CHAPTER 2
REVIEW OF LITERATURE

Traditionally different aspects of health status like longevity, mortality and morbidity were confined to the subject matter of either demographers or medicos/epidemiologists. However, with increasing emphasis on providing most cost effective, efficient and inclusive health care interventions, financing part of health and morbidity started receiving increasing attention of economists and policy makers. The interest of economists and social scientists to explore different dimensions of health was furthered with increasing acceptance that health plays a crucial role in economic and social development both at macro and micro levels. Substantial empirical evidence on economics of health and morbidity has been generated during past about three decades. This chapter presents a synoptic view of the available literature on different aspects of morbidity in India and other parts of the world.

In an empirical exercise like the present one, it is neither feasible to include all the available studies nor desirable to present a comprehensive review originating from epidemiological, economic and psychosocial studies on morbidity. Therefore, keeping in view the objectives of the present study and research methodology adopted, only those empirical studies have been included which were mainly confined to the nature, determinants and economic burden of morbidity. An attempt has been made to include all available studies on morbidity in India and other developing countries. Also included are the selected studies undertaken by international organisations like World Health Organisation (WHO) and the World Bank. However, for the developed countries only those studies have been included which were widely referred and related directly to the focus areas of the present study.

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1 This is evident from the establishment of Commission on Macroeconomics and Health (CMH, 2001) by the United Nation’s World Health Organisation (UN-WHO) and similar Commissions in many other countries including India.
In the backdrop of the objectives of present study, the review of literature has been broadly classified in three groups. The first group includes studies related with trend, pattern, nature and dimensions of morbidity. The second includes all those studies which were focused on the micro and macro determinants of health status and morbidity and the third consists of studies estimating the cost and/or burden of morbidity. While analysing the literature it was found that many studies had covered more than one aspect related to the present investigation. Such studies have been cited in all the relevant/concerned areas as per the focus of that piece of literature. Some of the studies, not falling in broad classification of the review of literature have also been included as they were considered important due to their focus on the area of the present study. Their review has been included in the miscellaneous section at the end of the present Chapter.

I. Studies on profile of morbidity

Shariff (1995) studied the patterns and determinants of morbidity across major Indian states. The study was based on the primary data collected from 6354 rural and 12,339 urban households surveyed during 1993 by the National Council of Applied Economic Research (NCAER). The author found the higher incidence of morbidity among the very young (0-4 years) children and old age groups of population. He also found a significant geographical, gender, education and income differentials of morbidity. The study highlighted the fact that prevalence of morbidity was found to be higher among females, and those residing in Rajasthan, Madhya Pradesh and Orissa. The study came out with yet another important fact that prevalence of morbidity was also found to be higher in the urban areas and among the low income households.

Duraisamy (1998) examined the levels, differentials and determinants of morbidity in Tamil Nadu based on NSSO surveys on morbidity conducted during 1973-74 and 1986-87. He found that the prevalence of sickness had increased during this period. The incidence of morbidity was found to be
higher in the urban as compared to rural areas and among the males as compared to the females. While the prevalence of communicable diseases noted to be concentrated in younger age groups, whereas aged people were found to be suffering more from non-communicable diseases. Morbidity found to decline with higher levels of education. It was also found that about 20 per cent of the patients could not get medical treatment due to financial constraints. The author recommended the need for targeted health interventions to tackle the higher incidence of morbidity among children and elderly population.

Crimmins and Saito (2000) studied changes in prevalence of illness among older (70 years or more) Americans from 1984 to 1994 by using information for 7541 and 8765 aged persons collected during 1984 and 1994 through National Health Interview Surveys. The authors examined the changing profile of morbidity by grouping diseases in three groups namely; mortal diseases (heart diseases, hypertension, stroke, cancer and diabetes), morbid conditions (arthritis) and impairments (cataracts, blindness, hearing problems and dizziness). On the whole the study came out with the fact that prevalence of diseases increased four fold among the older Americans. For men, most of the increase was due to rise in mortal conditions whereas among women, the increase was mainly due to rise in morbid conditions. The proportion of men and women without any disease also declined over time. The largest increase in prevalence of disease has been found for heart diseases and cancer, which emerged as the two leading causes of old age mortality. The authors attributed the rise in these two mortal diseases to increased longevity and extended survival for people with these diseases.

Gumber (2001) utilised the data for 11,378 rural and 7912 urban households from five major states, namely Gujarat, Maharashtra, Tamil Nadu, Uttar Pradesh and West Bengal to estimate the different dimensions of cost and burden of injury in India. He found that in these five states, 3.8 and 2.3 per cent people in rural and urban areas respectively, suffered from one or the other type of injury. The incidence of injury was found to be higher among the
younger age groups, never married males, people from low economic status and among those living in urban areas or employed in manufacturing industrial units.

Dilip (2002) examined the prevalence of morbidity and hospitalisation in Kerala while using data from 2850 and 2078 households in rural and urban areas, respectively, collected by the National Sample Survey Organisation (NSSO) during its 52nd Round Survey on Healthcare in 1995-96. On basis of the logistic regression analysis, he found that age, gender, place of residence, season and economic status has significant impact on morbidity and hospitalisation in Kerala. The burden of ill health was found to be higher in rural rather than urban areas. Both morbidity and hospitalisation differed significantly across regions; higher in relatively developed region of Southern Kerala as compared to that of Northern Kerala. Contrary to the general perception both the prevalence of ailment and hospitalisation were found to be higher among the better-off segments of the population. The author suggests that the differences in high morbidity and hospitalisation in developed areas and well-off people might be artificially created by better physical accessibility to healthcare services in developed regions and higher capacities of well-off to seek health care services.

Krishnaswami (2004) conducted a study on the 38,400 rural and urban households of Kerala in 2002 to identify the incidence of morbidity and its consequences. It was found that the prevalence of morbidity was higher among the children of 0-4 years age group (incidence 164 for 0-4 years and 58 for all age groups). The prevalent rate of morbidity was more for chronic diseases than that of acute diseases. Among the acute diseases, water-borne, respiratory and fever accounted for 73 per cent of overall prevalence of acute morbidity in the State. Further, diabetes, blood pressure, asthma, rheumatism and heart ailments were found to be the major chronic diseases in Kerala, which accounted for over 70 per cent of the chronic morbidity. The study found that age and gender had significant association with prevalence of morbidity. While the incidence of acute diseases declined with age whereas
the risk of chronic diseases increased. The study found considerable gender differences in morbidity as females tended to suffer more as compared to males. However, the treatment cost of morbidity was found to be lower in case of females. Contrary to general belief, incidence of morbidity was found to be higher among Christians and upper class Hindu families in Kerala. Both acute and chronic morbidity was found to be lower among scheduled castes/scheduled tribes (SCs/STs) and Muslim households. Acute morbidity increased during monsoon season. Chronic morbidity was higher in urban areas. Notwithstanding a strong public healthcare system, only 2 per cent of patients visited primary health centres (PHC) in Kerala. Moreover, only 34 per cent patients relied on government healthcare services. The financial burden in the form of direct costs and income loss due to illness in Kerala was found to be as high as Rs. 327 per household per month. The author recommended rejuvenation of the PHC system to enhance its effectiveness at par with the hospital level healthcare in the State.

National Commission on Macroeconomics and Health (NCMH, 2005) besides examining various aspects of health in India also estimated the number of people suffering from various diseases in the country. The Commission identified 17 major health conditions in terms of their contribution to India’s disease burden. These conditions together constituted over 80 per cent of the sick people of the country. The burden of communicable diseases, HIV/AIDS, Tuberculosis (TB), Malaria, Diarrhoea, Acute Respiratory Infection (ARI) and Maternal health accounted for half of India’s disease burden. Among the non-communicable diseases, the Commission estimated the number of cases of Asthma and Chronic Obstructive Pulmonary Disease (COPD), Cancers, Diabetes, Cardio Vascular Diseases (CVD), Blindness and Injuries. Estimates by Commission have been provided in the Table 2.1. The Commission identified diarrhoea, mental health, COPD/asthma, diabetes and cardio vascular ailments as the top five major causes of illness in India. As per its estimates, about 242 million people in the country were suffering from these five ailments during 2005.
Apart from current estimates, Commission also projected likely number of persons suffering from selected ailments in the year 2015. Barring leprosy and blindness, number of cases for rest of the ailments would increase during the next decade. The Commission projected a phenomenal rise in the cardiovascular and HIV/AIDS cases in India by 2015.

### Table 2.1: Disease-wise estimated number of cases in India, 2005 and 2015

<table>
<thead>
<tr>
<th>Type of ailment(s)</th>
<th>Number (in lakhs)</th>
<th>Projected Number (lakhs) 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I. Communicable diseases</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>85.00</td>
<td>NA</td>
</tr>
<tr>
<td>HIV/AIDS</td>
<td>51.00</td>
<td>190.00</td>
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<tr>
<td>Diarrhoea diseases episodes /year</td>
<td>760.00</td>
<td>880.00</td>
</tr>
<tr>
<td>Malaria &amp; other vector borne conditions</td>
<td>20.37</td>
<td>NA</td>
</tr>
<tr>
<td>Leprosy</td>
<td>3.67</td>
<td>0.00</td>
</tr>
<tr>
<td>Otitis media</td>
<td>3.57</td>
<td>4.18</td>
</tr>
<tr>
<td><strong>II. Non-Communicable conditions</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cancers</td>
<td>8.07</td>
<td>9.99</td>
</tr>
<tr>
<td>Diabetes</td>
<td>310.00</td>
<td>460.00</td>
</tr>
<tr>
<td>Mental health</td>
<td>650.00</td>
<td>800.10</td>
</tr>
<tr>
<td>Blindness</td>
<td>141.07</td>
<td>129.96</td>
</tr>
<tr>
<td>Cardiovascular diseases</td>
<td>290.00</td>
<td>640.00</td>
</tr>
<tr>
<td>COPD and asthma</td>
<td>405.20</td>
<td>596.36</td>
</tr>
<tr>
<td><strong>III. Injuries</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deaths</td>
<td>9.80</td>
<td>10.96</td>
</tr>
<tr>
<td>Number of hospitalisations</td>
<td>170.00</td>
<td>220.00</td>
</tr>
</tbody>
</table>

Source: GOI (2005); Report of the National Commission on Macroeconomics and Health, New Delhi, Ministry of Health and Family Welfare.

Navneethan et al (2006) examined the pattern and determinants of morbidity in Kerala on the basis of data collected from 3320 households covering three districts of Kerala. The authors found that every fourth person in Kerala was suffering from one or other type of disease during 2004. The pattern of morbidity varied considerably across districts and socio economic groups of population. The prevalence of morbidity was found to be more
among the urban areas, females, Hindus and Christians, scheduled castes (SCs) and scheduled tribes (STs), illiterates and non formal literates and economically lower segments of the population. The study revealed that the 10 most important diseases in descending order in Kerala were diseases of bones and joints, hypertension, viral fever, diabetes, common cold, asthma, neurology/psychiatric, cardiovascular, cough and acute bronchitis. The study found that the prevalence of communicable diseases had declined to some extent whereas non-communicable diseases were on the rise and dominated the morbidity profile of Kerala.

Dilip (2007) using data on morbidity collected during the 60th NSSO Round of 2829 households in Kerala analysed the differentials in reported health status of people and compared morbidity with other regions of the Indian sub-continent. He found that reported morbidity and the duration of life lived with a disease was higher in Kerala as compared to other states of India. Within Kerala regional differences in the prevalence of morbidity were significant across all age groups. The author found that median duration of acute ailments was seven days in Kerala, compared with five and six days in Bihar and India, respectively. Similarly, median duration of chronic ailments was highest in Kerala (730 days), compared to 365 days in India and 90 days in Bihar. A large proportion of the elderly in the State had been suffering for more than three years due to one or more than one chronic ailment. The risk of reporting as ill was higher in the Scheduled Castes/Scheduled Tribes (SCs/STs), Christians and among the rich. Of all the ailments, proportion of chronic ailments was more in Kerala (43 per cent) compared to that of 35 per cent in India and 21 per cent in Bihar.

Ghosh and Arokiasamy (2007) analysed the trend, pattern and determinants of morbidity in India using information from 1995-96 and 2004 NSSO survey’s on morbidity. They found a high incidence of morbidity in demographically and socially advanced States of Kerala and Punjab. They also indicated higher prevalence of illness in 0-4 years age group children and amongst persons above 60 years. The study also revealed that people from...
the schedule castes and scheduled tribes communities were found to have comparatively low incidence of morbidity. Prevalence of illness found to be more in rural areas and females whereas it was low among the educated people. The changing of seasons found to have significant bearing on health status as morbidity increased during January to March months. The authors also found a striking regional difference in prevalence of morbidity as it was higher in the southern and western states of India, when compared with other regions of the country. The authors concluded that India is passing through an advance stage of epidemiological transition whereby many communicable diseases are being replaced by modern life related chronic diseases.

Based on the past and present trends, Muth and Doblhammer (2007) determined future trends and underlying structures of morbidity and mortality in Europe. Their study supports the common opinion that disability would decline further in developed countries. Though they found no clear cut evidence on whether compression or expansion of disability would take place in future, yet their empirical evidence suggests the compression of disability during the last years of life. They also found different trends between socioeconomic groups, which they expected to persist in the near future as well. Their review of scientific evidence suggests that life expectancy would increase in the next decade though they found no common opinion on how large would be the further gain in the life expectancy.

Nayar (2007) explored the linkages between the indicators like social exclusion, caste and health in India by using data generated by the National Family Health Survey-II, 1998-99. Choosing data on prevalence on anaemia, diarrhoea, infant mortality rate (IMR), maternal health care and childhood vaccination among different socio economic groups, the author found strong association between caste and health status among people in India. The study also indicates that the caste-health linkages suggest the complexity of poverty in India, which needs to be addressed through multi-dimensional paradigm. He emphasised the need of adopting holistic epidemiological perspective over the pure technical approaches in achieving better health status in the country.
Suryanarayana (2007) examined the economic profile of morbidity by diseases prevalent in Kerala and all India by estimating the ‘Engel Elasticities for Diseases’. Diseases were classified as those associated with affluence and deprivation. Using household level data from the 60th NSSO Round (2004), he found higher morbidity among the rich as compared to the poor sections of the society. However, the same was not uniformly valid across diseases. On the basis of ‘Engel Elasticities’, he found that coronary heart diseases, diabetes and hypertension were those having elasticity exceeding one. Consequently, author argued that these diseases are associated with affluence in India. However, none of these could be regarded as luxury disease in Kerala. The author argued that some underlying processes in Kerala were responsible for a shift in epidemiology of diseases which led to the convergence of the diseases of affluence and deprivation in the state.

Patil et al (2008) analysed the pattern of road traffic injuries in Western Maharashtra, India. The authors collected information about all the 350 cases of road traffic injuries admitted to Krishna Hospital and Medical Research Centre, Karad, Maharastra during the one year period from 1st May 2003 to 30th April 2004. The study highlighted that of the 350 cases of road traffic injuries, more than 80 per cent were males and about two-third of the victims were in the most productive age group of 15-44 years. Thus the authors found a big gender difference among victims as more than three-fourth were males. The authors analysed the accident victims by road user categories and it was revealed that half of them were the vehicle occupants, 37 per cent were drivers and rest 13 per cent were pedestrians. The authors found that most of the drivers involved in accidents were driving two-wheelers, in younger age group, not having valid driving licences, driving at high speed and consumed alcohol. In the end of the study, the authors recommended the need to control many of these factors to prevent the mortality and morbidity associated with road accidents.
II. Determinants of morbidity

Verbrugge (1984) while using the National Health Interview Survey (NHIS) of late 1960s and 1970s analysed the trends in morbidity and mortality of middle aged and older persons in the USA. He found that decline in mortality during this period was accompanied by increased incidence of morbidity. People lived longer life but with worsening health. The author explored this paradox by analysing the trends in morbidity due to acute, ‘killer-chronic’ and ‘non-killer chronic’ group of diseases. He found that though incidence of acute illness dropped but restricted activity and bed disability due to them increased. Incidence of killer-chronic diseases (those which were leading causes of death viz., cancer, heart disease, hypertension etc.) has risen both in prevalence and limitations of patient activities. In non-killer chronic diseases group (those which seldom cause death) arthritis, other musculoskeletal disorders and chronic sinusitis had also risen both among middle age and old age groups. However, the less prevalent diseases in non-killer category showed declining trend over the time. Further, the author found that the most probable reasons for worsening health were increased awareness of people about their diseases due to early diagnoses, declining population mortality rates and earlier accommodation for diseases in terms of change in job and activities, more flexible employer policies, enhanced social support system and public assistance programs, pension plans and health insurance. The study revealed that declining trends in mortality in USA had mainly resulted from better medical care of diagnosed cases, earlier and self care after diagnosis and decreasing incidence of some chronic diseases.

Dasgupta (1990) studied the child mortality in rural Punjab by focusing on death clustering, mother’s education and mortality determinants. She explored the impact of biological, social, economic and behavioural determinants of high child mortality in rural Punjab. She found that in spite of favourable child survival conditions in the state, high child mortality resulted mainly from the inadequate attention paid to health care practices in the state. Child survival was found to be significantly influenced by women’s autonomy,
social status and mother’s education. She argued that education helped women to overcome the barriers set by low autonomy and low social status. She found conclusive evidence that child mortality was highly clustered within families. These death clustering factors found to be influencing the child survival even when the biological and socio-economic factors were controlled. She mainly owed death clustering to basic abilities and personality characteristics of the mother. Her study supported the replacement hypothesis which linked child mortality to fertility. She recommended the public policy to ensure adequate nutrition and availability of health services to improve child health in the state. She argued that this must be complimented with policies that enabled people to effectively deal with their own health care by improving their formal education, disseminating health information and increasing capabilities of the population as a whole.

Kumar (1993) tried to resolve the apparent puzzle of low mortality and high morbidity in Kerala. Notwithstanding the well-known high health status of the people of Kerala, the prevalence of morbidity both in rural (71.21) and urban (61.84) was not only highest among the Indian states in 1973-74 but it was found to be more than three times of overall prevalence of (23.00) morbidity in rural (22.46) and urban areas (22.77) for the country as a whole. The study also revealed that the prevalence of almost all chronic diseases was much more in Kerala than the all India level. However, the average duration of illness was comparatively low in Kerala as against the major states and country as a whole. Contrary to the morbidity, the author found that proportion of deaths due to major diseases in Kerala was low as compared to the country as a whole. The author argued that the paradox of low mortality and high morbidity was probably due to: (i) statistical illusion – a problem with NSSO estimates; (ii) perception of Keralites due to higher education and awareness levels; and (iii) due to increased longevity. In order to resolve this enigma, the author conducted a primary survey in two villages and found the validity of statistical illusion to a certain extent. He also found the validity of second argument that awareness was higher among people of Kerala which resulted from almost universal literacy in the state. The author also accepted
the third explanation of high morbidity resulting from longer life expectancy in Kerala and higher incidence of many chronic diseases associated with old age.

Deolalikar and Laxminarayan (2000) examined the socio-economic determinants of disease transmission by using 'Karmerk-Mackenrik Disease Transmission Model' on a data set of 6010 households collected from 474 villages in Cambodia surveyed during 1997. The study found that the likelihood of disease acquisition had risen substantially for persons living in close proximity to infected individuals. On the other hand, higher level of living, better hygiene practices, availability of doctors and physical exercises played a protective role in reducing the disease transmission. The probability of a person falling ill was also reduced with improved access to safe drinking water and availability of toilet. Due to high negative public externalities associated with infectious diseases, the authors recommended the need for timely medical treatment to reduce the likelihood of transmission to healthy individuals. Moreover, the authors also stressed upon the need for public health treatment interventions such as medical camps and mobile clinics to check the transmission of infectious diseases to healthy individuals.

Duraisamy (2001) examined the determinants of health status and choice of curative health care of children, adults and aged in rural India using NCAER-HDI national level data for 1,94,486 persons for the year 1994. Using the household demand framework and Probit and Tobit Models he found a 'J' shape relationship between age and morbidity. Education and income found to reduce the risk of morbidity whereas the weaker sections of the society faced higher risk of sickness. The author found a strong empirical evidence of smoking raising morbidity significantly among adults and the elderly. Besides the individual specific determinants, the study revealed that the village level infrastructure facilities, like good connecting roads and health services, also led to health improvements of the people. Besides examining the determinants, author also studied the health seeking behaviour of the sampled individuals. He found that the primary level education, high income,
better village level amenities and infrastructure motivated people to choose private health care services over any other type curative health care facilities.

Sunder and Sharma (2002) examined the prevalence of morbidity and utilisation of healthcare services among the population living in slums and resettlement colonies of Delhi and Chennai metropolitan cities of India. The study was based on household survey of 2000 poor and low income households, living in slum clusters and resettlement colonies, conducted by the NCAER during April-July 2000. Compared to slum dwellers, the study found a better health status of people living in resettlement colonies. The authors attributed this difference to better living environment and basic amenities like pucca house, better access to water supply and drainage facilities, better household sanitation and environment like separate cooking space and toilet facilities. Further, the authors concluded that significant health gain could be achieved by improving environment and sanitation in existing slums or by relocating the slum dwellers in the resettlement colonies. Authors also suggested the need for providing free healthcare services in the slums/resettlement colonies as significant proportion of sick people, particularly the aged, could not seek/get treatment for want of finance. Furthermore, the authors recommended the need for financial protection of poor in slums and resettlement colonies as most of them were employed in the formal or unorganised sectors and incurred substantial expenses on the treatment of ailments. This included exemption to them from paying user charges in government hospitals and to cover them under the social insurance schemes.

Kim et al (2003) examined and quantified the impact of 1997 economic crisis on morbidity and health care utilisation in the Republic of Korea. They compared the information collected from two national surveys undertaken before (1995) and after (1998) the Korean economic crisis. They found that the morbidity rate rose substantially from 39.4 per cent in pre-crisis to 66.6 per cent in post-crisis period. The rise in morbidity occurred significantly both for chronic and acute diseases. However, the rise in morbidity was more due to
chronic diseases (27.1 per cent) compared to acute diseases (9.1 per cent). On the contrary, medical care utilisation rate declined from 69.7 per cent to 59.5 per cent during the crisis period. During the post-crisis period, the utilisation of out-patient and in-patient services also decreased by 15.1 per cent and 5.2 per cent, respectively. The pace of decline in utilisation rate was highest for behaviour disorders (13.7 per cent), cardiovascular diseases (7.1 per cent) and injuries (31.6 per cent). The authors argued that the higher morbidity resulted from unemployment, reduced household income, restricted access to health services, mental stress accompanied by the economic crisis in the Republic of Korea.

Navneethan et al (2006) examined the pattern and determinants of morbidity in Kerala on the basis of information collected from 3320 households from the three districts of Kerala. The authors found that income levels and age of the persons significantly determined their health status. The poor were found to be at greater risk from viral fever and influenza whereas the rise of diabetes and hypertension was more among the richer sections of population. Risk of many of chronic diseases like diabetes, hypertension and those of the bone and joints and cardiovascular diseases increased rapidly after 35 years of age.

Shehzad (2006) explored the determinants of child health by using ‘LISREL’ and ‘MIMIC’ models on micro household level data, from Pakistan’s Health and Demographic Survey 1990-91 - collected by Institute for Resource Development (IRD) and Macro International Inc. The author found that childhood ailments like diarrhoea, acute respiratory infections and fever were affected by family size, housing conditions and parental education. Child’s permanent health status facilitated their quick recovery from the disease. Large family size tend to deteriorate permanent health of the children. Similarly, family size also produced more respiratory infections through person to person transmission or contact. On the contrary, better education of parents enabled them in improving their health awareness and hence produced better health of the children. The results of the study confirmed the
Review of literature

‘Chicago - Colombia School’ thesis that child’s quality is a normal good; i.e. increased parental income induced demand for more child health care services. Findings of the study also conformed that the syndrome of poverty and large family size extends from one generation to the next. Towards the end the author recommended that the incidence of many ailments could be reduced with improved access to amenities like piped water, sanitation and electricity etc.

Kokiwar et al (2007) estimated the prevalence of diabetes in Nagpur district of Maharashtra and its association with various factors related to health. The authors tested 924 persons aged 30 years and above for diabetes using 75 grams oral glucose tolerance test. They found that 3.67 per cent of persons tested were observed to be diabetic, 5.96 per cent were of ‘impaired glucose tolerance’ and 3.57 per cent ‘impaired fasting glycaemia’. Analysis of the diabetes and abnormal glucose tolerance (AGT) indicated that the probability of diabetes was higher among persons from upper socio-economic class and having family history of diabetes, sedentary physical activity, increased body mass index (BMI) and excessive intake of alcohol.

III. Burden of morbidity

Sen and Basu (1972) estimated the direct and indirect economic cost of tuberculosis (TB) in India. The authors found that the amount of direct expenditure incurred on TB control programme was very less compared to overall economic loss due to TB deaths. Compared with Rs.29.68 crore spent by Government on TB control programme in 1970, economic loss due to TB deaths ranged between Rs.304.96 crores to Rs. 420.45 crores, depending upon the rate of discount used. The authors recommended the expansion of TB prevention and curative programmes to avoid such huge economic losses to the society.

Wilkes et al (1997) studied the impact of large medical expenditure on household’s livelihood and wellbeing in order to understand how households cope with the cost of severe illness and high medical cost with an aim to
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identify the possible strategies that enable households to cope better with illness in rural China. Following focus group discussion, rapid appraisal techniques and individual semi structured questionnaire, authors identified four households with highest health expenditure ratio in each of the seven selected villages in 1993. Each of these 28 high expenditure households was paired with another household having same level of per capita income but low medical expenditure ratio (less than 2.5) in 1992. Both high and low expenditure households visited in 1995 were revisited in 1996 to collect information about past major illness events, expenditure incurred and coping strategies adopted to deal with illness and expenditure incurred thereof. The study found that most households were able to finance their health expenditure without any adverse impact on production and income of the household. Informal social network by extending financial and labour support played crucial role, enabling households to cope with ill-health and burden thereof. Social networks were particularly strong in regions which experienced substantial economic growth compared to those areas where it declined. The households who were less able to cope with burden of ill health were also facing the credit constraint. Consequently, they were forced to dispose off the core productive assets and diverted potential expenditure from productive investments. For four of the high expenditure households, income during survey period declined, assets depleted and access to social network lost putting them to the higher future crisis. During the survey, information was also collected through focussed group discussions using rapid appraisal methods and semi-structured interviews to identify the extremely poor household and their coping strategies to deal with ill health. They were found to be facing great difficulty in paying for health services. While many of them were unable to seek treatment for ill health, whereas others either sold their meagre productive assets or sought medical treatment from cheaper sources or private clinic permitting deferred payments. For many of these extremely poor, chronic or frequently recurring illness over many years, caused permanent disability and rendered them unable to work. The study found that present informal mechanism in rural China does not protect the destitute
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against catastrophic illness. The authors recommended the need for some safety nets for such extremely poor households. The authors identified the low initial income, sole earner, poor asset base, low social capital, prolonged and repeated episodes of illness as the factors that are likely to predispose households in dire need for such safety nets.

Gumber (2001) utilised the data for 11,378 rural and 7912 urban households from five major states namely, Gujarat, Maharashtra, Tamil Nadu, Uttar Pradesh and West Bengal to estimate the different dimensions of cost and burden of injury in India. The author found that the severity and treatment cost was much higher for injury as compared to other diseases. While comparing an overall average for all ailments, injury required 3-4 times higher hospitalised treatment. Although share of the injured among all sick persons was small (3 per cent in rural and 4 per cent in urban areas), 11 per cent of the hospital patients were found to be suffering from injuries. Most of the injured patients preferred public facilities due to lower cost considerations. The study also revealed that financial burden of direct treatment cost for injury was higher than other diseases even after controlling the correlates like socio-economic status, origin of residence and type of health services used. Due to higher burden of injury treatment, especially among the non insured and low income households, the author suggested the need for targeted health insurance, creating awareness of road safety measures, strengthening of trauma and emergency health services and devising better road and traffic management to deal with the rapidly emerging problem of injuries in India.

Health Canada (2002) brought out a report on ‘Economic Burden of Illness in Canada’, 1998. The total cost of ailments in Canada, by using prevalence based approach to estimate all direct and indirect costs, estimated to be Canadian $159.4 billions; $84.0 billions as direct cost and $75.5 billions as indirect cost. For mortality costs, an incidence based human capital approach was used. The direct cost estimates included hospital care, drugs, physician care and expenditures for care in other institutions as well additional health expenditures (including fee for other professionals, capital public health, prepayment administration, health research etc.). However, the
estimates excluded the other direct costs, like transportation, special diets and special clothing borne by the patients. Indirect cost estimates were based on value of output foregone due to illness, disability, and premature deaths. Estimates also brought out that the mortality costs, morbidity costs, hospital care, and additional direct health expenditures together accounted for 73.7 per cent in overall economic burden of illness in Canada. The five major ailments in terms of their direct cost burden identified in the report were: cardiovascular diseases (8.1 per cent), mental disorders (5.6 per cent), digestive diseases (4.2 per cent), respiratory diseases (4.1 per cent) and injuries (3.8 per cent).

McIntyre and Thiede (2003) reviewed the studies dealing with economic and social consequences of high medical expenditure by estimating the direct cost as percentage of household income. In all 62 studies were reviewed by the authors, which highlighted that among 11 developing Asian and African countries the estimated direct cost of medical treatment varied substantially across countries; from 2.5 per cent for Paraguay to about 10 per cent for Uganda and 16 per cent for Guatemala. In majority of the studies reviewed, the authors found that the health care expenditure was less than 10 per cent of household income. The share of household income spent across individual households and according to the type and access to health care services or social security system. Hospitalisation in low income group posed catastrophic costs on individual households. The authors pointed out that even the birth of a baby could result in significant financial consequences for households in those countries where substantial fees were charged for maternity care. Some long term fatal illnesses like AIDS had devastating effects on households as the direct costs of AIDS treatment constituted as much as 64 per cent of household income. Further, the authors also pointed out that the indirect costs were frequently ignored in the studies on the consequence of ill health for households. There was enough empirical evidence of indirect cost constituting a substantial part of economic burden of diseases. In the end the authors suggested the need of adequate
documentation of the same in any study concerned with the economic consequences of ill health.

Bahl et al (2004) estimated the cost of illness due to typhoid fever by undertaking one year prospective surveillance in an urban slum located in Delhi. By taking 98 culture positive typhoid cases, 31 culture positive paratyphoid cases, 94 culture negative cases with clinical typhoid syndrome, the authors estimated Rs. 3597 as mean cost per episode of blood culture typhoid fever. The hospitalisation increased the cost by six fold to Rs. 18,131. The study highlighted the need for affordable typhoid vaccines efficacious at 2 to 5 years of age, as then currently available Vi-vaccine was affordable but not efficacious in the first two years of life cycle of typhoid.

A review of cost of illness and coping strategy studies, focusing on malaria, tuberculosis and HIV/AIDS by Russell (2004) revealed considerable variations of economic burden across diseases and countries. For instance, reviews of a study on malaria undertaken by Chima et al (2003) showed that the total direct cost of malaria prevention and treatment per month varied 13 times across countries; from $0.6 for Malawi to $5.9 for Cameroon. As compared with Malaria, average household spending on tuberculosis was higher and ranged from $50 for Tanzania to over $130 for Bangladesh. The cost burden of Tuberculosis treatment found to be very high, absolving about 8 to 20 per cent of annual income of the affected household. Russell’s review further revealed that the direct cost of HIV/AIDS were catastrophic, absolving 50 to 100 per cent or more of the annual income of the affected households. Even the health care expenditure on AIDS patients varied considerably from 8.4 per cent for Cote d'Ivoire to 13 per cent of the annual income of the households in South Africa. Evidence collected by the author also revealed that the direct cost of health care was regressive, imposing greater burden on poor families as against the better off families in these countries. In Vietnam the poor households spent as much as 19.4 per cent of their household income on health care where as the rich households spent only 3.4 per cent of their income on treatment of all ailments. The review also indicated that the
economic burden of hidden/indirect cost of illness incurred by the affected households was double of the direct costs. Results of Zambian study indicated that the indirect costs were found to be much higher in case of patients suffering from tuberculosis, as it constituted about 75 per cent of the total economic burden of tuberculosis. Both direct and indirect illness costs in Zambia constituted as high as 11 per cent of household’s income. The review on financial burden further highlighted the coping strategy which varied across households depending upon household asset portfolios (that constituted human, physical, financial assets) and other intangible social sources. The author concluded that consequences of illness included reduction in income and consumption of basic needs, withdrawal of children from school, sale of productive assets, reduced further income and impoverishment, dissolution of households, and emotional trauma and stress.

Based on intensive longitudinal survey of 16 households in urban Sri Lanka, Russell (2005) built a strong case for longitudinal case-study research to improve understanding of economic burden and additional policy insights for better protection of households from high cost burden and to improve resilience. He argued that the case-study approach views illness events and responses within the household more holistically by facilitating the analysis of inter-connectedness of events that shape household responses and their ultimate impact on household economy. The information generated by such approach provide rich policy related data that otherwise is missed in conventional survey approaches. The conventional survey figures generally underestimate illness-cost burden and associated implications and hence policy responses; particularly in case of low income households. This is mainly because burden usually peaked over short periods and certain types of illness costs are hidden. Russell argued that the information generated by case-study facilitate better interpretation of survey data that describe cost burden across whole population and for various socio-economic groups. The case-study approach, argued by Russell, generates better insight to understand the demand side treatment behaviour for acute and chronic conditions. From the analysis of 16 case-studies Russell found that many
weaknesses like long waiting time, poor doctor patient interaction, health worker’s attitude discouraged uptake of public services for common acute illness. Consequently this pushed people towards the private sector, leading to undermining the protection to the poor provided by the public health services. He argued that such dimensions could be better identified and taken care off for needed improvement in better provisioning of desirable health services. Russell through his intensive study approach found that the social network and the formal and informal institutions played crucial role in enabling people to cope with health burden. Since the poorest households had both weak social network and unreliable access to financial institutions, author argued for multi-pronged approach through the government and NGOs interventions to increase resilience to illness related shocks and to mitigate illness induced impoverishment. Given the rich insight provided by such longitudinal research, author identified a big scope of such studies on economic burden of serious illness having long term impacts such as TB, HIV/AIDS and range of chronic illnesses increasingly prevalent in developing countries.

Duraisamy et al (2006) estimated the direct and indirect cost of treatment and financial burden of HIV/AIDS by using information for 153 HIV/AIDS patients receiving continuum care in a NGO centre at Chennai. The study highlighted that mean direct cost over a six month period was Rs. 13,977. Medical expenditure constituted 90 per cent of the direct cost. The patients with advanced stage of the disease were found to be spending 4 times more than the patients in the symptomatic stage. However, burden of treatment varied considerably across income groups. While in the poor segment medical cost consumed as much as 82 per cent of entire household income, whereas the upper income group spent 28 per cent of their income on treatment. The study also found considerable indirect loss of household income due to foregone income, fringe benefits and workdays lost due to HIV/AIDS. The authors found that major source of finance were borrowings (67 per cent), past savings (16 per cent), sale of assets (8 per cent) and mortgage of assets (7 per cent). The authors recommended many policy
suggestions for public health interventions to deal with the problem. These included creating awareness about the sources of HIV/AIDS among the potential targets, providing affordable treatment for low income HIV/AIDS infected persons, designing viable health insurance schemes, providing micro credit to HIV/AIDS households and strengthening the role of NGOs and community in tackling the problem of HIV/AIDS in the country.

Gupta et al (2006) estimated total burden of cardiovascular diseases (CVD) in Kerala following the cost of illness approach (direct, indirect cost and value of lives lost). Utilising the area and age specific morbidity and mortality estimates, the study found a huge economic burden of CVD diseases in Kerala amounting to Rs. 9868 Crores for rural and Rs. 6324 Crores for urban areas. The direct cost constituted about a third of the total CVD burden whereas the rest was the income foregone due to the prevalence of CVD related problems. The study recommended the need for more emphasis on preventive measures which may prove to be more cost effective approach to deal with the CVD diseases. This required, as the study suggested, more authenticated information on area, demographic and socio economic factors associated with the different CVD diseases.

Nixon and Ulmann (2006) examined the relationship between health care expenditure and health outcomes. Taking a panel data set for 15 member countries of the European Union, the authors analysed the effects of health care expenditures, access to medical care (number of physicians), nutritional intakes and prevalence of pollution on three common health indicators namely, life expectancy of males and of females and infant mortality. The authors concluded that the healthcare expenditure was one of many quantitative and qualitative factors that contribute to health outcomes. It was found to be significantly associated with large improvements in infant mortality but made only small contribution towards the improvement in male and female life expectancy. The author’s estimates revealed that the health care expenditure tend to reduce infant mortality rate (IMR) by 78 per cent but it led to marginal improvements in male life expectancy (2.6 years) and female
life expectancy (2.8 years). A large proportion of the health outcomes in terms of life expectancy was found to be associated with country specific characteristics, overall expenditure, medical care, nutrition intake and prevalence of pollution.

Smartrisk (2006) analysed the economic burden of injuries in Ontario State of Canada. The study revealed that in 1999, 4044 people died and over 5,70,000 people suffered due to one or other type of injury. The authors found that about 65 people in Ontario were injured every hour and about 11 of injured died each day. About 13 per cent of injured were hospitalised and the rest did not require hospitalisation. About 3 to 4 per cent of total injured were disabled either partially or permanently. The study estimated that the total annual cost of injuries amounted more than $ 5.7 billions when both direct and indirect costs were included. The estimates indicated that unintentional, intentional and undetermined intent injuries accounted for 78 per cent, 19 per cent and 3 per cent of the total cost of injuries, respectively. A significant inter-regional variations, in the incidence, severity and economic cost associated with injuries was found across seven regions of Ontario. The North Ontario was found to have the largest total economic burden but the lowest injury hospitalisation and the lowest permanent disability rates. Injuries due to falls (of persons aged 55 years or above and children under 15 years of age) were found to be the most costly unintentional injuries, amounting to more than $1.9 billions a year. The falls were found to be followed by injuries due to vehicle collision, amounting to more than $1.1 billion a year. Amongst the intentional injuries, suicide and self inflicted injuries accounted for about 75 per cent of the total cost of intentional injuries, whereas the remaining injuries were inflicted due to interpersonal violence including fights, brawls, sexual assaults, cutting/piercing, child battering and other types of maltreatment. The study foresaw the opportunity to avoid a very high cost of injury burden in Ontario by investing in comprehensive injury prevention strategies, which include effective injury surveillance (who, how, being hurt and treated), research and evaluation, effective dissemination of information and evidence based programs and policies.
Kapur (2007) conducted an economic analysis of diabetes care using information collected from 5516 diabetic patients in Bangalore urban district of Karnataka. He found that on an average, a diabetic patient incurred a direct cost of Rs.7158 per annum on treatment of diabetes. However, the cost varied significantly with severity of the disease and in-patient/out-patient type of treatment. The author found that many socio-economic factors like education, awareness, place of residence, employment status, access to health delivery and diagnostic facilities and socio-economic status impacted on the outcome of diabetes and its resultant consequences. It was also found that illiteracy and access to minimum health care and diagnostic facilities were the factors that influenced delay in diagnosis that further complicated the problem of diabetes. Due to late diagnosis, complications acquired advanced expensive care that drove many low income households to borrow heavily and enter into the vicious circle of debt trap. The author laid more emphasis on early intervention and proper treatment of diabetes in order to avoid the later stage complications and costly interventions.

The NGO ‘Save the Children’ (2007) conducted a study on 532 households in order to estimate the burden of ill health in Tanzania. They found that on an average, a family faced two to six episodes of illness every year. The average direct cost per episode came out to be 2850 Tsh. The average expenditure on chronic illness (4939 Tsh) was found to be more than three times of the cost of acute illness (1590 Tsh). The hospitalisation tremendously raised these costs to about 10 fold (15,337 Tsh). The study found that most of the people in Tanzania relied on traditional healers in the case of chronic ailments, which further complicated their problems. In order to attract these people to the modern health care system, the study recommended the abolition of user charges and upgradation and tuning of health institutions to suit the needs of the households and to enable them to cope with chronic illness.

Xu et al (2007) estimated the incidence and identified the determinants of households’ catastrophic health spending. The study was based on 116
household surveys undertaken during 1999 to 2003 in 89 countries covering 89 per cent of the World’s population. The authors found considerable variations in incidence of financial catastrophe across countries ranging from almost 0 per cent in Czech Republic, Slovakia and the United Kingdom to more than 10 per cent in Brazil and Vietnam. The average incidence of 2.3 per cent, according to authors, was not very high but in absolute terms 150 million people globally suffer financial catastrophe annually. Of these 100 million are pushed into poverty because of catastrophic health care spending. More than 90 per cent of such people are living in low income countries. Regression results of the determinants of household catastrophic spending revealed that increasing inequality in overall household spending tend to aggravate the financial catastrophe across countries in all income groups. The countries less willing or less successful in reducing income inequalities were unable to protect households from catastrophic spending. The authors found that neither the proportion of population under age 5 nor the proportion above 60 was associated with higher risk of financial catastrophe in the low and high income countries. The social health insurance protected people from financial catastrophe, better than tax base systems in middle-income countries. However, study indicated no difference between tax based and social insurance systems on the risk of catastrophic expenditure in low-income countries. The authors concluded that moving away from out-of-pocket payments to pre-payment mechanism was crucial in reducing financial catastrophe. However, the institutional structure, culture and traditions and level of economic development determined the choice between increasing pre-payment through taxes or some forms of insurance contributions. The authors emphasised the need of external funding in poor countries to supplement funds raised domestically for such purposes. Besides augmenting the pre-payment, the authors also strongly advocated for complementarily policies to reduce social inequalities for helping the poor households to reduce the exposure to financial catastrophe and escape from poverty.

The authors estimated both direct and indirect cost of illness based on self-reported illness episodes and their costs. The study revealed that the median cost per episode of illness was estimated to be Rs. 340. This constituted the 73 per cent of the monthly income of the affected persons and could reach even more than seven times of income level of the 10 per cent most exposed families. About 67 per cent of the total cost was in the form of direct whereas rest was in the form of the indirect cost. The cost of illness was found to be lower among females due to lower indirect costs. The study revealed that 61 per cent of total illness and 37.4 per cent of total out of pocket spending was due to acute illness. The chronic diseases constituted 77 per cent of illness and 32 per cent of costs. The authors found devastating financial impact of illness in general and hospitalisation of the poor population in particular. They recommended the need to develop location specific models for the delivery of affordable health care for poor in rural India.

Leive and Xu (2008) studied the coping strategies adopted by the African households in financing inpatient and outpatient medical expenses. They used data from 'World Health Survey 2002-03' for the 15 African countries. Every third household borrowed or sold assets to finance their medical treatment. Using logistic regression, the authors found that the probability of borrowing or selling assets was high among the low income households located in rural areas and headed by female members.

Morel et al (2008) examined the economic burden of malaria within Raglay ethnic minority located in the hilly and forest area of South Vietnam. 251 malaria patients were identified and interviewed in an exit survey at the community health centres. These identified patients were revisited after a gap of 2-4 weeks to get information on cost incurred for treatment, duration of illness, and other related characteristics of the respondents. In addition to this, information was also collected from health workers, vendors and community leaders about disease, income of the households and the market price of goods produce by the households to calculate the indirect costs of malaria burden. The authors estimated the direct and indirect cost of the incidence of
malaria. Authors found that although the treatment of malaria patients was free at community health centres, direct costs were low (0.69 USD) but the indirect costs were as high as 11.70 USD per malaria episode. Total estimated cost of 11.79 USD per episode, the authors argued, was a substantial burden on the poor households or the households experiencing multiple episodes of malaria. Authors argued that the potential gains that could be reaped in preventing malaria would be much higher than their estimated cost of 11.79 USD per episode due to cumulative impact of malaria episode on productive capacity of the people living in the study area.

Mavalankar et al (2009) estimated the cost of illness and vector control of chikungunya and dengue fever, following the cost of illness ‘RUHA matrix approach’ and ‘Monte Carlo sensitivity analysis’. Rs. 3.7 billion per annum was estimated to be the immediate cost of chikungunya and dengue in Gujarat. The authors pointed out that the social cost to the State is much more than the estimated cost, as it excluded the emotional and long term burden of illness and mortality, impact on tourism, education, economic growth, foreign direct investment (FDI) etc. in the State. Extrapolating the estimates from Gujarat to whole of India, they found that the immediate cost of chikungunya and dengue fever was approximately Rs. 61 billion for the country as a whole. Towards the end the authors recommended the need for more similar and rigorous studies on cost of these diseases and cost effectiveness of vaccines and other interventions adopted to combat these diseases in the country.

Kruk et al (2009) examined the frequency of borrowing money or selling assets to buy health services in 40 low and middle income countries during 2003 using data from the ‘World Health Survey 2003’ for 1,31,120 households representing 58 per cent of the world population. On average, 25.9 per cent of households borrowed money or sold assets to pay for health care. The authors found that 21.9 per cent and 9.9 per cent of the households borrowed money and sold assets respectively. In African countries mean prevalence of selling assets was similar to that of borrowings. In the overall sample, the larger sized households, those spending more on health care,
poorest 40 per cent of the population, and those reporting poor self-rating health were the most likely to use hardship financing. Moreover hardship financing found to rise with higher percentage of national out-of-pocket health spending and higher per capita income and declined with higher female literacy and wealth of the household. In the end authors underlined the need of reforms in health systems in developing countries to protect people from the financial risks of seeking health care. This included the reforms that increase the share of prepayment and expenditure on health services to avoid increasing economic burden and to promote health and reduce poverty in developing countries.

Somkotra and Lagrada (2009) examined the impact of Universal Health Coverage Scheme in Thailand on the risk of catastrophic health spending among Thai households. The study is based on the national representative household socio-economic survey of more than 24,000 households during 2000, 2002, 2004 and 2006. They found a significant decline in the incidence of catastrophic health spending in Thailand after implementation of universal health coverage scheme in 2002. The proportion of households incurring catastrophic expenditure (10 per cent of total consumption) declined substantially from 6.44 per cent during 2000 to 4.03 per cent during 2006. Relatively the poorest quintile of households were the main beneficiaries from the universal health coverage as their proportion incurring catastrophic expenditure declined to half from 5.6 per cent during 2000 to 2.3 per cent during 2006. Their analysis of determinant of catastrophic health spending revealed that compared to the poorest, the richest quintile of households were at the higher risk of catastrophic spending. The authors attribute this catastrophic outcome mainly due to voluntary choice of rich households for more costly private providers. Besides the richest quintile, the households with the largest proportion of elderly members, having any member with chronic illness or disability and those having any member hospitalised in the preceding year, were also found to be at higher risk of incurring catastrophic spending in Thailand. Households whose head had higher education, with the territory level education and were economically active, found to be less
exposed to the catastrophic spending even with implementation of universal coverage scheme in Thailand. The authors argued, the identified determinants of catastrophic expenditure could be used by policy makers to devise solutions to protect households from financial catastrophe.

**Miscellaneous studies**

Brett (2004) analysed the impact of medical expenditure on the risk of a family falling into poverty. Using a panel data for 29,592 families surveyed under ‘Survey of Income and Program Participation’ (SIPP-1996) programme, the author estimated that the impact of the characteristics of the head of the family (race, ethnicity, sex, age, income status, family size, and children under 18), set of working conditions (part time employment, full time employment), health insurance status of the family members (per cent of children insured), utilisation of medical facility by adults and children (visits to dentist, doctors, duration of stay in hospital and number of sick days) on the probability of family being pushed into poverty. The empirical exercise revealed that the family was most likely to be pushed into poverty if the head of the family was in poor or fair health and adult in the family went to doctor or stayed in the hospital for at least once a year. On the contrary, likelihood of impoverishment declined substantially if at least one adult in the family had full time employment for the whole year or all the adult members in the family were covered by health insurance. The author concluded that when a family does not had a full time worker, it was unlikely that it could afford health insurance at any cost. Providing health insurance for non poor families (without a full time, full year work), would lower the risk of impoverishment from out of pocket medical expenses significantly.

Chakraborty et al (2005) examined effects of health and infectious diseases on economic development. Using data set of 72 countries, authors used ‘Endogenous Growth Model’ and ‘Hansen’s Threshold Methodology’ to measure the effects. The results of the study revealed that prevalence of infectious diseases along with geographical factors played a crucial role in
shaping the development of tropical countries. The study suggested that significant health interventions were required to ensure the economic take off of the developing countries on a trajectory of self sustained growth.

Duggal (2007) analysed the criticality of public financing hypothesis of health and poverty in both the developed and developing countries. He found that poverty was virtually extinct from developed countries having strong public investments in health. Many developing countries like Costa Rica, Sri Lanka, Malaysia, Thailand and Iran, which had set up a universal health care system, had successfully broken the vicious circle of poverty. Author argued that India suffered from large scale poverty because of its inability to establish an organised universal health care system. Within India, the author found that low poverty in Kerala and Northern Eastern States was because of high public health investment and expenditures. In the end the author suggested the need enhancing public health expenditure from the current 1 per cent to 3 per cent of Gross Domestic Product (GDP) not only for better health outcomes but also for reduction of poverty drastically.

Houweling et al (2007) analysed the time trends of childhood mortality in Sri Lanka and compared it with other three South Asian countries namely Bangladesh, India and Nepal. They found that Sri Lanka was quite successful to achieve lower childhood mortality levels at lower cost internationally. However, the decline in under five mortality had been accompanied by rising mortality inequalities between socio economic groups. The authors found that high and improving levels of health care used and declining levels of malnutrition in Sri Lanka accompanied with high and rising income inequalities and under coverage of health care and malnutrition, which they related to a strong gradient in female autonomy across all educational groups in Sri Lanka.

Conclusions

Unlike the developed countries, health and morbidity received inadequate attention of social scientists in India. The literature in this context
is either related to the country as a whole or confined mainly to a few states
namely, Kerala, Tamil Nadu, Gujarat and West Bengal. We have not come
across any comprehensive analysis of morbidity for the Northern Indian states
in general and for Punjab in particular.

The available empirical evidence in India is mainly focused on the
prevalence and pattern of morbidity. Only a few studies tried to identify the
socio-economic determinants of morbidity/health status at the household
level. Information on the overall cost and disease wise burden of morbidity is
missing in the literature. The only exception is the report by the ‘National
Commission on Macroeconomics and Health’. There is hardly any similar
comprehensive study estimating the morbidity burden at the state level or for
the country as a whole. Even in the published Report by the Commission,
either the overall burden at the state level are reported or the disease wise
burden for the country as a whole are documented. Disease wise break-up at
the state level and its changing pattern overtime are missing in the
Commission’s Report. Therefore, the need for more rigorous scientific
analysis on different aspects of morbidity in different states/regions/population groups in the country hardly requires any justification.

More specifically the main conclusions that emerge from the Review of
Literature in this chapter are:

1. **Trend and dimensions of morbidity**

Health status substantially improved both in developed and developing
countries. Increasing life expectancy has been accompanied by
decreasing mortality everywhere but lacks any consistent relationship
with prevalence of morbidity. While in developed countries morbidity
decreased substantially, whereas in India it increased in the recent years.
The paradox of increasing longevity and worsening health status
(morbidity) is evident in majority of the Indian states. Prevalence of
morbidity varies considerably across geographical regions, rural/urban
areas, socio-economic groups, ethnic/caste groups throughout the world. It also has significant age and gender dimensions.

2. **Determinants of morbidity**

Majority of the empirical studies suggest that better health infrastructure, access to household amenities like safe water supply and sanitation, developed transport and communication network and education tends to improve health status and reduce the risk of ill-health both in developed and developing countries. However, evidence is contradicting on many other socio-economic characteristics affecting health status. For instance, there is conclusive evidence in favour of health-income gradient in almost all the developed countries. However, majority of the studies from India and other developing countries indicate low incidence of morbidity among the low income or low socio-economic status segments (SCs/STs in India) of the population. Review also suggests that there is no uniformity amongst the empirical studies in the selection of methodology and choice of the socio-economic determinants of the household health. Moreover, outcome of the empirical studies are highly data or area specific. For instance, the NCAER data based studies found lower caste status as morbidity enhancing factor whereas in the NSSO data based studies it was found to be other way round. Moreover, there are not enough studies to draw definite conclusion on many important determinants of health status of the individuals. For instance, smoking is known cause of lungs related and other ailments but there is only one study that included smoking as causal factor in its empirical model. Similarly, there is only one study that has examined the impact of disease transmission on health status of individuals, while controlling the impact of other confounding correlates. Review of literature in this Chapter brings out dearth of rigorous empirical studies on determinants of health status and morbidity in the developing countries including India.
Review of literature

3. **Economic burden of illness**

Ill-health poses substantial burden on individuals and societies both in developed and developing countries. Burden varies considerably overtime, across space and nature of ailments. In developed countries, the burden of communicable diseases has been reduced substantially whereas those of chronic ailments rose rapidly. However, burden of communicable diseases still accounts for about a half of the total economic burden in developing countries. The cost of life threatening chronic diseases like cardiovascular, cancer, AIDS, accidents is increasing rapidly both in developed and developing countries. Indirect costs constitute substantial part of the overall economic burden. In many chronic ailments, indirect costs exceed over a half of the total economic burden. With a few exceptions, epidemiological studies in India on cost and burden of diseases are devoid of scientific rigour. Most of the studies are disease specific and measure only direct component of overall disease burden. Furthermore, majority of the studies measuring the indirect cost generally quantify the burden in terms of disability adjusted life years (DALY) cost. This restricts the summing up of direct cost and indirect cost components. For prioritising the diseases, from policy point of view, overall cost is more informative and better guide for the policy makers. In this context, there is a big gap in the literature in state level studies in India.

Catastrophic cost of treatment adversely impacts the production and income of the households. The better off households are well equipped to cope with burden of ill-health. Their strong social network further augments their financial and manpower capacities. The poor households not only are less able to cope with burden of ill health but their weak social network is not of that help as in case of high income group. Often they face great difficulty in paying for health services. Consequently, many of them are either unable to seek medical treatment for want of money or are compelled to sell their meagre
productive assets to meet health expenses. This further compounds their future problem. Few others seek medical treatment from relatively cheaper sources (quacks/traditional healers) or from private clinics permitting deferred payments. Chronic or frequently recurring illness over many years cause permanent disability or incapacitates many poor. Therefore, to protect the poor from catastrophic cost of health care treatment, it is crucial to introduce some sort of protection mechanism. Health security is the minimum desirable policy needs for all poor. Policies aiming at minimising social inequalities may further help the poor households to reduce the exposure to financial catastrophe and enable many to escape poverty.