Chapter 1

Introduction

Historical experiences of both developed and developing countries conclusively establish that structural changes are implicit part of growth processes. With growth and development, economies progressively move away from agricultural and rural non-agricultural based productions to expanding modern manufacturing and services sectors. Due to numerous factors like division of labour, scale economies of urban agglomeration and economics of transportation, the manufacturing and services sector activities gravitate toward urban settlements. Expanding employment opportunity, increasing education and training, and better civic amenities and luxuries of life pull rural population to urban settlements. Technical modernisation of agriculture, changing demand pattern away from traditional rural sector goods and services, render jobless many of erstwhile workers in these activities. Therefore, a big proportion of them is pushed out of rural market and compelled to seek their livelihood in urban economy. However, because of their poverty, low education and skill levels, a big majority of them ends up in urban slums. Consequently, expanding slum population has become almost an integral part of the urbanisation in the developing world. These struggling migrated poors are pushed to inhuman living environment, which is characterised by sub-standard housing, severe overcrowding and squalors, deficient access to modern basic civic amenities, and exposure to serious air and water pollutions (Sclar et. al. 2005). These harsh living environments have direct bearing on physical and psychological well-being of the slum dwellers, who already struggle with malnourishment and poverty which they inherited from their rural origins. They are exposed to high risk of many communicable diseases like diarrhoea, worm infections, tuberculosis, acute respiratory infections, meningitis, diphtheria, whooping cough, malaria, and dengue. Overwhelming empirical evidences establish that the twin problems encountered by slum dwellers, poverty and illnesses re-impose each other (Goudge and Govender 2000, Russell 2003, Russell and Gilson 2006). How these poor slum dwellers finance and cope with ill-health is of greater interest for all the stakeholders concerned with well-being of this downtrodden segment of the society. However, much information in this context is not available in
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general and for India in particular. More specifically, we have not come across any study on coping behaviour in the Indian literature. The present study is a modest attempt to fill this gap in literature by analyzing health financing, coping behaviour and consequences of the catastrophic burden of ill-health of the slum population in Chandigarh.

Theoretical framework

Most of the literature on coping behaviour with ill-health has its origin in studies of poverty, famine and starvation in Asian and African continents. Coping strategies, according to the scholars on famine studies, ‘is a set of activities that are undertaken, in a particular sequence, by a household in response to exogenous shocks, such as drought, crop failure, and cattle mortality that lead to serious decline in food availability’ (Davies, 1993). Literature on coping with famine brought out that the risks and impacts of famine cannot be mitigated fully *ex ante*; therefore, one must have effective means of coping with adverse shocks *ex post*. According to Barrett (2002), community based risk sharing, including reciprocity and patronage networks, formal and informal credit arrangements are the first best *ex-post* solutions. However, the most vulnerable households have very low access to these first best solutions due to co-variant risks, moral hazards, imperfect information, and non-enforceable contracts. Therefore, individual households employ the second best coping strategies to mitigate their *ex-post* adverse outcomes. In the literature on food security, seven general classes of coping mechanism are identified. These are 1) transfers and loans, 2) foraging and increased reliance on wild foods, 3) disposal of non-productive assets, 4) reduced consumption and energy expenditure, 5) selling off productive assets, 6) expropriation of others’ resources through theft or refusal to meet normal social obligations, and 7) migration (Barrett, 2002). The households facing food insecurity consciously follow graduated sequence of these strategies from potentially less injurious and less flexible to more injurious strategies.

Literature on coping with food insecurity brings out that the range of coping strategies available to households or individuals in a specific region is closely related with their endowments and exchange entitlements for food (Sen 1981). The endowments include...
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physical assets like land, animals, and other productive assets as well as human resources-including health, physical labour, education, skill and other work capabilities. The exchange entitlements are the productions thereof or how these endowments are exchanged with food in the market. Due to adverse external weather shocks, exchange entitlements of the households decline severely and food becomes inaccessible to many affected households. Therefore, households adopt varies coping mechanisms subject to their endowments and exchange entitlements.

Due to various stochastic, economic, environmental, and social variables, in many cases urban slum dwellers are exposed to various food and ill-health situations akin to the exposure of their counterparts in rural areas. There are four basic reasons for this; 1) in both the situations the households live in abject poverty and survive at the subsistence level, 2) vulnerability to adverse shocks is frequent and pronounced in their occupations and regions, 3) households in both the situations lack access to first best financial and social insurance mechanisms to mitigate the vulnerability to shocks. The availability of risk-sharing social reciprocity and patronage networks (also known as social networks), access to formal and informal credit institutions, access to insurance markets are the common issues encountered by people in both the situations, 4) asymmetric information problems often forces household to opt for second best approaches to mitigate the consequences of adverse shocks and sometimes leave them more vulnerable and susceptible to future shocks (Barrett, 2002). Therefore, the graduated sequence of coping strategies identified in famine related studies can be fruitfully utilized to study the coping behaviour of slum dwellers with ill-health. However, in case of slum dwellers some of the strategies like; foraging and increased reliance on wild foods, selling off productive assets like land and animals are not applicable. Therefore, famine related coping strategies need little modification to study the coping behaviour of slum dwellers with their ill-health.

Leach et. al. (1999) modified Sen’s entitlement approach to healthcare by including institution dimension in their framework. They argued that besides the property and legal rights and their exchange entitlements, many formal and informal relations, cultural and historical settings are equally important in the context of healthcare entitlements.
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Penchansky and Thomas (1981) also added that entitlement to healthcare is influenced by five important factors, which are availability, accessibility, accommodation, acceptability, and affordability. Availability measures the extent to which the health providers have the personnel and technological resources to meet the need of the patients. It focuses on the healthcare infrastructures. Accessibility refers to geographical access of health providers, whether patient can reach the provider or not. Distance, time, and cost to reach the provider are the main focus in accessibility. Accommodation describes the organisational structure of health facility like working hours of the facility, waiting time to get the treatment. Acceptability refers to the extent to which patient is comfortable with characteristics of healthcare providers and vice-versa. These characteristics include gender, caste, age, and healthcare practices of providers etc. Affordability implies patients’ ability to pay for healthcare providers’ charges and cost of medicines etc (Mclaugin and Wyszewianski 2002). Affordability, in particular, is the key issue given the limited resources of the slum dwellers. Cost of accessing health facility is affordable if it does not deter the household to seek medical care due to financial reasons or opportunity cost of illness does not reduce the consumption or investment level beyond the minimum threshold of the household. The focus is not alone on the cost of medical treatment but it also includes the capacity of the households in form of their income, consumption, physical, financial, and human resources.

The modified Sen’s entitlement approach to health, which includes besides the endowment and exchange entitlement, the role of institutions as well as access to healthcare can be fruitfully utilised to study the coping behaviour of individuals and households in dealing with their ill-health. The present study employ the modified framework of coping strategies identified in the literature on food insecurity and also adopt modified Sen’s entitlement framework to study the choice of a particular strategy by the slum dwellers to cope with their cost of illness.

Motivation for the present study

There are four important issues that motivated us to undertake the present study on health financing, coping behaviour and socio-economic outcomes of ill-health. First and
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foremost is that the city beautiful Chandigarh has highest per capita income, ranked number one in Human Development Index (HDI), and equipped with world-class health, sanitation, and civic amenities. It would be of great interest to all the stakeholders that in such environment what kind of diseases the slum dwellers are suffering from. What type of coping strategies are employed by this downtrodden segment of society to deal with cost of illness? What are the transmission channels of the adopted coping strategies on socio-economic well-being of the slum dwellers? These are crucial questions which are pre-requisite for designing appropriate social and public policy responses to deal with vulnerability of ill-health.

Secondly, a number of government policies and initiatives aimed at better livelihood and access to healthcare facilities are already available to the slum dwellers (Appendix 1.1). It would be interesting to examine the extent to which the slum dwellers are benefiting from these initiatives to cope with their numerous health problems and financing the cost of ill-health.

Thirdly, information is available on health financing, coping behaviour, and consequences of ill-health from different parts of the developing world. It would be interesting to compare and contrast the coping behaviour of slum dwellers of Chandigarh with information generated on similar segment of the society elsewhere. It would be interesting to study how the better coping strategies and better policy initiatives capacitated people to deal with the adverse ill-health outcomes. It is expected that many successful experiences elsewhere can be identified and successfully employed to help the slum dwellers of Chandigarh to cope with financial burden of ill-health.

Fourthly, we have not come across any empirical study on coping strategies adopted by the downtrodden segment of society like slum dwellers in India in general and Chandigarh in particular. Besides these four motivational factors, the information generated on the topic would be of great interest to the academic and policy makers and motivate many other researchers to expand and deepen the research in the present area. Many findings from the present study are expected to provide fruitful insights to deal
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with adverse consequences of ill-health of slum dwellers in India and other developing countries.

Empirical evidence

The concept of coping strategies was first applied to study the responses of households encountering illness shocks by Sauerborn et al. 1996. Later on, a large number of researchers employed this concept by using quantitative and qualitative data to understand the different dimensions of illness shocks and to identify the equitable pro-poor health policies. However, understandably, most of the health economist did not take into account the adverse outcomes of ill-health, like anxiety, pain and sufferings of the patient/family, and value of lost leisure time, in their empirical analysis of coping behaviour of households. Most of the researchers focused on strategies to cope with cost of illness and explored types and sequence of adopted strategies. Some of the researchers also studied the relationship between coping mechanism and nature of ailments and identified enabling factors for effective coping mechanisms with cost of illness.

Evidence generated in empirical literature suggests that illness costs—both indirect and direct—draw upon a big share of households’ income, particularly of the poor households. Although the coping strategies are context-specific and people adopted variety of coping strategies, but use of savings, borrowings, and selling of assets are the most commonly chosen strategies. Poor households due to their low social and material endowments either delay the treatment or ignore the illness as a last resort. Households also adjust their spendings and delay in repayment of loans. Sometimes they cut on expenditure on social events, food, and education of children. To compensate the loss of earnings, households augment labour supply by working extra hours, putting erstwhile non-workers into the labour market and sometimes even by withdrawing children from school and putting them to work (Wilkes et. al. 1997, Goudge and Govender 2000, McIntyre and Thiede 2003, Russell 2004).

Available empirical literature also suggests that households sequence their coping strategies from low risky and non-injurious to high risky and injurious strategies (Sauerborn et. al. 1996, Goudge and Govender 2000, Russell 2004). However, sometimes
due to imperfect information and low paying capacity, households opt for cost prevention strategies that have severe injurious repercussions in the long term (McIntyre and Thiede 2003, Russell 2004). For acute illnesses, households usually choose low risky strategies like use of savings or small scale borrowings. In the case of chronic ailments, poor household either resort to ignore illness, or high risky strategies like selling of assets and discontinuing study of young children. The terminal diseases, like HIV/AIDS, have devastating impacts on the households’ economy and most of the time leave them shattered and impoverished.

The socially and economically backward households have fewer income resources, weak asset base, less formal education, informal jobs, and weak social network. Due to illness shocks these households become more impoverished and experience a decline in overall economic situation (Russell 2005, Chuma et. al. 2006, Russell and Gilson 2006). Due to high cost of illness, these households borrow at usurious rate of interest, reduce expenditure on food and education, or even sell their meagre assets. The socially and economically better-off households due to their strong human and physical endowments and strong social networks are better equipped to cope effectively with cost of ill-health (Sauerborn et. al. 1996, Wilkes et. al. 1997, Goudge and Govender 2000).

Research gaps
Based on the above discussion and review of literature presented in the subsequent chapter, the major research gaps in the literature are:

1. There is dearth of enough empirical evidences on the cumulative impact of illness on poor households and their responses thereof. Such analysis requires panel data of selected households suffering from various ailments and revisited for sufficient long period of time. In the literature we came across six such studies namely; Sauerborn et. al. (1996), Wilkes et. al. (1997), Russell (2005), Chuma et. al. (2006), Russell and Gilson (2006), Goudge et. al. (2009) but none of these studies on coping behaviour is related to India.

2. The available empirical studies on coping behaviour are mainly focused on few diseases like Malaria, Tuberculosis and HIV/AIDS. These studies are based on
evidences from a few selected developing countries. We have not come across any study on coping behaviour of people with emerging diseases like cardiovascular and mental disorder, cancer.

3. The third important gap in the available literature is regarding the choice of particular coping strategies and consequences thereof. This information is of crucial importance for the stakeholders in designing the most appropriate and effective policy initiatives felicitating the people to mitigate the adverse outcomes of ill-health. However, there are a few studies in this context like by Russell and Gilson (2006), Goudge et. al. (2009)

4. Fourth important gap in the available literature is that most of the coping behaviour analysis is descriptive in nature. We have not come across any longitudinal study examining the determinants of choice of coping strategies adopted by the households in dealing with their illness.

5. Fifth important gap in the literature is that most of the impact analysis of ill-health is related to monetary loss or decline in productivity. Only a limited number of studies measure the impact of ill-health on social and cultural capital of the households.

There is urgent need to bridge these gaps in the empirical literature for better understanding of dimensions and dynamics of coping behaviour of households with ill-health. However, due to time and resource constraints, it is not feasible to include all the issues in an empirical exercise like present one. Nevertheless, the present study is a modest attempt to bridge the gap on some important issues. More specifically, the main objectives and proposed hypotheses are detailed below.

**Objectives**

The main objectives of the study are:

1. To measure the extent of economic burden of illness and treatment seeking behaviour of the slum dwellers.
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2. To identify types and sequence of coping strategies employed by households to deal with cost burden of illness.

3. To study the coping behaviour of households in context of the nature and severity of various ailments.

4. To examine the economic consequences of the chosen coping strategies by the households in response to their ill-health.

Hypotheses

Based on the objectives, the main hypotheses to be explored in the present study are:

Treatment seeking behaviour:

1. The choice of health providers by a household is significantly related with type and stage of the ailment, status of the patient in the family, economic status, and awareness level of household.

2. Choice of health provider is dynamic to the effectiveness of treatment, information about the disease, and health providers, and coping capacity with costs of illness.

Economic burden of illness:

1. Economic burden of ill-health is intimately related with type and nature of ailment, socio-economic status of the household and access to health facilities.

2. Economic burden of ill-health is likely to be catastrophic for majority of the slum dwellers.

Types and sequences of the coping strategies:

1. The type of chosen coping mechanism is intimately related with the socio-economic attributes of the households. Poor household tend to adopt risky
strategies and better-off households among the slum dwellers tend to adopt less risky strategies.

2. The households behave rationally and sequence their coping strategies by risk to their lives and livelihood. Households only go for more risky strategies when other low risk options are exhausted.

Coping behaviour and nature of illness:

1. Households resort to high risk strategies for major illness and/or as the illness become more severe.
2. The degree of risk associated with the coping strategies and magnitude of cost of illness goes together.

Coping behaviour and socio-economic outcomes:

1. Illness adversely affects the economy of the households.
2. The choices of high risk coping mechanism seriously impede the socio-economic sustainability of the household.
3. Catastrophic cost of illness push household to adopt risky coping behaviour whereas access of social network, strong safety nets enable household to avoid risky coping strategies.

Data and Methodology

Data

The present study is based on the household level information collected during primary survey of slums in Union Territory of Chandigarh. The first and foremost issue in primary survey is to select appropriate sample size of the subjects so as the sample must be true representative of the population and must be manageable within available time and resources. There are many different procedures for determination of appropriate sample size (Bartlett et. al. 2001). Among available alternatives, we have used the
following well-accepted procedure (Save the Children, 2002, Bartlett et. al., 2001) to determine appropriate sample size:

\[ n = \frac{z^2 \times p(1-p)}{e^2} \]

Where \( n \) = sample size.

\( z = 1.96 \), standard normal value at 5 per cent level of significance.

\( p = 0.157 \), proportion of people suffering from any health condition (during the last 15 days). It is assumed to be same as observed for Delhi slums dwellers (Marimuthu et. al. 2009).

\( e \) = assumed to be equal to 1.5%, sampling error that can be tolerated.

Following this method, we were required to survey 2260 individuals. Assuming 5.35 as the average household size of the slum population (Marimuthu et. al. 2009), the required sample size comes out to be 422 households.

As per biometric survey 2006 undertaken by ‘Chandigarh Housing Board’, there are 18 slum settlements (colonies) in Chandigarh (Appendix 1.2). During the pre-visit to these settlements, it was found that each slum settlement have its own peculiar characteristics and homogenous. To choose households having wider representation, we selected colony number 4 and colony number 5, which together constitute half of the slum population of Chandigarh. Furthermore, majority of the residents of colony number 5 were employed as domestic workers or engaged in petty menial jobs whereas majority of the residents of colony number 4, because of its proximity of industrial area of Chandigarh, were employed as industrial workers. Based on the household list obtained from Municipal Corporation of Chandigarh, each of the selected colony was divided into six blocks constituting approximately equal number of households (Appendix 1.3 and 1.4). From each colony, two blocks were selected randomly. 422 households were selected randomly by employing probability proportion sampling technique. So our cross-sectional survey constituted 165 households from colony number 4 and 257 from colony number 5.

During the survey 13 households refused to participate and hence were replaced by their immediate neighbours. Keeping in view the objectives of the study, a structured
questionnaire was prepared and pre-tested. After incorporating the necessary changes, the final questionnaire was canvassed to 422 households from April 2011 to June 2011 (Appendix 1.5). On completion of cross sectional survey of 422 households, it was found that 284 households were having at least one ailing member on the date of survey. Keeping in view the time and resource constraint, it was not feasible to undertake multiple revisits to all the 284 households. Therefore, we decided to select a sub-sample from these 284 households. For this purpose, firstly, a composite vulnerability index based on multi-dimensional poverty index, nature of illness, co-morbidity, treatment seeking behaviour, and cost experiences was constructed. Based on composite vulnerability index, so constructed, households were divided into highly vulnerable, vulnerable, non-vulnerable categories. From these categories around one-third, that is 94 households were selected randomly following probability of proportion sampling technique. 19, 52, 23 belonging to highly vulnerable, vulnerable, non-vulnerable categories were selected for longitudinal survey. 35 households were from colony number 4 and 59 households were from colony number 5. To study the dynamics of coping behaviour, selected 94 households were re-visited fortnightly eight times during July, 2011 to November, 2011 (Appendix 1.6). During the first visit, all 94 households were visited. In the eighth visit, the information from 79 households was collected. Remaining 15 households either migrated to their ancestral places or the ailing member recovered from ailment and stopped medical treatment or died in between. Consequently, the information was collected on unbalanced panel of 94 households, which generated 704 observations for our longitudinal analysis.

Methodology

The present study is based on cost of illness approach to measure economic burden of ill-health. Two types of cost namely; direct cost and indirect cost are measured. Direct cost constitutes direct medical and direct non-medical cost. Direct medical cost includes doctors’ fees, payment for diagnostic tests, payments for medicines, surgical equipments, special diet of the patient etc. Direct non-medical cost constitutes transportation costs, bedding and lodging charges, cost of the attendants and care givers. Indirect cost
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constitutes income forgone of the patient and attendants for diversion of their time from work to dealing with illness. Broadly, there are two approaches to further analyze the economic burden of illness: health expenditure approach and vulnerability approach (Goudge et. al. 2009).

In health expenditure approach, the economic burden of ailments is measured in terms of catastrophic and non-catastrophic magnitude. Though the question is still unsettled, yet most of the researcher considered economic burden to be catastrophic if it constitute 10 per cent of household income/consumption or 50 per cent of non-food consumption expenditure (Ranson, 2002, Xu et. al., 2003). In the present study, economic burden is measured in terms of this well-accepted approach. Besides the extent of catastrophic economic burden, we also examined determinants of catastrophic burden of ill-health.

In the vulnerability approach, the coping behaviour and consequences of economic burden of illness is examined. In this approach, the impoverishing effects of health expenditure over a period of time are studied. Firstly, the household responses to illness costs are analysed. Secondly, actual consequences of illness cost for the household economy over the period of time are studied. This approach evaluate whether a household can manage the costs burdens over time or the household is pushed to choose risky coping mechanisms. Risky coping mechanisms can damage assets of the household and can jeopardize sustainability of the household economy.

The vulnerability approach has advantages over health expenditure approach because defining a threshold in catastrophic health expenditure approach is problematic as low health expenditure can also lead to impoverishment for very poor households (Russell, 2005, Goudge et. al., 2009). Moreover, the health expenditure alone is not a sign of health need (Goudge et. al., 2009). The vulnerability approach, since it incorporates additional dimensions of poverty, can complement health expenditure approach. Thus a combination of both the approaches expected to provide better insight of the problem than an individual approach employed in isolation (Sauberborn et. al., 1996, Russell 2005, Chuma et. al., 2006, Goudge et. al., 2007).
Using the mixed approach, the information so generated from 422 households, was used to analyze economic burden and catastrophic health expenditure of ill-health. However, information collected from 94 households during the second phase of survey, was used to study the choice of strategies by households to cope with cost of illness. The types of strategies to be examined include cost prevention, resource mobilization, spending adjustments, and labour supply adjustments strategies. Each of these categories constitutes further sub-categories of strategies. Cost prevention strategy constitutes two strategies namely; ignoring illness and delaying treatment to circumvent the potential cost of treatment. The resource mobilization constitutes: savings, borrowing at no rate of interest, borrowing at low rate of interest, borrowing at high rate of interest, assistance by relatives, assistance in form of donation, assistance by NGOs, and selling of assets. The sub-categories of spending adjustment strategy are: delaying payments of borrowings, buying medicine in installments, postponing medical test, reducing expenditure on medicine, shifting for relatively cheaper treatment, reducing expenditure on social events, reducing expenditure on education, and reduced food expenditure. The labour supply adjustment strategy constitutes four sub categories namely; labour supply by erstwhile non-workers, household member working for additional hours, changing the profession, shifting of children from school and putting them to work. Apart from type of coping strategies, the graduated sequence of coping strategies has also been explored using graphical and tabular analysis. Determinants of choice of various coping strategies are also explored by employing both tabular and econometric analysis. While in tabular analysis, the strategies adopted by the households has been examined by households’ characteristics and type of ailments, the econometric analysis has been based upon households’ characteristics, patients’ characteristics, type of ailments, cost of illness and safety nets. Various variables pertaining to these characteristics are employed in econometric analysis by using limited dependent variable models. The multinomial ordered logistic models has been employed on pooled and panel data. Among the pooled and panel data models, Hausman test has been used to analyze which of the pooled or panel model fit better to our data set.
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Econometric models are further employed to study the consequences of illness both on cross-sectional and longitudinal data sets separately. The cross sectional analysis has been used to identify the impact of illness on consumption, assets, and labour losses. The longitudinal analysis has been used to analyze the socio-economic outcomes by comparing the before and after situations of the households on account of workforce participation, earnings, consumption, asset, schooling of children, saving and borrowing of the households.

Information collected during the second phase of survey has also been utilized to analyze the perception of households regarding impact of illness on earnings, economy of the households, and government assistance enabling the slum dwellers to cope up with ill-health. The perceptions of the households have been presented in the form of pie-charts. Besides the quantitative analysis, a qualitative analysis of three typical households dealing differently with their ill-health has also been presented by following case-study approach.

Organisation of the thesis

The present study has been organised in the following chapters:

Chapter 1: Introduction: In this chapter theoretical framework, motivation, objectives of the study have been presented. The data and methodology used in the study are also detailed in this chapter.

Chapter 2: Review of literature: Review of selected empirical studies on coping behaviour, on factors that enable household to cope with economic consequences, types and sequences of coping strategies has been presented in this chapter.

Chapter 3: Socio-economic profile and prevalence of morbidity: The slum dwellers' demographic profile, household characteristics, economic status and prevalence of illness are presented in this chapter.
Chapter 4: **Treatment seeking behavior of slum dwellers**: Different encounters with health providers and treatment seeking behaviour of the slums dwellers have been examined in this chapter.

Chapter 5: **Economic burden of ill-health among the slum dwellers**: Cost burdens and its components, and determinants of catastrophic health expenditure are analyzed in the chapter.

Chapter 6: **Dealing with cost of illness: Choice of strategies**: Type of coping strategies adopted by households to finance the health needs are studied in the chapter.

Chapter 7: **Dealing with cost of illness: type and sequence of choices**: The chapter deals with relationship between adopted coping mechanism and illness characteristics. Also examined is the sequence of coping strategies adopted by the households to finance the health needs.

Chapter 8: **Determinants of household coping strategies with illness**: Determinants of adopted coping strategies are explored in this chapter.

Chapter 9: **Economic consequences of illness**: The consequences of illness and socio-economic outcome of chosen coping strategies are presented in the chapter.

Chapter 10: **Summary and Policy Suggestions**: Main findings of the study and policy suggestions emerging from the analysis are given in this chapter.