However, importance of this opinion is not same for all

respondents. In these free-lists of opinions in favour of public type of care, 21 persons kept 'cheap' in the first rank, 12 persons in second, seven and four persons kept it in the second, third, and fourth ranks respectively. The second row shows two opinions: 'available' and 'no other option'. As both convey similar meaning, these have been clubbed together. The other two opinions are 'reliable' and 'better treatment'. Frequency distribution of different opinions clustered by ranks has been represented again in the clustered bar charts below.

From these opinions we get an idea about respondents' preferences for public type of care in this region of Cooch Behar and Jalpaiguri. First of all, there are very keen about cost aspect of a care. It is to be mentioned that, though very divergent in quantity and quality, private sources of care are flourishing in Cooch Behar and Jalpaiguri. As a result cost of treatment is also increasing at a faster rate in this region. In such a situation, patients or households have expressed their concern about cost of a care. In other words, they (44 respondents) have mentioned that reason behind choosing public type of care was that it was cheap. As we know that in the rural areas, primary health care institutions are available (which are publicly funded), rural people have utilised those. There are many instances when respondents have mentioned that no other options were available. A good percentage of persons have raised the question about reliability of a care. As in the rural areas, many unrecognised practitioners are operative, people preferred public sources of care for reliable treatment. Similarly, for better treatment also people preferred public health facilities. Though in the section of review of literature we did not find any specific study in the direction of finding reasons behind choosing public or private type of health facility, we get availability or unavailability of any care or medical personnel or drugs, geographical accessibility, cost aspects of care, etc. as important areas of households' concern. The findings of the present study are thus consistent with those of the previous ones, and in addition to that it provides us with a precise understanding regarding respondents' opinions in favour of utilising a care.

Table 29. Ranks and opinions towards public type of care - Rural

Opinion	Rank & Frequency				Total
	1st	2nd	3rd	4th	
Cheap	21	12	7	4	44
Available, No other option	13	6	8	2	29
Reliable	7	4	-	7	18
Better treatment	11	-	1	-	12
Total	*52*	*22*	*16*	*13*	*103*

n = 52

Table 30 shows importance or salience of each opinion in people's mind. Salience of 'availability' came to be 0.315. It conveys that more than 31 per cent space of respondents' mind is occupied by the feeling that they have utilised care from public sources, as those were available to them. Salience of 'cheap' is 0.297. We can check that frequency of 'cheap' is higher than that of 'availability'. From this result it will not be plausible to make any inference about importance of these opinions. When we take into account frequency of an opinion with its rank in different individual lists, we get the true picture. Salience of other items declines gradually according to their overall frequency and ranks in individual free-lists.

Table 30. Salience of opinions in favour of public type of care - Rural

Opinion	Salience
Available, No other option	0.315
Cheap	0.297
Better treatment, Authentic treatment	0.215
Reliable	0.174
Total (Σ Salience)	*1.000*

6.2.2. Preference for public type of care- Urban

Urban dwellers are quite precise than their rural counterparts on the question of choosing public type of care. They have pointed out issues about price of care (cheap) and their income or financial ability (affordability). We know that in the urban areas particularly in Cooch Behar and Jalpaiguri towns, specialised public and private sources of care are available. However, all these are not attainable to

all potential patients. Households take into consideration price of a care as well as their affordability, i.e., income. Price of a care is acceptable to someone only when she or he has affordability. Salience values of the two opinions are displayed in table 32. We see that salience of inexpensiveness of public type of care (cheap) is two times higher than that of affordability. It conveys that households' immediate response to a care is associated with its price only.

Table 31. Cross tabulation of opinions and ranks for public type of care - Urban

Opinion	Rank & Frequency		Total
	1st	2nd	
Cheap	6	3	9
Affordable	3	-	3
Total	*9*	*3*	*12*

n = 9

Table 32. Salience of opinions in favour of public type of care - Urban

Opinion	Salience
Cheap	0.667
Affordable	0.333
Total (Σ Salience)	*1.000*

6.2.3. Preference for private type of care - Rural

There are 56 respondents and three opinions in this category. The first two are related to quality of care. By and large rural respondents perceive private health facilities as sources of quality care as compared to the public ones. Also a large number of persons have been influenced by some other criterion towards utilisation of private care.

Table 33. Cross tabulation of opinions and ranks for private type of care - Rural

Opinion	Rank & Frequency			Total
	1st	2nd	3rd	
Better treatment	26	17	4	47
Doctors pay attention	21	8	12	41
Referred by someone (relatives, friends, chemists, etc.)	9	15	9	33
Total	*56*	*40*	*25*	*121*

n = 56

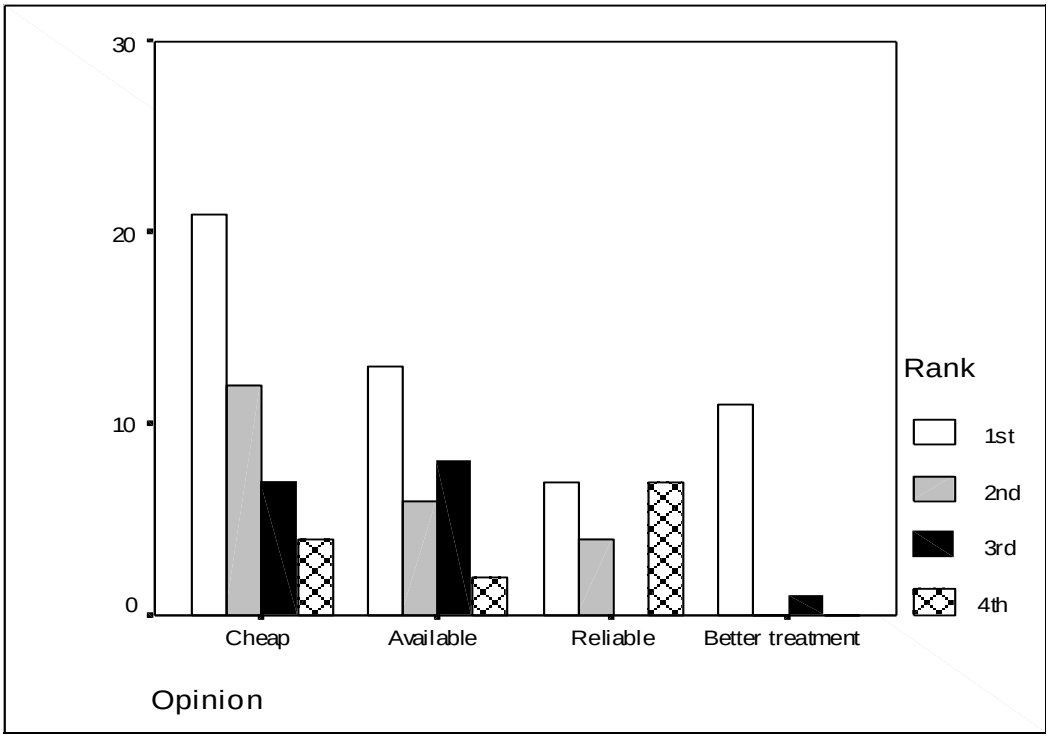


Figure 35. Opinions for choosing public type of care – Rural

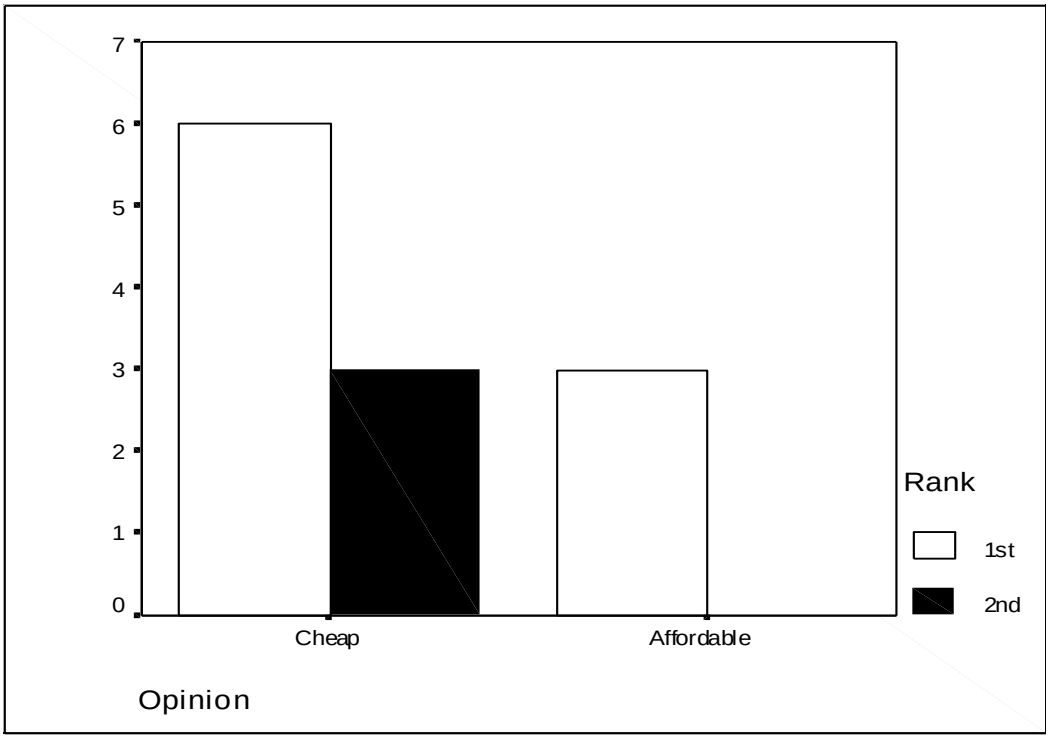


Figure 36. Opinions for choosing public type of care - Urban

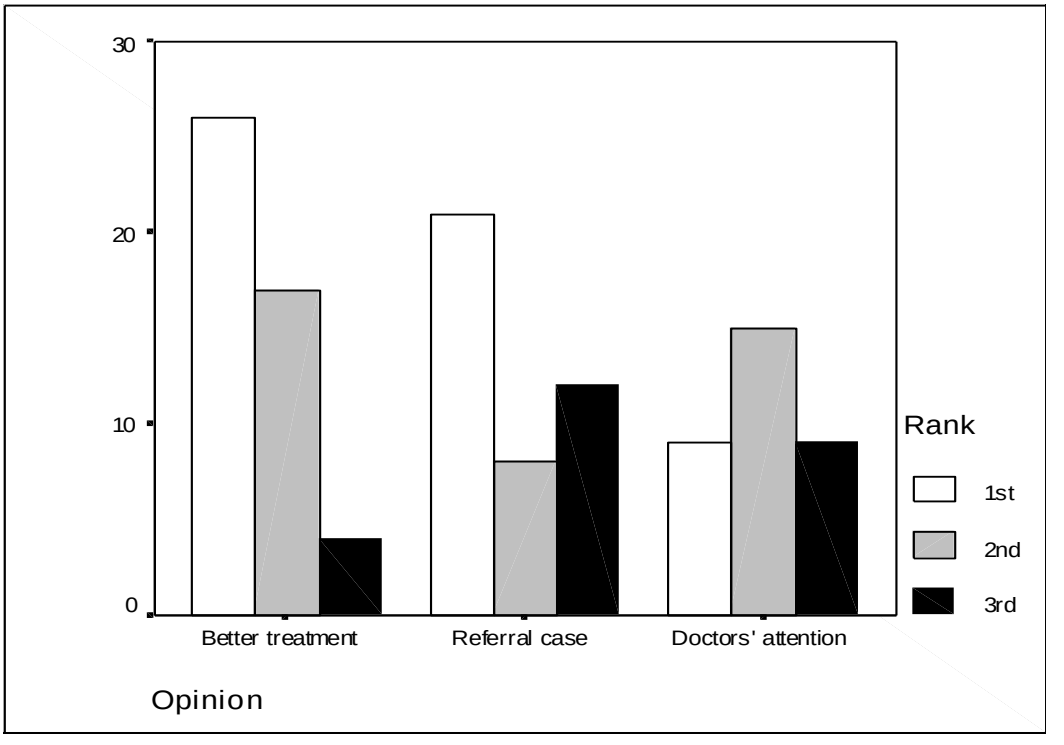


Figure 37. Opinions for choosing private type of care - Rural

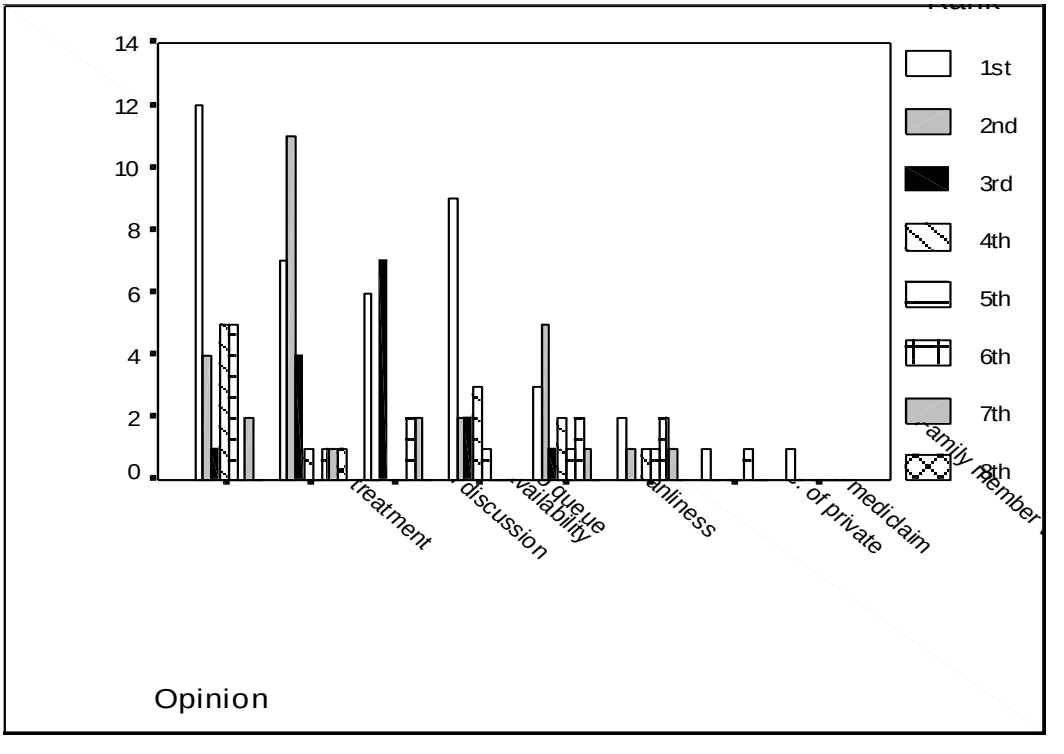


Figure 38. Opinions for choosing private type of care - Urban

Table 34 shows salience values in rural category. The most important one is 'better treatment' with salience value of 0.348. The other two are almost equally important as they have almost same salience.

Table 34. Salience of opinions in favour of private type of care - Rural

Opinion	Salience
Better treatment	0.348
Doctors pay attention	0.277
Referred by someone (relatives, friends, Chemists, etc.)	0.275
Total (Σ Salience)	1.000

6.2.4. Preference for private type of care - Urban

Table 35. Cross tabulation of opinions and ranks for private type of care - Urban

Opinion	Rank & Frequency								Total
	1st	2nd	3rd	4th	5th	6th	7th	8th	
Better treatment, Quality treatment, authentic treatment, right diagnosis	12	4	1	5	5	-	2	-	29
Enough time to discuss	7	11	4	1	-	1	1	1	26
Bed available, no sharing of bed	6	-	7	-	-	2	2	-	17
No queue, No waiting time, less crowd	9	2	2	3	1	-	-	-	17
Cleanliness	3	5	1	2	1	2	1	-	15
Malfunctioning of the public hospitals	2	1	-	1	1	2	1	-	8
Have Mediclaim*	1	-	-	-	-	1	-	-	2
Family member works in nursing home	1	-	-	-	-	-	-	-	1
Total	*41*	*23*	*15*	*12*	*8*	*8*	*7*	*1*	*115*

*n = 41, * Health insurance*

The reasons behind choosing private type of care by the urban dwellers are nothing but quality aspects of care. There are eight categories of opinions, most of which are to specify good quality of care of the private health facilities or malfunctioning of the public hospitals as appear in table 35. Respondents have clearly put importance on 'doctor-patient information exchange' (Donabedian, 1980), and attractiveness of health facility (Kroeger, 1983), which are thought very important

determinants of utilisation of care. In the above review of literature also we found that very unflattering image of the Primary Health Centres in rural India, which lead people to go to the private practitioners (Banerjee, 1981). The present study gives clue of similar situation in urban health care also. It is true that public in health care institutions, particularly the Sub-divisional and District Hospitals (District Hospitals in our study area) doctors or medical specialists are believed to spend very less time to discuss the issues with the patient or accompanied persons. It is also true that public hospitals have not enough capacity to accommodate all patients. As a result patients are seen to share beds with others or occupying floors, corridors, etc. However, one does not expect such inconveniences in private health facilities. These are the main reasons (as reflected from patients' opinions) behind choosing private health facilities by the urban dwellers. Two persons have mentioned that they have sought care from private sources as they had health insurance coverage. One person mentioned about working of family member in favour of utilisation of private health facility.

Table 36 shows salience values of opinions in favour of private type of care in the urban category. Of the eight categories of items, those related to time have been found very important. Respondents give priority to waiting time as well as time for therapeutic discussion.

Table 36. Salience of opinions in favour of private type of care - Urban

Opinion	*Salience*
No queue, No waiting time, less crowd	0.273
Enough time to discuss	0.179
Bed available, no sharing of bed	0.156
Better treatment, quality treatment, authentic treatment, right diagnosis	0.138
Cleanliness	0.128
Malfunctioning of the public hospitals	0.072
Have Mediclaim*	0.027
Family member works in a Nursing Home	0.026
Total (Σ Salience)	*1.000*

** Health insurance*

6.3. Patient's preference for different systems of medicine

6.3.1. Preference for Allopathy - Rural

Table 37. Cross tabulation of opinions and ranks for Allopathy - Rural

Opinion	Rank & Frequency								Total
	1st	2nd	3rd	4th	5th	6th	7th	8th	
Quick relief, Instant relief	15	5	3	-	-	-	-	-	23
Effective, Permanent relief / cure	9	6	-	-	-	-	-	-	15
Available free at hospitals	4	2	5	-	-	1	-	1	13
Tried Kabiraji* / Homeopathy earlier	8	-	-	2	-	-	-	-	10
Reliable, less tension	2	3	-	2	-	-	-	-	7
Qualified doctors are available	4	-	-	-	-	-	-	-	4
First preference, Everybody in our family prefers it, No other option	2	-	-	-	1	-	-	-	3
For infectious disease Allopathy is good	1	-	-	-	-	-	1	-	2
Scientific, Good treatment	2	-	-	-	-	-	-	-	2
Drugs for common diseases are known, One can take drug without consulting doctor also	1	-	-	-	1	-	-	-	2
When my son goes to market place brings drugs for me, Easily available	1	1	-	-	-	-	-	-	2
Chances of better treatment in nursing homes	1	-	-	-	-	-	-	-	1
If need saline can be given	1	-	-	-	-	-	-	-	1
School teacher advised	1	-	-	-	-	-	-	-	1
In old age Allopathy is effective	1	-	-	-	-	-	-	-	1
Drugs can be stored and used later	1	-	-	-	-	-	-	-	1
Total	*54*	*17*	*8*	*4*	*2*	*1*	*1*	*1*	*88*

*n = 54, * Traditional*

Table 37 shows preference for Allopathy among rural residents. Reasons for choosing Allopathy in this category are many. There are 16 categories of opinions, many of which have been mentioned by respondents frequently. Twenty-three out

of 54 respondents have mentioned that they preferred Allopathy for quick relief or instant relief. Fifteen of them begin their individual free-lists with this point. Five of them rank it second; remaining three mentioned it as third item. The second most important item in terms of frequency is 'permanent cure'. Thirteen respondents have mentioned that they utilised allopathic care as those were available at free of cost at hospitals. Ten respondents have mentioned that they had tried Kabiraji (traditional) or Homeopathy earlier. There are also many opinions, which reflect purely individual preferences or point towards diversified issues. Frequency distribution clustered by ranks has been shown in figures 38A and 38B.

Table 38. Salience of opinions in favour of Allopathic system of medicine – Rural

Opinion	*Salience*
Effective, Permanent relief, Permanent cure	0.190
Quick relief, Instant relief	0.186
Tried Kabiraji* earlier, tried Homeopathy earlier	0.155
Available free at hospitals	0.104
Reliable, less tension	0.059
First preference, Everybody in our family prefers it, No other option	0.039
Scientific, Good treatment	0.037
Qualified doctors are available	0.025
When my son goes to market place brings drugs for me, Easily available	0.025
Drugs for common diseases are known, One can take drug without consulting doctor	0.022
For infectious disease Allopathy is good	0.019
In old age Allopathy is effective	0.018
Chances of better treatment in nursing homes	0.018
If need saline can be given	0.018
School teacher advised	0.018
Drugs can be stored and used later	0.018
Total (Σ Salience)	*1.000*

** Traditional*

We have reviewed studies in favour of Allopathy, which highlights some reasons behind choosing of it, such as 'lasting cure', 'greater efficacy', etc. The present study also confirms that most of the people prefer Allopathy as it gives

quick relief, also as it is freely available at hospitals. A good percentage of respondents mentioned that they tried alternative systems of medicine earlier. So, we see that individual or household behaviour regarding the specific action of choosing a particular type of care towards healing a disease is guided mainly by some specific considerations as mentioned above.

The salience values are shown in table 38. 'Permanent cure' has the highest salience value of 0.190. Nineteen per cent space of respondents' mind is occupied by the feeling of effectiveness of Allopathy and it provides permanent relief or cure from pain. 'Quick relief' or 'instant relief' also occupies almost same space. A good amount of space is occupied by their experience of ineffectiveness of other systems of medicine. Two persons have mentioned that they preferred Allopathy as they knew drugs or they did not need doctor's advice for common types of diseases. However, salience of such opinions is as low as 0.022.

6.3.2. Preference for Allopathy - Urban

In urban areas people prefer Allopathy mostly for 'quick relief', 'permanent cure', and reliability of the system. Three respondents also mentioned that they did not need doctors to solve their problems. This again shows preference for self- or family-treatment in case of Allopathy among the urban dwellers. Frequencies of opinions and salience values are shown in tables 39, 40 and in figure 39.

Table 39. Cross tabulation of opinions and ranks for Allopathy - Urban

Opinion	Rank & Frequency				Total
	1st	2nd	3rd	4th	
Quick relief	8	3	-	-	11
Permanent cure	6	-	-	-	6
Reliable	3	2	-	-	5
For common problems no need of consulting doctors	1	-	2	-	3
Surgical problems	1	-	-	2	3
Don't want to do experiment with others	1	-	1	-	2
Being government servant	1	-	-	-	1
Mediclaim (health insurance)	-	1	-	-	1
Total	*21*	*6*	*3*	*2*	*32*

n = 21

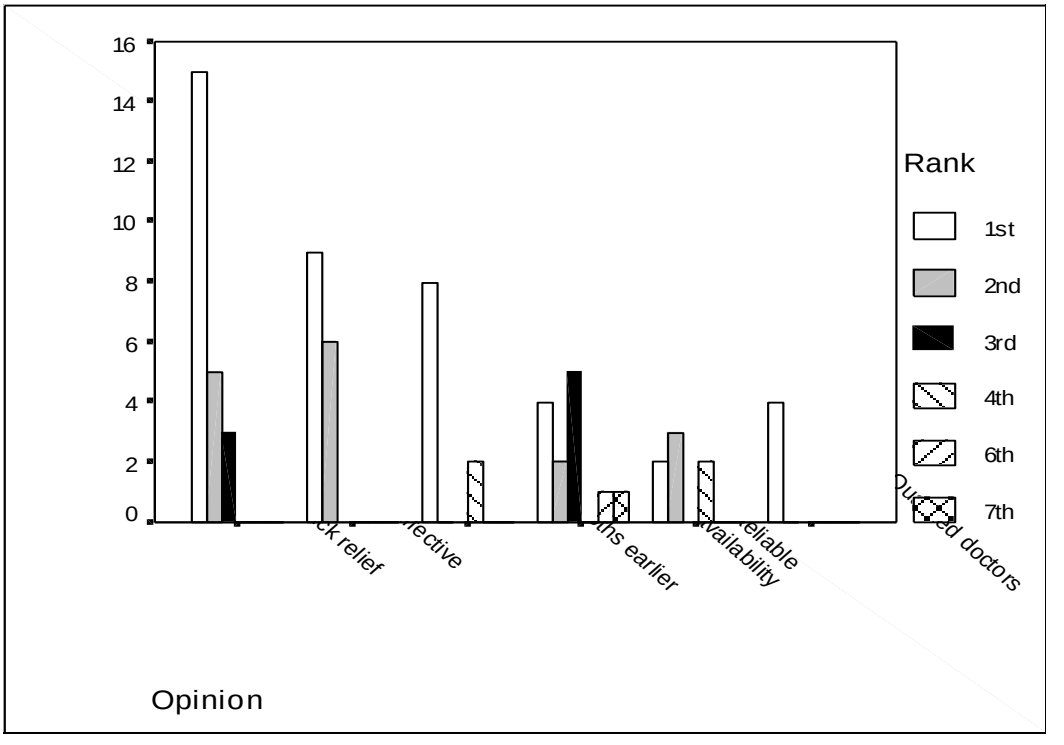


Figure 39-A. Opinions for choosing Allopathy - Rural

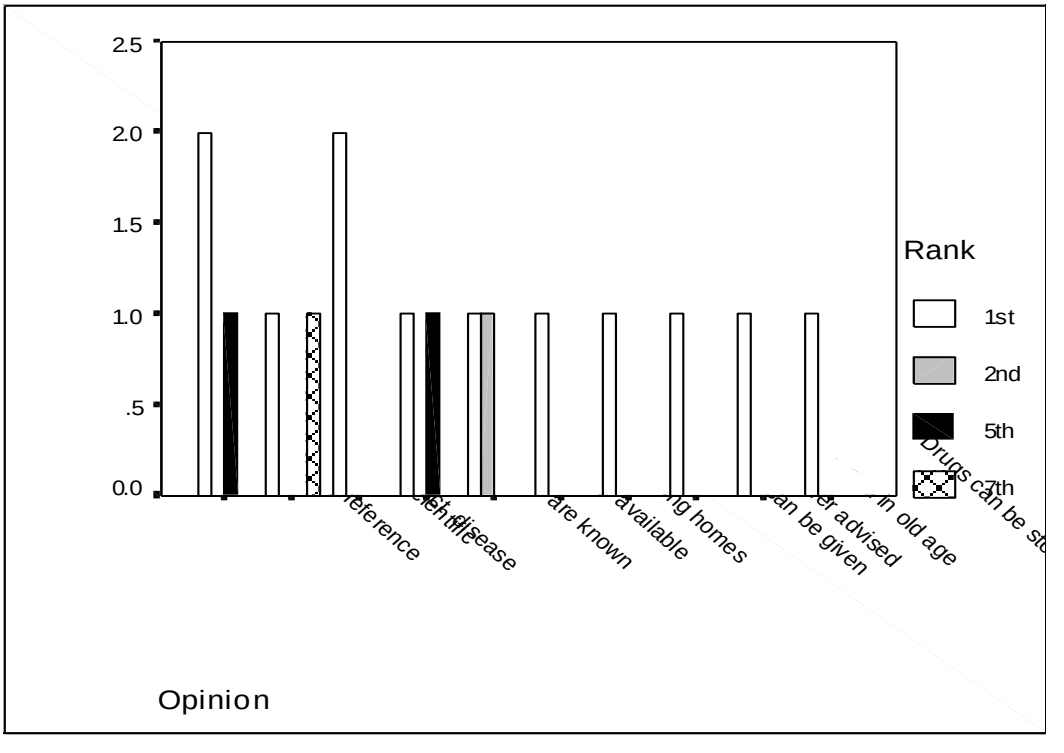


Figure 39-B. Opinions for choosing Allopathy - Rural

Table 40. Salience of opinions in favour of Allopathic system of medicine - Urban

Reasons	Frequency	Salience
Quick relief	18	0.299
Permanent cure	13	0.288
Reliable	12	0.176
For common problems no need of consulting doctors	8	0.067
Surgical problems	4	0.058
Don't want to do experiment with others	4	0.048
Being government servant	3	0.048
Mediclaim (health insurance)	2	0.016
Total (Σ Salience)	-	*1.000*

6.3.3. Preference for Homeopathy - Rural

Thirty-two respondents expressed their opinions in favour of Homeopathy in the rural category. Most of them preferred Homeopathy as it is 'cheap' and as it has been perceived 'good for children', and also for 'permanent cure'. 'Removal of the cause of the disease' is also an important factor as it has been mentioned by ten respondents. They believe that consumption of homeopathic drugs helps by removing the causes of the disease from body and gives permanent relief from it. If we look back to the findings highlighted in the section of review of literature, we see that important reasons behind choosing alternative systems of medicine were: 'lasting cure', 'no ill effects', 'more effective', and 'tried Allopathy earlier', etc. If we compare present findings with those of the previous ones, we see that by and large people have similar understanding about Homeopathy. Though in strict sense the opinion of 'removal of the cause of disease' and that of 'permanent cure' are similar, the former conveys an appeal towards Homeopathy with deeper understanding of the system. Salience values are shown in table 42.

We see that nearly 60 per cent space of a respondent's mind is occupied by the feeling that Homeopathy is good for children and cheap, followed by 'permanent cure', 'no side effect', etc.

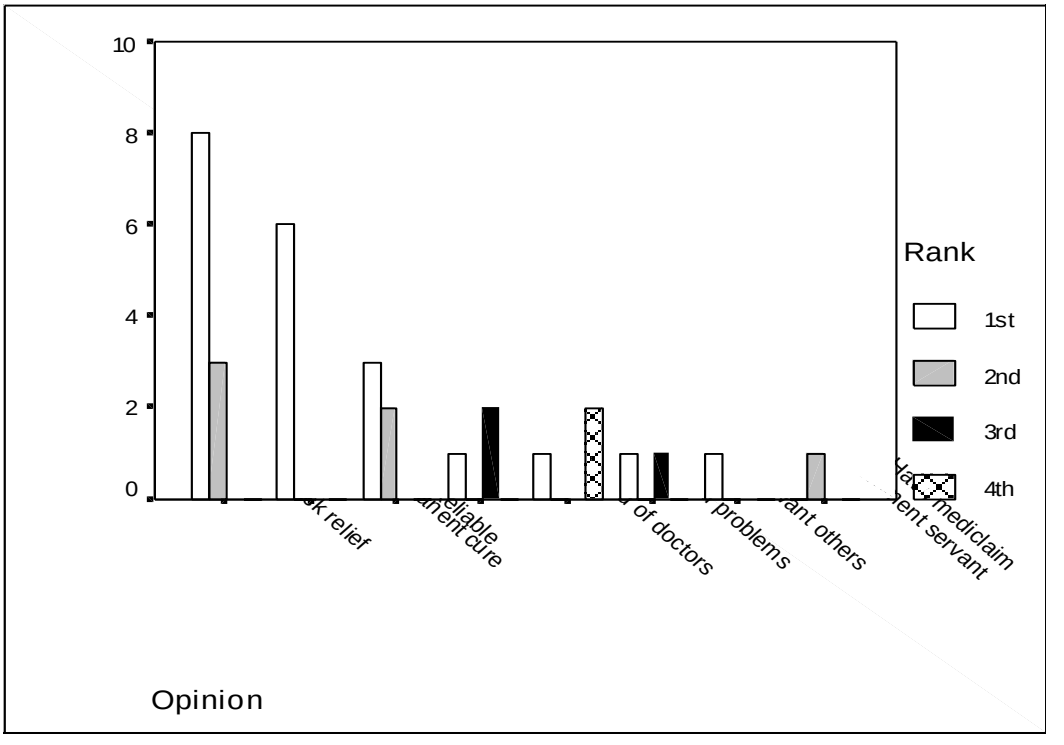


Figure 40. Opinions for choosing Allopathy - Urban

Table 41. Cross tabulation of opinions and ranks for Homeopathy - Rural

Opinion	Rank & Frequency				Total
	1st	2nd	3rd	4th	
Cheap	18	3	1	-	22
Drugs are mild, No side effect	-	8	3	-	11
Easy to take	-	-	-	1	1
Good for children	11	7	2	-	20
Good in fever, cough & cold	-	3	2	-	5
Good in preliminary stage of the disease	-	-	1	1	2
No cost of pathological test	-	1	-	2	3
Permanent cure	3	8	1	2	14
Removal of the cause of the disease	-	2	4	4	10
Slow but effective	-	-	2	-	2
Total	*32*	*32*	*16*	*10*	*90*

n = 32

Table 42. Salience of opinions in favour of Homeopathy - Rural

Opinion	*Salience*
Good for children	0.308
Cheap	0.282
Permanent cure	0.157
Drugs are mild, No side effect	0.115
Removal of the cause of the disease	0.058
Good in fever, cough & cold	0.042
No cost of pathological test	0.017
Slow but effective	0.010
Good in preliminary stage of the disease	0.008
Easy to take	0.003
Total (Σ Salience)	*1.000*

6.3.4. Preference for Homeopathy - Urban

Urban dwellers' preference for Homeopathy is pointed to their understanding that homeopathic drugs have 'no side effect'. Other important opinions are: 'slow but effective', 'good for children', and 'less cost'. Among these, respondents' understanding of no side effect of homeopathic drugs occupies most of the space of their minds. Frequencies of different opinions and salience values are shown in tables 43, 44.

Table 43. Cross tabulation of opinions and ranks for Homeopathy - Urban

Opinion	Rank & Frequency				Total
	1st	2nd	3rd	4th	
No side effect	7	-	-	-	7
Slow but effective	-	3	1	1	5
Good for children	-	2	-	-	2
Less cost	-	-	2	-	2
Total	*7*	*5*	*3*	*1*	*16*

n = 7

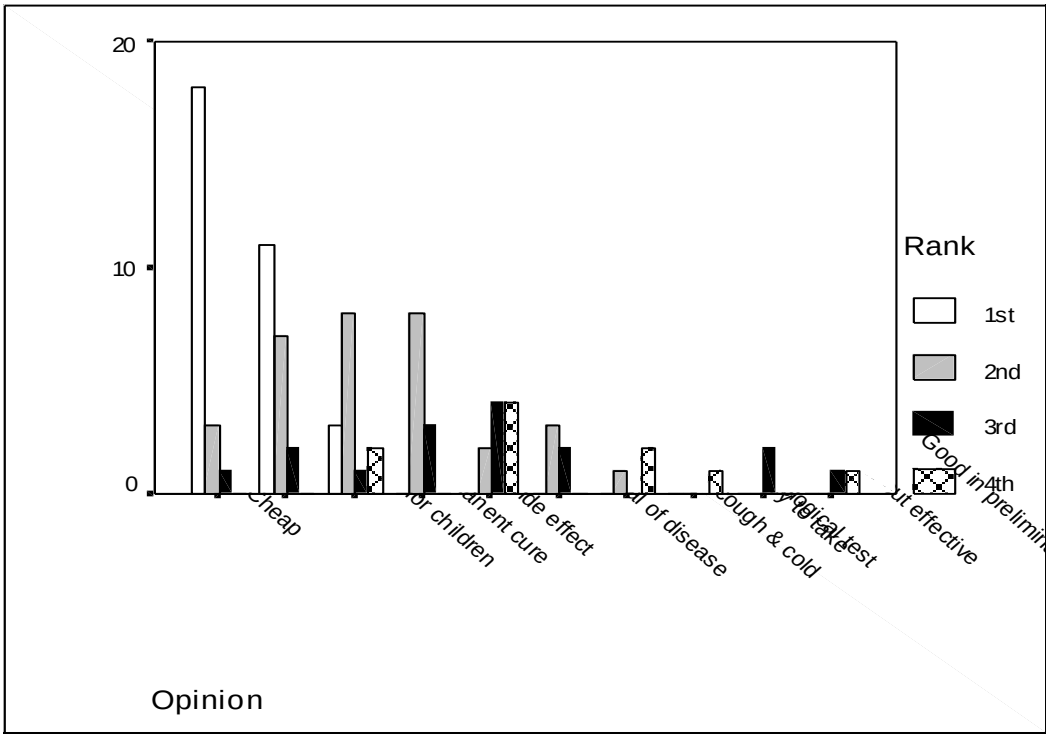


Figure 41. Opinions for choosing Homeopathy - Rural

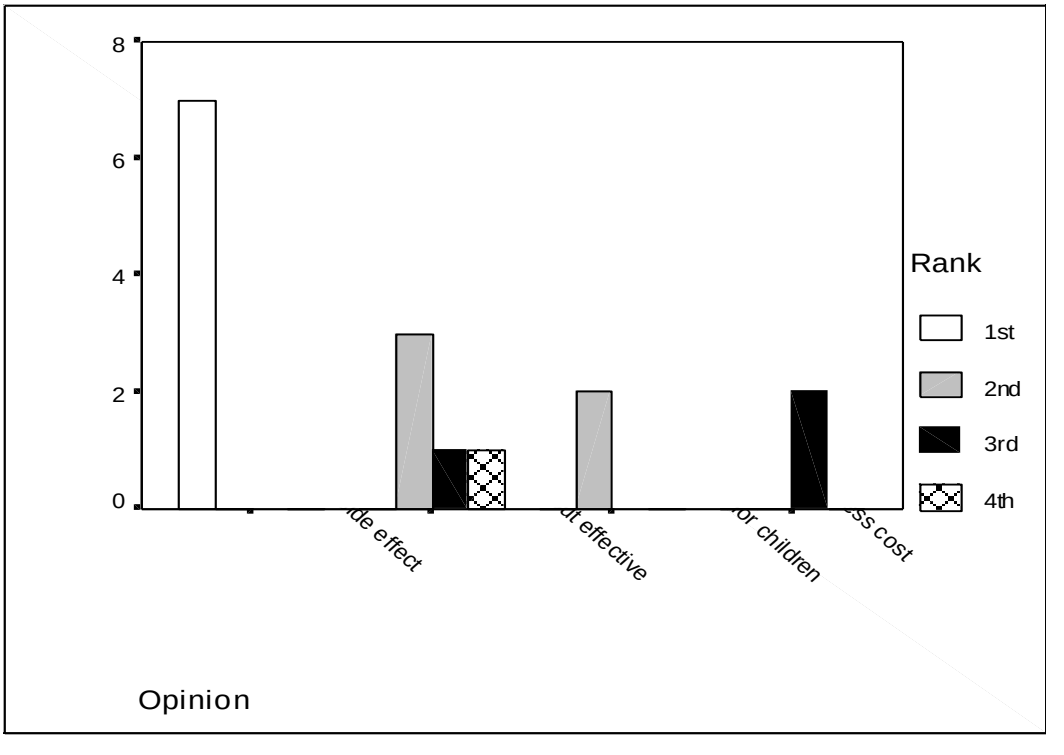


Figure 42. Opinions for choosing Homeopathic system of medicine - Urban

Table 44. Salience of opinions in favour of Homeopathy

Opinion	*Salience*
No side effect	0.676
Slow but effective	0.181
Good for children	0.095
Less cost	0.048
Total (Σ Salience)	*1.000*

6.4. Summary

Households in rural areas prefer public sources are care as those are available to them or they have no other option, and for better or authentic treatment. In the urban areas, people prefer public care, as those are cheap. People in both rural and urban areas prefer private sources of care for quality treatment. Households in rural and urban areas prefer Allopathy for effective treatment, quick relief or for ineffectiveness of other systems. Few respondents have mentioned about self-treatment in favour of utilisation of Allopathy. However, salience of such item is found very less. Households in rural areas prefer Homeopathy, as it is believed as good for children and cheap. In the urban areas people prefer it, as it is known to have no side effect.

The study thus provided us with a very good idea and precise measures on opinions and attitudes towards a type of care or system of medicine in this region. These measures can hopefully be used for policy prescriptions for this particular region. For example, patients' or households' appeal towards Homeopathy or opinions in favour of that can be honoured by introducing it in the primary health care institutions of this region. However, it is to be mentioned that results of such qualitative studies are not generalised the way researchers do in case of quantitative studies. It is also to be noted that one disadvantage of quantitative studies is that though they tell very preciously about 'what' or 'how much', they do not explain 'why'. Usually researchers try to find the clue (of 'why') from outside the models or studies. As a part of positive body of thought, though econometric models provide value-free predictions, their meaningful interpretations very often incorporate prejudice or some sort of imagination of the researchers. We will throw some more light on this issue in the following chapters.

seven

7 Utilisation of health care

7.1. Introduction

Utilisation of care in all societies conforms to individual, social, institutional, and other characteristics. In this chapter we will examine patterns of utilisation of care in this particular region with respect to a set of possible interacting variables. Utilisation of care may have many dimensions. After going through data, we have found it suitable to form two broad groups: utilisation of a care from modern source in consultation with doctors and medical specialists in one group, and utilisation from traditional source (including treatment from paramedical or supporting stuff and from any system of medicine except Allopathy and Homeopathy) or self-treatment or family-treatment, etc. in the other.

7.2. Utilisation of health care in Cooch Behar and Jalpaiguri

Table 45 shows utilisation of care from modern and traditional sources in the rural category. Data are to be interpreted by moving down in each column of the table. There are 103 cases (31.69 per cent) for which households seek care from traditional sources or did self or family treatment or utilised care from any other system except Allopathy and Homeopathy. The remaining 222 cases (68.31 per cent) have been treated in modern public or private health facilities. In the traditional category (as we move down the table), we see that nearly half of the cases (46 cases, 44.7 per cent) correspond to the 5-14 age group. If we assume utilisation from modern source as worthy, we can say that children in the 5-14 age

group are the most neglected. The same is true for the 0-4 age group. However, cases of illness in the working age group (15-64) are treated in the modern facilities. If we look at family size, we see that utilisation from traditional source is higher in large families and utilisation from modern source is higher in small families. The same pattern of utilisation of care can be observed with respect to education also. Utilisation from traditional source is higher where heads of the households are either illiterates or primary-level educated. Utilisation from modern source is high when heads of the households are moderately educated or have education higher than that. Similarly, utilisation from modern source is higher where household heads make more normal out-of-door trips, and who have low standard of living, high agricultural possessions, and low income.

Tables 46 and 47 show utilisation of care from modern and traditional sources in the urban and combined categories respectively. In table 44 there are 158 cases of illness. Out of these cases 84 cases (53 per cent) received care from traditional source or other. The remaining 74 cases (47 per cent) received care from modern sources. If we look pattern of utilisation according to age group, it confirms that the interest of the 5-14 age-group is neglected in the urban areas also. On the other hand 0-4, and 15-64 age-groups get priority while utilising care from modern source. Sharp difference can be observed in utilisation pattern according to gender. The stack of information given in tables 45 and 46 has been represented again in clustered bar charts as shown in figures 43 to 62.

Table 45. Utilisation of care and characteristics of the subject - Rural

Characteristics of the Subject	Category	Utilisation from traditional source & others (0)		Utilisation from modern source (1)	
		n	%	n	%
Age-structure	0-4	23	22.3	35	15.8
	5-14	46	44.7	34	15.3
	15-64	21	20.4	103	46.4
	65+	13	12.6	50	22.5
	Total	103	100.0	222	100.0
Gender	Male	54	52.4	112	50.5
	Female	49	47.6	110	49.5
	Total	103	100.0	222	100.0
Caste	SC/ST	39	37.9	86	38.7
	General	64	62.1	136	61.3
	Total	103	100.0	222	100.0
Family size	≤ 5	41	39.8	130	58.6
	> 5	62	60.2	92	41.4
	Total	103	100.0	222	100.0
Education	≤ Primary	59	57.3	85	38.3
	Middle +	44	42.7	137	61.7
	Total	103	100.0	222	100.0
Normal out-of-door trips	≤ 4 / month	45	43.7	36	16.2
	5 + / month	58	56.3	186	83.8
	Total	103	100.0	222	100.0
Travel to distant place	No	56	54.4	107	48.2
	Yes in last 3 years	47	45.6	115	51.8
	Total	103	100.0	222	100.0
Standard of living	Low	73	70.9	152	68.5
	High	30	29.1	70	31.5
	Total	103	100.0	222	100.0
Agricultural possessions	Low	24	23.3	45	20.3
	High	79	76.7	177	79.7
	Total	103	100.0	222	100.0
Income	< 2000	45	43.7	102	45.9
	2000 - 4999	41	39.8	91	41.0
	5000 +	17	16.5	29	13.1
	Total	*103*	*100.0*	*222*	*100.0*

Table 46. Utilisation of care and characteristics of the subject - Urban

Characteristics of the Subject	Category	Utilisation from traditional source & others (0)		Utilisation from modern source (1)	
		n	%	n	%
Age-structure	0-4	27	32.1	23	31.1
	5-14	30	35.7	21	28.4
	15-64	11	13.1	25	33.8
	65+	16	19.0	5	6.8
	Total	84	100.0	74	100.0
Gender	Male	51	60.7	49	66.2
	Female	33	39.3	25	33.8
	Total	84	100.0	74	100.0
Caste	SC/ST	17	20.2	11	14.9
	General	67	79.8	63	85.1
	Total	84	100.0	74	100.0
Family size	≤ 5	49	58.7	50	67.6
	> 5	35	41.3	24	32.4
	Total	84	100.0	74	100.0
Education	≤ Primary	69	82.1	53	71.6
	Middle +	15	17.9	21	28.4
	Total	84	100.0	74	100.0
Normal out-of-door trips	≤ 4 / month	65	77.4	56	75.7
	5 + / month	19	22.6	18	24.3
	Total	84	100.0	74	100.0
Travel to distant place	No	27	32.1	23	31.1
	Yes in last 3 years	57	67.9	51	68.9
	Total	84	100.0	74	100.0
Standard of living	Low	30	35.7	27	36.5
	High	54	64.3	47	63.5
	Total	84	100.0	74	100.0
Agricultural possessions	Low	55	65.5	58	78.4
	High	29	34.5	16	21.6
	Total	84	100.0	74	100.0
Income	< 2000	10	11.9	4	5.4
	2000 - 4999	31	36.9	15	20.3
	5000 +	43	51.2	55	74.3
	Total	*84*	*100.0*	*74*	*100.0*

Table 47. Utilisation of care and characteristics of the subject - Combined

Characteristics of the Subject	Category	Utilisation from traditional source & others (0)		Utilisation from modern source (1)	
		n	%	n	%
Age-structure	0-4	50	26.7	58	19.6
	5-14	76	40.6	55	18.6
	15-64	32	17.1	128	43.2
	65+	29	15.5	55	18.6
	Total	187	100.0	296	100.0
Gender	Male	105	56.1	161	54.4
	Female	82	43.9	135	45.6
	Total	187	100.0	296	100.0
Caste	SC/ST	56	29.9	180	60.8
	General	131	70.1	116	39.2
	Total	187	100.0	296	100.0
Family size	≤ 5	90	48.1	138	46.6
	> 5	97	51.9	158	53.4
	Total	187	100.0	296	100.0
Education	≤ Primary	110	58.8	138	46.6
	Middle +	77	41.2	158	53.4
	Total	187	100.0	296	100.0
Normal out-of-door trips	≤ 4 / month	83	44.4	130	43.9
	5 +	104	55.6	166	56.1
	Total	187	100.0	296	100.0
Travel to distant place	No	83	44.4	179	60.5
	Yes in last 3 years	104	55.6	117	39.5
	Total	187	100.0	296	100.0
Standard of living	Low	103	55.1	179	60.5
	High	84	44.9	117	39.5
	Total	187	100.0	296	100.0
Agricultural possessions	Low	79	42.2	103	34.8
	High	108	57.8	193	65.2
	Total	187	100.0	296	100.0
Income	< 2000	55	29.4	106	35.8
	2000 - 4999	72	38.5	106	35.8
	5000 +	60	32.1	84	28.4
	Total	*187*	*100.0*	*296*	*100.0*

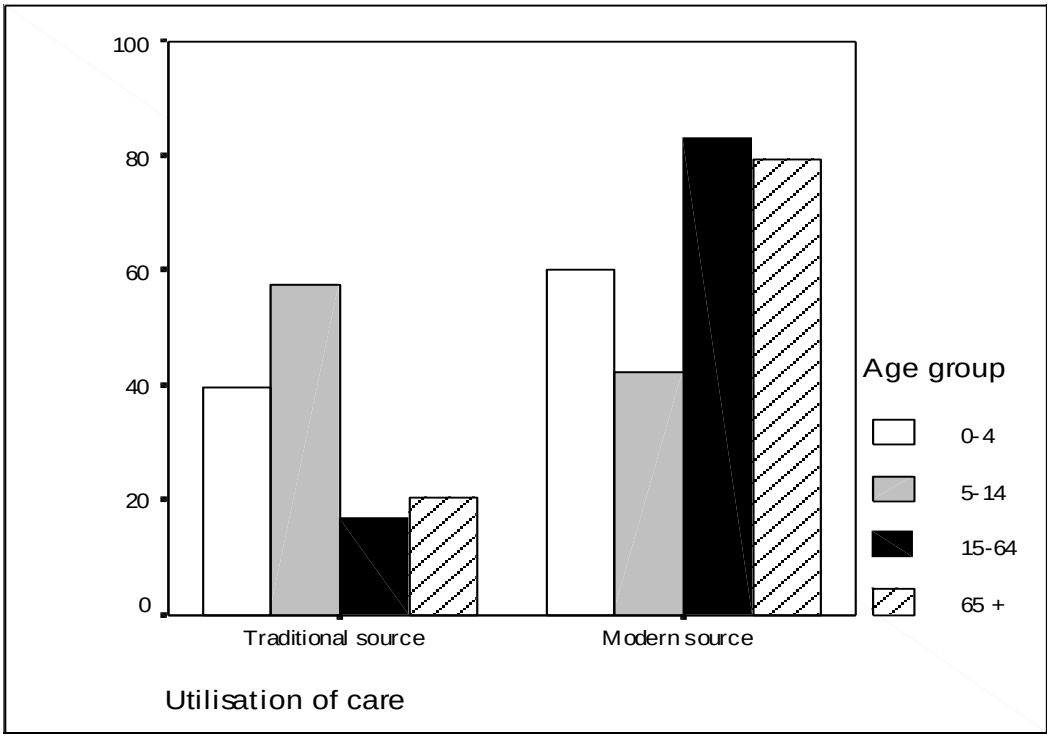


Figure 43. Utilisation of care by age group – Rural

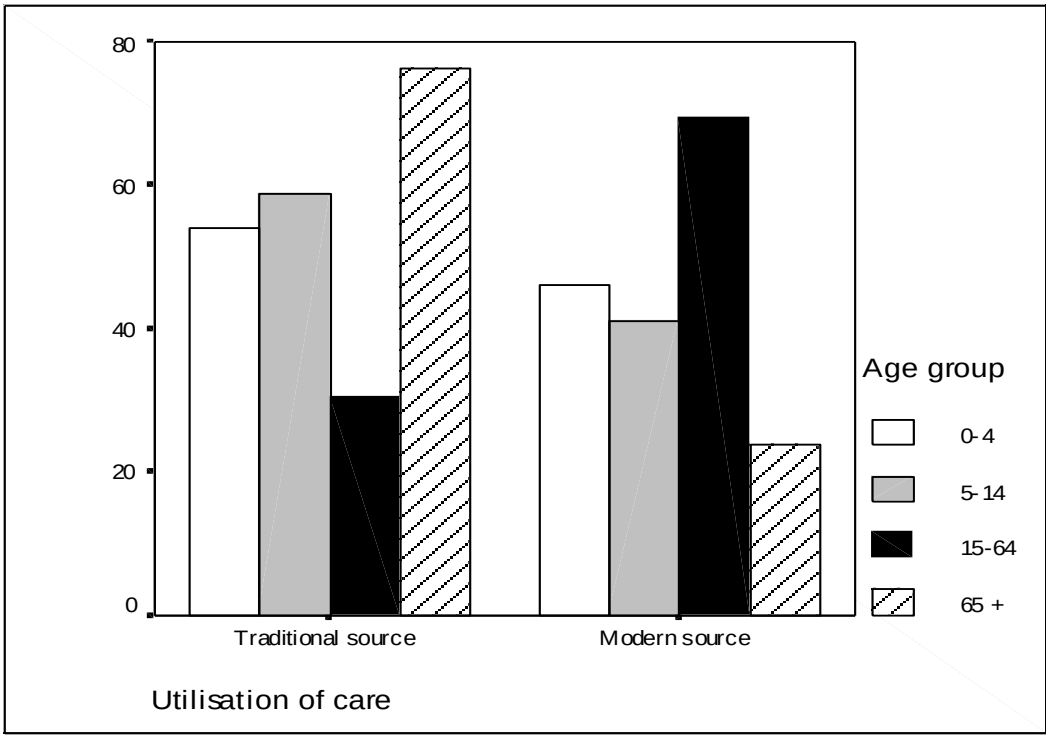


Figure 44. Utilisation of care by age group – Urban

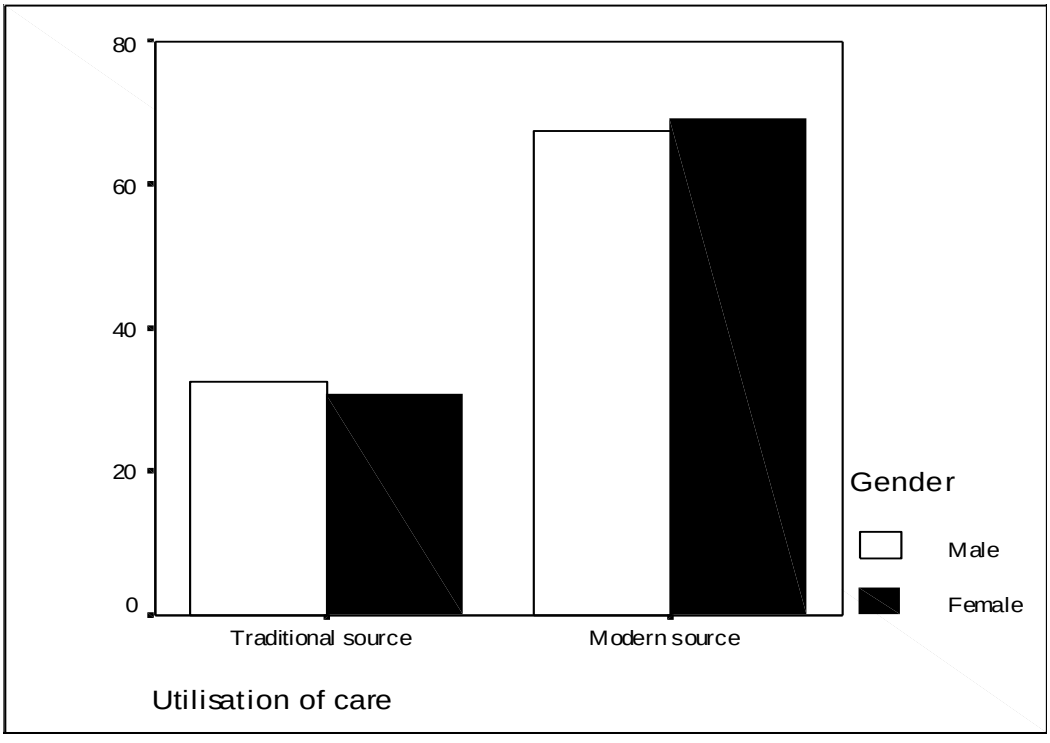


Figure 45. Utilisation of care by gender – Rural

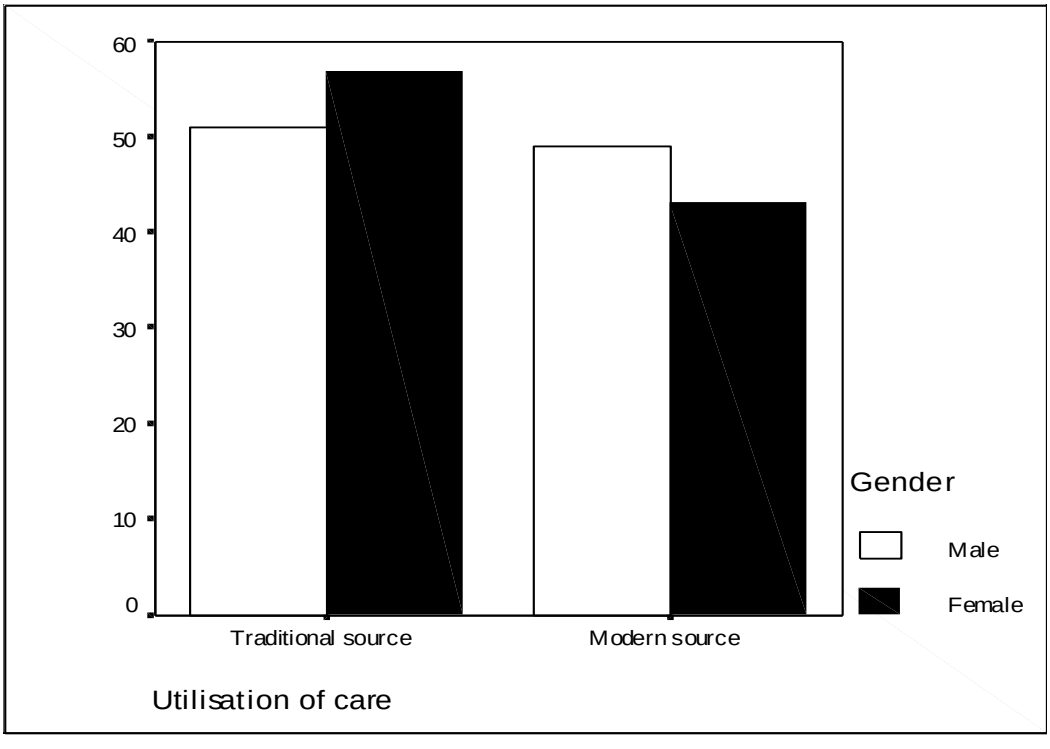


Figure 46. Utilisation of care by gender – Urban

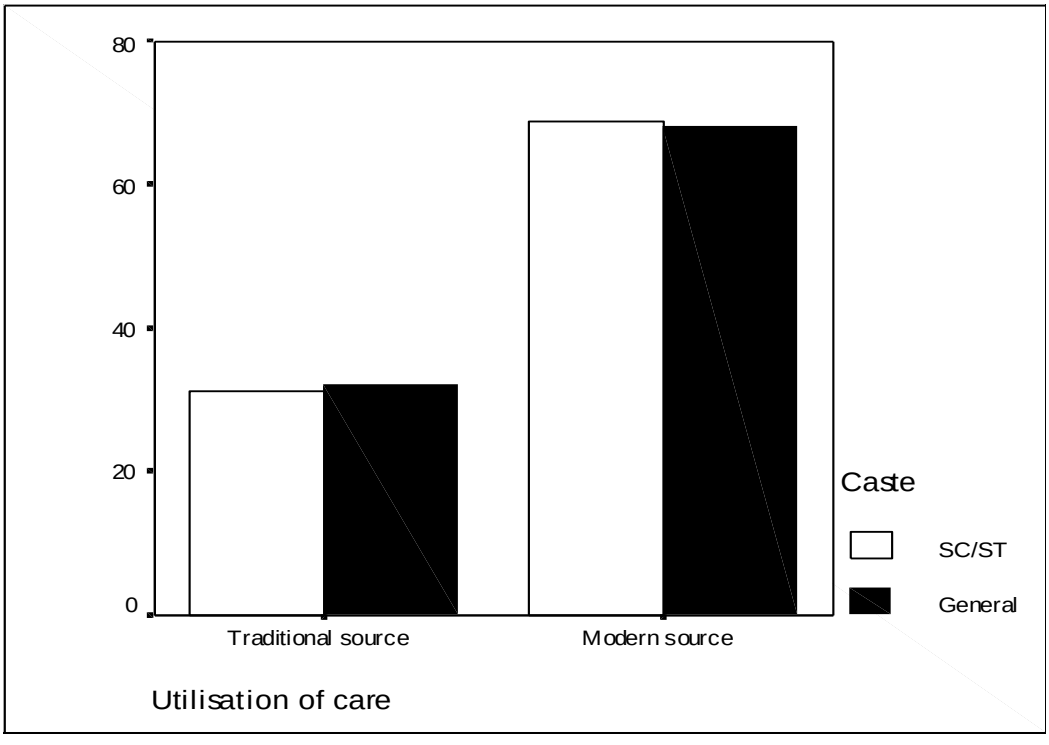


Figure 47. Utilisation of care by caste – Rural

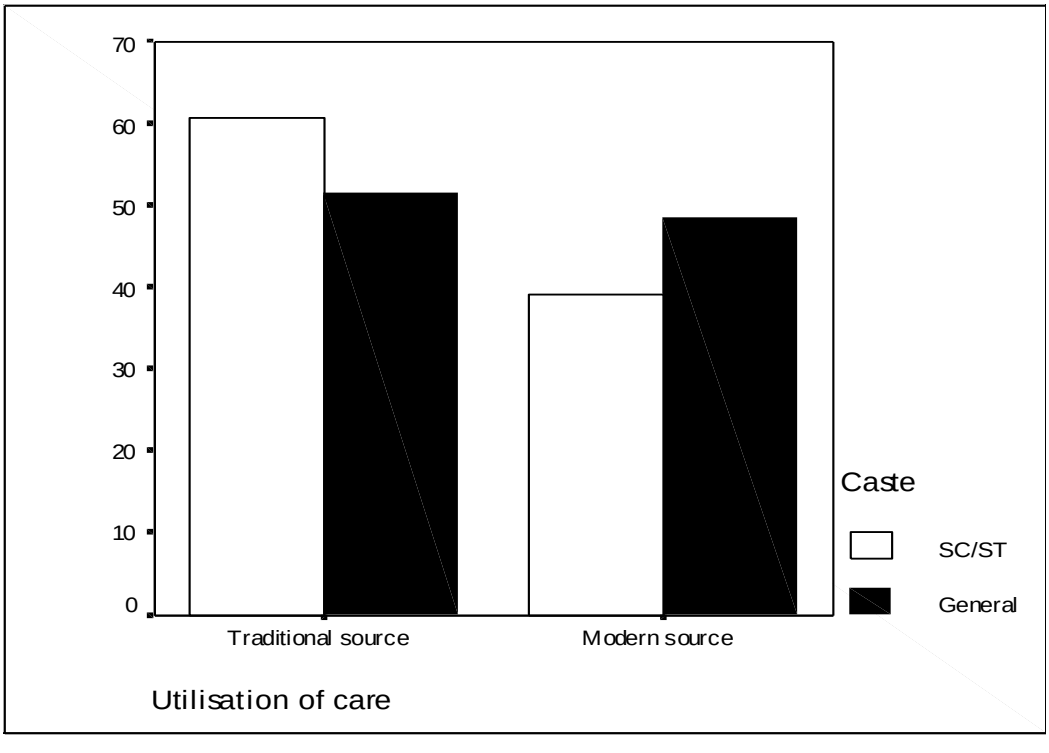


Figure 48. Utilisation of care by caste – Urban

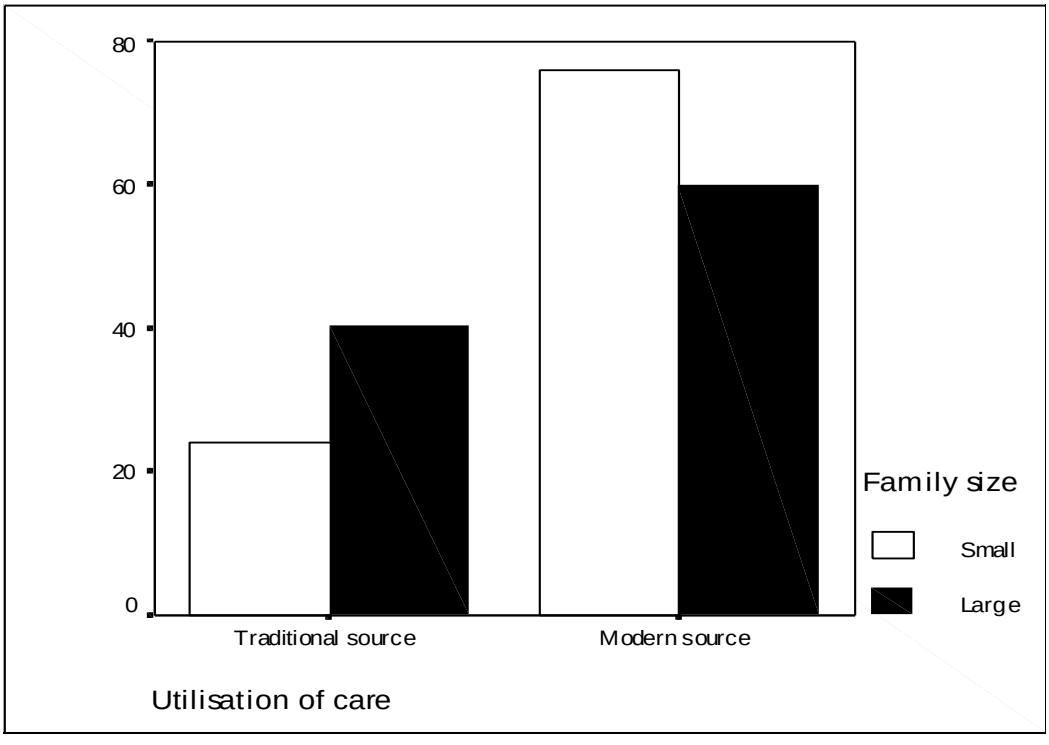


Figure 49. Utilisation of care by family size – Rural

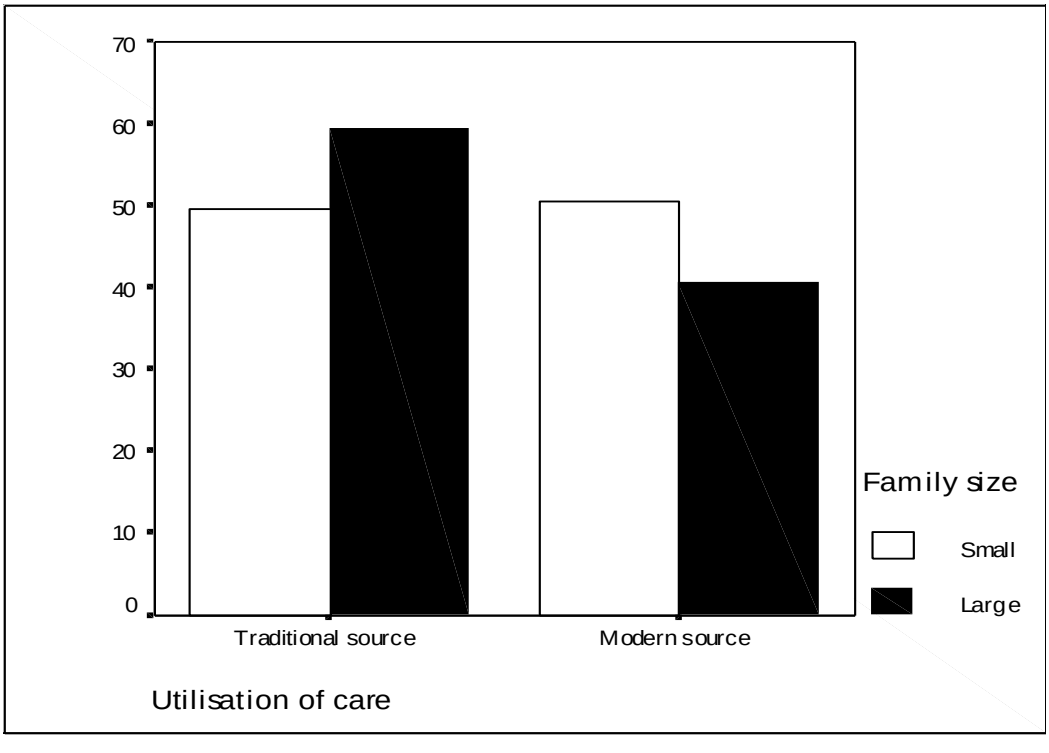


Figure 50. Utilisation of care by family size – Urban

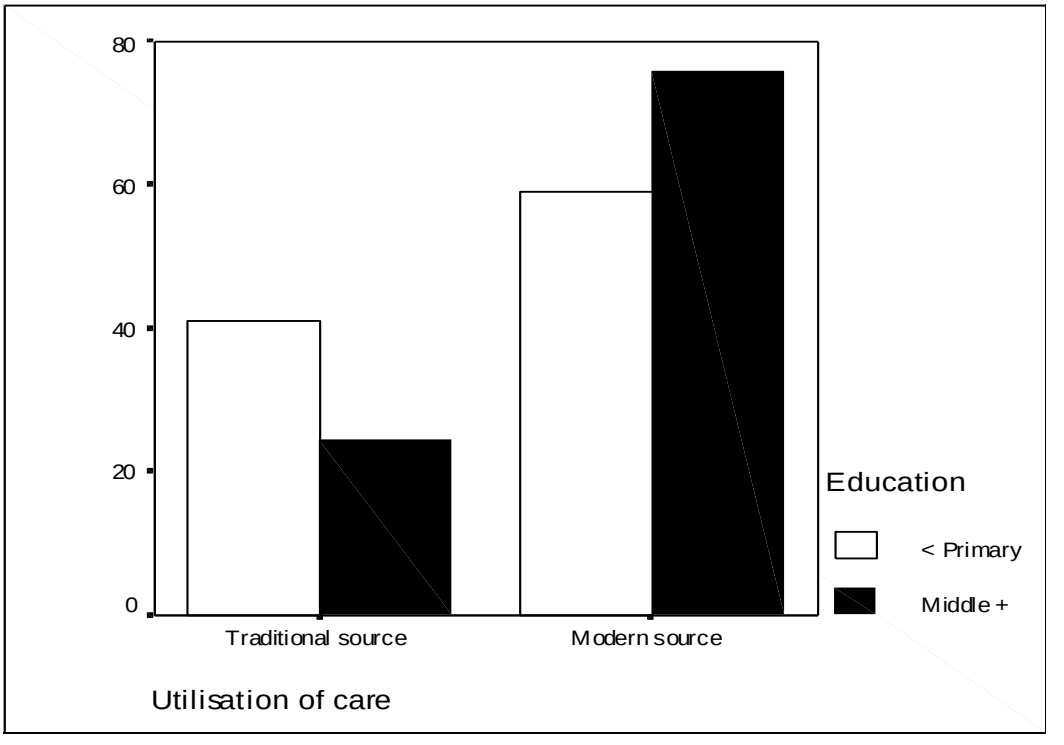


Figure 51. Utilisation of care by education of the head of the households – Rural

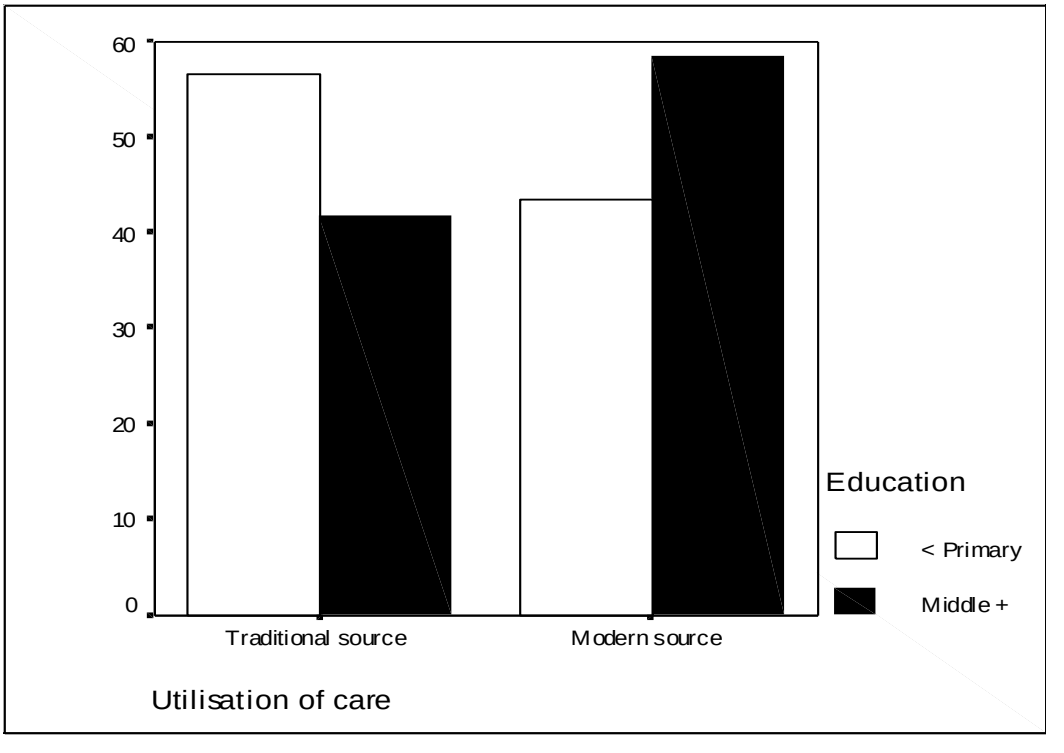


Figure 52. Utilisation of care by education of the head of the households – Urban

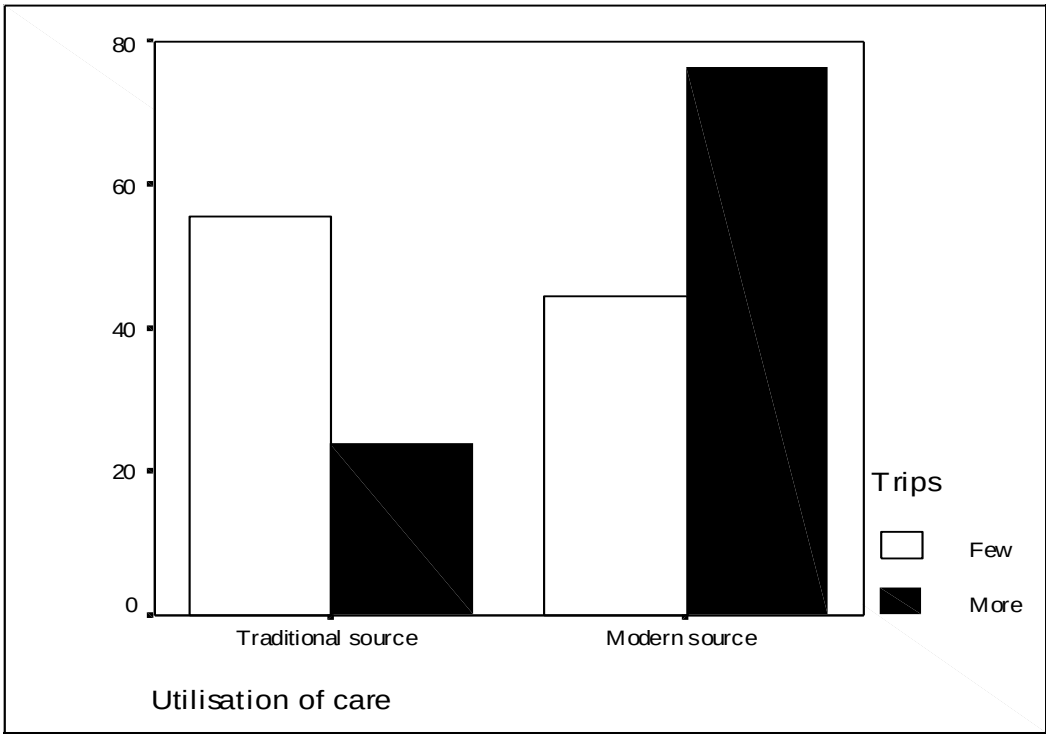


Figure 53. Utilisation of care by normal out-of-door trips of the HH – Rural

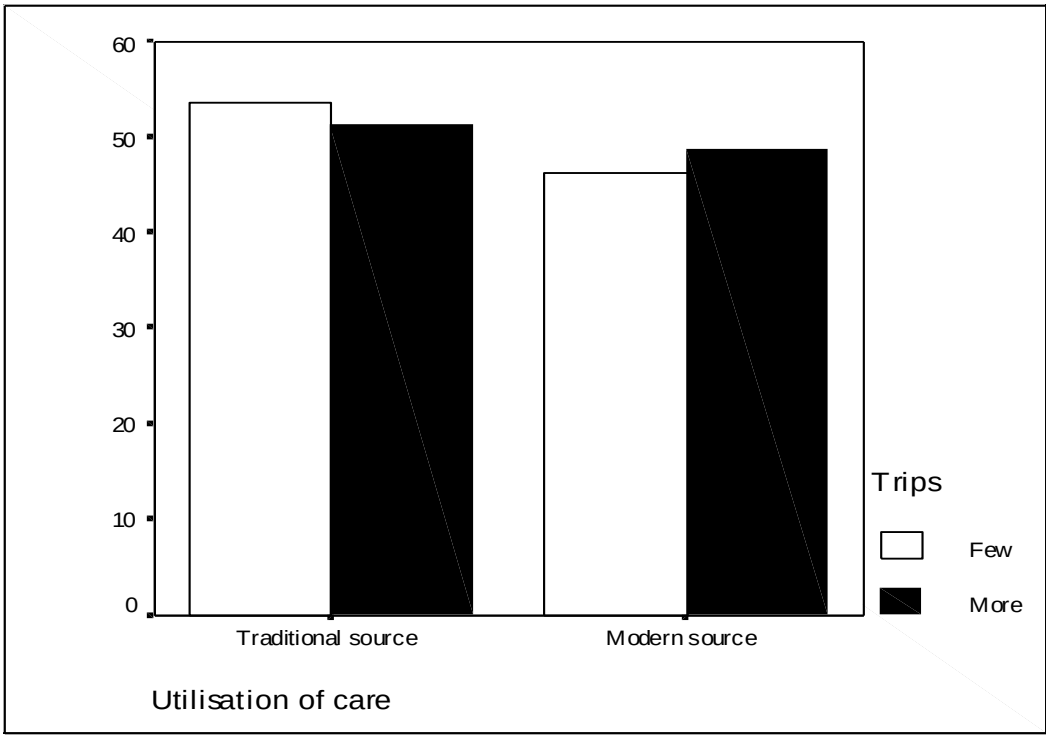


Figure 54. Utilisation of care by normal out-of-door trips of the HH – Urban

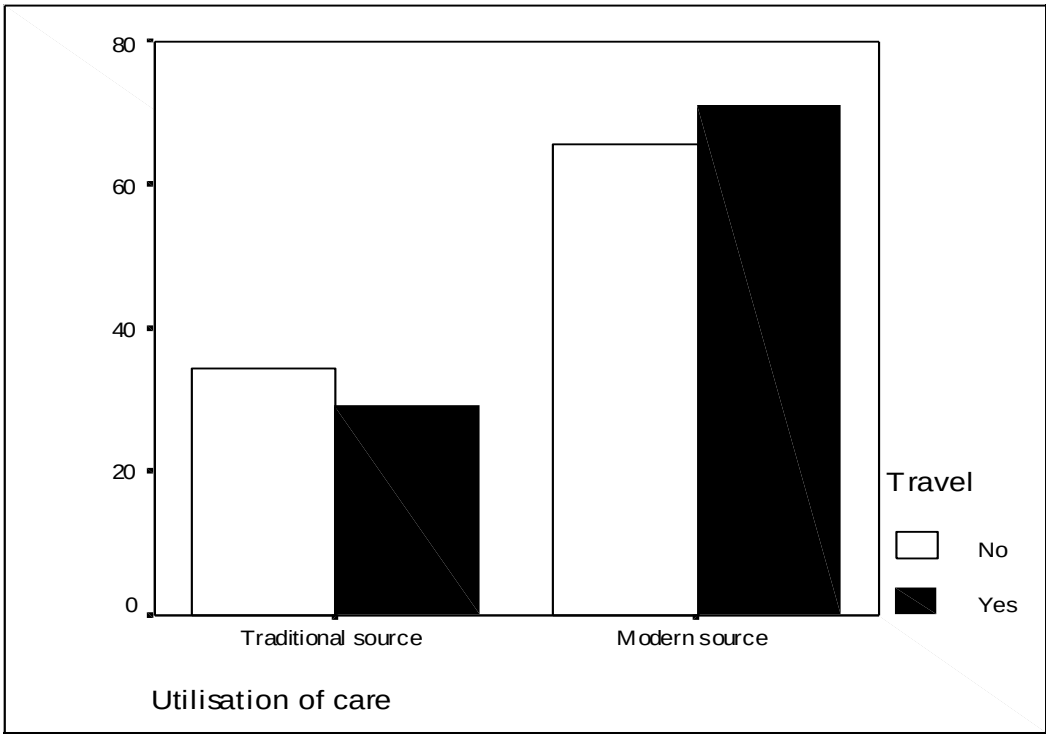


Figure 55. Utilisation of care by travel to distant place of the HH – Rural

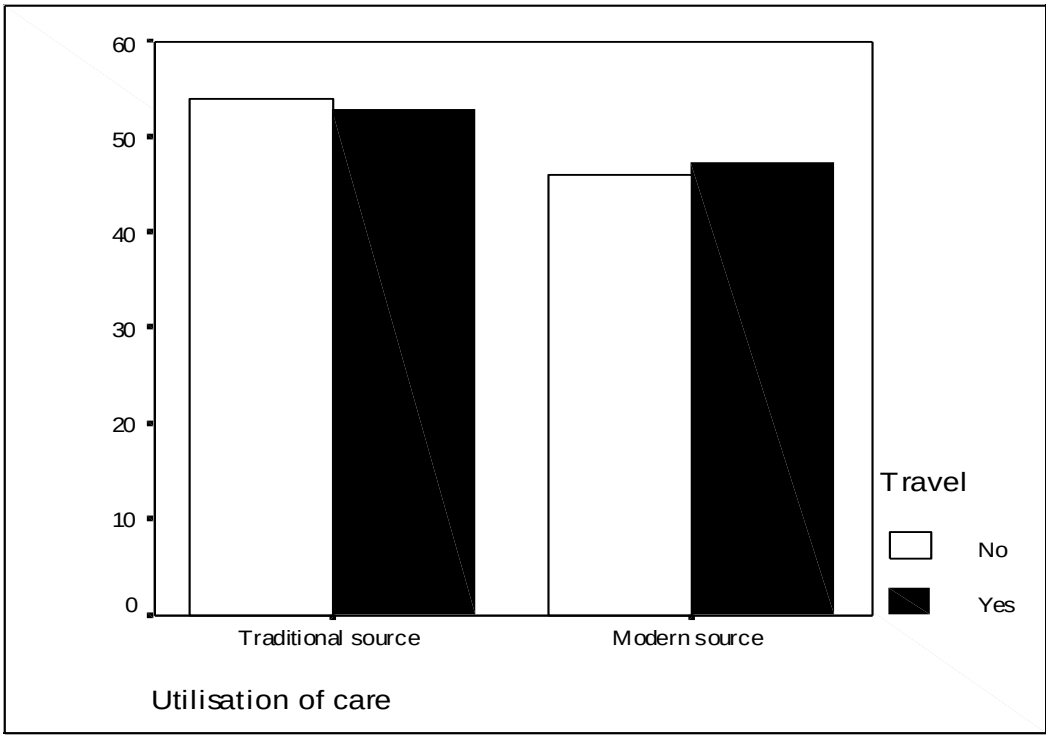


Figure 56. Utilisation of care by travel to distant place of the HH – Urban

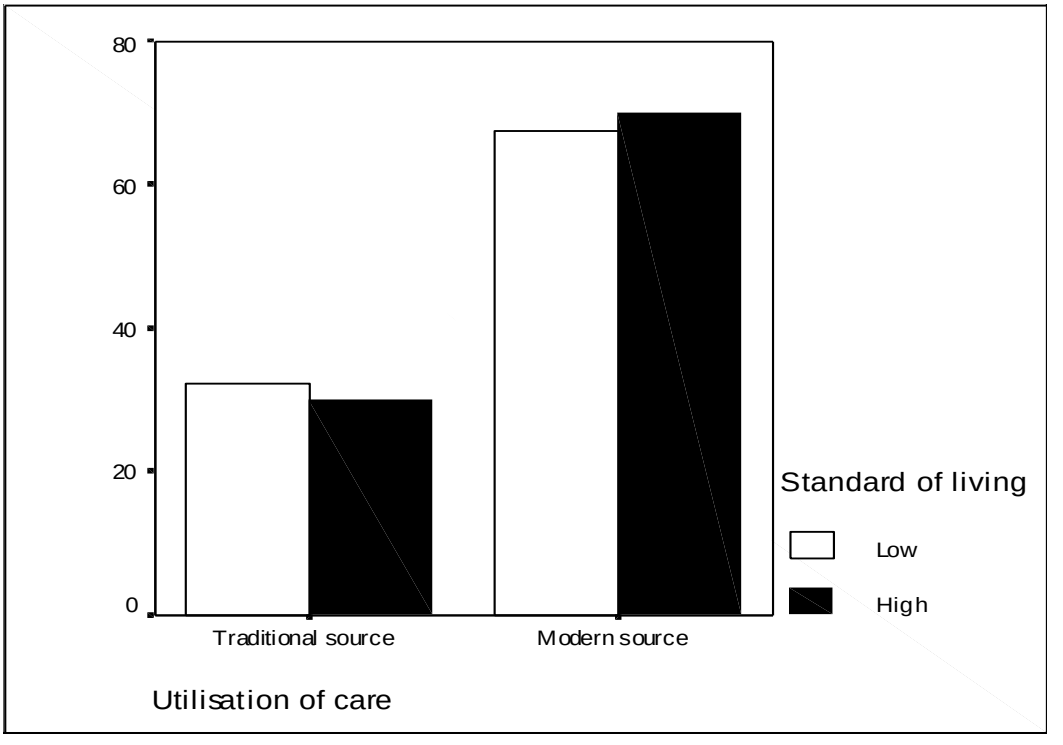


Figure 57. Utilisation of care by standard of living of the households – Rural

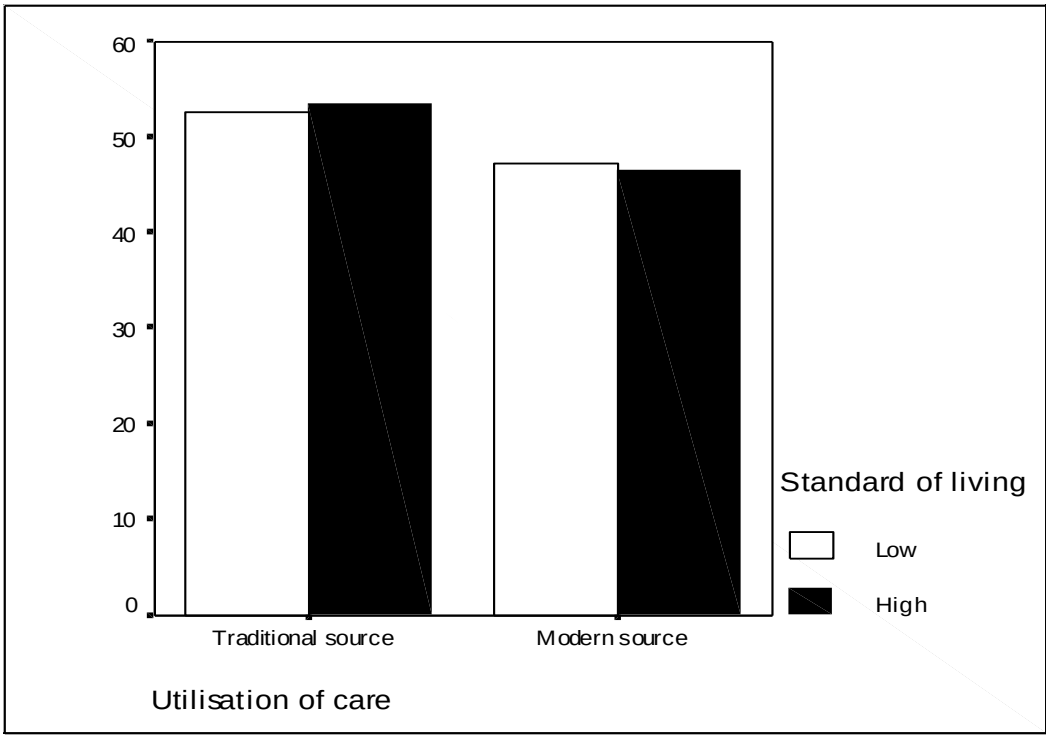


Figure 58. Utilisation of care by standard of living of the households – Urban

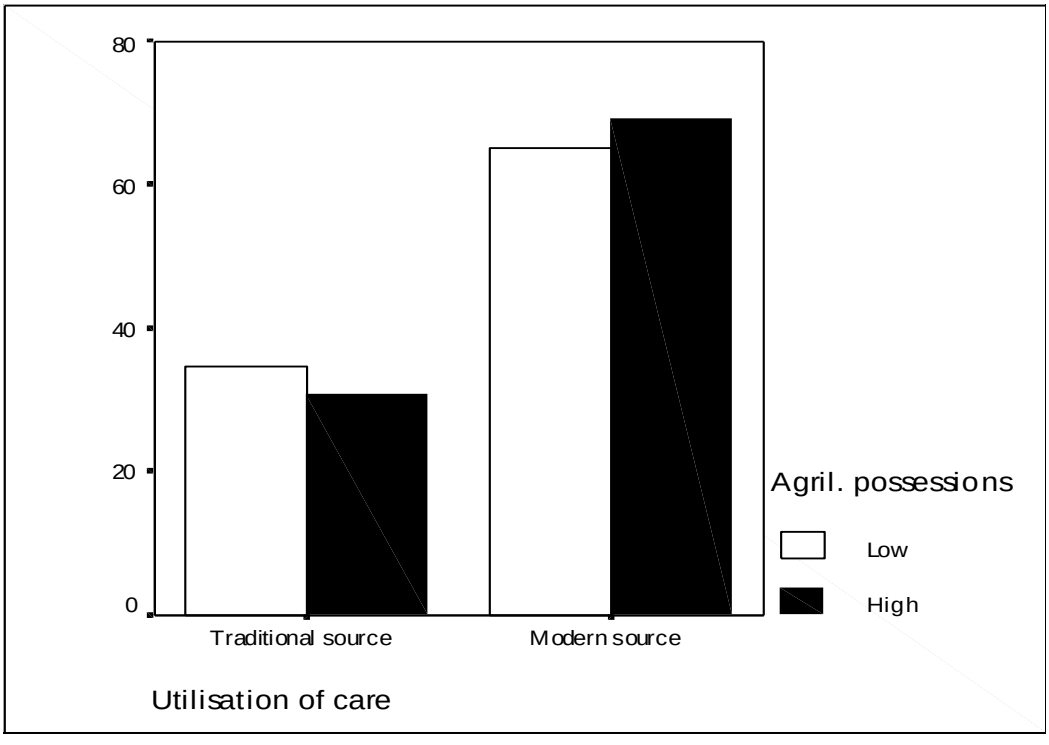


Figure 59. Utilisation of care by agricultural possessions – Rural

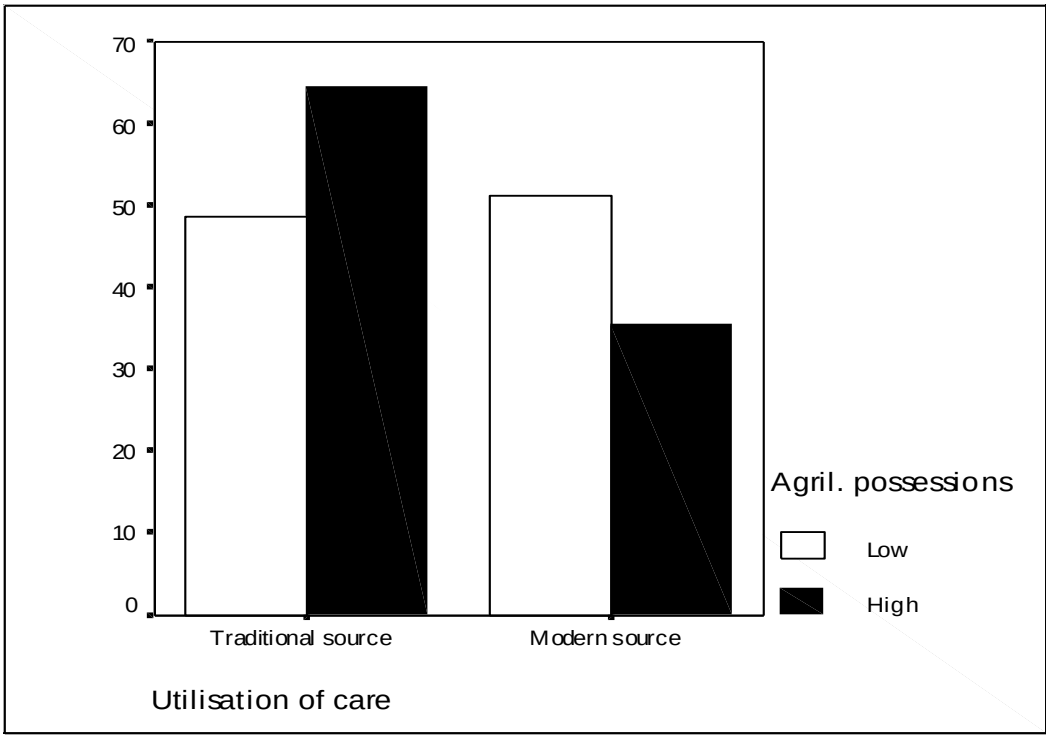


Figure 60. Utilisation of care by agricultural possessions – Urban

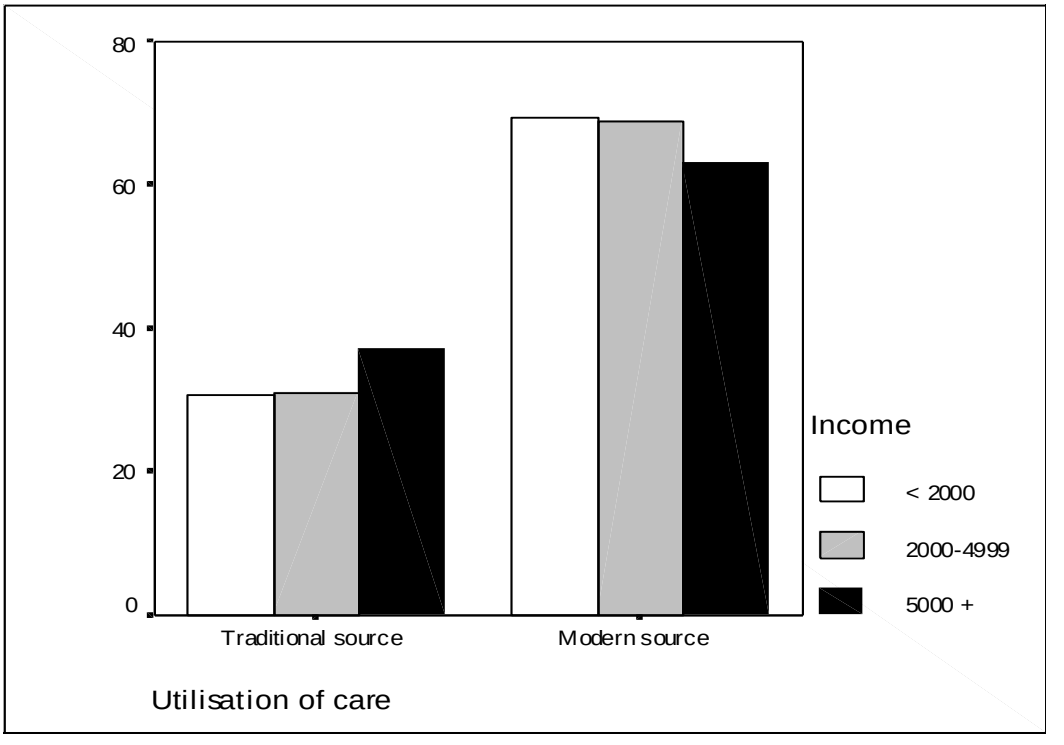


Figure 61. Utilisation of care by income of the households – Rural

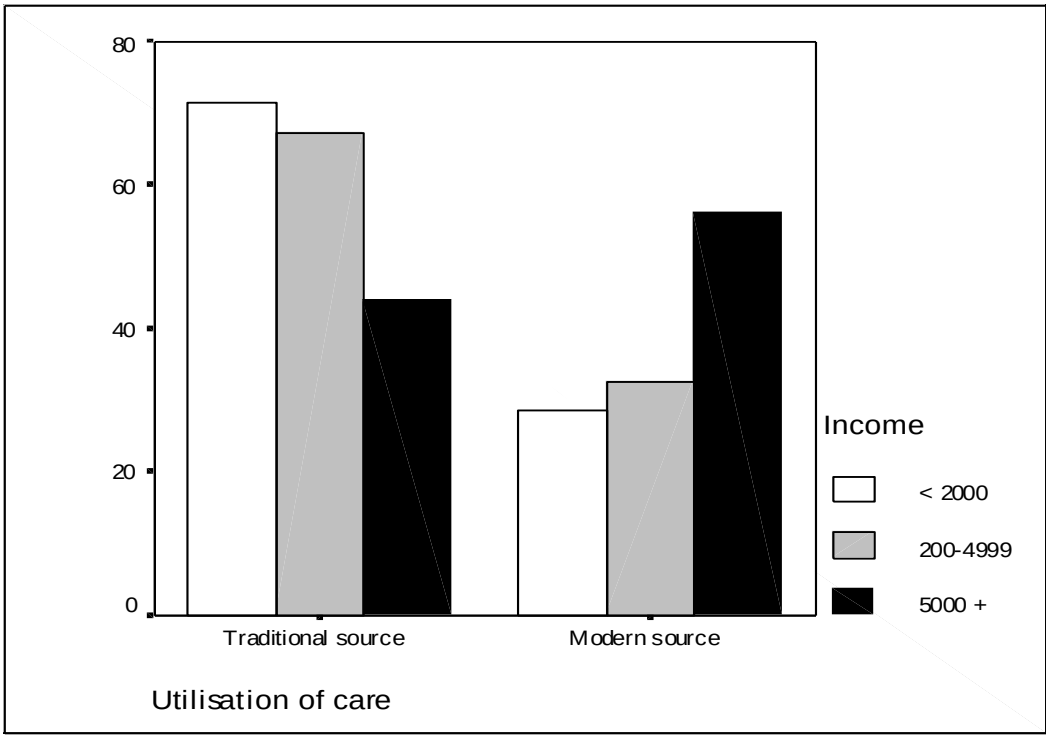


Figure 62. Utilisation of care by income of the households – Urban

Figures 43 and 44 show pattern of utilisation by age-group. We see that in rural areas, for all age-groups utilisation rates for modern care are high. In the urban areas, demand for modern care is high for the older age groups of 15-64, and 65+. For all other age groups, demand for traditional care is high, which also contains self- or family treatments.

Utilisation of care in the rural areas also follow similar pattern, as mentioned above, according to gender (figures 45 and 46). In the urban areas both males and females prefer traditional care or self or family treatments, etc. Pattern of utilisation according to family size is quite opposite in rural and urban areas as shown in figures 49 and 50.

Educated people both in rural and urban areas (in figures 51 and 52) prefer modern care. In figures 53 to 56 we see pattern of utilisation of care by normal out-of-door trips, and travel to distant place by the head of the households in rural and urban areas respectively. In the rural area utilisation of modern care is positively related to normal out-of-door trips and travel to distant place. In the urban areas the relationships are negative.

Figures 59 and 60 show utilisation pattern with respect to agricultural possessions. The result is interesting in the urban areas. In the urban areas, with higher agricultural possessions, people utilise care more from traditional sources. Relationship between utilisation and income is very clear. Household with low and medium levels of income utilise more care from traditional sources.

7.3. Utilisation of health care and characteristics of the disorder

Tables 48, 49, and 50 show pattern of utilisation of care with respect to morbidity in rural, urban, and combined categories. Out of 187 cases of communicable diseases, etc. in rural areas, more than 74 per cent cases have been treated with modern care, and more than 62 per cent with private care. There are 97 cases of non-communicable diseases in the rural areas. Out of these cases, nearly 59 per cent have been treated with modern care, and more than 75 per cent with private

care. For injuries also, by and large people prefer modern care from private sources.

Table 48. Utilisation of care and characteristics of the disorder - Rural

Characteristics of the disorder	Category	Traditional source & others (0)		Modern source (1)	
		n	%	n	%
Type of illness*	Group I	48	46.6	139	62.6
	Group II	40	38.8	57	25.7
	Group III	15	14.6	26	11.7
	Total	*103*	*100.0*	*222*	*100.0*
Severity of illness	Low	23	22.3	98	44.1
	Medium	45	43.7	77	34.7
	High	35	34.0	47	21.2
	Total	*103*	*100.0*	*222*	*100.0*

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

Table 49. Utilisation of care and characteristics of the disorder - Urban

Characteristics of the disorder	Category	Traditional source & others (0)		Modern source (1)	
		n	%	n	%
Type of illness*	Group I	12	14.3	14	18.9
	Group II	47	56.0	39	52.7
	Group III	25	29.8	21	28.4
	Total	*84*	*100.0*	*74*	*100.0*
Severity of illness	Low	23	27.4	22	29.7
	Medium	39	46.4	34	45.9
	High	22	26.2	18	24.3
	Total	*84*	*100.0*	*74*	*100.0*

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

In the urban areas for more than 54 per cents of diseases in Groups-II and III, people prefer traditional care. We must remember here that traditional care also includes self-treatment or family-treatment, etc. This indicates preferences of self- or family-treatment or other among the urban dwellers. For communicable and other diseases in Group-I, urban dwellers are seen to prefer modern care. As of

sources of care, nearly for all cases of all types of diseases urban dwellers seek care from private sources.

Table 50. Utilisation of care and characteristics of the disorder - Combined

Characteristics of the Disorder	Category	Traditional source & others (0)		Modern source (1)	
		n	%	n	%
Type of illness*	Group I	60	32.1	153	51.7
	Group II	87	46.5	96	32.4
	Group III	40	21.4	47	15.9
	Total	*187*	*100.0*	*296*	*100.0*
Severity of illness	Low	46	24.6	120	40.5
	Medium	84	44.9	111	37.5
	High	57	30.5	65	22.0
	Total	*187*	*100.0*	*296*	*100.0*

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

The findings, presented in the above tables, have been reproduced again somewhat differently as shown in the following figures. Figure 63 shows that in rural areas 40 per cent of the illness episode in the 0-4 age group have been treated with care from traditional sources or others. The remaining 60 per cent of the cases are treated in modern health facilities. Figure 64 depicts that in the urban areas nearly 60 per cent of the cases are treated with traditional care. Significant difference in utilisation pattern can be observed for the old-age group. In the rural areas most of the illness episodes are treated in modern health facilities. On the contrary, in the urban areas similar cases are treated with care from traditional sources and others including self-treatment, etc.

Figures 65 and 66 depict utilisation pattern according to severity of illness. It is quite interesting to see that in the rural areas most of the cases with low severity have been treated with modern care. On the contrary, in urban areas we see a balanced picture.

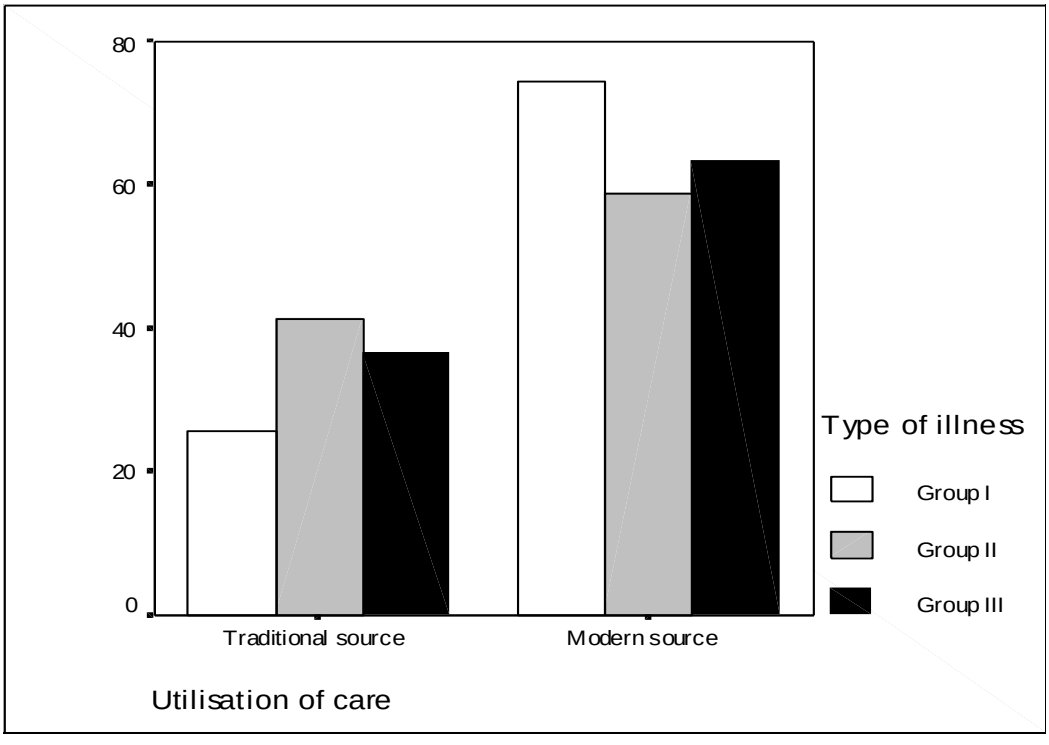


Figure 63. Utilisation of care by type of illness – Rural

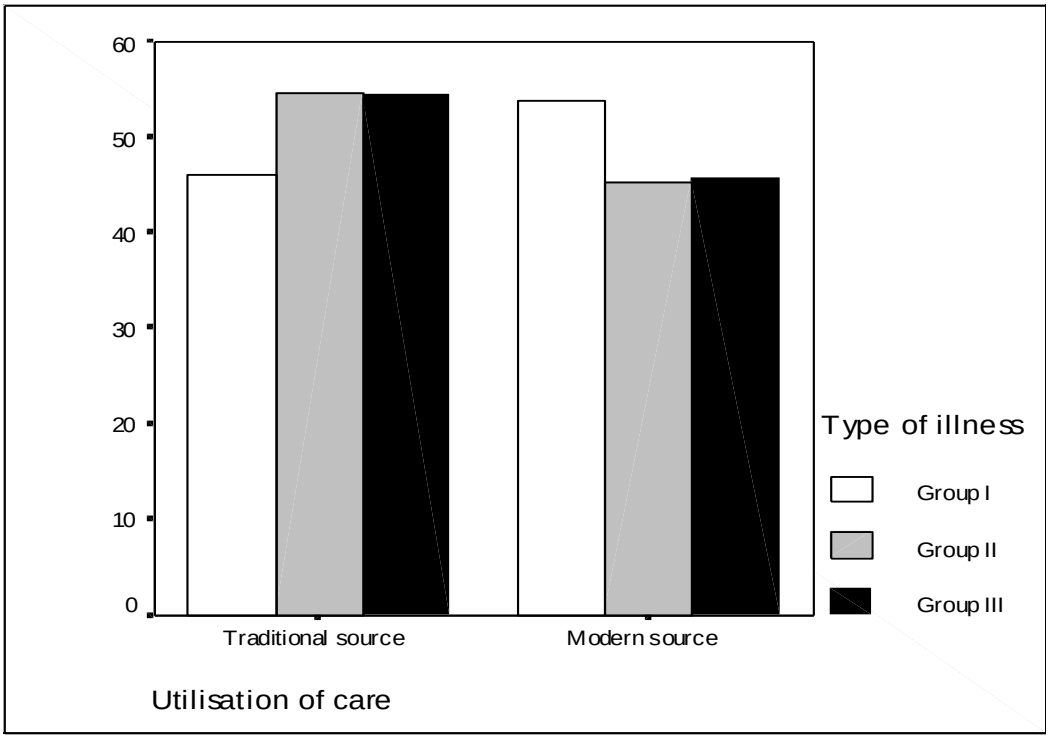


Figure 64. Utilisation of care by type of illness – Urban

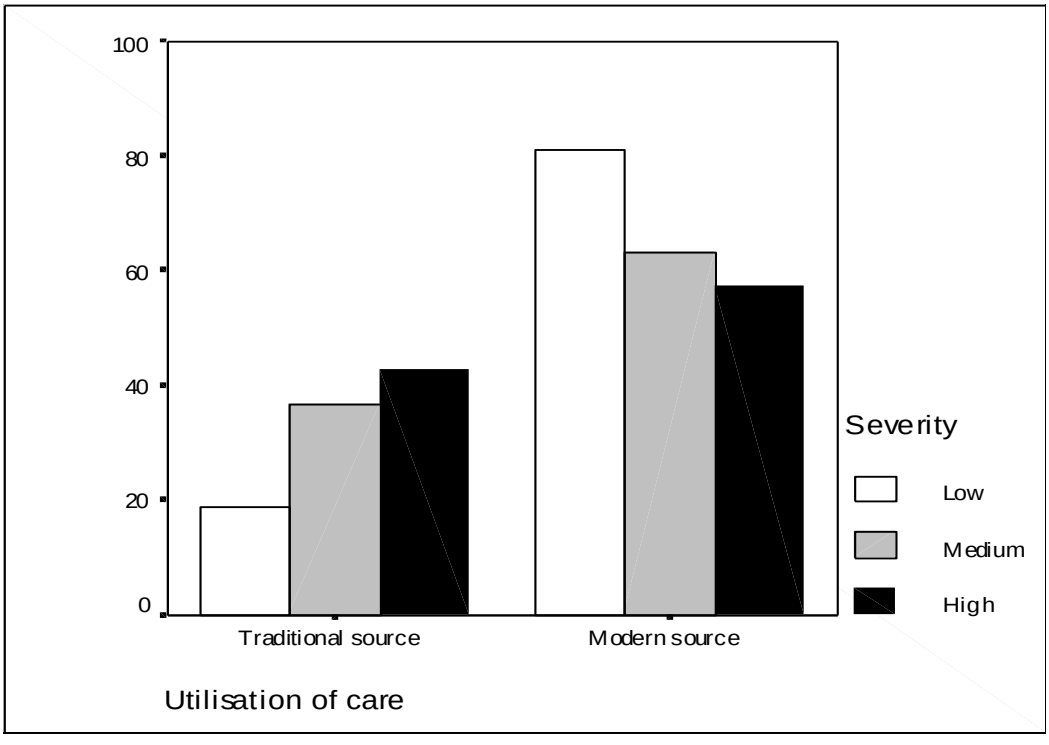


Figure 65. Utilisation of care by severity of illness – Rural

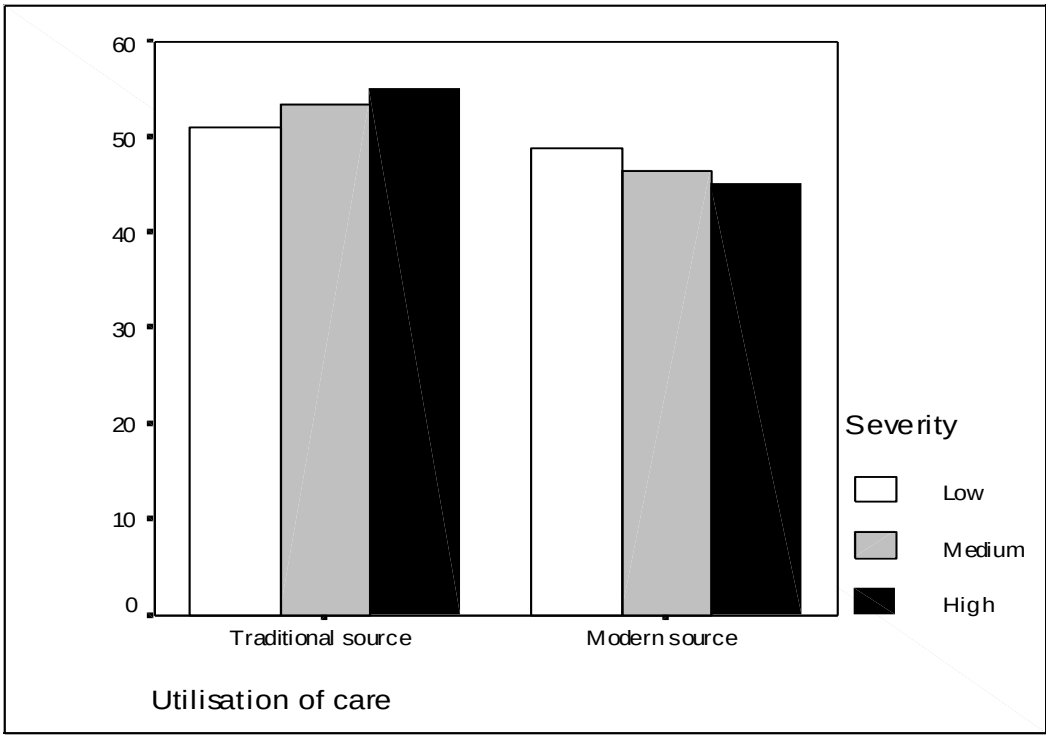


Figure 66. Utilisation of care by severity of illness – Urban

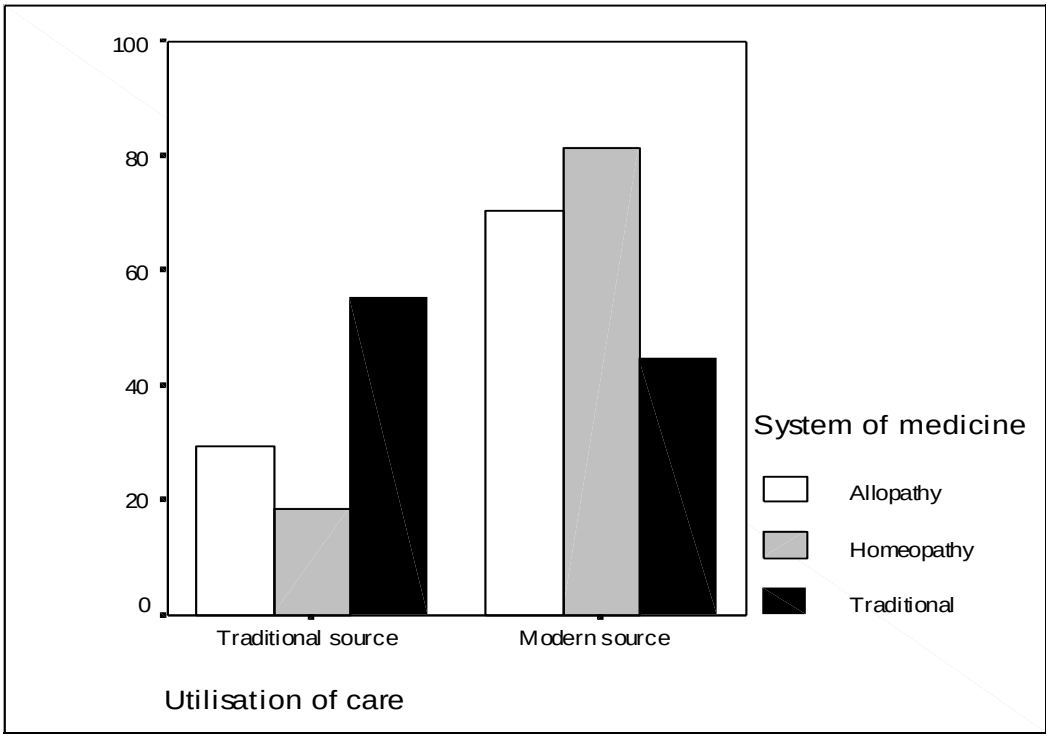


Figure 67. Utilisation of care by system of medicine – Rural

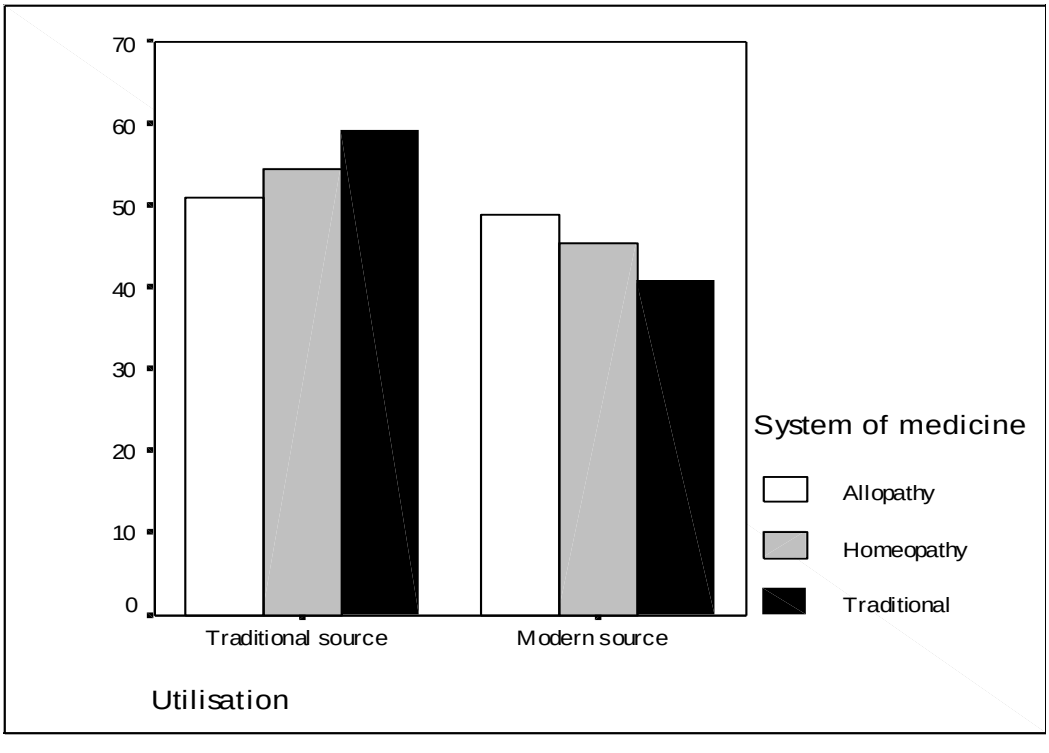


Figure 68. Utilisation of care by system of medicine – Urban

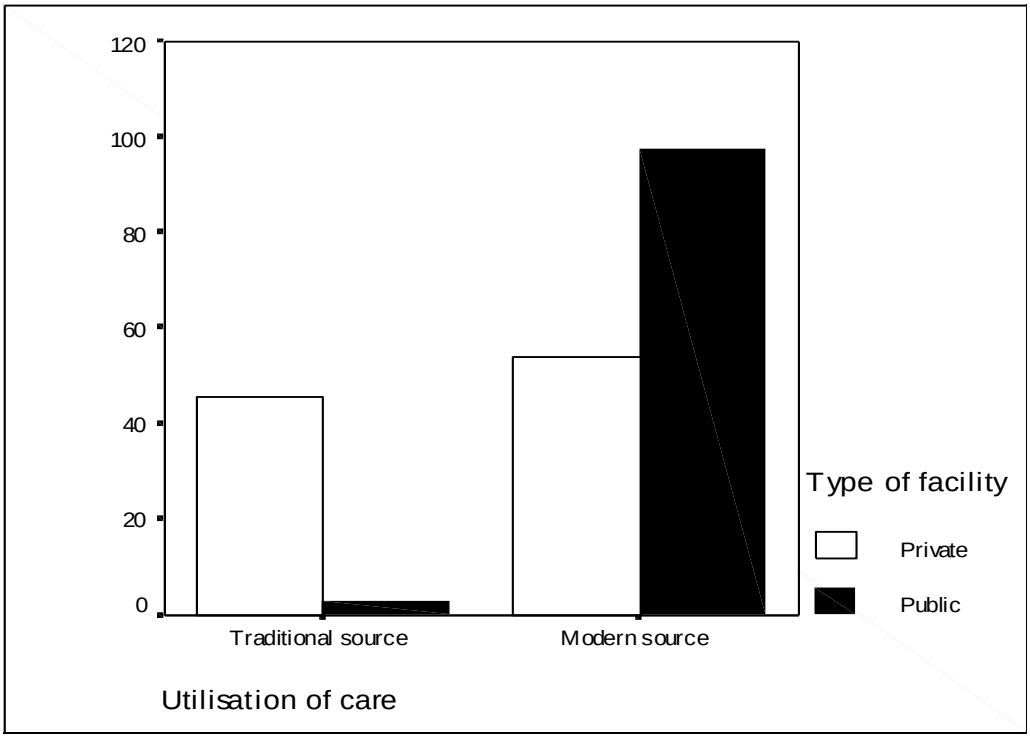


Figure 69. Utilisation of care by type of facility – Rural

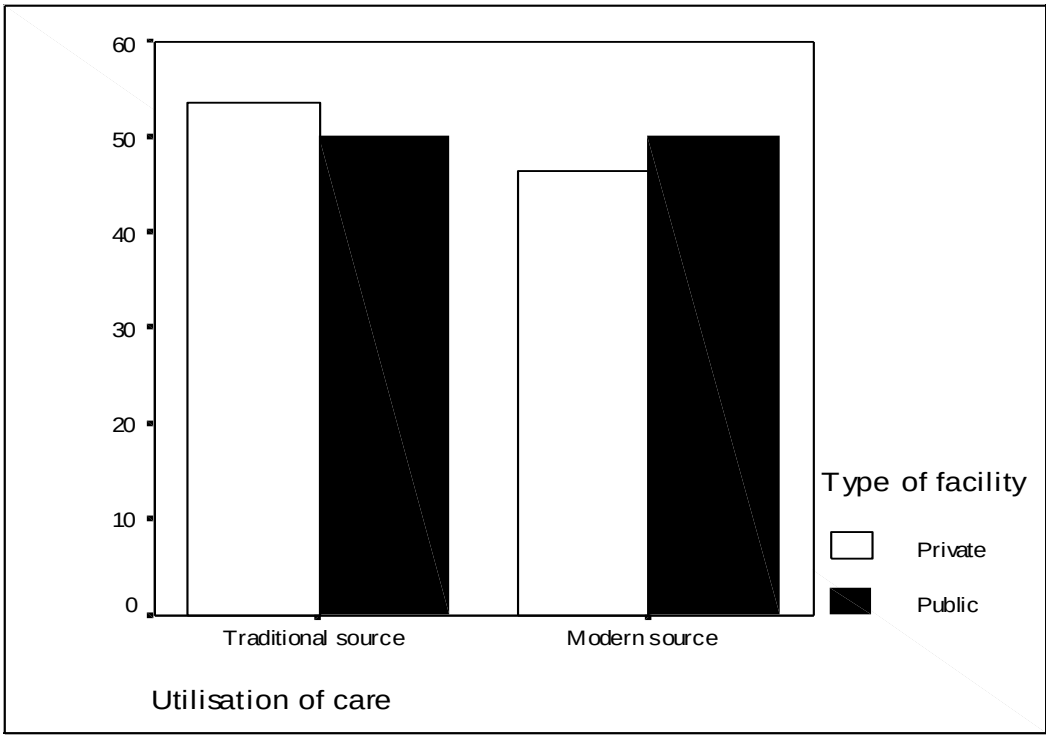


Figure 70. Utilisation of care by type of facility – Urban

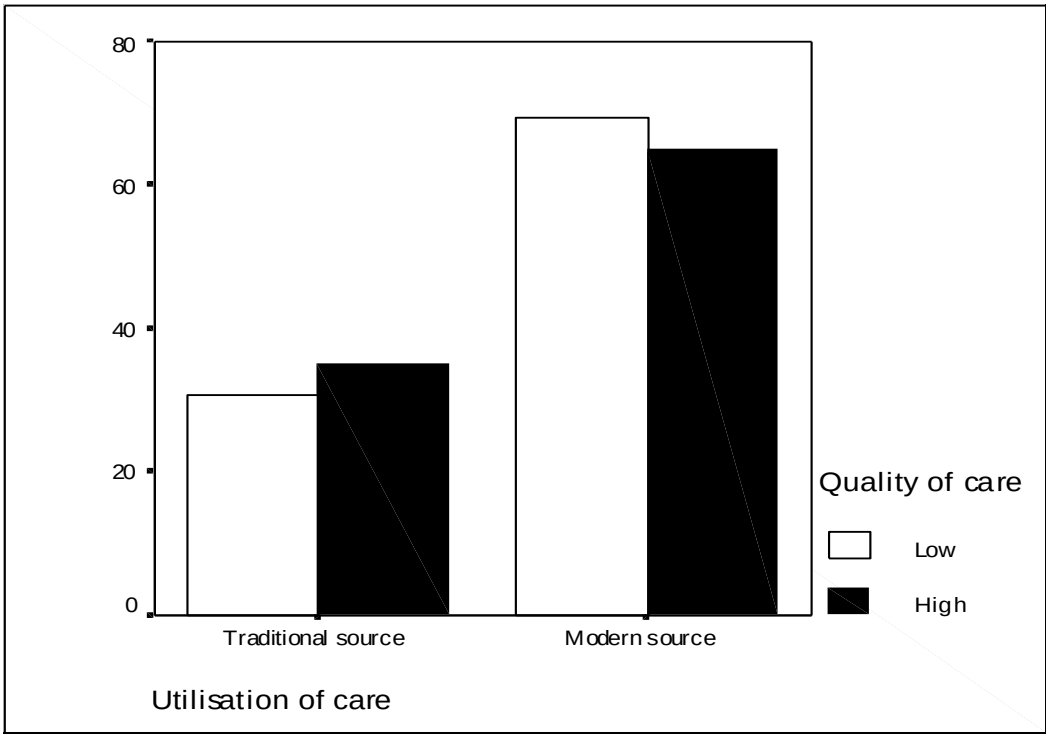


Figure 71. Utilisation of care by quality of care – Rural

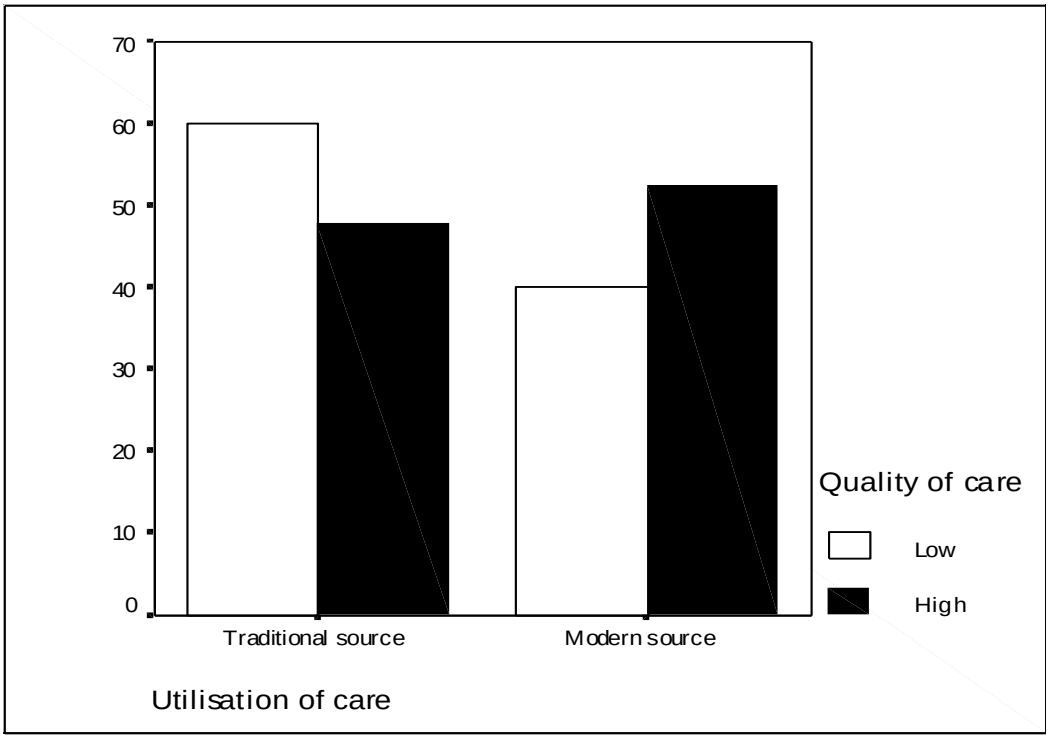


Figure 72. Utilisation of care by quality of care – Urban

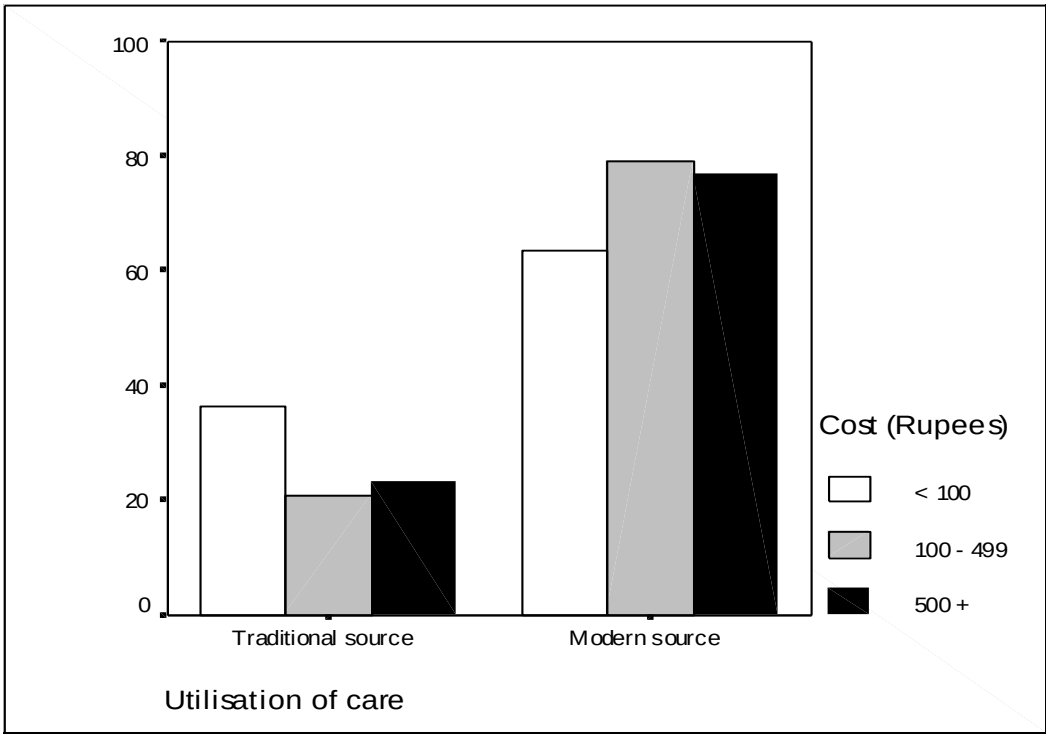


Figure 73. Utilisation of care by cost (per illness episode) – Rural

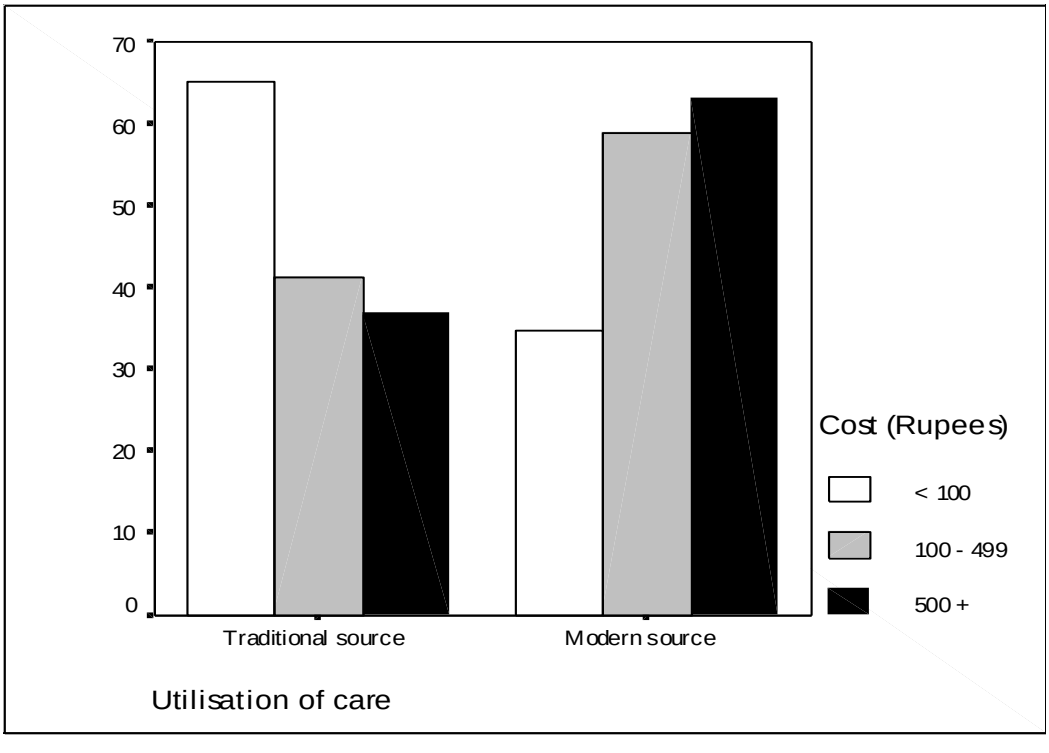


Figure 74. Utilisation of care by cost (per illness episode) – Urban

7.4. Utilisation of health care and characteristics of the service

Table 51. Utilisation of care and characteristics of the service - Rural

Characteristics of the service	Category	Traditional source & others (0)		Modern source (1)	
		n	%	n	%
System of medicine	Allopathy	58	56.3	139	62.6
	Homeopathy	13	12.6	57	25.7
	Traditional	32	31.1	26	11.7
	Total	*103*	*100.0*	*222*	*100.0*
Type of facility	Private	100	97.1	118	53.2
	Public	3	2.9	104	46.8
	Total	*103*	*100.0*	*222*	*100.0*
Quality of care	Low	76	73.8	172	77.5
	High	27	26.2	50	22.5
	Total	*103*	*100.0*	*222*	*100.0*
Cost	Low	80	77.7	139	62.6
	Medium	14	13.6	53	23.9
	High	9	8.7	30	13.5
	Total	*103*	*100.0*	*222*	*100.0*

Tables 51, 52 and 53 show utilisation of care by characteristics of the service. Results in this section must be interpreted with care as the 'traditional source' category also includes self-treatment or family-treatment or any other.

From the table 51 it is clear that by and large households in rural areas prefer Allopathy followed by Homeopathy. Preferences for traditional systems are also prominent where 'traditional systems' include Ayurveda, Unani, Naturopathy and Yoga, and other unrecognised ones. Utilisation pattern according to type of care shows that most of the traditional sources are private. However, we get three and nine cases (illness episodes) in the rural and urban categories respectively where source is traditional and the type is public. In such cases either a family member or a relative works in the public health facilities or the cases have been treated by staff who do not belong to the medical or paramedical category. As of quality of

care, rural people are satisfied with modern care. Cost of care is also an important factor. Rural households spend more for modern care.

Table 52. Utilisation of care and characteristics of the service - Urban

Characteristics of the service	Category	Traditional source & others (0)		Modern source (1)	
		N	%	n	%
System of medicine	Allopathy	47	56.0	45	60.8
	Homeopathy	24	28.6	20	27.0
	Traditional	13	15.5	9	12.2
	Total	*84*	*100.0*	*74*	*100.0*
Type of facility	Private	75	89.3	65	87.8
	Public	9	10.7	9	12.2
	Total	*84*	*100.0*	*74*	*100.0*
Quality of care	Low	42	50.0	28	37.8
	High	42	50.0	46	62.2
	Total	*84*	*100.0*	*74*	*100.0*
Cost	Low	56	66.7	30	40.5
	Medium	14	16.7	20	27.0
	High	14	16.7	24	32.4
	Total	*84*	*100.0*	*74*	*100.0*

Table 53. Utilisation of care and characteristics of the service - Combined

Characteristics of the service	Category	Traditional source & others (0)		Modern source (1)	
		n	%	n	%
System of medicine	Allopathy	105	56.1	184	62.2
	Homeopathy	37	19.8	77	26.0
	Traditional	45	24.1	35	11.8
	Total	*187*	*100.0*	*296*	*100.0*
Type of facility	Private	175	93.6	183	61.8
	Public	12	6.4	113	38.2
	Total	*187*	*100.0*	*296*	*100.0*
Quality of care	Low	118	63.1	200	67.6
	High	69	36.9	96	32.4
	Total	*187*	*100.0*	*296*	*100.0*
Cost	Low	136	72.7	169	57.1
	Medium	28	15.0	73	24.7
	High	23	12.3	54	18.2
	Total	*187*	*100.0*	*296*	*100.0*

Figures 67 and 68 show utilisation of care by systems of medicine in rural and urban areas respectively. In the rural areas utilisation rate of homeopathic system of medicine is high. In the urban areas the same for traditional ones is high.

In order to define quality of care, we have selected some questions, which are relevant for both modern and traditional care. We see that both in rural and urban areas quality of care is high in case of modern care. Cost of care is also high for modern care.

In order to understand precisely the relationship between pattern of morbidity and utilisation of care we present the following tables.

Table 54. Type of illness* and pattern of Utilisation of care - Rural

Utilisation	Group I		Group II		Group III	
	n	%	n	%	n	%
Public	70	37.4	24	24.7	13	31.7
Private	117	62.6	73	75.3	28	68.3
Total	187	100	97	100	41	100
Allopathy	125	66.8	53	54.6	19	46.3
Homeopathy	36	19.3	22	22.7	12	29.3
Other	26	13.9	22	22.7	10	24.4
Total	*187*	*100*	*97*	*100*	*41*	*100*

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

Table 55. Type of illness* and pattern of Utilisation of care - Urban

Utilisation	Group I		Group II		Group III	
	n	%	n	%	n	%
Public	5	19.2	9	10.5	4	8.7
Private	21	80.8	77	89.5	42	91.3
Total	26	100	86	100	46	100
Allopathy	16	61.5	50	58.1	26	56.5
Homeopathy	6	23.1	23	26.7	15	32.6
Other	4	15.4	13	15.1	5	10.9
Total	*26*	*100*	*86*	*100*	*46*	*100*

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

Table 56. Type of illness* and pattern of Utilisation of care - Combined

Utilisation	Group I		Group II		Group III	
	n	%	n	%	n	%
Public	75	35.2	33	18	17	19.5
Private	138	64.8	150	82	70	80.5
Total	213	100	183	100	87	100
Allopathy	141	66.2	103	56.3	45	51.7
Homeopathy	42	19.7	45	24.6	27	31
Other	30	14.1	35	19.1	15	17.3
Total	213	100	183	100	87	100

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

If we look at the pattern of utilisation of care with respect to type of care we see that for most of the cases of illness in all the three groups in rural and urban areas, people preferred private facilities. If we look at the pattern of utilisation of care with respect to system of medicine, we see that in the rural areas nearly 67 per cent of the diseases in Group-I have been treated with Allopathy. For more than 19 per cent of cases households seek Homeopathic care and for the rest 14 per cent of cases, households seek traditional care. In the rural areas, for other types of diseases in Groups-II and III, households' dependence on Allopathy declines gradually. On the contrary, dependence on Homeopathy and other systems of medicine increases gradually. On an average, households in the urban areas also follow similar pattern as shown in table 55.

7.5. Summary

In the rural areas of Cooch Behar and Jalpaiguri districts of the region, nearly 70 per cent of the illness episodes are treated with modern care, and for the remaining cases, households seek care from traditional sources. In the traditional category, nearly half of the cases correspond to the 5-14 age-group. It reflects that children in the 5-14 age-group remain neglected. However, cases of illness in the working age-group (15-64) are treated in the modern facilities. If we look at family size, we see that utilisation from traditional source is higher in large families and utilisation from modern source is higher in small families. Utilisation from traditional source

is higher where heads of the households are illiterates or primarily educated. Utilisation from modern source is high when heads of the households are moderately educated or have education higher than that.

In the urban areas, for more than 50 per cent of the cases, households received care from traditional sources or other. If we look at pattern of utilisation according to age group, it confirms that the interest of the 5-14 age-group is neglected in the urban areas too. Sharp difference can be observed in utilisation pattern according to gender.

As from simple statistical comparisons we cannot say anything about patients' inherent preference for care, we will conduct multivariate analyses as presented in the next chapter.

eight

8 Multivariate analysis on utilisation of care

8.1. Introduction

Utilisation of services may be considered as an event. In that case it will be binary in nature. We may assign it 1 if the event has occurred, 0 otherwise. Utilisation of care may have many dimensions. After going through data, we have found suitable to form two broad groups: utilisation of a care from modern source in consultation with doctors and medical specialists in one group, and utilisation from traditional source (including treatment from paramedical or supporting stuff and from any system of medicine except Allopathy and Homeopathy) or self-treatment or family-treatment, etc. in the other. From the above review of literature we found the following predictor variables relevant which may affect health services utilisation in Cooch Behar and Jalpaiguri: age, gender, and caste of the morbid person, family size (size of a household), education of the head of the household, normal out-of-door trips by the head of the household, household cash income, type of illness, severity of illness, type of health facility, system of medicine, quality of care, and total direct costs or price of a care. However, as household cash income may not always be related to ability to pay health care, we plan to include some proxy measures of households' agricultural possessions and standard of living. In addition to this, as this particular region is far away from the major Indian cities, and as people of this region are compelled to travel a lot for different reasons, we can examine whether traveling habit has any bearing on utilisation of care. Finally, studies based on small sample survey could not explore the relationship between availability of health facilities and utilisation of care mainly because of common sources of care for many people. But one can consider place of residence as a proxy measure of availability (Elo 1992) with the

assumption that health facilities are not easily available in the rural areas, but are available in urban areas. Definitions of the response and predictor variables are shown in table 18. Simple statistical comparison provides us with certain clues but is not sufficient to draw substantive conclusions. In order to get precise relationships and estimates the study resorts to multivariate analysis. In this chapter we have done binary logistic regression analyses and multiple classification analyses to analyse pattern of utilisation of care.

8.2. Results of binary logit models on utilisation of care

Table 57: Log odds (β) of utilisation of health care from modern source

Independent variables	Rural	Urban	Combined
Characteristics of the subject			
Age group (rc: 0-4, under 5 age group)			
Young age group (5-14)	- 0. 790	-0.146	-0.420
Older age group (15 +)	1.430***	0.511	0.954**
Gender (rc: Male)			
Female	- 0.308	-0.467	-0.290
Caste (rc: Scheduled Caste & Tribe)			
General	0.795*	0.281	0.460*
Family size (rc: small)			
Large	- 1.071***	-0.317	-0.751
Education of the HH (rc: illiterate & primary)			
Secondary & higher	- 0.024	0.676	0.305
Normal out-of-door trips (rc: less)			
More	1.911***	0.389	1.029***
Travel to distant place (rc: no travel)			
Travel (Yes)	0.271	0.241	0.341
Standard of living index (rc: low)			
High	0.482	-0.431	0.217
Agricultural possessions (rc: low)			
High	- 0.182	-0.868**	-0.396

Cash income (rc: low)			
Medium	0.038	0.161	-0.153
High	- 0.659	1.192	0.181*
Characteristics of the disorder			
Type of illness (rc: Group I)			
Group II	- 0.464	-0.194	-0.289
Group III	- 0.306	-0.354	-0.327
Severity of illness (rc: low)			
Medium	0.160	0.065	0.336
High	1.458***	-0.037	0.932***
Characteristics of the service			
Availability (rc: no)			
Yes	-	-	-0.803**
System of medicine (rc: traditional & other)			
Allopathy	0.739	0.502	0.786**
Homeopathy	2.325***	0.164	1.449***
Type of facility (rc: private & other)			
Public	3.673***	-0.270	2.024***
Quality of care (rc: low)			
High	- 0.298	0.424	0.186
Cost per episode (rc: low)			
Medium	0.747	1.461***	0.975***
High	1.747***	1.216***	1.208***
n (0/1)	103/222	84/74	187/296
-2 Log likelihood	214.44	183.32	456.38
Cox & Snell R Square	0.445	0.199	0.323
Nagelkerke R Square	0.624	0.266	0.438

*rc: reference category, HH: Head of the household ***p<0.01, **p<0.05, *p<0.1*

Table 58. Odds ratios [Exp (β)] of utilisation of health care from modern source

Predictor variables	Rural	Urban	Combined
Characteristics of the subject			
Age group (rc: 0-4, under 5 age group)			
Young age group (5-14)	0.454	0.864	0.657
Older age group (15 +)	4.177***	1.667	2.597***
Gender (rc: Male)			
Female	0.735	0.627	0.748
Caste (rc: Scheduled Caste & Tribe)			
General	2.215*	1.325	1.584*
Family size (rc: small)			
Large	0.343***	0.728	0.472
Education of HH (rc: illiterate & primary)			
Secondary & higher	0.976	1.966	1.357
Normal out-of-door trips (rc: less)			
More	6.760***	1.475	2.799***
Travel to distant place (rc: no travel)			
Travel (Yes)	1.312	1.272	1.407
Standard of living index (rc: low)			
High	1.619	0.650	1.242
Agricultural possessions (rc: low)			
High	0.834	0.420**	0.673
Cash income (rc: low)			
Medium	1.039	1.175	0.858
High	0.518	3.293	1.198*
Characteristics of the disorder			
Type of illness (rc: Group I)			
Group II	0.629	0.824	0.749
Group III	0.737	0.702	0.721
Severity of illness (rc: low)			
Medium	1.173	1.067	1.399
High	4.298***	.964	2.539***
Characteristics of the service			
Availability (rc: no)			
Yes	-	-	0.448**
System of medicine (rc: traditional & other)			
Allopathy	2.094	1.652	2.195**
Homeopathy	10.228***	1.178	4.260***

Type of facility (rc: private & other)			
Public	39.355***	0.763	7.568***
Quality of care (rc: low)			
High	0.742	1.528	1.204
Cost per episode (rc: low)			
Medium	2.110	4.312***	2.652***
High	5.740***	3.372***	3.346***
n (0/1)	103/222	84/74	187/296
-2 Log likelihood	214.44	183.32	456.38
Cox & Snell R Square	0.445	0.199	0.323
Nagelkerke R Square	0.624	0.266	0.438

*rc: reference category, HH: Head of the household, ***p<0.01, **p<0.05, *p<0.10*

8.2.1. Characteristics of the subject

Tables 57 and 58 show results of logistic regression analyses (LRA henceforth). Table 57 shows β coefficients and table 58 shows odds ratios. While describing results we will, however, look at the odds ratios of table 58 interpretations of which are straightforward. The odds ratio of older age-group in the rural category, when it is compared with the 'under 5 age group', is 4.177. It conveys that a change in the category of age group from 0-4 (category: 0) to 15+ (category: 1), holding other variables constant (henceforth we will not mention it), multiplies the odds by 4.177 (a 317.7 per cent increase). This effect is statistically significant at 0.01 level. It expresses that likelihood of utilising a care from modern source (henceforth utilisation only) by morbid persons in the older age group is significantly higher than that of children in the 'under 5 age group'. Similarly, odds ratio is 2.597 times higher if we consider the combined category (rural and urban areas together). The effect of age towards utilisation of a care is insignificant in the urban areas of the districts.

As of ethnicity, people belong to the 'General Caste' category are likely to utilise care more both in the rural and the combined categories. Odds ratios of the 'General Caste' category are more than 2 and 1.5 times higher as compared to the 'Scheduled Caste' and 'Tribe' categories.

The effect of family size is statistically significant in the rural and combined categories. Patients from larger families (when compared with the small families) are notably less probable to utilise a care from modern source. When category changes from small (category: 0) to large (category: 1), odds ratio decreases by 191.545 per cent [(1 – 0.343) / 1 = 191.545] in rural and 111.864 per cent [(1 – 0.472) / 1 = 111.864] in the combined categories respectively.

'Normal out-of-door trips' has been found to be a very important determinant of utilisation of a care. Patients in the rural category, whose household heads travel more within 10 kms range, are highly probable to utilise a care. The same is true in the combined category, though the effect is not so strong.

'Agricultural possessions' has significant effect in the urban category only. Living in an urban set up those who posses more agricultural assets are markedly less probable to utilise a modern care as the odds ratio decreases by 138.095 per cent [(1 – 0.420) / 1 = 138.095].

Effect of 'Cash income' is significant in the urban areas and in the combined category where members of high-income families are likely to utilise care more.

Gender, education, travel to long distant place, and standard of living index are found not significant enough to explain health seeking patterns in Cooch Behar and Jalpaiguri.

8.2.2. Characteristics of the disorder

Between the characteristics of the disorder, 'severity of illness' significantly affects utilisation pattern. People with high severity (when compared with people with low severity) are highly probable to utilise a care.

Pattern of morbidity has no significant impact on utilisation.

8.2.3. Characteristics of the service

Availability of health facilities (in the combined category only) is seen to have negative impact towards utilisation of a care. The underlying assumption was that

in the urban areas health facilities are available. However, the result indicates that as compared to the people of the rural areas, urban dwellers are likely to avoid utilising a care from modern source. This fact points out higher incidences of self-treatment or family-treatment or other by the urban dwellers. On the contrary, higher chances of utilisation of care are there from modern sources in towns by the rural people who generally experience non-availability of health facilities in their locality.

Preference for a system of medicine has been found a very important, which affects utilisation pattern. Odds ratio of utilisation increases tremendously in the rural category when the preference for system of medicine shifts from traditional (Category: 0) to Homeopathy (category: 1). The same is true for Allopathy also, but the impacts are relatively lower than those of Homeopathy. The fact could be projected as – to the users of traditional systems of medicine, the first alternative option is for Homeopathy followed by Allopathy. Similarly, preference for public health facility is highly associated with utilisation of care.

'Cost per episode' seems to affect utilisation positively. When cost of care per episode is medium or high, people are meant to utilise care from modern sources.

Quality of care has no significant impact on utilisation pattern.

8.3. Results of multiple classification analysis on utilisation of care

Table 59 shows results of multiple classification analysis (MCA henceforth).

8.3.1. Characteristics of the subject

In table 59 unadjusted and adjusted probabilities of utilising a care in the rural areas of the districts are 0.603 and 0.747 respectively for morbid children in the 0-4 age group. So, age alone (unadjusted) and with other variables also (adjusted) plays an important role towards utilising a care. Within this variable if we look at different categories, we can see that probability declines in the young age group and then increases in the older age group. It confirms one U-shaped relationship

between age and utilisation of care. Similar relationship can be observed if we consider the combined category. The relationship is weak in the urban category.

If we look at pattern of utilisation of care with respect to gender, we will find some sort of gender bias according to the adjusted probabilities in table 59 where morbid males have more probability to utilise a care as compared to morbid females. The same is true for ethnicity also. Patients in the 'General Caste' category have more probability of utilising a care as compared to the 'Scheduled Caste' and 'scheduled tribe' categories.

MCA also shows higher probabilities of utilisation in small families.

If we look at the contribution of education alone to the probability of utilising a care by looking at the unadjusted probabilities in the table, we can see that illiterate and primarily educated people have higher probability of utilising a care than that of people with moderate or higher education. By and large, adjusted probabilities also follow similar pattern.

If we assess the importance of 'travel to distant place', we can see that it is more important in rural areas. This particular individual behaviour has less bearing on the probability of utilising a care among the urban dwellers.

Other individual or household level characteristics follow similar pattern as analysed in the previous section of LRA.

8.3.2. Characteristics of the disorder

People with infectious and communicable diseases have higher probabilities to utilise a care than people with non-communicable diseases or injuries as shown in table 59. Similarly, probability increases gradually with 'severity of illness' in rural, urban and combined categories.

8.3.3. Characteristics of the service

People with the preference for Homeopathy have very high probability (0.956) of utilising a care in rural areas as shown in table 59. In urban areas, however,

probability of utilising a care with respect to Homeopathy is significantly less (0.417). This clearly indicates preference for alternative systems of medicine among rural mass.

High-unadjusted probability of 0.972 corresponding to private-type of facility in the table indicates that in the absence of any other consideration rural people have tendency to opt for private type of care. However, this message may be very misleading if not interpreted with care. The indication of the result is something like a decision when someone takes it blindly. With all other considerations in a controlled situation, rural people are seen to favour public facilities. Adjusted probability with respect to preference for public type of care (0.985) is much higher than that of private care (0.622). The result is just reverse in the urban category where comparatively high-unadjusted probability goes in favour of the public health facilities and the adjusted probability favours private health facilities.

Adverting to the 'quality of care', we can see that people who reported low quality of care have higher probability of utilising a care from modern source in the rural category. On the other hand, people with high reported quality of care have higher probability of utilising a care in the urban category.

As of cost per episode, probabilities increase gradually with costs in the rural category. The relationship is inverted U-shaped in the urban category.

Table 59. Results of Multiple Classification Analyses (MCA)

Predictor Variable	Rural			Urban			Combined		
	n	U-P	A-P	n	U-P	A-P	n	U-P	A-P
Characteristics of the subject									
Age group									
Under five age group (0-4)	58	0.603	0.747	50	0.460	0.426	0.537	0.596	0.537
Young age group (5-14)	80	0.425	0.573	51	0.412	0.391	0.420	0.492	0.420
Older age group (15 and above)	187	0.818	0.925	57	0.526	0.553	0.750	0.793	0.750
Gender									
Female	159	0.692	0.825	58	0.431	0.388	0.622	0.645	0.622
Male	166	0.675	0.866	100	0.490	0.503	0.605	0.708	0.605
Caste									
General	200	0.680	0.882	130	0.485	0.473	0.603	0.712	0.603
Scheduled Caste & other	125	0.688	0.772	28	0.393	0.404	0.634	0.609	0.634
Family size									
Small (≤ 5)	171	0.760	0.902	99	0.505	0.489	0.667	0.748	0.667
Large (> 5)	154	0.597	0.758	59	0.407	0.411	0.545	0.583	0.545
Education of head of household									
Illiterate and up to primary	144	0.757	0.846	122	0.583	0.589	0.728	0.716	0.728
Middle and above	181	0.590	0.849	36	0.434	0.422	0.518	0.650	0.518
Normal out-of-door trips									
Less	81	0.444	0.569	121	0.463	0.438	0.455	0.540	0.455
More	244	0.762	0.899	37	0.487	0.535	0.726	0.766	0.726

Travel to distant place									
No	163	0.656	0.829	50	0.460	0.420	0.610	0.637	0.610
Yes	162	0.710	0.864	108	0.472	0.479	0.615	0.712	0.615
Standard of living index									
Low	225	0.675	0.827	57	0.474	0.529	0.592	0.660	0.592
High	100	0.700	0.885	101	0.466	0.422	0.653	0.707	0.653
Agricultural possessions									
Low	69	0.652	0.865	113	0.513	0.521	0.595	0.731	0.595
High	256	0.691	0.842	45	0.355	0.313	0.622	0.647	0.622
Cash income									
Low	147	0.694	0.857	14	0.286	0.280	0.596	0.681	0.596
Medium	132	0.689	0.861	46	0.326	0.313	0.583	0.647	0.583
High	46	0.630	0.756	98	0.561	0.561	0.658	0.719	0.658
Characteristics of the disorder									
Type of illness									
Group I	187	0.743	0.869	26	0.538	0.512	0.642	0.716	0.642
Group II	97	0.588	0.806	86	0.453	0.464	0.572	0.654	0.572
Group III	41	0.634	0.829	46	0.456	0.424	0.578	0.645	0.578
Severity of illness									
Low	121	0.573	0.752	45	0.474	0.455	0.542	0.574	0.542
Medium	122	0.631	0.780	73	0.423	0.471	0.550	0.654	0.550
High	82	0.810	0.929	40	0.548	0.446	0.742	0.774	0.742
Characteristics of the service									
Availability									

No (rural)	-	-	-	-	-	-	0.683	0.735	0.683
Yes (urban)	-	-	-	-	-	-	0.468	0.554	0.468
System of medicine									
Traditional	58	0.448	0.682	22	0.450	0.378	0.435	0.486	0.435
Allopathy	197	0.706	0.818	92	0.466	0.501	0.654	0.675	0.654
Homeopathy	70	0.814	0.956	44	0.489	0.417	0.657	0.801	0.657
Type of facility									
Public	107	0.541	0.985	18	0.500	0.401	0.809	0.905	0.809
Private	218	0.972	0.622	140	0.464	0.468	0.514	0.557	0.514
Quality of care									
Low	248	0.694	0.856	70	0.400	0.402	0.590	0.667	0.590
High	77	0.649	0.815	88	0.523	0.507	0.677	0.707	0.677
Cost per episode									
Low	219	0.635	0.794	86	0.349	0.317	0.539	0.589	0.539
Medium	67	0.791	0.890	34	0.588	0.667	0.755	0.792	0.755
High	39	0.751	0.957	38	0.632	0.611	0.807	0.827	0.807

AP: Adjusted probability, UP: Unadjusted probability

8.4. Summary

Among the characteristics of the subject in rural areas of the districts, age, ethnicity, family size, and 'normal-out-of-door activities', are found to have significant impact on pattern of utilisation of care. As compared to the children (0-4), morbid persons in the 15+ age group utilises care more from modern sources. People belonging to the 'general caste' category are also likely to utilise care more from modern sources relative to the 'Scheduled Caste' and 'Scheduled Tribe' categories. Size of family is negatively related with utilisation of care from modern source as, households from large families are likely to utilise care from traditional source. Utilisation of care from modern source increases for households whose heads make frequent normal out-of-door trips. Agricultural possession has negative, and income has positive impacts on utilisation of care from modern source in urban areas of the districts. Between the characteristics of disorder, severity of illness is positively related to utilisation of care from modern source. Among the characteristics of the service, availability of health facilities is negatively, and preference for Allopathy (relative to traditional ones) in the combined category and that of Homeopathy (relative to traditional ones) in the rural category, are positively related to utilisation of care from modern source. Similarly, preference for public sources of care is positively related to utilisation of care from modern source in the rural areas of the districts.

nine

9 Summary and conclusion

9.1. Introduction

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (WHO 1961). The International Conference on Primary Health Care in Alma Ata, Russia in 1978, mentioned that health is a fundamental human right and that a main social target of governments, international organisations and the whole world community in the coming decades should be the attainment by all people of the world by the year 2000 of a level of health that will permit them to lead a socially and economically productive life. Primary health care is the key to attain this target as part of development in the spirit of social justice. India is a signatory to the Alma Ata Declaration of 1978 and was committed to attain the goal of 'Health for All' by the Year 2000 through the universal provision of primary health care services. However, India could neither achieve health related goals nor could develop a good health care infrastructure for common people. Functioning of the public health care system has always been questioned by scholars from many different fields. Performance of such a system not only depends on the service related factors or the factors in the supply-side economics of health care, such as availability of health facilities, cost, and quality of care, etc., acceptability of health care services among common mass or demand for those is also equally important. Usually demand for health care varies according to disease profile of a community as well as socio-economic and demographic characteristics. It is to be mentioned that in India both private and public sectors run parallel and there are six officially recognised systems of medicine, such as Allopathy, Ayurveda, Homoeopathy, Naturopathy and Yoga,

Siddha, and Unani. Utilisation of health care, in Indian context, may thus also depend on preference for a particular type of care or system of medicine. The present study makes an attempt to study epidemiologic profile, preference for care, and reveal the true picture of the pattern of utilisation of care by incorporating both demand- and supply-side factors in the rural and urban areas of in Cooch Behar and Jalpaiguri districts, West Bengal, India.

9.2. Economics of health care

Economists began to turn their attention to the matters concerning the efficiency in the health service sector around the end of the 1950s. However, much of the literature developed at that time was normative in nature consisting of studies on welfare aspects of medical care, what public health policy ought to be or studies being based upon the value judgments in health care. Also there has been dilemma on the question of application of economics to analysis of health care. Much of the controversies regarding application of economics to health care analysis waned when Victor Fuchs defined health service sector as health care industry, which provides different types of outputs such as medical services, hospitality or hotel services, and validation services to people utilising different inputs. These services are output of the health care industry measured in terms utilisation of health facilities, e.g., number of cases treated, hospital admission, etc. The inputs of health care industry are: labour input, physical capital, and intermediate goods and services. Empirical studies within this framework of supply side economics of health care began with the work of Martin S. Feldstein. He opened new avenues of research by estimating Cobb-Douglas type production function of hospitals for the British National Health Service. Studies in the demand side of health care economics also follow a similar framework, which considers a set of non-economic factors such as age, gender, education, culture, etc. with the economic ones. Utilisation of health services depends both on demand and supply of consumers and providers. Studies on utilisation of health services fall under a mixed demand-supply framework.

9.3. Issues in the literature

The problem of health services utilisation has been dealt with not only by the economists but also by the anthropologists, demographers, doctors, geographers, sociologists and others. Geographers applied mechanical and mathematical tools to solve social problems regarding geographic location of some kind. Contemporary medical geographers have systematically studied how geographical accessibility to a health facility affects utilisation of health care. Since 1950s, demographers have also started focusing on acceptance of different family planning methods and utilisation of maternal and child health care in connection with the so-called population explosion in the developing countries. Since 1970s, social and medical anthropologists also applied their minds to patients' perspectives and conceptions about illness and medicine to study how patients comply with the sick role – how they perceive the causes of their condition and make choices regarding the use or non-use of different kinds of health care. Within this sphere of research, conceptual frameworks have been developed to put some order into the gamut of possible interacting variables, which affect health services utilisation.

9.3.1. Health services utilisation

Utilisation of health care, according to Axel Kroeger, depends upon the following: characteristics of the subject (predisposing factors), characteristics of the disorder, and characteristics of the service (enabling factors). 'Characteristics of the subject' is to mean background characteristics of the morbid persons and their households such as age, gender, marital status, household size, education, employment, ethnicity, culture, household income, etc. These are also termed as 'predisposing factors' in literature. Such factors are supposed to make an individual susceptible towards a specific action or behaviour or experience.

'Characteristics of the disorder' means type, stage and intensity of illness, number of spells, duration of illness episode, identification of the disease, and aetiological considerations. These factors affect utilisation of health services.

From the point of view of literature on economics of health care, both the characteristic of the subject and disorder may also be comprehended as factors in the demand-side economics of health care.

'Characteristics of the service' are nothing but the health service system factors or factors in the supply-side economics of health care, which have important bearing regarding the use or non-use of different types of care. Some possible facets of any health service system are: availability of health facilities, accessibility to health care, quality of care, and cost or price of care.

9.3.2. Morbidity

The term morbidity means the state of illness or disability in a population. Though death is clearly a well-defined event, illness is not. But it is staged somewhere between perfect health and death. Morbidity measures are of two types: self-perceived morbidity and observed morbidity. The objective and scope of the study require a measure of the first type. Commentators have projected the view that in progressing from high to low mortality levels, all population experience a shift in the major causes of illness and disease. Whereas infectious diseases and nutritional and reproductive health problems predominate in high mortality populations, chronic and degenerative diseases predominate in low mortality populations. Empirical studies have found that India is in the midst of an epidemiologic transition and has an epidemiological profile of a poor as well as an affluent country. This complex epidemiological profile has significant impact on the health seeking behaviour of people.

9.3.3. Patient's preference for a care

Individual preference or appeal towards a particular type of care or system of medicine is an important determinant of utilisation of health services. As in India, different systems of medicine available in both public and private facilities, preference for a care may significantly affect utilisation pattern. Study of patients'

(or households') preference for public or private type of care or different systems of medicine, in the Indian context, is thus important.

9.4. Logical gaps

While reviewing literature we found a dichotomy between the economic factors and the non-economic ones. We have also seen that technical studies in developed countries, by and large, consider Allopathic system of medicine only. Technical studies in India also suffer from limitations as they focus primarily on maternal and child health care related issues only. Moreover, scientific frameworks in studies of health care utilisation are based on hospital records. Inferences of studies based on hospital records may lose credibility in mixed cultural set up, as "doctor's disease" may not be identical with "patient's illness." The present study adopts a self-reporting approach of studying morbidity, examines epidemiologic profile based on that, analyses utilisation pattern in a quantitative framework, and incorporates one qualitative section to find reasons behind choosing different types of care.

9.5. The present study

The study is based on primary data collected mostly thorough interview technique. For the section of preference for care the study adopted free-listing technique to collect patient's or respondents's opinion. The study based on two districts of West Bengal (India) namely, Cooch Behar and Jalpaiguri covering the Cooch Behar and Jalpaiguri towns and CD Blocks II and I of the two districts respectively. The size of the sample is 440 households. The study has three facets: morbidity analysis (examination of the phenomenon of epidemiological transition), study of household's preference for a care (sketching patient's or respondent's cognitive structure), and estimation of contribution of different need, predisposing, and enabling factors towards utilisation of a care (multivariate analyses using binary Logistic Regression Analysis, LRA and Multiple Classification Analysis, MCA).

In order to carry out studies on epidemiological transition, data on morbidity has been classified according to the Global Burden of Disease (GBD) study 1990 where there are three broad categories of disease (Group I: Communicable, maternal, perinatal, and nutritional diseases; Group II: Non-communicable diseases; Group III: Unintentional injuries, Intentional injuries). The observed distribution has been compared with the hypothesised ones (using Chi-square statistic) to test whether epidemiological transition has taken place in rural and urban areas of Cooch Behar and Jalpaiguri. Incidence and prevalence rates of disease have also been computed using appropriate statistical techniques.

Qualitative data on preference for care have been analysed with a simple analytical scheme for quantitative interpretation to compute salience or importance of each opinions in people's mind.

In order to investigate how different socio-economic, demographic, geographic, psychological and other factors contribute to the probability of utilising health care, binary-multivariate logistic regression models have been estimated according to type of locality (rural / urban / combined). Multiple Classification Analyses have also been done following standard practice to estimate probabilities of utilisation of care with respect to each variable in adjusted and unadjusted situations.

9.6. Household Structures

9.6.1. Sample characteristics

We have seen varied age-pattern of morbidity in both the rural and urban areas of the districts. Proportion of male and female population among the morbid persons is almost equal in the rural category. However, the proportion is higher for males in the urban category. Average size of households for the rural and urban areas are 5.378 and 5.225 respectively. However, in the urban areas most of the persons belong to the small families. Educational backgrounds of most of the urban dwellers (with morbidity) are poor as compared to those of their rural counterparts.

It is clear from data that rural people make frequent normal out-of-door trips than urban dwellers. Urban dwellers are seen to travel more to distant places than the rural mass. Agricultural possessions are high among the households in rural areas and the standard of living and household cash income are high among urban dwellers.

9.6.2. Characteristics of the service

In both the rural and urban category, most of the cases have been treated under the Allopathic system of medicine. Also, in most of the cases households seek care from private health facilities. It is seen that rural people have reported low and the urban dwellers have reported high quality of care.

9.6.3. Health care expenditure

In the rural areas each household spends on an average Rs. 242 per illness episode (mean). Half of the households in the rural areas spend Rs. 60 or less per illness episode (median). Most of the households spend Rs. 50 per illness episode (mode). In the urban areas these figures are Rs. 1468, Rs. 100, and Rs. 200 respectively. On an average, one rural household spent nearly 9 per cent and one urban household spent nearly 21.5 per cent of their cash income per illness episode.

9.7. Morbidity analysis

Infrastructure of health services is passing through a phase of transition in the region. The fact can be observed from the flourishing of private sources of care at a faster rate over the public ones. The reasons behind this fact are, however, not very clear. The question is that – why is the public sector lagging behind its private counterpart in pulling crowd from all sections of population? The research question, which has been investigated in this regard, was that – weather pattern of morbidity or epidemiological profile of this region has transformed leading to a change in the appeal towards a particular type of care or system of medicine. If pattern of morbidity of one particular region changes, and existing health care

infrastructure is not competent enough to meet growing and diversified demand for health care, people will either eke out a living with crumbled public health care system or flee to private sources of care if those are available and affordable.

The study revealed that in rural areas of Cooch Behar and Jalpaiguri districts, real burden of disease is very high. Both the incidence and prevalence rates of disease are markedly above the national and state-level averages. As of disease profile, rural people suffer more from communicable and other diseases, which prevail in the pre-transitional societies, i.e., in societies with poor socio-economic background. Burden of non-communicable diseases and injuries are, however, high in urban areas. According to the phenomenon of epidemiological transition, rural areas of this region remain in the pre-transitional stage, and the urban areas are passing through the mid-transitional stage. So, this particular region of West Bengal (India) has an epidemiological profile of backward as well as advanced societies. It conveys that the problem of this region has at least two facets: one is associated with the real heavy burden of diseases and the other is with the complex epidemiological profile of pre-transitional and transitional societies. Health care infrastructure of this region must be competent enough to meet such complex needs. From the results it is clear that people from all societies (pre-transitional and transitional) have less dependability on the public health facilities. Consequently people are seen to utilise to the private sources of care more. However, the results do not help us to make any inference about people's inherent preference for public or private types of care. Nevertheless, the fact remains that public sources of care (of this region) are not adequate enough to deal with the complex epidemiological profile of the districts of Cooch Behar and Jalpaiguri.

9.8. Preference for health care

Importance of opinions and attitudes towards a type of care or system of medicine has been recognised greatly by the medical sociologists, anthropologists, and doctors. In India, the issue has been addressed mostly by the medical specialists. Such studies are restricted in counting frequencies of patients expressing various

opinions. However, to move a step further one can use modern qualitative anthropological techniques to sketch patient's (or respondent's) cognitive structure with respect to their choice of a type of care or system of medicine. The present study does an analysis of user's perception regarding choice of a care and computes importance or salience of different opinions in their mind towards utilisation of care.

The study indicates that in rural areas people utilised public health facilities mostly because of their availability in local areas or because no other option was available to them or because of the inexpensiveness of those as compared to the private ones. People in the urban areas preferred public health facilities for financial reasons: either price of a care or affordability of households. The main reason behind choosing private type of care both in rural and urban areas has been quality of care. Both rural and urban dwellers prefer Allopathy for quick relief, permanent cure, reliability, etc. and Homeopathy as it is cheap, good for children and as it is assumed to have no side effect. The study thus provided us with a very good idea and precise estimates on opinions and attitudes towards a type of care or system of medicine in this region of West Bengal (India). These measures can be suitably used for policy prescriptions for this particular region. For example, patients' or households' appeal towards Homeopathy or opinions in favour of that can be honoured by introducing it in the primary health care institutions of this region. However, it is to be mentioned that results of such qualitative studies are not generalised the way researchers do in case of quantitative studies. However, findings of this section which usually explains 'why' could be thought as good supplement to those of the quantitative section where we find answers to questions on 'what' or 'how much'. One section seems to be the true complement of the other.

9.9. Utilisation of care

Over the years, infrastructure of health services and pattern of utilisation of care have changed radically in the region like in other parts of India. An enquiry into

the reasons would unveil some of the important alterations like introduction of user fees or more specifically hike in fees structure in the public health facilities, emergence of numerous private sources of care, and revealed preference for alternative systems of medicine among rural and urban mass. Important research questions at this point are that whether demand for public health facilities has decreased or whether preference for alternative systems of medicine has increased over Allopathy or whether patient's preference for a care is purely rigid in response to socio-economic, demographic and other characteristics. The present study investigates such research questions empirically by evaluating contribution of different socio-economic, demographic, geographic, and other factors towards utilisation of different health care in the rural and urban areas of Cooch Behar and Jalpaiguri districts, West Bengal, India. Important findings based on logistic regression analyses (LRA) and multiple classification analyses (MCA) are presented below.

Among the characteristics of the subject, demographic factors like age and family size have been found as important determinants of utilisation of a care.

Probability of utilisation is seen higher in small families. We have seen literature in support of this fact, which theorises that in small families, per capita income may be high and which may increase ability to pay for health care and chances of utilisation of a care. However, MCA shows that even if the effects of income and other variables are controlled, probability of utilising a care is higher in the small families in rural and urban areas than in large families.

Though not very sharp, but some degree of gender bias is present in both the rural and urban categories in terms of utilisation of care.

Negative relationship between education and utilisation of a care indicates chances of preferring self-treatment or family-treatment or the like among the educated ones. However, the gaps in probabilities between the illiterates (or primarily educated) and educated ones decrease under controlled situations.

While defining 'normal out-of-door trips' the range of 10 kms has been fixed according to the spatial set up of the study area. However, it has been found that those who (household head only) travel more within this range have tendency to utilise care more. It carries a good message as in the pace of development social mobility will increase which will always contribute to the probability of utilising a care.

Although the relationship between probability of utilisation and cash income is negative in the rural category, it is found to be positive in the urban category. The negative relationship again indicates preference for self-treatment or family-treatment or the like among the affluent households.

Probabilities of utilising a care, for three broad categories of diseases, in the rural category follow a U-shaped pattern. In other words, infectious diseases, etc. and injuries get more importance over non-communicable diseases. Urban dwellers also put more importance on infectious diseases, etc. and it then decreases gradually. This again indicates chances of self-treatment or family-treatment or like for non-communicable diseases, and injuries.

Probability of utilisation is very high in the rural category when the preference is for Homeopathy. Similarly, demand for public health facilities is also very high among rural mass.

Utilisation of health facilities by rural people is associated with low reported quality of care. The reverse is true in the case of the urban dwellers. This conveys that unhappiness during sickness aggravates in case of a patient from a rural area owing to service related factors.

The relationship between cost and utilisation is positive in the rural category and almost inverted U-shaped in the urban category. Researchers and policy makers should justify the fact that whether rural people have less freedom to find cheaper options in the towns which are not their usual places of residence or else. On the contrary, this (finding cheaper options) may be a common practice among

urban dwellers. Other reasons may include cost of travel, cost of accompanying persons, etc.

9.10. General inference

One basic research question, which has been investigated in the study, was that whether demand for health care depends on price of it. The usual relationship between price of a commodity and demand for it is negative. However, the present study reveals that in rural areas demand for health care or utilisation of it is positively related with price or cost of it; and in the urban areas, demand increases initially and then decreases with cost. The second research question is whether appeal (or equivalently demand, attractiveness, preference, etc.) towards a system of medicine is more important than socio-economic consideration. In the qualitative section of 'preference for care', we have seen that in rural and urban areas people prefer Allopathy for quick and permanent relief, etc., or in other words, for therapeutic reasons. Preference for Homeopathy depends on aetiologic, economic, and therapeutic considerations. In the quantitative section, Multiple Classification Analyses show that in the rural category, adjusted probabilities of utilising care with respect to different systems of medicine are higher than respective unadjusted probabilities. As the adjusted probabilities are obtained when effect of all other socio-economic variables are controlled, it seems that in rural areas appeal towards a system of medicine outweighs socio-economic consideration. In the urban category, such adjusted probabilities are less than the unadjusted ones. It indicates that in urban areas socio-economic consideration influence preference for a system of medicine. However, in both rural and urban areas preference for system of medicine is not rigid with respect to characteristics of the disorder. We have seen that for communicable and other similar diseases, people preferred Allopathy. We could not distinguish pattern of utilisation of care with respect to ethnicity or caste. Simple cross tabulations indicate preference for private health facilities among rural and urban mass. However, multivariate analyses show that in controlled situations people in the rural areas preferred

public, and people in the urban areas preferred private health facilities. Pattern of utilisation also varies according to place of residence or type of locality. Probability of utilising a care is higher among rural mass than that of urban dwellers. Among the demographic characteristics, age has important bearing on the problem of health care utilisation. The age-pattern of morbidity shows almost an inverted U-shaped relationship, on the contrary the age-pattern of utilisation shows a U-shaped one in rural areas. It indicates sheer negligence of the interests of the young and young-adults in the rural areas. We have found that prevalence of infectious diseases is higher than those of non-communicable diseases in rural areas, and prevalence of non-communicable diseases is higher than those of infectious diseases in urban areas. Among the individual or household behaviour, normal out-of-doors trips made by the head of the households influence utilisation of health services in rural areas. Finally, unhappiness during sickness does not restrict the ability of patients or households to assess the quality of care.

9.11. Policy recommendations

- We have observed U-shaped relationship between age and probability of utilisation of a care. As demographic factors are not subject to sudden change, those cannot be considered as instruments in the hands of policy makers to fulfil their objectives. However, special care must be taken to raise the rate of utilisation of care for morbid children in the 5-14 age-group and also in all other groups so that the probabilities of utilisation for all the age groups tend to one.
- Probability of utilisation is seen to be lower in large families. Appropriate measure should be taken to regularise the habit of utilisation of health care in such families.
- Special care must be taken for removal of gender bias in utilising health care. Awareness campaigns targeting couples may be undertaken to bring about attitudinal changes within the households.
- Negative relationship between education and utilisation of a care should be a matter of concern for both the policy makers and the service providers.

- Relationship between probability of utilisation and cash income is negative in the rural category and positive in the urban category. Policy makers and service providers must note this fact with care.
- As the demand for Homeopathy is very high, appropriate measures should be taken to introduce it in the public health care system.
- Demand for public health facilities is also very high among the rural mass. So, privatisation or plan of leasing out the primary health care system to private operators or any such measures will not be justified.
- As rural people usually do not receive quality care, service providers should consider the issue from moral point of view.
- Though there is no simple mechanism to minimise inequalities in expenditure pattern of health care between rural and urban communities, policy makers should rationalise these facts by taking appropriate price-discrimination policies, health insurance, etc.

The above measures are proposed in keeping with the people's desire for health care services and the mettle of health care economy to safeguard our common future in this era of neo-liberal economic policies of privatisation and globalisation.

9.12. Conclusion

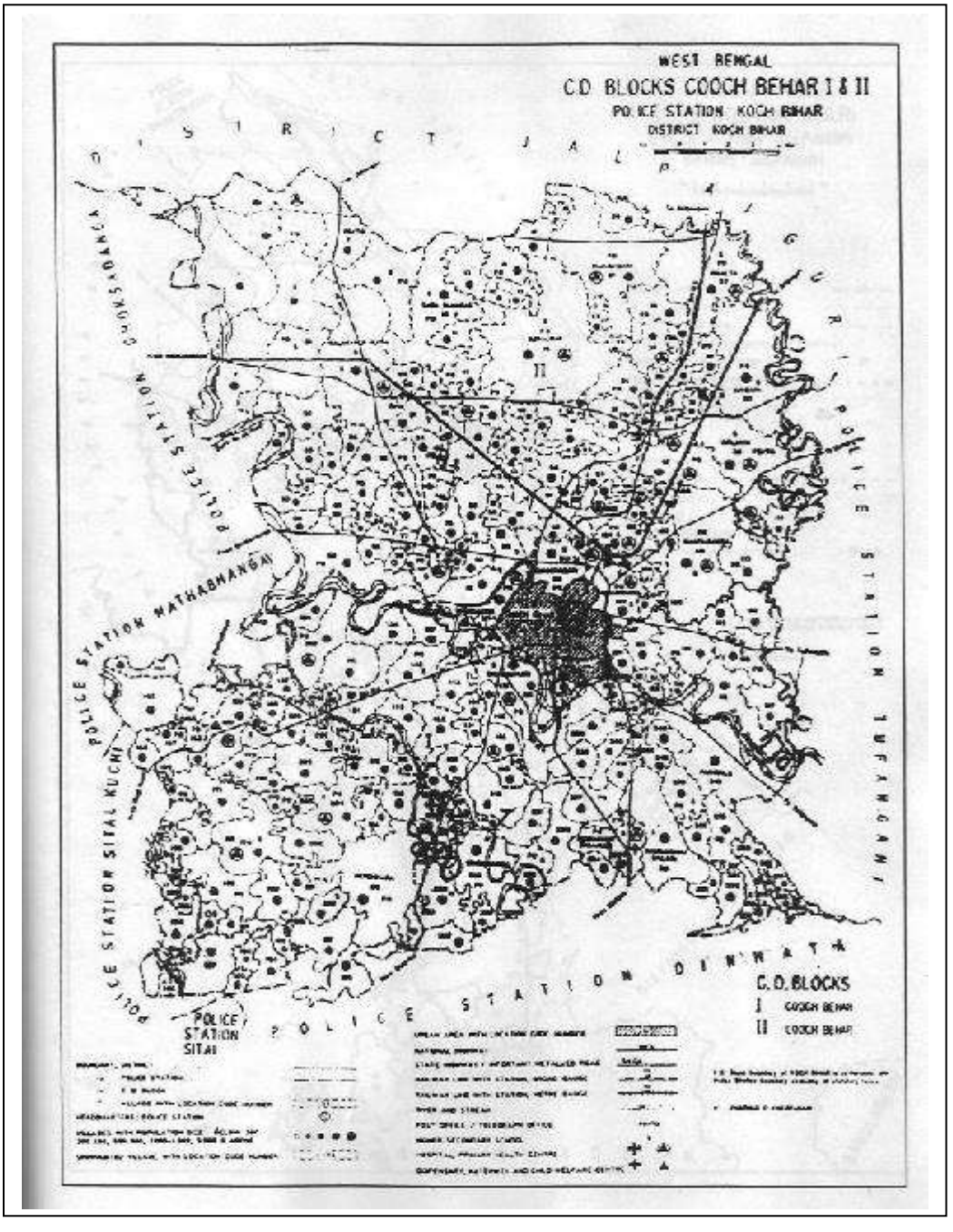
The study found presence of patients' inherent preference for public care and alternative systems of medicines particularly in rural areas of the districts of Cooch Behar and Jalpaiguti, which are in the pre-transitional stage. Rapid Household Survey under the Reproductive and Child Health Project (RHS-RCH) also depicts that among the users of maternal health care in the region, preference for public health care, particularly the institutions at primary level, is very high. The study of GTZ, Germany or the Report of Inspiration for Cooch Behar also supports this fact. All these findings clearly indicate that demand for public as well as primary health care services is still high in the pre-transitional societies of this region of West Bengal (India). In such a situation, it is apparent that privatisation of the primary health care system or leasing it out to private operators is purely unscientific. Rather, the Government should think of channelising resources to this

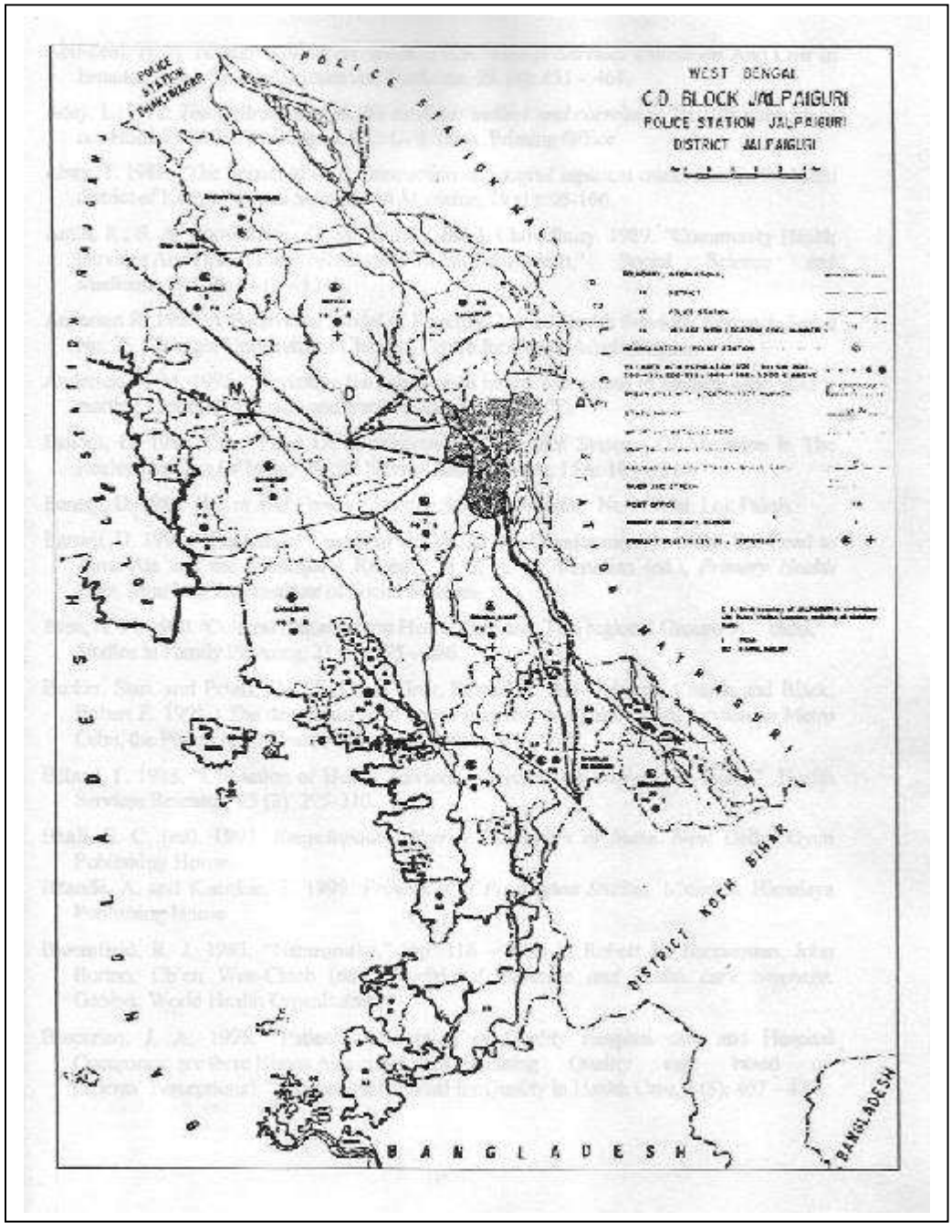
system to deliver systematically quality health and family welfare services to its potential users. Inequalities in access to basic health care are the main factor behind inequalities in health outcomes. So, removing such inequalities from the supply side should be the first priority of the Government. RHS-RCH shows that in rural areas of Cooch Behar, more than 63 per cent of the mothers have visited sub-centres for maternal health care services (table 6). The same figure for Jalpaiguri is 44.3 (per cent). However, we know that one sub-centre is not well-manned and well-equipped (as shown in the section 1.3.1.1) to meet health care needs of one pregnant mother. So, inequality in access to basic health care lies within the system. Such inequalities should be removed first by appropriate restructuring of the health care infrastructure. Another important aspect is that of quality of care. The issue of poor quality of public health care services is discussed widely within India and abroad. While highlighting the social infrastructure of the Country to foreign investors, the Federation of Indian Chambers of Commerce and Industry (FICCI) has clearly mentioned (in their official website) a decline of the quality health services in the State of West Bengal. In his famous Cortona lecture, organised among others by the University of Pavia in 2005 in Italy on a multi-voiced dialogue on global society, Amartya Sen has mentioned about the dreadful state of health services in east India. Such depressing findings appeared in the first report of the Pratichi Trust, a Trust set up by Sen with his Nobel money. So, quality of care is an issue, which is to be addressed immediately by the Government. Finally, we move to the issue of preference for alternative systems of medicine. Our study revealed that in the rural areas of the region (pre-transitional societies), people prefer alternative systems of medicine. The situation is similar to our observation on post-transitional societies. For example, in the Western Europe, governments spend huge amount of resources on both critical and chronic care with more thrust on the former. The state of chronic care, however, does not seem to be very promising to common mass. As a result people in the Western Europe are seen to rely gradually on various alternative systems of medicine, such as

Indian Yoga and Meditation including some of the traditional Chinese ones for chronic care. Such a move in the preference for care took place in Europe, where basic care is made available to all long back during the early phase of industrial expansion. Nowadays, in India too people are gradually moving towards Yoga and Meditation or other alternative systems of medicine. However, the tragedy is that in Indian societies people are moving to alternative systems, as basic health care in the mainstream system of Allopathy is either poorly available or not easily accessible. The study thus concludes drawing attention of the policy makers, which is very crucial to determine the strategy of delivering health care in this phase of transition.

APPENDIX

Two maps of CD Blocks Cooch Behar II (with Cooch Behar I) and Jalpaiguri I appear below. Shaded portions show urban areas and the selected villages / mouzas can be found from their identity numbers.




WEST BENGAL
C.D. BLOCK JALPAIGURI
POLICE STATION JALPAIGURI
DISTRICT JALPAIGURI
POLICE STATION RAJGANJ
POLICE STATION MAL
POLICE STATION MATHABHANGA
DISTRICT COOCH BEHAR
DISTRICT NORTH DINAJPUR
DISTRICT NORTH BIHAR
BANGLADESH
BANGLADESH

A sample copy of a questionnaire appears below.

Sample copy of a questionnaire

Sl. No. | | |

Sample Survey on

ECONOMICS OF HEALTH CARE UTILISATION IN COOCH BEHAR & JALPAIGURI

Research Scholar:	Confidential for Research Purpose only	Supervisor:

HOUSEHOLD QUESTIONNAIRE

IDENTIFICATION - I

District		Sub - Division:	Category		Mouza / Ward	Household No.		
Cooch Behar: 1, Jalpaiguri: 2			Rural: 1, Urban: 2					
Name of the head of the household			Name of the respondent					
Date of Interview:			Name / Signature of the Investigator					

HOUSEHOLD CHARACTERISTICS – II

Q No.	Questions and Coding categories	Answers			
Q 01	How many persons (including children) do usually live in your household?	Persons			*De facto*
		Female			
		Male			
Q 02	What type of family do you have?				
	Nuclear: 1, Otherwise: 0				
Q 03	What is your religion?				
	Hindu: 1, Muslim: 2, Christian: 3, Other: 4 (Specify)				
Q 04	What is your caste / tribe?				
	General: 1, OBC: 2, SC: 3, ST: 4				
Q 05	Type of house (Record by observation)				
	Pucca: 1, Semi Pucca: 2, Kuchcha: 3, Other: 4 (Specify)				
Q 06	How many living rooms are there in your house?				
Q 07	What type of toilet facility does your household have?				
	Sanitary: 1, Kuchcha: 2, Other: 3 (Specify)				
Q 08	Does your household own the following items?			Put √ mark where applicable Ignore number of appliances available	
	Transistor / Cassette player / Audio system				
	TV / VCP				
	Refrigerator				
	Motorbike / Motor vehicle				
	Other: 9 (specify)				
Q 09	Does any of your household read any daily newspaper?				
	Yes: 1, Otherwise: 0				

1

Sample copy of a questionnaire

BACKGROUND CHARACTERISTICS OF THE HOUSEHOLD POPULATION - III								
Q No.	Questions and Coding categories / Answer *							
Q 10	Would you please tell me something about the background characteristics of the household population?							
	Gender: Female: 1, Otherwise: 0							
	Age: As on last birth day (completed years)							
	Marital Status: Currently married: 1, Widow / Widower / Divorced / Separated: 2, Otherwise: 0							
	Relation to Head: Self: 1, Spouse: 2, Daughter / Son: 3, Otherwise: 4 (specify)							
	Education: Illiterate: 1, Up to primary: 2, Up to middle (class VIII): 3, Secondary and above: 4							
	Occupation: Cultivation: 1, Daily wage earner: 2, Salaried (Govt. / Semi Govt.): 3, Salaried (Private): 4, Self employed: 5, Retired / Elderly / Household work / Student / Unemployed: 6, Other: 7 (specify)							
	Any physical disability / special medical care: Yes: 1, Otherwise: 0 (Specify if Yes)							
Name	Gender	Age	Relation to Head	Education	Occupation	Marital Status	Any physical disability / special medical care	
1								
2								
3								
4								
5								
6								
7								
8								
9								

* Use additional sheet if necessary

ECONOMIC PROFILE / AFFORDABILITY OF HOUSEHOLDS - IV			
Q No.	Questions and Coding categories	Answers	
Q 11	Would you please give me an approximate idea of monthly income of your household from all regular sources?		
Q 12	How much does your household spend on food (monthly)?		
Q 13	How much cultivable land does your household possess?		
Q 14	Would you please tell me about the livestock that your household possesses?	Milch animal	Draft animal
	Specify in numbers	Birds	Other
Q 15	How many fruit and other trees does your household have?	Fruit trees	Other trees
	Specify in numbers		
Q (16)	Had your household met any unusual very high expenditure* for any reason in last 5 years?		
	Yes: 1, Otherwise: 0		
Q (17)	Had your household disposed any (productive or unproductive) asset to meet any unusual very high expenditure* in last 5 years?		
	Yes: 1, Otherwise: 0		
Q 18	Does one or more members of your household have any health insurance policy?		
	Yes: 1, Otherwise: 0		
Q (19)	Was there any nuptial event in your household in last 5 years?		
	Yes: 1, Otherwise: 0		

* Relative concept, depends on per capita income; (..) Take care of reference period

2

Sample copy of a questionnaire

MORBIDITY - V					
Q No.	Questions and Coding categories / Answers *				
Q 20	Would you please tell me whether any member of the households experienced any illness* since …….. (reference period/date)?				
	Illness: Yes: 1, Otherwise: 0				
	No. of illness episode: Specify				
	Type of illness: Specify (will be coded later using ICD – 10 codes)				
	Severity: High: 1, Medium: 2, Low: 3				
	Duration: Specify in days.				
Name	Illness	No. of illness episode	Type of illness	Severity	Duration
1					
2					
3					
4					
5					

* Use additional sheet if necessary; ♣ Including pregnancy and related matters

VITAL EVENTS - VI				
Q (21)	Was there any birth in your household in last 5 years?			
	Yes: 1, Otherwise: 0 (including still births)			
Q 22	If 'Yes' in Q 21, then would you please give me the details of the births?			
	Gender: Female: 1, Otherwise: 0			
	Place of delivery: Home: 1, Public hospital: 2, Nursing home / Private hospital: 3, Otherwise: 4			
Sl. No.	Gender		Place of delivery	Expenses
1				
2				
3				
Q (23)	Was there any death in your household in last 5 years?			
	Yes: 1, Otherwise: 0			
Q 24	If 'Yes' in Q 23, then would you please give me the details of the deceased persons?			
	Gender: Female: 1, Otherwise: 0			
	Relation to Head: Spouse: 1, Daughter / Son: 2, Other: 3 (specify)			
	Cause of death: Specify (will be coded later using ICD – 10 codes)			
	Type of medical attention: Public Allopathic: 1, Private Allopathic: 2, Public Homeopathy: 3, Private Homeopathy: 4, Public Ayurveda: 5, Private Ayurveda: 6, Traditional (from Kabiraj / Baidya / Ojha / etc.): 7, Family: 8, Otherwise: 9 (Specify)			

Sl. No.	Gender	Age	Relation to Head	Cause of death	Types of all medical attention	Expenses
1						
2						
3						

(..) Take care of reference period

3

Sample copy of a questionnaire

UTILISATION OF HEALTH CARE - VII						
Q No.	Question and Coding categories / Answer *					
Q 25	Did you or any other member of your household utilise any health care services since …….. (reference period/date)?					
	Yes: 1, Otherwise: 0					
Q 26	If 'Yes' in Q 25, then what was the type of that care?					
	Curative: 1, Preventive: 2, Other: 3 (Specify)♦					
Q 27	Would you please tell me in details about utilisation of care by the morbid persons in your household in each illness episode?					
	Time gap: Specify in days					
	Type: Public: 1, Private: 2, Family: 3, Other: 4 (Specify)					
	Category of Health Facility: Sub Centre: 1, Primary Health Centre: 2, Community Health Centre / Village Hospital: 3, Sub Division Hospital: 4, District Hospital: 5, Any Specialized Hospital / Nursing Home: 6, Chemist's Shop: 7, Establishment of Kabiraj / Baidya / Ojha: 8, Other: 9 (Specify)					
	Source: Doctor: 1, Specialist: 2, Paramedical Stuff: 3, Registered Medical Practitioner: 4, Chemist & Druggist: 5, Kabiraj / Baidya / Ojha: 6, Family: 7, Other: 8 (Specify)					
	System of Medicine: Allopathic: 1, Homeopathy: 2, Ayurvedic: 3, Traditional (from Kabiraj / Baidya / Ojha/ etc.): 4, Other: 5 (Specify)					
	No. of Visits: Specify					

Name	Time gap between first symptom and utilisation	Type of Health Facility	Category of Health Facility	Source of seeking treatment	System of Medicine	No. of Visit
1						
2						
3						

Q 28	If morbid persons have not utilised any health services then what are the main reasons behind it?	
	Specify	

* Use additional sheet if necessary;
♦ Include validation services (medical fitness certificate, etc.) in this category

REASONS BEHIND CHOOSING A PARTICULAR TYPE CARE / SYSTEM OF MEDICINE - VIII			
Q No.	Questions and Coding categories / Answers *		
Q 29	Would you please tell me why members of your household chose this particular type of health care? (Ask to tell points as many as she / he can in descending order according to importance)		
Public		Private	Family / Traditional / Other
1.		1.	1.
2.		2.	2.
3.		3.	3.
4.		4.	4.
5.		5.	5.
Q 30	Would you please tell me why members of your household chose this particular system of medicine? (Ask to tell points as many as she / he can in descending order according to importance)		
Allopathic	Ayurveda	Homeopathy	Traditional
1.	1.	1.	1.
2.	2.	2.	2.
3.	3.	3.	3.
4.	4.	4.	4.
5.	5.	5.	5.

* Use additional sheet if necessary

Sample copy of a questionnaire

AVAILABILITY OF HEALTH CARE - IX		
Q No.	Questions and Coding categories	Answers
Q 31	Is there any health facility available in your ward or mouza?	
	Yes: 1, Otherwise: 0	
Q 32	If 'Yes' in Q 31, what was (were) the facility (ies)?	
	Sub Centre: 1, Primary Health Centre: 2, Community Health Centre / Village Hospital: 3, District Hospital: 4, Any Specialized Hospital / Nursing Home: 5, Chemist's Shop: 6, Establishment of Kabiraj / Baidya / Ojha: 7, Other: 8 (Specify) (Consider multiple entries)	
Q 33	Is there any doctor / medical specialist / health professional available in your ward or mouza♥?	
	Yes: 1, Otherwise: 0	
Q 34	Is there any pathological laboratory in your ward or mouza?	
	Yes: 1, Otherwise: 0	
Q 35	Is there any X-Ray laboratory in your ward or mouza?	
	Yes: 1, Otherwise: 0	
Q 36	Is there any ambulance or any other vehicle that can be used in emergency in your ward or mouza?	
	Yes: 1, Otherwise: 0	

♥ Qualified doctor and / or registered medical practitioner only

ACESSIBILITY TO HEALTH CARE & ACTIVITY SET - X			
Q No.	Questions and Coding categories	Answer (Cells are for different patients and different episodes)	
Q 37	How much distance did your household cover to reach health facility?		
	(Specify in Kilometers)		
Q 38	How much time did your household spend to reach health facility?		
	Specify		
Q 39	How often any or more members of your household visit places in the following distance categories in a month*?		
	Specify		
	<= 5 kms	<=25 kms	< 50 kms
Q (40)	Did any or more members of your household visit places in the following distance categories in last 3 years*?		
	Specify		
	< 500 kms	> 500 kms	

* Ask names of the places (market place, thana, district head quarter, relatives' place, cities and towns) if the respondent is ignorant about distances; (..) Take care of reference period

Sample copy of a questionnaire

QUALITY OF CARE - XI				
Q No.	Question and Coding categories	Answer (Cells are for different patients and different episodes)		
Q 41	In case of hospitalisation, have your households been provided with a bed?			
	Yes: 1, Otherwise: 0			
Q 42	Did any member of your household share bed with other patients?			
	Yes: 1, Otherwise: 0			
Q 43	Have your households found the premises of the health facility clean?			
	Very clean: 1, Somewhat clean: 2, Not clean: 3			
	Did service provider talk about causes and consequences of the disease and also about its prevention?			
	Yes: 1, Otherwise: 0			
Q 44	Is your household satisfied after seeking treatment from the health facilities?			
	Yes: 1, Somewhat: 2, No: 3			

HEALTH CARE EXPENDITURE – XII									
Q No.	Question and Coding categories / Answer *								
Q 45	Would you please tell me in detail about the costs that your household incurred directly and indirectly for the illness?								
Name	Doctors Fee	Drugs	Tests	Special Diet	Transport ation cost	Other costs	In case of hospitalisa tion: Total Cost♠	Loss of earnings to	
								Patient	Accomp anying persons
1									
2									
3									

♠ Ignore the first 6 columns; * Use additional sheet if necessary

NUTRITION - XIII				
Q No.	Questions and Coding categories / Answers			
Q 46	How often do members of your household consume the following items etc.?			
	Put √ marks where applicable			
	Daily	Weekly	Occasionally	Never
Milk / Curd				
Pulses / Beans				
Green leafy vegetables				
Other vegetables				
Fruits				
Eggs				
Chicken / Meat				
Fish				
Sweets				

6

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INDEX

O

P

Q

R