Direct and Indirect Health-care user expenditure by Slum Residents in Dhaka-City, Bangladesh

Health-care seeking studies

Health Systems Research Team

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CENTRE
FOR HEALTH AND
POPULATION RESEARCH

Acknowledgements

Contents

Foreword

This is the third publication in a series of Working Papers on health-care seeking in Bangladesh from three studies, conducted by the Health Systems Research Team of ICDDR,B's Health Economics Programme at the Public Health Sciences Division. The first study collected information from the slum population of Dhaka-City, the second one from its non-slum population, and the third one from a peri-urban area.

The overall objective of these studies was to get a better understanding of health-care use and spending by different sub-populations, and to contribute, with the findings, to the development of more appropriate health policies in Bangladesh and in other countries with similar health-care provision patterns and socioeconomic and/or cultural characteristics. The specific objectives were (1) to document the components of health-care decision processes, i.e. perceived illness patterns, the health-care options that the study populations perceive to be available, and the reasons and constraints operating in health-care choice making; (2) to determine and investigate variables that contribute to health-care choice making and utilization; (3) to describe the pattern of direct household expenditure on health-care; (4) to study indirect expenditure, namely loss of income due to illness; and finally, (5) to examine aspects of user satisfaction with health-care received.

A similar research strategy was used for each study, consisting of three phases and combining qualitative and quantitative research methods. The first phase was a cognitive study to generate data on the components of health-care decision making. It was followed by a 6-month longitudinal survey, in which data were collected on all new illness episodes and existing and new chronic ones through fortnightly visits. Simultaneously, selected socioeconomic and demographic variables were monthly followed up. Each survey was preceded by a more extensive baseline survey on sociocultural and economic variables. Finally, a series of case studies were conducted on specific health-care seeking experiences, reported during the longitudinal survey.

The present Working Paper presents the direct (Part A) and indirect (Part B) health-care user expenditure pattern of the 905 households in the sample of the slum study's longitudinal survey conducted from May to November 1993. Part C discusses in light of data from the literature, the findings presented in Parts A and B of this Working Paper (including how households cope with the economic consequences of ill-health) and the results on health-care utilisation presented in HEP Working Paper No.4-98. The interested reader may also consult the following Working Papers on the other aspects of the same slum study:
-Demographic, socio-cultural and economic profile of Slum Residents in Dhaka-City. HEP Working Paper No.3-98;
-Illness profile and health-care utilisation pattern of Slum Residents in Dhaka-City. HEP Working Paper No.4-98;
-Specific health-care seeking experiences of Slum Residents in Dhaka-City. HEP Working Paper No.6-98;
-Main findings and policy implications of a study on health-care seeking among the Slum Residents of Dhaka-City. HEP Working Paper No.7-98.

PART A

DIRECT HEALTH-CARE
USER EXPENDITURE

Introduction

According to theory, health-care costs may be borne by the **health-care providers** on one hand, and by their **users, non-users and their families** on the other. As the latter practically include all those living in a given socio-cultural and/or geographical area, these costs may also be termed as **community costs**. These costs are further subdivided into direct and indirect costs, while provider costs are considered to be always direct.
Direct provider costs include the organising and operating costs within the health-care sector, such as equipment and supplies, and health-care professionals' time. **Direct** costs borne by the community may be defined as all out-of-pocket expenditures from users, non-users and their families, whether home-care or delivered by a provider. These costs not only include items, such as drugs and diagnostic tests, but also official and 'unofficial' fees (i.e. tips and bribes to middle-men), transport costs, and food for the patients and attendants. **Indirect** community costs are the time lost from work and psychic/social costs borne by the users, non-users and their families.
Besides the cost categories mentioned above, there are **costs external to the health-care sector, patients and their families**, such as sanitary latrines or water supply aiming at improving environmental health. These costs are often borne by public revenue, particularly in the case of works that benefit groups of the population, such as water supply.

Direct user health-care expenditure per illness case typically shows a non-normal distribution (Fig. 1), with a concentration of rather small costs per illness case on one hand, and a limited number of higher expenditures per illness case on the other.
The two tails in the distributions of direct health-care expenditure in minor and severe non-chronic illness cases may be explained as follows:
Particularly in *minor* illness cases, people do not pay at all or they use and spend very little on health-care, as they often resort to home-care which may involve a minimal cost or no cost, such as pouring water or taking rest, or simply waiting during a few days within which time complaints may recede. These phenomena explain why in more than 50% of the minor cases there is no direct expenditure, in another one third the expenditure is between taka 1[1] and 30 and only in a limited number of cases (less than 3% of all minor cases) expenditure is more than taka 100.
On the other hand, some illness cases, especially *severe* ones, may involve considerable direct costs, because health-care options become more drastic than the usual methods such as 'wait-and-see' and home-care. As a result, the distribution of direct health-care expenditure is seen stretched to the right (with more than 12 % of the cases having taka 100 and more as expenditure).
The extent to which health-care options, such as wait-and-see, home-care and other health-care options, are used by the study sample is detailed in the previous HEP Working Paper No. 4-98.

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[1] Taka is the national currency of Bangladesh. At the time of the survey (May – December 1993), taka 40.- equaled one US Dollar.

Considering the non-normal distribution of direct health-care user expenditure, no single measure of central tendency can be appropriately used. On one hand, the mean and its statistical analysis require a normal distribution, while on the other, particularly in minor illness cases, the median may tend to be zero. Therefore, all findings on direct expenditure per illness episode will be presented here by both mean (and standard error) and median values.

The components of health-care costs that will be considered in this paper are:

- **Direct** user costs (Part A), i.e. treatment and travel costs, or 'out-of-pocket' expenditure. Findings on these costs, in non-chronic illness cases, will be presented in this Part. Only in chapter one, data for chronic illness cases will be added. More findings on chronic cases are discussed in HEP Working Paper 6-98.
  From chapter three onwards, the parameter 'direct user expenditure per illness episode' will be used for describing direct user costs. This parameter is preferred over direct user expenditure per person-month, because it is independent from illness incidence. Indeed, similar to the reasoning applied for the selection of the parameter to analyse health-care option use (see HEP Working Paper 4-98), direct expenditure per person-month needs to be adjusted for illness incidence. By doing so, one obtains direct expenditure per illness episode.

- **Indirect** user costs (Part B), more specifically loss of income due to illness, and, travel and waiting time.

Fig. 1 : Distribution of direct health-care expenditure
per illness case.
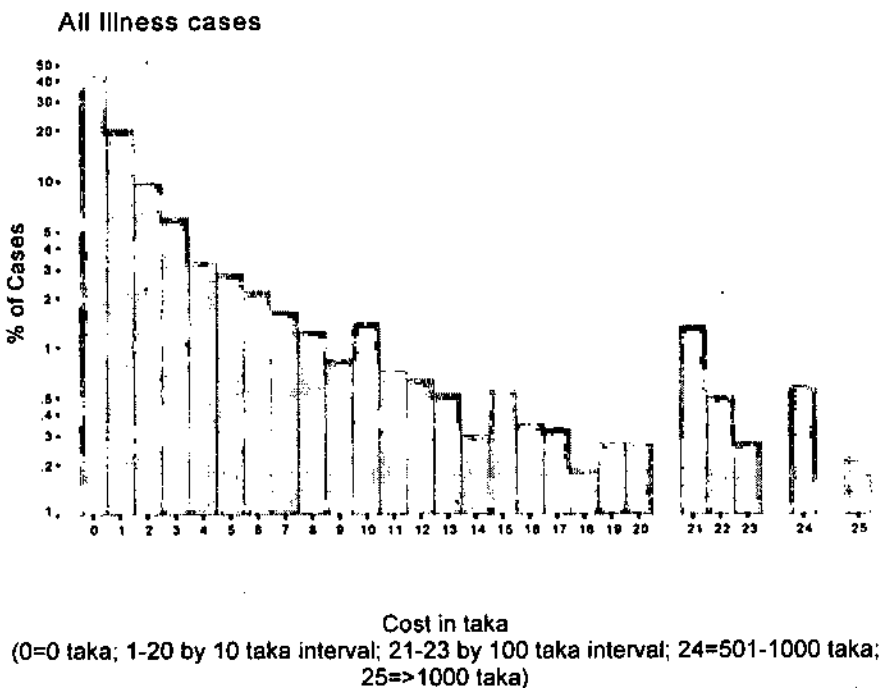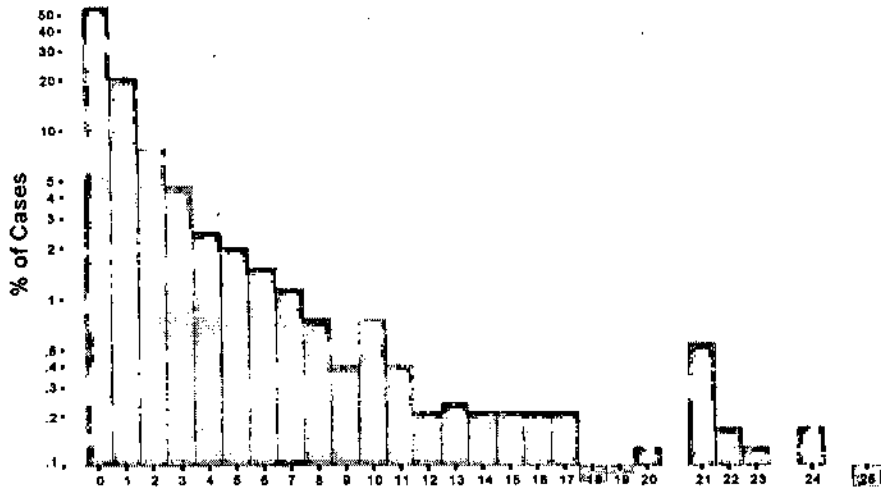
All Illness cases

Cost in taka
(0=0 taka; 1-20 by 10 taka interval; 21-23 by 100 taka interval; 24=501-1000 taka;
25=>1000 taka)

Minor Illness cases

Cost in taka
(0=0 taka; 1-20 by 10 taka interval; 21-23 by 100 taka interval; 24= 501-1000 taka; 25=>1000 taka)

Severe Illness cases
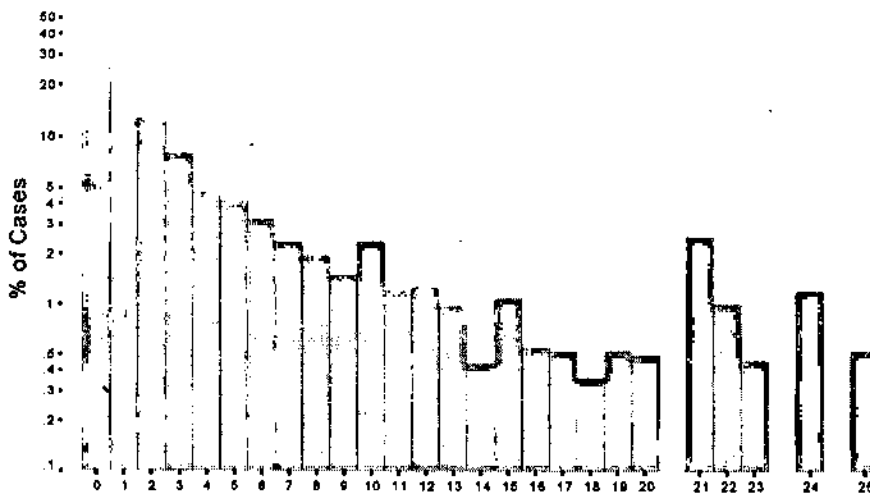
Cost in taka
(0=0 taka; 1-20 by 10 taka interval; 21-23 by 100 taka interval; 24=501-1000 taka; 25=>1000 taka)

(Negative values in minor illness cases : % cases less than 0.1%)

CHAPTER 1

AGGREGATE DIRECT HEALTH-CARE EXPENDITURE

A. DIRECT PER HOUSEHOLD AND PER CAPITA HEALTH-CARE EXPENDITURE

As described in the Foreword to this Working Paper, the design of the longitudinal survey consisted of two autonomous surveillance systems: one on all illness episodes occurring in the households under investigation with fortnightly updates, and the other one on selected socioeconomic and demographic variables with monthly updates. In both the surveillance systems, data on direct health-care expenditure were collected. In the illness episode follow-up, it was on user direct expenditure during all reported illness episodes. In the socioeconomic follow-up, it was one of the cost items in monthly household expenditure.

Data on aggregate direct health-care expenditure presented in Table 1, were obtained from the **illness episode surveillance.**
The total direct expenditure over the study period in the 905 households that have been followed up, stands at taka 405,416 or US$ 10,135.40. The monthly average household expenditure on illness is estimated at US$ 2.01, and the average individual expenditure is US$ 0.39. Assuming that there are no variables that significantly associate direct expenditure on illness with the time of year, the average annual direct expenditure becomes US$ 24.17- per household or US$ 4.63 per capita.

Table 1: Summary table on aggregate direct household
expenditure on illness from the
illness episode surveillance

```
Total expenditure on illness          - 405,416 taka or US$ 10,135.40
Number of households followed up - 905
Average household-months follow-up/household = 5.56
Average household size                 - 5.22 (- the average size
        of the 6 monthly mid-point average household size estimates)


So :
Monthly expenditure :
    Average per household              -  80.57 taka or US$  2.01
    Average per capita                 -  15.44 taka or US$  0.39
Estimated annual expenditure :
    Average per household              - 966.84 taka or US$ 24.17
    Average per capita                 - 185.22 taka or US$  4.63
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The monthly household health-care expenditure data collected from the **socioeconomic surveillance** are presented in Table 2. They were computed as an average expenditure per household and per capita with the same assumptions as in Table 1 (i.e. on the average months of follow-up per household and on the average household size).

Table 2 shows that all figures on total spending, and consequently the averages on per household and per capita expenditures are 17.4% higher than the above figures from the illness surveillance. As a result, per capita expenditure for instance, stands at US$ 5.50. This may be attributed to the fact that the data from the illness surveillance are indeed only on out-of-pocket expenditure in the case of illness. However, the figures from the socio-economic follow-up also include other health-care expenditure. For example, during the survey, there were 324 delivery cases in the households under investigation. Expenses for delivery have, therefore, been included by the households in their monthly reporting on health-care expenditure. More details on health-care use and spending on delivery cases will be given in HEP Working Paper No. 6-98, where it is suggested that a delivery may cost, on an average taka 150-200, giving a total estimated expenditure on delivery cases, of taka 48,600 (US$ 1,215) to taka 64,800 (US$ 1,620). In addition, there may be expenditure for 'preventive' health-care, such as antenatal care, transport for EPI services, and purchase on the market place of family planning devices.

Table 2: Summary table on aggregate direct household expenditure on health-care from the socioeconomic surveillance

Total Expenditure on health-care = 475,966 taka or US$ 11,899			
Monthly expenditure :			
Average per household	=	95.58 taka or US$	2.39
Average per capita	=	18.35 taka or US$	0.46
Annual expenditure:			
Average per household	=	1,147.00 taka or US$	28.68
Average per capita	=	220.00 taka or US$	5.50

Further analysis of direct expenditure in the next sections is exclusively based on the data obtained from the illness surveillance system, except indicated otherwise. In all the tables and figures on health-care expenditure following this table, amounts are expressed in 1993-taka.

B. TOTAL SPENDING AND ILLNESS SEVERITY AND CHRONICITY

Table 3 indicates that, while minor illnesses account for 53% of the illness cases and 47% of the health-care contacts, they account only for 21% of total spending on illness. Conversely, severe illnesses only account for 36.5% of the cases and 42% of the contacts, but 59% of total spending. A similar picture is seen for chronic illnesses: with only about 9% of the illness cases and of the contacts, they represent nearly 20% of total spending.

Table 3: Total spending on illness by illness severity
and chronicity

Illness type		Expenditure		Illness cases		Health-care option contacts	
		Amount	%	No.	%	No.	%
	Minor	82,079	20.2	5,308	53.0	8,593	47.1
	Severe	238,924	58.9	3,659	36.5	7,711	42.2
	Unreported severity	4,366	1.1	129	1.3	234	1.3
Chronic		80,047	19.7	918	9.2	1,724	9.4
All		405,416	100	10,014	100	18,262	100

C. TOTAL SPENDING AND HEALTH-CARE OPTIONS USED

First of all, the *non-chronic* illness cases are considered (Fig. 2 and Table 4).
Spending on **wait-and-see** is, of course, nil for minor and severe illness cases.
By far the highest user direct spending is on **modern private care**: for all minor illness cases, the proportion is 44%, while for severe cases it is 55%. However, in terms of relative use (see HEP Working Paper No. 4-98 for more details on health-case option use), this health-care option only represents 6% and 12% of all contacts in minor and severe illness episodes, respectively.
The next most important health-care option, as far as spending on non-chronic illness is concerned, is **pharmacies** with 27% of total spending on minor illnesses, but only 14% in case of severe illness, while their relative use is 14% and 18% respectively.
The third health-care option is **public health facilities** with about 4% and 10% of total spending on minor and severe illnesses respectively, compared to their relative use of only 2% and 3% respectively. Public health-care is officially free of charge, except nominal fees for consultation, in-patient admission and some tests. Public care delivery, however, suffers from frequent shortage of supplies, resulting in patients having to purchase 'outside' drugs and small medical equipment. In addition, transport costs for patients and care-takers, which are included in the figures for all health-care options, are considerable for public facilities as will be shown in the next chapter.
Traditional healers who account for about 6% and 9% of total spending on minor and severe illness respectively, compared with a relative use of 3% and 8% respectively, are of similar importance as public health facilities.
Non-government services account for 4% of spending in both minor and severe illnesses, compared to 6% and 5% of relative use respectively.
Home-care is the next health-care option with 7% and 2% of total spending, but 31% and 24% of relative use in minor and severe illness respectively.
The figures in minor and severe illnesses for **modern unqualified healers** are 3% on spending in both these types of illness, and 1% and 2% on use.

Finally, for **homeopathy**, the figures are 4% and 2% of total spending, and 2% and 3% of relative use in minor and severe illnesses, respectively.

In contrast, the picture for *chronic* illness shows that, while the ranking of the health-care options in terms of spending is similar to the one for non-chronic illness, their relative importance to spending is quite different for a number of health-care options:
Modern private care now accounts only for 34% (and a relative use of 11%), whereas **non-goverment** quadruples and **traditional care** increases with 60% their contribution up to 19% and 17% respectively (and have use rates of 6% and 8%).
As a result, the contribution of **pharmacies** decreases with about one-third from 18% to 12% (for a 20% use rate). The contributions of the other health-care options remain similar to the ones for all non-chronic illnesses.

Considering illness severity and chronicity, there is, thus, a great variation in the percentage contribution of health-care options into overall spending. Overall, modern private care contributes almost 50% into out-of-pocket expenditure (49%), followed by pharmacies (17%), traditional care (10%), public (9%) and non-government care (7%). Home-care, modern unqualified care, and homeopathy each contribute 3 to 4%.

Fig. 2: Comparision to health-care option contributions to total spending and their use rate
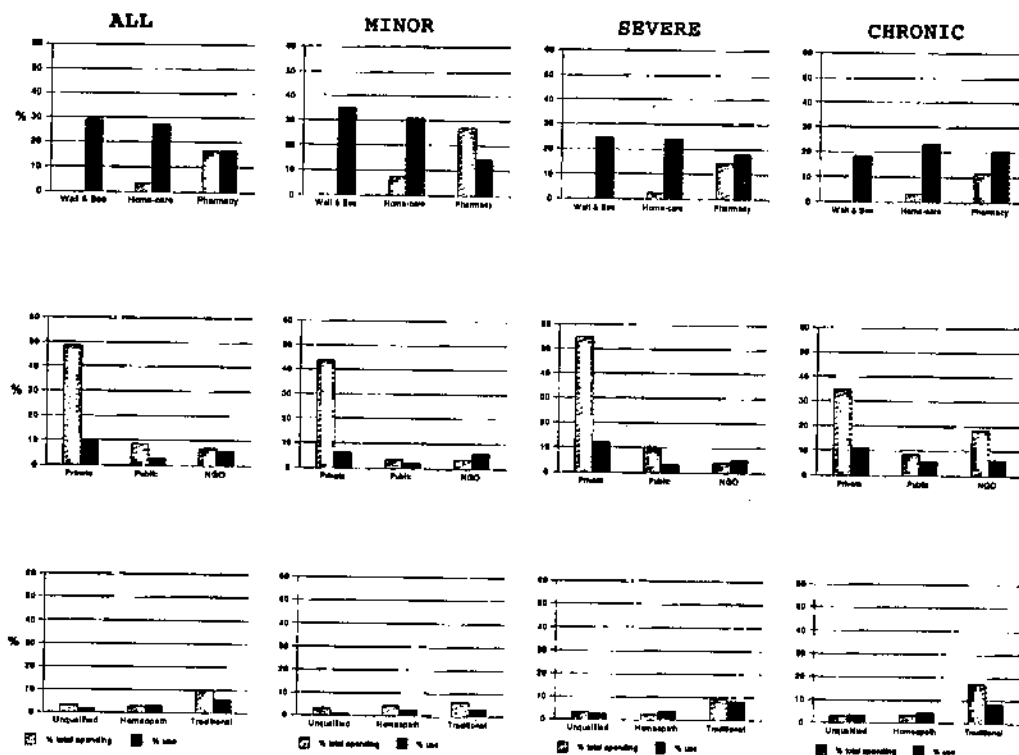
Table 4: Total spending on illness by health-care option and illness severity

Health-care option used	All Expenditure Amount	All Expenditure %	% use	Minor Expenditure Amount	Minor Expenditure %	% use	Severe Expenditure Amount	Severe Expenditure %	% use	Don't know Expenditure Amount	Don't know Expenditure %	% use	Chronic illness Expenditure Amount	Chronic illness Expenditure %	% use
Wait-and-See	0	0	28.9	0	0	35.0	0	0	24.6	0	0	23.9	0	0	18.4
Home-care	14,844	3.7	27.2	6,078	7.4	30.9	5,636	2.4	23.9	367	8.4	26.9	2,763	3.5	23.0
Pharmacy	66,789	16.5	16.4	22,251	27.1	14.3	34,279	14.3	17.7	902	20.7	19.7	9,357	11.7	20.4
Mod priv	196,804	48.5	9.1	35,733	43.5	6.0	130,964	54.8	12.1	2,493	57.1	11.5	27,614	34.5	11.0
Public	34,252	8.5	2.9	2,955	3.6	2.0	23,983	10.0	3.2	377	8.6	6.8	6,937	8.7	5.4
Non-govt.	28,114	6.9	5.4	3,841	3.7	5.7	9,420	3.9	4.8	63	1.4	3.0	14,790	18.5	6.3
Mod unqual	12,421	3.1	1.6	2,639	3.2	.9	7,462	3.1	2.2	0	0	0	2,320	2.9	2.9
Homeopath	11,476	2.8	3.0	3,620	4.4	2.3	5,040	2.1	3.4	69	1.6	3.9	2,747	3.4	4.3
Tradit	40,716	10.0	5.6	4,962	6.0	2.9	22,140	9.3	8.0	95	2.2	4.3	13,519	16.9	8.2
All	405,416	100	100*	82,079	100	100*	238,924	100	100*	4366	100	100*	80,047	100	100*

*= Total number of contacts : All illnesses=18,262; minor illnesses=8,593; severe illnesses=7,711; don't know=234; chronic illnesses=1,724.

CHAPTER 2

DIRECT EXPENDITURE BY HEALTH-CARE OPTION

A. AVERAGE EXPENDITURE PER HEALTH-CARE CONTACT BY HEALTH-CARE OPTION AND ILLNESS SEVERITY

Table 5 shows mean and median direct user expenditure per contact for all health-care options considered in this study. We observe the following:

Table 5: Average expenditure per health-care option
by illness severity

Illness	All Mean	SE	Median	Minor Mean	SE	Median	Severe Mean	SE	Median
Wait-and-See	0	0	0	0	0	0	0	0	0
Home-care	2.6	0.2	0	2.3	0.3	0	3.1	0.3	0
Pharmacy	21.8	0.9	10	18.1	1.2	10	25.1	1.3	14
Modern priv	115.0	19.1	58	69.7	3.8	50	139.9	29.5	65
Public	63.7	9.0	12	17.1	2.4	4	95.9	14.8	15
Mod non-govt.	15.4	1.7	4	7.8	1.1	3	25.3	3.5	8
Mod unqualif	41.4	3.3	22.5	35.7	5.3	20	43.9	4.2	25
Homeopath	18.8	0.8	10	18.2	1.2	12	19.2	1.1	10
Traditional	31.4	2.6	10	19.9	3.0	5	36.0	3.4	11
All	19.7	1.7	0	9.6	0.4	0	30.98	3.7	1

1.   When all illness cases are considered, there are *4 more or less homogeneous groups of health-care options* with regard to the mean direct expenditure per contact:
*   for wait-and-see, it is per definition zero; for home-care, it is very low, about taka 3;
*   next are three options with mean costs between taka 15 and 22: modern non-government care (tk 15), homeopathy (tk 19), and pharmacies (tk 22);
*   traditional care has a mean direct expenditure of taka 31 and modern unqualified care of taka 41;
*   finally, the highest mean direct expenditures per contact are for public care (tk 64) and for modern private care, that has almost double the expenditure of public care, amounting to tk 115.

Standard errors for all health-care options are small (less than taka 3.5), except for public (taka 9.0) and modern private care (taka 19.1).

2.   When mean direct cost per contact for each health-care option is considered in severe illness cases, and compared with the data for minor illness cases, it is observed that:
*   The mean expenditure per contact is, for all health-care options, *higher* in severe illness cases;

- The mean costs per contact are, in severe illness, *substantially higher* for modern institutional care (i.e. modern private, public and non-government care) and traditional care;

- In comparison, for home-care, homeopathy and, to a lesser extent, pharmacies and modern unqualified practitioners, the mean expenditure per contact is *similar* for both minor and severe illnesses. This may be explained by the fact that these are rather informal types of health-care options, where the same distinction is not made as in modern qualified care between minor and severe illness conditions;

- In minor and severe illness, the mean direct expenditure per contact is clearly *the highest* for modern private care (taka 70 and 140 respectively). In severe illness it is followed by public care (taka 96). In minor illness, it is followed by modern unqualified care (taka 36) that is also the third most important option in severe illness (taka 44).

3.   The **median values** are *in all instances smaller than* the **mean values**, pointing at distributions in direct expenditure skewed to the right, as indicated in the Introduction to this Part of the Working Paper. The skewedness is greatest (i.e. median values less than half the values of the means) for:

- home-care, public care, non-government and traditional care in both minor and severe illness cases;

- modern private care in severe illness cases. However, the median for modern private care is clearly the highest of all health-care options; it is more than double the median of the two next most expensive health-care options according to their means, namely public care and modern unqualified care.

B. COST STRUCTURE PER HEALTH-CARE CONTACT

1. RELATIVE CONTRIBUTION OF COST ITEMS INTO THE COST STRUCTURE PER HEALTH-CARE CONTACT

Tables 6a, b, and c on page 12 detail the cost structure per health-care contact by health-care option, in relative terms, for all non-chronic illness cases combined, and for minor and severe cases separately. The cost items are discussed below, according to their relative contribution into the combined cost figure for all illness cases (Table 6a), and, where appropriate, for mild and severe cases as well (Tables 6b and 6c):

1.   **Drugs** (include all treatment that the patient received through oral, parenteral or anal administration) contribute 70% of the overall cost structure per health-care option contact. They are clearly more important for *pharmacies* (where expenses for drugs, as may be expected, cover almost entirely the total cost per contact), modern unqualified practitioners, home-care (i.e. purchase of food or other non-medical items for home-treatment purposes), and homeopathy. They are relatively the least important as a cost item in non-government services (35%). For public facilities and traditional healers, and, to a lesser extent, modern private care, the

average percentages are near to the overall percentage of 70%. This picture is hardly affected by illness severity, as it appears from Table 6b and c.

2. **Consultation** (9%) and **admission fees** (1%) represent together about 10% of the cost structure per health-care option contact. They are particularly important in relative terms in *modern private* (15%) and *non-government* (16%) care. (However, as we will see in the next section, they are in absolute terms only substantial in the former.) In home-care there are also some 'consultation fees': these are fees given to community members for their help. (Again, they are, in absolute terms very small.) Furthermore, in public care and homeopathy, these fees represent about 4% to 5% of the cost structure, in modern unqualified care 6%, and in traditional care 8%. Percentage contributions by consultation and admission fees combined, double in minor illness cases (compared to the contribution in all illness cases combined) for pharmacies, public, non-government and modern unqualified care and are halved for traditional care and homeopathy. In severe cases, they are for each health-care option, similar to the averages for all illness cases combined.

3. **Travel** expenses account, overall, for about 6% of the overall cost structure per health-care option contact. However, they are substantial in relative terms for *non-government* and *public care* (38% and 18% respectively for all illnesses combined), and, to a lesser extent, traditional healers (12%). For all other health-care options, they represent only a few percentages. For home-care, travel expenses indicate that the people may have to go to the market to get some specified food to treat a particular illness case.

4. The cost item **surgical intervention** is particularly important for severe illness cases and *modern private care* (15%), and, to some extent, in public care (1%). It is also relatively significant in minor illness for traditional healers (4%). It is nil for the other health-care options, except for pharmacies, where it is almost zero in minor illness.

5. Only in severe illness and for *public* and *modern* private care, there are expenses for **hospitalisation** (8 and 5% respectively).

6. Expenses for **diagnostic tests** are found in severe illness for the *three modern qualified health-care options* (5% each) and some for pharmacies, while in minor illnesses they are only present in modern private and particularly, non-government care (4% and 14% respectively).

7. **Other expenses** are of some importance only in severe illness cases for *traditional healers*, and, to a lesser extent, for *non-government* and *public care*. In this cost item gifts (e.g. in the case of traditional care, to the Imam after consultation as a contribution to his social works), food for the patient (in the case of modern qualified care options), and tips and bribes (in the cases of public and non-government care), and such similar expenses are included.

Table 6a: Cost structure per health-care contact by health-care
options in all illness cases combined (Relative figures)

ALL illness cases	Cost items*								Mean expend
	Tra-vel	Admis sion	Consul tation	Drugs	Surg inter	Hospi talis	Diag test	Other	
Wait-and-See	-	-	-	-	-	-	-	-	-
Home-care	1.7	4.3	4.3	93.6	-	-	-	.3	2.6
Pharmacy	.7	1.0	.9	98.2	.1	-	.2	-	21.8
Modern private	3.2	15.0	15.3	59.5	12.1	4.8	4.7	.4	115.0
Public	17.5	4.5	1.5	63.4	.9	7.5	4.3	2.0	63.7
Non-govt.	38.2	14.2	16.0	35.2	-	-	8.0	2.6	15.4
Mod unqualif	.7	-	6.0	93.6	-	-	-	-	41.4
Homeopathy	4.8	.4	5.0	90.5	-	-	-	-	18.8
Traditional	12.3	-	8.0	74.1	.8	-	-	4.9	31.4
All	6.1	.9	9.4	70.0	6.5	3.1	3.2	.9	19.7

Table 6b: Cost structure per health-care contact by health-care
options in minor illness cases (Relative figures)

MINOR illness cases	Cost Items*								Mean expend
	Tra-vel	Admis sion	Consul tation	Drugs	Surg inter	Hospi talis	Diag test	Other	
Wait-and-See	-	-	-	-	-	-	-	-	-
Home-care	2.6	.05	8.0	89.1	-	-	-	.03	2.3
Pharmacy	.6	.04	.4	98.8	.2	-	-	-	18.1
Modern private	3.4	.01	20.1	71.9	.3	-	4.4	-	69.7
Public	27.1	7.7	10.0	62.1	-	-	-	1.0	17.1
Non-govt.	27.9	25.5	30.0	28.3	-	-	14.3	-	7.8
Mod unqualif	1.4	-	12.0	86.2	-	-	-	-	35.7
Homeopath	5.4	.5	2.0	92.7	-	-	-	-	18.2
Traditional	13.8	.02	4.0	76.3	4.0	-	-	1.5	19.9
All	5.2	1.5	10.4	79.7	.4	-	2.6	0.1	9.6

Table 6c: Cost structure per health-care contact by health-care
options in severe illness cases (Relative figures)

SEVERE illness cases	Cost Items*								Mean expend
	Tra-vel	Admis sion	Consul tation	Drugs	Surg inter	Hospi talis	Diag test	Other	
Wait-and-See	-	-	-	-	-	-	-	-	-
Home-care	.8	-	-	98.6	-	-	-	.7	3.1
Pharmacy	.8	.03	1.2	97.8	-	-	.3	-	25.1
Modern private	3.2	.03	14.0	56.2	15.3	6.1	4.8	.5	139.9
Public	16.3	2.3	1.5	63.5	1.0	8.4	4.8	2.1	95.9
Non-govt.	42.4	9.7	1.1	38.0	-	-	5.4	3.6	25.3
Mod unqualif	.4	-	3.5	96.1	-	-	-	-	43.9
Homeopath	4.4	.3	7.0	88.9	-	-	-	-	19.2
Traditional	11.9	-	9.0	73.6	.1	-	-	5.7	36.0
All	6.4	.6	9.1	66.7	8.5	4.2	3.4	1.2	31.0

*All figures are row percentages.

2. ABSOLUTE CONTRIBUTION OF COST ITEMS INTO THE COST STRUCTURE PER HEALTH-CARE CONTACT

The relative importance of the different cost items in the cost structure per contact for each health-care option having been discussed, we now consider the main absolute figures from Tables 7a, b and c.

1. **Drug** costs per contact are clearly the highest for *modern private care* in both minor and severe illness cases (taka 50 and 79 respectively). It is followed by *public care* (particularly in severe illness, taka 61) and *modern unqualified care* (particularly in severe illness, taka 42). The high drug cost for public care exemplifies what was indicated in Chapter 1 of this Part on the consequences of supply shortage in public health facilities.
    In contrast, with the exception of home-care, the drug cost is the lowest in non-government care (i.e. taka 2 and 10 in minor and severe illness cases respectively).

2. **Consultation** and **admission fees** combined, are again by far the highest for *modern private care*, i.e. taka 14 and 20 in mild and severe illness cases respectively. For other health-care options, they are comparatively much less.

3. **Travel costs** are the highest for *public care* (taka 16 in severe illness), followed by *non-government care* (particularly in severe illness, taka 11), and to a lesser extent, modern private and traditional care. Travel expenses per contact with public and non-government care are much lower in mild illness cases, which may indicate that people make use of public and non-government care during mild illness cases only when they are conveniently located.

4. The mean cost per contact for **surgical interventions** is only important in *modern private care* and severe illness (taka 21, which represents the considerable cost of a few surgical interventions, divided by the total number of contacts with modern private care in severe illness).

5. For **hospitalisation** and **diagnostic tests**, the mean expenditure per contact is of importance in *modern private* and *public care* and in severe illness cases. Hospitalisation again reflects the considerable cost of a limited number of cases with admission to hospital.

Hospitalisation cases and surgical intervention cases are discussed in more detail in HEP Working Paper No.6-98.

Table 7a: Cost structure per health-care contact by health-care options in all illness cases combined (Absolute figures as means)

ALL illness cases	Cost items*								Mean expend
	Travel	Admission	Consultation	Drugs	Surg inter	Hospitalis	Diag test	Other	
Wait-and-See	-	-	-	-	-	-	-	-	-
Home-care	.04	-	.1	2.4	-	-	-	.01	2.6
Pharmacy	.2	.01	.2	21.4	.02	-	.04	-	21.8
Modern private	3.7	.03	17.6	68.5	13.9	5.5	5.5	.4	115.0
Public	11.2	1.9	1.0	40.3	.6	4.8	2.7	1.3	63.7
Non-govt.	5.9	2.2	.3	5.4	-	-	1.2	.4	15.4
Mod unqualif	.3	-	2.4	38.7	-	-	-	-	41.4
Homeopathy	.9	.07	.8	17.0	-	-	-	-	18.8
Traditional	3.8	-	2.5	23.2	.3	-	-	1.5	31.4
All	1.2	.2	1.9	13.8	1.3	.6	.6	.2	19.7

Table 7b: Cost structure per health-care contact by health-care options in minor illness cases (absolute figures as means)

MINOR illness cases	Cost Items*								Mean expend
	Travel	Admission	Consultation	Drugs	Surg inter	Hospitalis	Diag test	Other	
Wait-and-See	-	-	-	-	-	-	-	-	-
Home-care	.06	-	.2	2.0	-	-	-	-	2.3
Pharmacy	.1	.01	.1	17.9	.04	-	-	-	18.1
Modern private	2.3	.01	14.0	50.1	.2	-	3.1	-	69.7
Public	4.6	1.3	.4	10.6	-	-	-	.2	17.1
Non-govt.	2.2	2.0	.3	2.2	-	-	1.2	-	7.8
Mod unqualif	0.5	-	4.4	30.8	-	-	-	-	35.7
Homeopath	1.0	.09	.3	16.9	-	-	-	-	18.2
Traditional	2.8	-	.9	15.2	.8	-	-	.3	19.9
All	.5	.1	1.0	7.6	.04	-	.3	.01	9.6

Table 7c: Cost structure per health-care contact by health-care options in severe illness cases (absolute figures as means)

SEVERE illness cases	Cost Items*								Mean expend
	Travel	Admission	Consultation	Drugs	Surg inter	Hospitalis	Diag test	Others	
Wait-and-See	-	-	-	-	-	-	-	-	-
Home-care	.02	-	-	3.0	-	-	-	.02	3.1
Pharmacy	.2	.01	.3	24.5	-	-	.07	-	25.1
Modern private	4.4	.04	19.5	78.6	21.4	8.6	6.8	.7	139.9
Public	15.7	2.2	1.4	60.9	1.0	8.1	4.6	2.0	95.9
Non-govt.	10.7	2.4	.3	9.6	-	-	1.4	.9	25.3
Mod unqualif	.2	-	1.5	42.2	-	-	-	-	43.9
Homeopath	.9	.05	1.2	17.1	-	-	-	-	19.2
Traditional	4.3	-	3.2	26.5	.03	-	-	2.0	36.0
All	2.0	.2	2.8	20.7	2.6	1.3	1.1	.4	31.0

*All figures are taka amounts.

CHAPTER 3
DIRECT EXPENDITURE PER ILLNESS EPISODE

Several aspects of direct expenditure per illness episode are presented in this chapter : expenditure by illness severity, by illness severity and illness category, and the out-of-pocket cost structure per illness episode.

A. AVERAGE EXPENDITURE PER ILLNESS EPISODE BY ILLNESS SEVERITY

Table 8 shows the mean and median expenditure per illness episode for all non-chronic illnesses combined, and on minor and severe illness episodes separately.

The overall *mean* expenditure per illness episode for all illness episodes combined stands at taka 35.80 or almost one US dollar (US$ 0.90, with a standard error of taka 3.3 or US cent 8.25). However, the overall mean expenditure for severe illness is more than four times that for minor ailments, namely taka 65.3 or US$ 1.60 (standard error taka 8.0 or USCent 20), versus taka 15.46 or US$ 0.39 (standard error taka 0.7 or US cent 2).

Table 8: Average expenditure per illness episode
by illness severity

Illness type	Expenditure per illness episode		
	Mean	SE	Median
Minor episodes	15.46	0.7	0
Severe episodes	65.30	8.0	15
All	35.80	3.3	3

The *median* expenditure in minor illness episodes is zero, which indicates that more than 50% of them ended without out-of-pocket-expenses (see also Fig. 1 in the Introduction section) This phenomenon is explained by the fact, detailed in HEP Working Paper No.4-98, that there is an extensive use of wait-and-see and home-care as the only health-care options or in combination, particularly in minor illness episodes.

In addition, the median expenditure is taka 15 in severe illness episodes, and in all episodes combined, taka 3. These medians are substantially smaller than the corresponding means. This reflects on the lesser importance given to options like wait-and-see and home-care and of other less expensive health-care options in severe illness cases on one hand, and the existence of a number of severe illness episodes involving high out-of-pocket expenses on the other (see also Fig. 1 in the Introduction section). In the following sections, only the mean values will be discussed, and, where required, the median values as well.

B. AVERAGE EXPENDITURE PER ILLNESS EPISODE BY ILLNESS SEVERITY AND CATEGORY

Table 9 shows the mean and median expenditure per illness episode by illness severity and illness category.

The first finding is that the four most frequently occurring illness categories (cold fever, fever, diarrhoea and skin ailments) have fairly similar average expenditures per episode, whether it be for minor illness episodes (taka 11.4 to 16.2) or for severe ones (taka 31.5 to 50). In addition to this, two categories have lower average expenditures than the ranges mentioned above, namely eye ailments and headache.
The four illness categories mentioned above, are joined in *minor* illness cases by three other categories, respiratory ailments, gastric pain and dysentery, and in *severe* illness cases by two categories, dysentery and joint ailments.
Finally, in *minor* illness cases, the remaining four categories - injury, joint ailment, other illness, and particularly jaundice - clearly show higher averages (taka 25 to 27 for the former three, and taka 58 for jaundice). In *severe* illness, jaundice is joined by the categories injuries, respiratory ailments, and gastric pain. (taka 75 to 96) The category of other illness cases shows by far the highest average expenditure per illness episode, namely taka 135, but also clearly the highest standard error.

Table 9: Average expenditure per illness episode by illness severity and illness category

Illness	All			Minor			Severe		
	Mean	SE	Median	Mean	SE	Median	Mean	SE	Median
Cold fever	18.9	1.5	0	11.4	0.8	0	37.2	4.6	12
Fever	27.6	2.0	3	16.2	1.4	1	49.6	5.0	14
Diarrhoea	26.9	2.1	5	13.8	1.7	2	44.8	4.4	15
Skin ailment	19.0	1.7	2	12.6	1.8	0	31.5	3.6	11
Headache	9.6	3.1	1	2.6	0.7	0	17.9	6.7	2
Eye ailment	13.4	2.3	0	8.6	1.6	0	24.4	6.4	10
Respiratory ailment	33.3	7.5	0	12.5	2.0	0	75.5	21.8	12
Gastric pain	56.1	10.5	10	12.1	2.7	0	84.4	16.9	16.5
Dysentery	31.7	4.0	15	18.5	3.1	7	41.5	6.5	20
Joint ailment	38.2	5.6	4	25.3	6.0	0	49.8	9.2	9
Injury	60.6	6.9	12	27.4	10.3	0	80.2	8.9	32
Jaundice	84.4	10.4	32.5	58.7	14.9	24	96.3	13.5	40
Other illnesses	88.1	22.1	5	25.1	3.0	0	134.8	41.6	16
All	35.80	3.3	3.0	15.5	0.7	0	65.3	8.0	15

C. COST STRUCTURE PER ILLNESS EPISODE

1. OVERALL COST STRUCTURE PER ILLNESS EPISODE AND BY SEVERITY

When considering the cost structure per illness episode (Table 10), the most striking element is the overwhelming contribution of **drugs** in the average expenditure per illness episode (80% or taka 12 in minor episodes, and 67% or taka 44 in severe episodes). As mentioned above, the item 'drugs' includes all treatment received by the patient received through oral, parenteral, or anal administration.

Consultation and **admission fees** constitute about 9-10% of the total expenditure per illness episode. **Surgical interventions** and **hospitalisation** costs are almost nonexistent for minor illness episodes, but for severe episodes they represent 9% and 4% respectively. **Diagnostic tests** account for about 3% and **travel** expenses for about 6% in both the illness severity categories. The cost item 'other' includes, as indicated earlier, gifts, food for the patient, and tips and bribes, and is of some importance only to severe illness episodes.

Table 10: Cost structure by illness episode and severity (non-chronic illness)

Cost item	All			Minor			Severe		
	Mean	SE	%	Mean	SE	%	Mean	SE	%
Travel	2.2	.2	6.1	.8	.1	5.2	4.2	.44	6.4
Admission fee	.3	.02	.9	.2	.02	1.5	.4	.03	.6
Consultation	3.4	.3	9.4	1.6	.18	10.4	5.9	.6	9.1
Drugs	25.1	1.1	70.0	12.3	.5	79.7	43.6	2.6	66.7
Surgical interv	2.3	1.5	6.4	.1	.04	.4	5.6	3.7	8.5
Hospitalisation	1.1	.9	3.1	.0	.00	.2	2.7	2.2	4.2
Diagnostic test	1.1	.2	3.2	.4	.12	2.6	2.2	.4	3.4
Others	.3	.1	.9	.02	.01	.1	.8	.2	1.2
All	35.8	3.3	100	15.46	.68	100	65.3	8.0	100

2. COST STRUCTURE PER ILLNESS EPISODE BY ILLNESS CATEGORY AND SEVERITY

Table 11 details the cost structure per illness episode by illness category for minor and severe illness episodes respectively, and for all illness episodes combined.
Per illness category, data for the cost items are percentages of the total mean cost per illness episode, presented in the last column of each table. In the tables for minor and severe illness cases, and for each cost item, the percentages, which are the most prominent deviations from the average, are in bold.

In *minor illness*, the illness category of **injuries** has a particular cost structure, with percentages for consultation costs and surgical interventions clearly higher and, for drugs definitively lower. Another category with a rather particular cost structure is **eye ailments**. This is accompanied by higher than average proportions for admission fees and costs for

diagnostic tests, and a lower than average proportion for consultation fees. Finally, in the illness category **jaundice**, the proportion for travel costs is particularly high, the fees for admission zero, and for consultation very low.

In addition, the proportion for travel costs is particularly high in cases of headache and diarrhoea cases, and for admission fees relatively high in skin ailments. Conversely, the proportion for consultation fees is clearly lower in episodes of gastric pain, and the proportion for diagnostic tests clearly higher in the category of other illness cases.

In *severe* illness episodes, diarrhoea (as is the case in minor illness) and gastric pain cases have the highest proportion for travel costs, and skin and eye ailments for admission fees (also as in minor illness). Particular for severe illness are the following findings:
- higher proportions for consultation fees in dysentery and joint ailment episodes;
- higher proportions for diagnostic tests in eye ailments (four-fold the average) and jaundice (three-fold the average);
- and finally, the cost item 'other' is higher in respiratory ailments;
- the category 'other illnesses' has a cost structure distinct from all other categories: drugs constitute only 49% of the cost, while the proportions for surgical interventions and hospitalisation are more than twice the average.

Thus, when relative contributions of cost items are considered, the cost structure per illness episode is associated with the category of illness, and within one category with illness severity for several illness categories.

Table 11: Cost structure per illness episode by illness category and severity

MINOR illness episodes	Cost Items*								Mean expen
	Travel	Admission	Consultation	Drugs	Surg. inter	Hospitalis	Diagn test	Others	
Cold fever	2.6	1.9	8.9	83.9	-	-	2.0	0.6	11.4
Fever	2.1	1.0	11.9	83.3	-	-	1.7	0.1	16.2
Diarrhoea	9.6	0.9	10.3	75.4	-	-	3.7	0.1	13.8
Skin ailment	6.8	3.6	11.8	77.9	-	-	-	-	12.6
Injury	4.1	0.5	17.9	68.6	5.9	-.	2.9	0.1	27.4
Resp ailment	2.6	2.3	8.0	83.3	-	-	3.8	-	12.5
Eye ailment	8.6	4.4	4.7	78.4	-	-	3.9	-	8.6
Gastric pain	6.1	1.0	6.7	86.3	-	-	-	-	12.1
Dysentery	2.5	1.5	9.7	86.3	-	-	-	-	18.5
Headache	10.6	2.8	-	86.7	-	-	-	-	2.6
Joint ailment	4.3	0.5	12.9	82.3	-	-	-	-	25.3
Jaundice	15.8	-	5.6	76.9	-	-	1.7	-	58.7
Other illnesses	6.2	1.4	10.5	75.4	1.0	-	5.6	-	25.1
All	5.2	1.5	10.4	79.7	0.4	-	2.6	0.1	15.5

SEVERE illness episodes	Cost Items*								Mean expen
	Travel	Admission	Consultation	Drugs	Surg inter	Hospitalis	Diag test	Others	
Cold fever	5.6	1.6	9.4	75.1	-	6.1	2.1	0.1	37.2
Fever	3.5	0.6	11.4	80.2	.01	.01	4.0	0.3	49.6
Diarrhoea	15.8	0.5	7.6	73.9	-	-	0.2	1.9	44.8
Skin ailment	3.8	2.4	7.8	80.0	-	-	5.5	0.7	31.5
Injury	6.0	0.7	5.6	83.9	2.2	-	1.3	0.3	80.2
Resp ailment	4.4	0.9	7.9	74.9	-	5.0	3.0	4.0	75.5
Eye ailment	8.4	1.9	6.4	68.8	0.9	-	13.7	-	24.4
Gastric pain	10.9	0.3	7.7	75.8	-	-	5.2	0.1	84.4
Dysentery	4.0	0.8	14.1	80.9	-	-	-	0.2	41.5
Headache	3.7	0.2	8.6	87.4	-	-	-	-	17.9
Joint ailment	5.3	0.5	16.1	76.8	-	-	-	1.4	49.8
Jaundice	8.0	0.1	6.3	75.4	-	-	10.1	0.2	96.3
Other illnesses	5.0	0.4	9.3	49.1	21.7	9.1	3.6	1.8	134.8
All	6.4	0.6	9.1	66.7	8.5	4.2	3.4	1.2	65.3

ALL illness episodes	Cost Items*								Mean expen
	Travel	Admission	Consultation	Drugs	Surg inter	Hospitalis	Diag test	Others	
Cold fever	4.3	1.7	9.2	78.9	-	3.5	2.1	0.3	18.9
Fever	2.9	0.8	11.6	81.4	0	0	3.1	0.2	27.6
Diarrhoea	14.0	0.6	8.4	74.4	-	-	1.2	1.4	26.9
Skin ailment	5.1	2.9	9.5	79.0	-	-	3.1	0.4	19.0
Injury	5.7	0.7	7.7	81.3	2.9	-	1.5	0.3	60.6
Resp ailment	3.9	1.2	7.9	77.0	-	3.7	3.2	3.0	33.3
Eye ailment	8.5	3.0	5.6	73.1	0.5	-	9.3	1.0	13.4
Gastric pain	10.5	0.4	7.6	76.7	-	-	4.7	0.1	56.1
Dysentery	3.6	1.0	13.0	82.2	-	-	-	0.2	31.7
Headache	4.7	0.6	7.4	87.3	-	-	-	-	9.6
Joint ailment	5.0	0.5	15.1	78.5	-	-	-	1.0	38.2
Jaundice	9.7	0.1	6.1	75.7	-	-	8.2	0.1	84.4
Other illnesses	5.2	0.5	9.4	52.8	18.7	7.8	3.9	1.6	83.1
All	6.1	0.9	9.4	70.0	6.4	3.1	3.2	0.9	35.8

*All figures are row percentages.

CHAPTER 4

DIRECT EXPENDITURE ON ILLNESS: DEMOGRAPHIC VARIABLES

In this and the following chapters of this Part, direct expenditure will be presented for the same demographic, sociocultural and economic variables, as those used in HEP Working Paper No.4-98 for illness occurrence and health-care option use.

As mentioned above, each explanatory variable will be examined using means and medians as measures of central tendency and as parameter illness episode, because it is, unlike direct expenditure per person-month, independent from illness incidence. Figures will be used for representing the indicators. The tables with the corresponding data (including standard errors for the means to estimate confidence intervals), are in the annexes of this Working Paper : 1 (demographic variables), 2 (socio-cultural variables), 3 (economic variables), and 4 (proximate indicators for socioeconomic status). For the variables seasonal variation and household income, direct health-care expenditure as a component of mean monthly household expenditure, will be examined as well, using the data of the socioeconomic surveillance system.

A. AGE

As in HEP Working Paper No.4-98 on health-care option use, two age-groups - early childhood (0 to 5 years of age) and adulthood (19 to 45 years of age) are compared here for direct health-care expenditure per illness episode on the same selection of five main illness categories: cold fever, fever, and diarrhoeal, skin and respiratory ailments (Fig. 3, median and mean expenditure). Keeping this in mind, the following is observed:

• Except the median in severe illness cases, the median and mean direct expenditure per illness episode are *smaller* in early childhood compared to those in adulthood for all illness episodes combined, and minor and severe illness episodes separately;

• The means of the two age-groups are, in all three the illness types (all, minor and severe), statistically different, since the 95% confidence intervals do not overlap.

Fig. 3: Median and mean direct expenditure per illness episode
by age (selected illness cases)
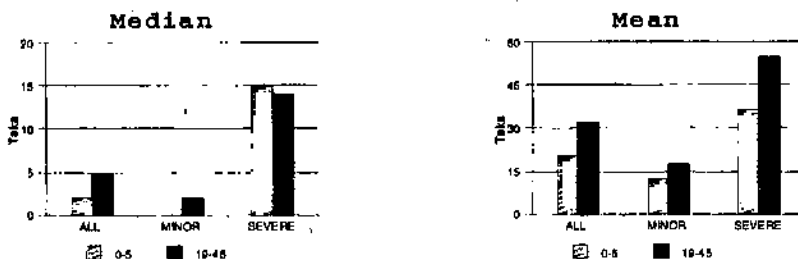
B. AGE AND GENDER

When age and gender are considered for the same selection of five illness categories
[Fig. 4 (median expenditure) and Fig. 5 (mean expenditure)], the following is deducted:

• The median direct expenditure per minor or per severe illness episode is in each
age-group lower for females than for males, except in the case of severe illness in
the 13-18 year age-group;
• The mean expenditure per illness episode shows a similar picture. In severe illness,
the mean is lower for females in all age groups. In minor illness cases, the mean is
slightly higher for females in three out of the five age-groups. However, only for
the 0-5 year age-group and severe illness, the difference in means is statistically
significant.

Fig. 4: Median direct expenditure per illness episode
by age and gender(selected illness categories)
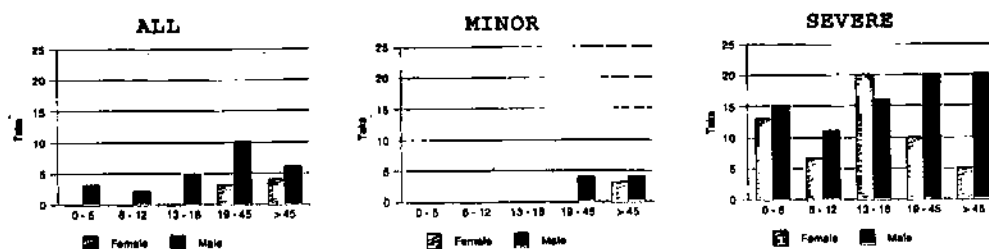
Fig. 5: Mean direct expenditure per illness episode
by age and gender (selected illness categories)

These are the data for a selection of five illness categories, so as to avoid gender
bias, because some illness categories are gender-related (particularly those of the
reproductive tract). Thus, if *all* illness cases are combined, mean expenditure per illness
episode is slightly higher for females in the three age groups above 12 years, while the
median values are clearly lower for all age groups. These discrepancies between means and
medians may be attributed to the non-normal distribution of the observations (this was

already highlighted in the Introduction to this Part of the Working Paper) and further suggest that in females aged above 12 years, there are more illness episodes - other than those from the five main illness categories used above - with substantial direct expenditure. In the category of mean expenditure taka 301-500, there are 47 episodes for females against only 27 for males, and in the category above taka 500, the figures are 52 and 33, respectively.

C. HOUSEHOLD LOCATION

Fig. 6 shows higher direct expenditure for the households in public slums in minor illness episodes, while the situation is reverse in the case of severe illness episodes. However, in the case of the means, the associations are statistically not significant, as 95% confidence intervals overlap.

Fig.6 : Median and mean direct expenditure per illness episode
by household location
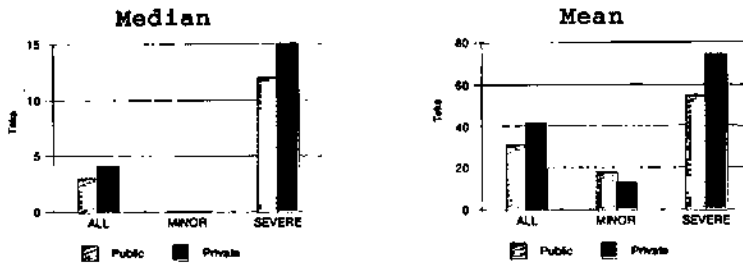
D. SEASONAL PATTERN

In this section we refer to the data of the socioeconomic and demographic surveillance and the discussion on monthly household expenditure in HEP Working Paper No.3-98. Chapter 3. It was stated there that the mean household expenditure for health-care is statistically similar over the 6 survey-months. The median expenditure figures show the same pattern.

CHAPTER 5

DIRECT EXPENDITURE ON ILLNESS: SOCIOCULTURAL VARIABLES

A. HOUSEHOLD RELIGION

Fig. 7 represents median and mean direct expenditure per illness episode by religious affiliation of the household. It indicates that, with the 95% confidence intervals of the means overlapping, there are no significant differences between Muslim and Hindu families. The medians and means show opposite results in severe illness.

Fig. 7: Median and mean direct expenditure per illness episode by religion

B. HOUSEHOLD ETHNICITY

Taking into account the 95% confidence intervals, household ethnicity results in significant differences in mean direct expenditure per illness episode in *minor* illness cases. However, in *severe* cases, both Bengali and Bihari spend to a similar extent, with again medians and means having opposite results in severe illness and all illness cases combined (Fig. 8).

Fig.8: Median and mean direct expenditure per illness episode by household ethnicity
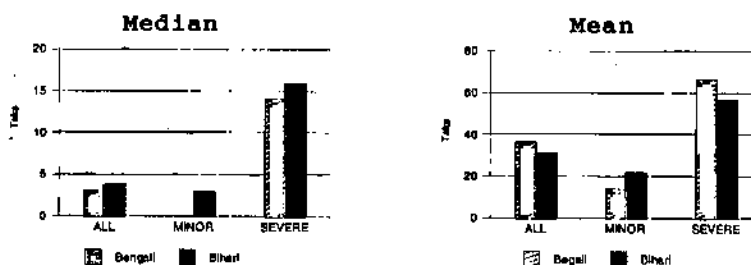
C. EDUCATION

1. FATHER'S EDUCATION

When father's education and childhood illness (up to 12 years of age) are considered, the median and mean direct expenditures per illness episode increase with increasing education level, except for the median expenditure in severe illness cases (Fig. 9). However, the increases in the means are statistically not significant, as the 95% confidence intervals are overlapping.
Furthermore, as is the case for many other variables under investigation, the medians in minor illness cases remain zero.

Fig. 9: Median and mean direct expenditure per illness episode
by father's education (child illness up to 12 years of age)
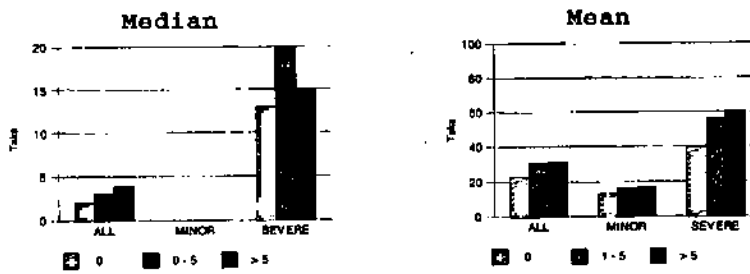
2. MOTHER'S EDUCATION

Considering mother's education, the median values do not show any trend. On the other hand, the mean direct expenditure figures in the case of mother's education increase more than what we found for father's education, particularly in severe illness episodes (Fig. 10). However, as is the case for father's education, the 95% confidence intervals show no statistically significant differences.

Fig. 10: Median and mean direct expenditure per illness episode
by mother's education (child illness up to 12 years of age)
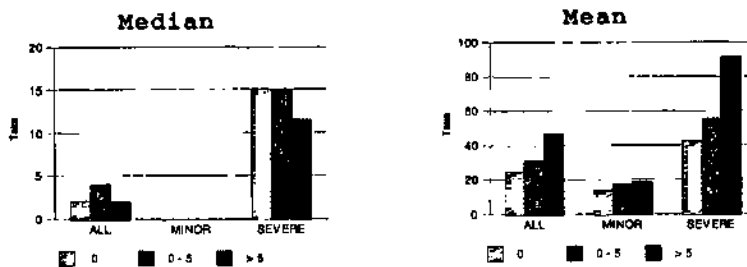
CHAPTER 6

DIRECT EXPENDITURE ON ILLNESS: ECONOMIC VARIABLES

A. HOUSEHOLD INCOME

1. HEALTH-CARE COSTS AS A COMPONENT OF DIRECT HOUSEHOLD EXPENDITURE

Similar to the data for seasonal variation discussed earlier, data to explore health-care expenditure as a component of direct household expenditure have also been taken from the socioeconomic and demographic surveillance system, presented in HEP Working Paper No.3-98. We concluded there that in *relative* terms, expenses for health-care remain in the four lowest income-quintiles more or less constant at about 3% of total mean household expenditure. Only in the highest income quintile the contribution of expenses for health-care rises to about 5.5%. In contrast, while direct expenditure for health-care does not show a particular trend over the income quintiles in relative terms, it does, however, increase in *absolute* terms from the first to the third income quintile with about one-third, and in the same proportion from the third to the fourth quintile. It more than doubles between the latter and the fifth income quintile.

These mean expenditures nevertheless, should be adjusted for household size and illness incidence in each income quintile, as associations were found in HEP Working Papers No. 3-98 and 4-98 between household income and household size on one hand, and illness incidence on the other. Therefore, the parameter 'direct expenditure per illness episode' by income level, being independent from household size and illness incidence as discussed above, will be presented in the next section.

2. DIRECT EXPENDITURE PER ILLNESS EPISODE

The expenditure data are taken from the illness surveillance, as all other expenditure data per illness episode, presented in the chapters of this Part. Fig. 11 graphically represents the median and mean direct expenditures per illness episode by income quintile. From there, the following is observed:

- With all illness episodes combined, there is a steady increase in the two parameters with the increasing household income levels, with the exception of income-quintile 3;
- Differences in means are statistically different in minor and severe illness : between quintile 1, and, quintiles 4 and 5; and between quintiles 2 and 3, and quintile 5;
- In addition, when the values of the mean expenditures are broken down for illness severity, the following is observed:
  For *minor* illness, the absolute expenditure is between taka 10 for the lowest quintile and taka 20 for the highest income quintile. In contrast, for *severe* illness, the absolute increase is from taka 33 in the lowest quintile to taka 127 in the highest quintile, while for the median, the increase is almost two-and-a-half fold, i.e. from

taka 8 to taka 21.

The fact that the taka-increase is much stronger for severe illness cases than for minor cases, appears to be related, amongst others, to the much lower overall mean expenditure per illness episode for minor illness.

Fig. 11: Median and mean direct expenditure per illness episode
by mean household income

Median   **Mean**
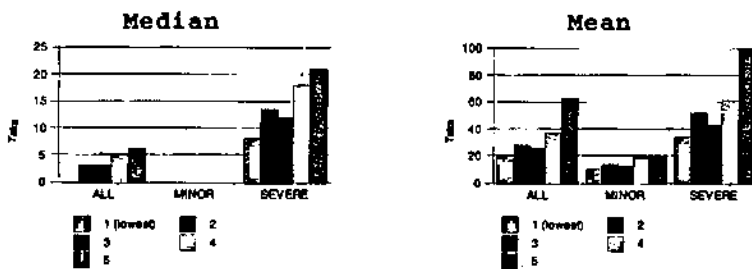
* in severe illness, real mean value for
income quintile 5: 127.1

B. OCCUPATION

1. DIRECT EXPENDITURE PER ILLNESS EPISODE BY WAGE UNIT

When direct expenditure per illness episode by wage unit (monthly versus daily) is considered, the following is observed (Fig. 12):

- In *minor* illness, the median direct expenditure per illness episode is similar for monthly and daily wagers. The mean direct expenditure, however, is greater for monthly wagers than for daily wagers, but the 95% confidence intervals nonetheless overlap;
- In *severe* illness, the median direct expenditure is greater for daily wagers, while the mean direct expenditure is greater for monthly wagers. For the latter the standard error is substantial, so that 95% confidence intervals are overlapping.

Fig. 12: Median and mean direct expenditure per illness episode
by wage unit

Median   **Mean**
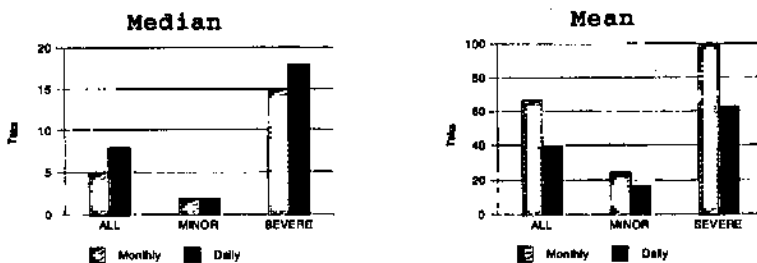
2. DIRECT EXPENDITURE PER ILLNESS EPISODE BY WAGE UNIT AND GENDER

In order to avoid gender bias, analyses were again conducted on the five main illness categories as for the variables age and gender. .

2.1. Daily wagers by gender

Considering direct expenditure per illness episode for daily wagers by gender, the following is observed (Fig. 13):

- In *minor* and in *severe* illness cases, the median and the mean direct expenditures are greater for male daily wagers;
- The mean direct expenditures in *minor* illness cases are statistically different, as 95% confidence intervals do not overlap.

Fig. 13: Median and mean direct expenditure per illness episode
for illness in daily wagers by gender
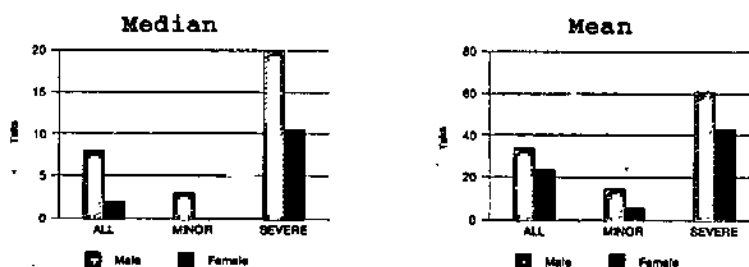
2.2. Monthly wagers by gender

When direct expenditure per illness episode for monthly wagers by gender is considered, a similar pattern as for the daily wagers is observed here (Fig. 14):

- In *minor* illness cases, the two parameters are again higher for male wagers, but the 95% confidence intervals for the means overlap here;
- In *severe* illness cases, median direct expenditure for males is more than double the one for females. The mean is also higher, but statistically not significant because of overlapping 95% confidence intervals.

Direct expenditure per illness episode for cold fever, fever, diarrhoea, and skin and respiratory ailments combined, is, thus, lower for female workers than for their male counterparts. However, there is a statistical validation only for minor illness and daily wagers.

Fig. 14: Median and mean direct expenditure per illness episode
for illness in monthly wagers by gender

Median
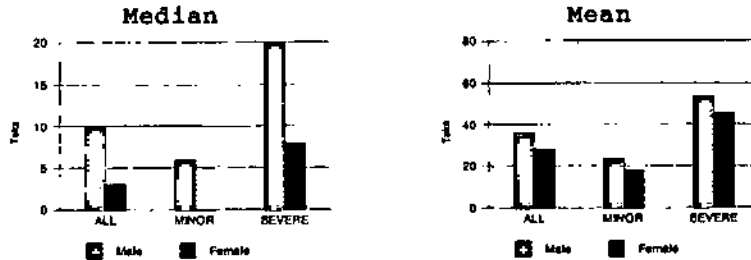
Mean

* in severe illness, the real mean value for female:149.5

3. DIRECT EXPENDITURE PER ILLNESS EPISODE BY TYPE OF OCCUPATION AND AGE

The same five main illness categories as those used in section 2 are also considered here.

3.1. In the 6 - 12 year age-group

When direct expenditure per illness episode is considered along with the type of occupational activity (i.e. school attendants versus non-school attendants/non-income earners) in the 6 - 12 year age-group, we observe that median and mean expenditures in minor as well as severe illness cases are similar for the two types (Fig. 15).

Fig. 15 : Median and mean direct expenditure per illness episode
by type of occupation in 6-12 year age-group

Median

Mean
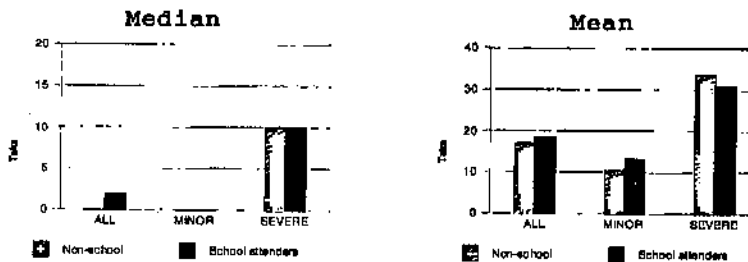
3.2. In the 13 - 18 year age-group

Direct expenditure per illness episode by the type of occupation (here income-earners versus school attendants) for the 13 - 18 year age-group is shown in Fig. 16. From there the following is observed:

- In *minor* illness cases, the median and mean direct expenditures are similar for income-earners and school attenders:
- In *severe* illness cases, the median and mean direct expenditures are substantially higher for school-attenders. However, the means are statistically not different because of overlapping 95% confidence intervals.

Fig. 16: Median and mean direct expenditure per illness episode by type of occupation in 13-18 year age-group
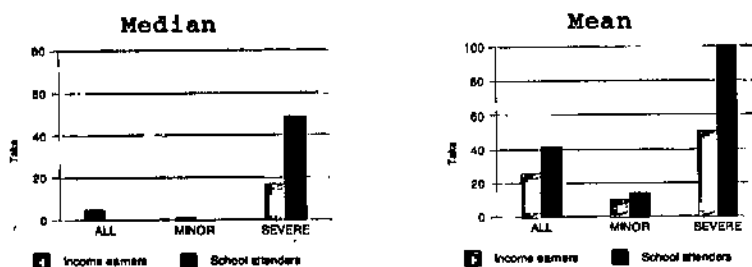
* in severe illness, the real mean value for school attendants: 110.4

4. DIRECT EXPENDITURE PER ILLNESS EPISODE BY OCCUPATION CATEGORY AND GENDER

The same five main illness categories are used here as in the previous two sections.

4.1. For male income-earners

When direct expenditure per illness episode is considered for male income-earners (using the same four main occupation categories as in HEP Working Paper No.4-98), the following is observed (Fig. 17):

- In *minor* illness cases, medians and means are comparable for all four the occupation categories;
- In *severe* illness cases, the medians are the highest for sales and garment workers (about taka 30). The mean, however, is the highest for service workers, but its standard error is substantial, so that the means of all occupation categories are statistically similar.

Fig. 17: Median and mean direct expenditure per illness episode
by main occupation categories for male income-earners

Median
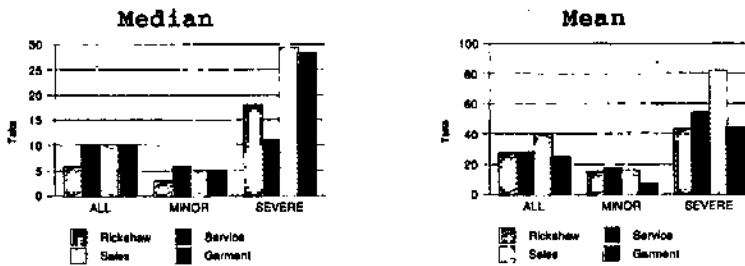
Mean

4.2. For female income-earners

Direct expenditure per illness episode for female income-earners (for the four main female occupation categories) is presented in Fig. 18. From there, the following can be observed:

- In *minor* illness, the mean direct expenditure is lowest for brick/stone cutters and other production/construction and transport workers;
- In *severe* illness, the high mean value for brick/stone cutters (more than double than for the other three occupation categories) is related to a very high standard error;
- However, the standard errors for all four occupation categories are substantial, resulting in large 95% confidence intervals, so that the means of the four occupation categories are statistically similar in both minor and severe illness cases.
- The medians overall follow similar overall trends as the means.

Fig. 18: Median and mean direct expenditure per illness episode
by main occupation categories for female income-earners
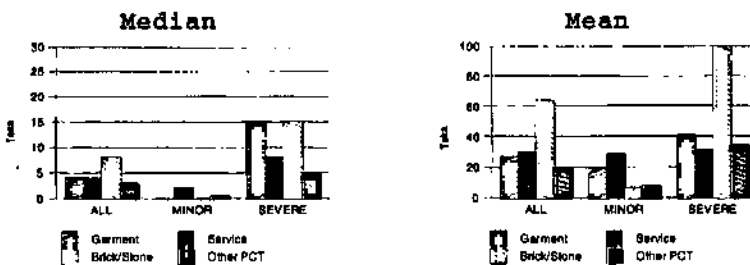
Median

Mean

* in severe illness, the real mean value for
brick/stone breakers: 103.8

CHAPTER 7

DIRECT EXPENDITURE ON ILLNESS:
PROXIMATE INDICATORS FOR SOCIOECONOMIC STATUS

A. HOUSEHOLD SIZE

Fig. 19 represents median and mean direct expenditure per illness episode by household size. It indicates that there are no significant trends in direct expenditure per illness episode. The absence of trends here is in line with the absence of trends for the same variable in HEP Working Paper No.4-98 on health-care option use. It may be attributed to the same factors as the ones outlined there. They are essentially concerned with the fact that most households are concentrated in only two categories, namely 3 - 4 and 5 - 6 members per household.

Fig. 19: Median and mean direct expenditure per illness episode
by household size
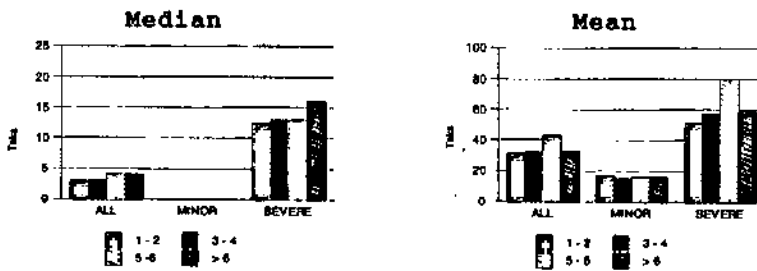
B. LAND OWNERSHIP

As with the variable household size shown above, there is no association between land ownership and direct expenditure per illness episode (Fig. 20).
Again the same type of arguments as the ones presented above, serve as contributive factors for the absence of trends.

Fig. 20: Median and mean direct expenditure per illness episode
by land ownership
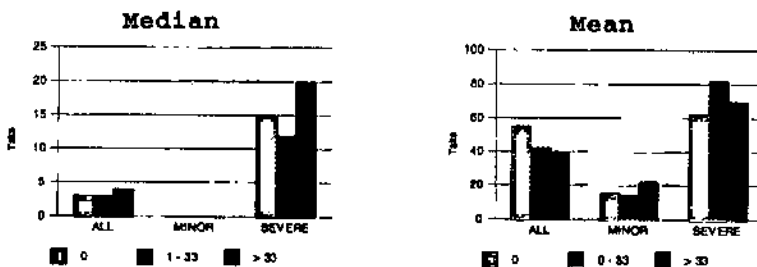
C. NUMBER OF ROOMS OCCUPIED BY THE HOUSEHOLD

Fig. 21 shows that there are trends in direct expenditure per illness episode for the number of rooms occupied by the households under investigation. However, these trends are statistically not significant, as 95% confidence intervals overlap.

Fig. 21: Median and mean direct expenditure per illness episode
by number of rooms occupied by the household

* in severe illness, the real mean value for
number of rooms >2 : 210.6
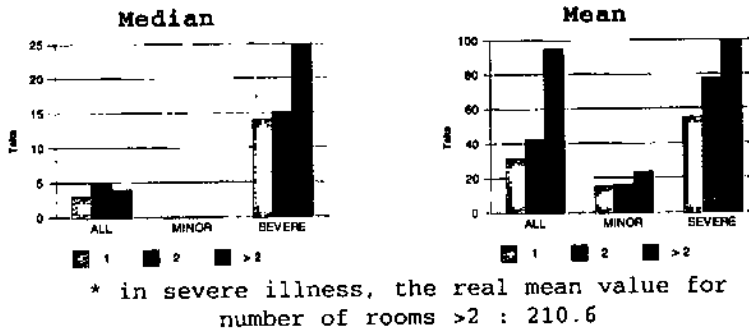
D. HOUSE STRUCTURE

1. ROOF

Fig. 22 shows that in *severe* illness cases and *all illness cases* combined, direct expenditure per illness episode increases with the increasing quality of the materials used for roof construction (while the opposite is true for mild illness). The associations are, however, statistically not significant as 95% confidence intervals overlap.

Fig. 22: Median and mean direct expenditure per illness episode
by structure of the house occupied by the household (roof)
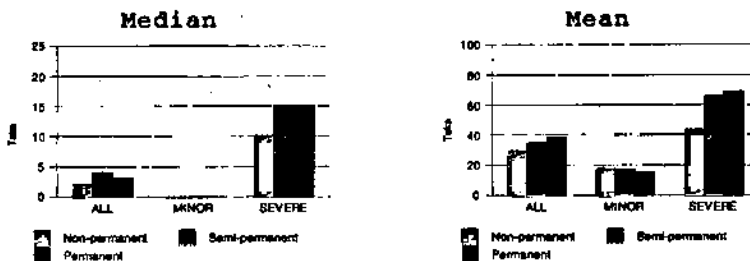
2. WALL

Fig. 23 shows similar trends in direct expenditure per illness episode as for the roof. Only the means in *severe* illness for the categories semi-permanent and temporary materials are statistically different. The medians show for severe illness and all illness cases combined, the same trend as of the means.

Fig. 23: Median and mean direct expenditure per illness episode by structure of the house occupied by the household (wall)
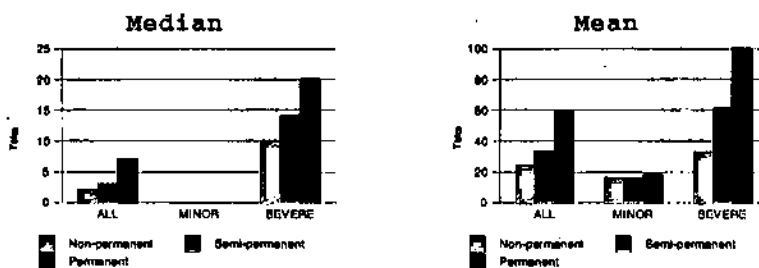
* in severe illness, the real mean value for 'permanent': 117.1

3. FLOOR

Fig. 24 shows a different picture from those for the roof and the wall. Here there is only a trend for minor illness, but again 95% confidence intervals of the means overlap.

Fig. 24: Median and mean direct expenditure per illness episode by structure of the house occupied by the household (floor)
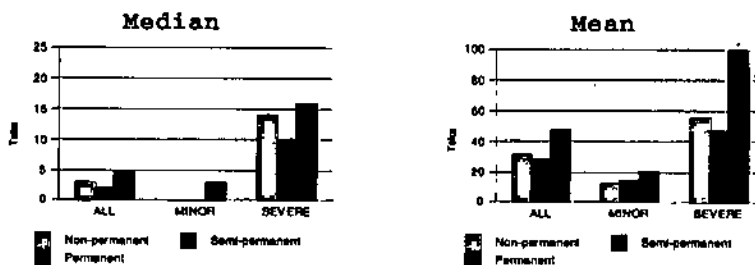
* in severe illness, the real mean value for 'permanent': 107.3

It may be mentioned here that the big standard errors found for some categories are largely due to the small number of observations.

E. HOUSEHOLD ASSETS

1. ALUMINIUM COOKING POTS

There are no associations between the categories of number of aluminium cooking pots owned by the households and direct expenditure per illness episode (Fig. 25).

Fig. 25: Median and mean direct expenditure per illness episode
by number of aluminium cooking pots owned by the household
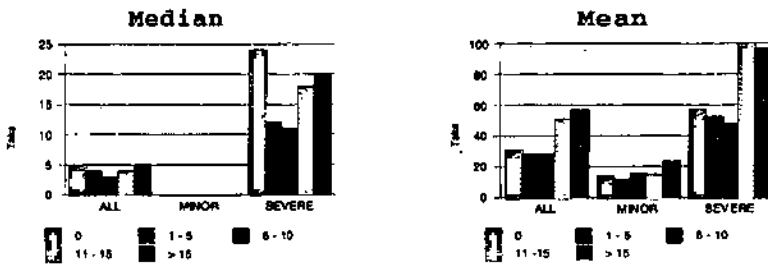
* in severe illness, the real mean value for 11-15 pots: 104.8

2. BEDS

Fig. 26 shows clear associations between median and mean direct expenditure per illness episode on one hand, and the number of rooms occupied by the households under investigation on the other, except for the medians in minor illness which are all zero. In *minor* illness episodes, the difference between the means for the categories '0' and '1 bed owned' and between the former and the category 'more than one bed owned' are statistically significant, because 95% confidence intervals do not overlap.

Fig. 26: Median and mean direct expenditure per illness episode
by the number of beds owned by the household
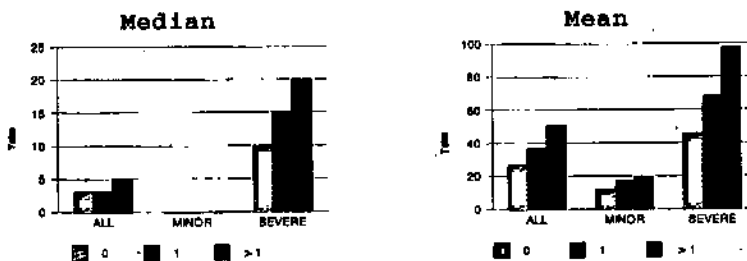
3. FANS

In this section a similar picture is obtained as for the number of beds owned (Fig. 27). However, standard errors for the categories '1' and 'more than 1' fans owned are quite large, so that the differences in means are statistically not significant.

Fig. 27: Median and mean direct expenditure per illness episode
by the number of fans owned by the household

* in severe illness, real mean value for >1: 201.9
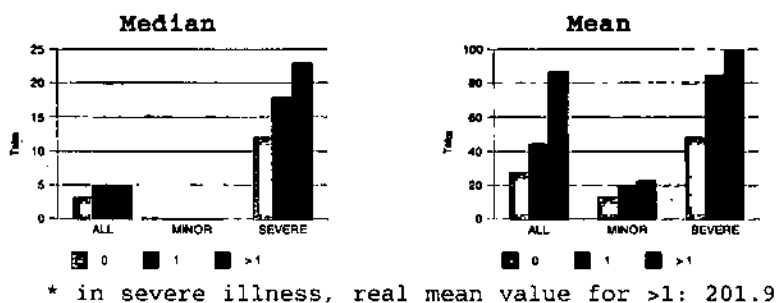
4. WATCHES

Fig. 28 shows a similar picture as the ones for beds and fans owned by the households under investigation.

Fig. 28: Median and mean direct expenditure per illness episode
by the number of watches owned by the household

* in severe illness, the real mean value for >1: 168.3
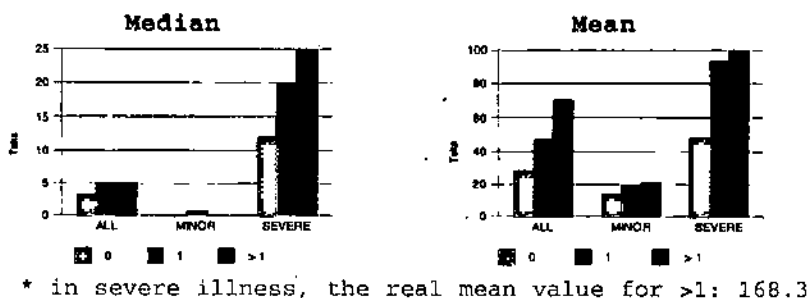
CONCLUSIONS ON DIRECT HEALTH-CARE EXPENDITURE

1. Annual per capita out-of-pocket health-care expenditure in the slums stands at US$ 4.60 in the case of illness.

2. Spending is illness-severity sensitive : there is more spending on severe and chronic illnesses while they represent relatively less cases (59% and 20% of total spending respectively versus 37% and 9% of the illness cases respectively).

3. Modern private care represents nearly 50% of total out-of-pocket expenditure, and pharmacies 17%. Traditional care, public and non-government care take between 10 and 7%.

4. Modern private care and public care clearly have the highest expenditures per health-care option contact: in severe illness they reach taka 140 and 96 respectively, whereas the next health-care option (i.e. modern unqualified care) only has taka 44 per contact.

5. Drugs are by far the main cost item in the cost structure, whether it be by illness episode or per contact for any health-care option. The only exception is non-government care, where it represents only about one-third of the cost per contact. Consultation and admission fees are the highest for modern private care. Transport costs are the highest for public and non-government care.

6. Expenditure per illness episode is four times higher in severe episodes compared to minor ones. It is also related to illness category, although in several illness categories minor cases have mean expenditures from taka 10 to taka 20 and severe cases from taka 30 to taka 50.

7. Given a selection of common illness categories, expenditure per illness episode is lower for children than for adults, for females than for males in all age-groups, and for female workers compared to their male counterparts. However, statistical significance is only sporadically obtained.

8. Expenditure per illness episode is positively related to father's and mother's education, however, without statistical significance.

9. Expenditure per illness episode is statistically significantly associated with household income. Several proximate indicators for socioeconomic status show the same trend. This is related to their association with household income presented in HEP Working Paper 3-98.

10. Household expenditure on health-care is similar in relative terms (i.e. 3 to 4% of monthly household expenditure) from the lowest to the fourth income quintile; in the highest quintile it stands at 5.5%. In absolute terms, however, there is a clear increase in health-care expenditure with increasing income level (from taka 48 per month in the lowest quintile to taka 86 in the fourth, and taka 206 in the highest income quintile).

PART B

INDIRECT HEALTH-CARE
USER EXPENDITURE

Introduction

The aspects on indirect health-care costs that will be presented in this Part concern:

- income-earning incapacity and household income forgone due to illness (Chapter 8);

- travel time and waiting time (Chapter 9). Here only the 'time' dimensions will be discussed, and not their monetary implications.
  For a discussion on travel time and waiting time as barriers to the use of some health-care options, we refer to HEP Working Paper No.3-98, Part C.

CHAPTER 8

INCOME-EARNING INCAPACITY AND INCOME FORGONE DUE TO ILLNESS

In HEP Working Paper No.3-98, the report stressed that, firstly, income-earning incapacity was at 14% of the household survey-months; secondly, in one-third of these months illness was the cause of income-earning incapacity. Thirdly, loss of income due to earning incapacity for daily wager compared to monthly wagers, was about 10 times higher in terms of months with loss of income, and over 6 times higher in terms of illness as its cause.

A. TYPES OF ILLNESS CAUSING INCOME-EARNING INCAPACITY

Table 12 shows the types of illnesses that cause income-earning incapacity. The main findings include :

- *Non-chronic* illness in daily and in monthly wagers is the cause of income-earning inability in almost 80% of the cases;
- However, compared to the total numbers of chronic and non-chronic illness cases, both types cause in relative terms as much income-earning incapacity (33/918 = 3.6% for chronic illness versus 325/8967 = 3.6% for non-chronic illness);
- Among non-chronic illness, *severe* illnesses cause almost twice as much income-earning incapacity as minor illness in absolute terms. In relative terms, this rises to 2.6 times (117/5308 = 2.2% for minor illness versus 208/3659 = 5.7% for severe illness);
- In 3% of the wage-months with income-earning inability, the illness category is reported, but neither the severity nor the chronicity. In 11% of the cases, the illness is not reported at all. This is because of the incomplete overlapping in time at the start and at the end of the survey respectively, between reporting on illness occurrence and reporting on household income and related earning incapacity of household members.

Table 12: Illness types causing income-earning incapacity by wage-unit

Illness type	Daily		Weekly		Monthly		All	
	No.	%	No.	%	No.	%	No.	%
Non-chronic	276	78	7	88	42	78	325	78 .
-Minor illness	100		2		15		117	
-Severe illness	176		5		27		208	
Chronic illness	29	8	-		4	7	33	8
Unknown chronicity	13	4	-		-		13	3
S/Total	318	90	7	88	46	85	371	89
Unknown illness	35	10	1	12	8	15	44	11
Total	353	100	8	100	54	100	415	100

B. ILLNESS CATEGORIES CAUSING INCOME-EARNING INCAPACITY

1. OVERALL PATTERN

Overall, Table 13 shows that the pattern of illness categories causing income-earning incapacity is fairly particular compared to the overall illness incidence pattern obtained from reported illness during the survey (percentages of the latter in parentheses in Table 13):

- The three most incident illnesses - cold fever, fever and diarrhoea - are also the highest ranking as causes of income-earning incapacity;
- However, while for fever, the incidence percentages and percentages as a cause of earning inability are fairly similar, the incidence percentages are markedly higher for the other two, i.e. cold fever and diarrhoea. The latter situation is also valid for skin ailments;
- In contrast, the next four illness categories - injuries, gastric pain, joint ailments, and jaundice - show clearly lower incidence percentages. This indicates that these illness categories are in relative terms more important (1.5 to 3 times) as the factors leading to income-earning inability than as new cases in the illness pattern of the population. A similar situation is shown for the illness categories ranking 9 to 14, except for headache and eye ailments;
- Another range of 14 illness categories is responsible for 9% of the cases of income-earning inability (compared to 15% in the incidence);
- Finally, in 9 cases (i.e. 2.4%), income-earning inability was not due to the illness of the income-earner, but to a sick family-member of whom he/she took care. These cases include 5 illness cases of the spouse of the income-earner (2 with labour pain, 1 with joint ailment, 1 with fever, 1 with other pain), 3 cases of the income-earner's children (2 with diarrhoea, 1 with fever), and 1 case of the income-earner's father (with breathing difficulties).

Table 13: Main illness categories causing
income-earning disability

Illness category	No.	%	(Incidence %)
1. Fever	72	19.4	(16.6)
2. Cold fever	45	12.1	(18.8)
3. Diarrhoea	33	8.9	(12.1)
4. Injury	32	8.6	(3.4)
5. Gastric pain	28	7.5	(4.5)
6. Joint ailment	27	7.3	(3.4)
7. Jaundice	25	6.7	(2.0)
8. Skin ailment	16	4.3	(9.7)
9. Dysentery	16	4.3	(2.9)
10. Other pain	11	3.0	(1.8)
11. Weak body	10	2.7	(1.5)
12. Headache	8	2.2	(3.4)
13. Dental ailment	8	2.2	(1.4)
14. Eye ailment	7	1.9	(3.2)
Others (14 categories)	33	8.9	(15.3)
Total	371	100	(100)

2. PATTERN BY ILLNESS SEVERITY. CHRONICITY AND BY WAGE-UNIT.

When illness severity and wage-unit are considered, the following is observed :
(Table 14, only daily and monthly wage-units are compared)

- For both daily and monthly wagers, the illness pattern is quite similar, as far as small figures for the monthly wagers allow to make comparisons;
- The pattern, however, appears to be illness severity-related. In *severe* illness categories, **injuries** become the second and third most important cause of income-earning incapacity for daily and monthly wagers respectively;
- Amongst the *chronic* illnesses and daily wage-units, **gastric pain** represents 40% of the cases, against only 18% illness incidence during the survey (see HEP Working Paper No.4-98, Part A) Similarly, **heart problems** - as illness category ranked after the 12 main categories for illness incidence - stands as here the second most important illness, together with **joint ailments** (14% each).

In view of the small numbers in some categories, the findings should, however, be taken with caution.

Table 14: Types of illness causing income-earning incapacity
by wage-unit

Daily			Monthly		
	No.	%		No.	%
Minor illness					
1. Fever	33	33.0	1. Cold fever	3	20.0
2. Cold fever	26	26.0	2. Fever	3	20.0
3. Jaundice	7	7.0	3. Jaundice	2	13.3
4. Diarrhoea	6	6.0	4. Diarrhoea	1	6.7
5. Joint ailment	4	4.0	5. Skin ailment	1	6.7
6. Injury	3	3.0	6. Gastric pain	1	6.7
7. Headache	3	3.0	7. Respirat ailment	1	6.7
8. Dysentery	3	3.0	8. Eye ailment	1	6.7
9. Other pains	3	3.0	9. Weak body	1	6.7
10.Weak body	2	2.0	10.Other illnesses	1	6.7
11.Chicken-pox	2	2.0			
12.Other illnessess	2	2.0			
Others	6	6.0			
S/Total minor illness	100	100		15	100
Severe illness					
1. Fever	28	15.9	1. Fever	6	22.2
2. Injury	24	13.6	2. Jaundice	6	22.2
3. Diarrhoea	23	13.1	3. Injury	3	11.1
4. Joint ailment	14	8.0	4. Cold fever	2	7.4
5. Cold fever	11	6.3	5. Joint ailment	2	7.4
6. Gastric pain	11	6.3	6. Dysentery	2	7.4
7. Skin ailment	10	5.7	7. Skin ailment	1	3.7
8. Jaundice	9	5.1	8. Gastric pain	1	3.7
9. Dysentery	8	4.5	9. Eye ailment	1	3.7
10.Weak body	7	4.0	10.Other pain	1	3.7
11.Other pains	6	3.4	11.Dental ailment	1	3.7
12.Headache	4	2.3	12.Abortion	1	3.7
Others	21	11.9			
S/Total severe illness	176	100		27	100
Chronic illness					
1. Gastric pain	12	41.4	1. Skin ailment	1	25.0
2. Heart problem	4	13.8	2. Gastric pain	1	25.0
3. Joint ailment	4	13.8	3. Joint ailment	1	25.0
4. Diarrhoea	2	6.9	4. Diabetic	1	25.0
5. Dental ailment	2	6.9			
6. Skin ailment	1	3.4			
7. Headache	1	3.4			
8. Other pain	1	3.4			
9. Difficult breath	1	3.4			
10.Other illness	1	3.4			
S/Total chronic	29	100		4	100
Unknown severity/chronicity					
1. Cold fever	2	15.4	–		–
2. Injury	2	15.4			
3. Labour pain	2	15.4			
4. Fever	1	7.7			
5. Gastric pain	1	7.7			
6. Joint ailment	1	7.7			
7. Eye ailment	1	7.7			
8. Dysentery	1	7.7			
9. Jaundice	1	7.7			
10.Dental ailment	1	7.7			
S/Total chronic	13	100	–		–
TOTAL	318			46	

C. INCOME-EARNING INCAPACITY DUE TO ILLNESS BY HOUSEHOLD INCOME LEVEL

When income-earning incapacity due to illness is considered by the household income levels, the following comments can be made (Table 15):

*   In line with the findings for all causes combined of income-earning incapacity (see HEP Working Paper No.3-98), the percentage of household-months with reported loss of income due to illness gradually decreases from the lowest (12%) to the highest income quintile (5%). This is a combined effect of: (1) the finding that, when the households income is lower, there are relatively more daily wage occupations (see HEP Working Paper No.3-98); and (2) the comparatively higher proportions among daily wagers of survey-months with income-earning incapacity in general, and of months with incapacity due to illness in particular.
*   The inter-quintile decrease is about one-third between the lowest and second quintile, and between the second and the highest quintile.

Table 15: Income-earning incapacity due to illness
by household income

Income quintile	No. of HH-months under investigation	No. and % of HH-months with loss of income due to illness	
		No.	%
1 (lowest)	951	115	12.1
2	974	83	8.5
3	1005	78	7.8
4	1034	68	6.6
5 (highest)	1052	52	4.9
Total No. of HH-months	5016	396	7.9

D. HOUSEHOLD INCOME FORGONE DUE TO ILLNESS

1. ABSOLUTE AND RELATIVE LOSS OF HOUSEHOLD INCOME DUE TO ILLNESS

Table 16 gives the absolute and relative overall average loss due to illness. It was calculated for the household-months in which such loss has been reported. It shows the following :

*   The estimated value of income forgone due to illness represents 24% of the average income earned during those household-months. This is comparable with the 26% found in HEP Working Paper No.3-98 for the percentage average loss of income due to all causes of income-earning incapacity combined.
*   The sum of the mean monthly household income in these months plus the mean loss

of income (i.e. taka 2,865) is similar to the average (mean) household income presented in HEP Working Paper No.3-98, i.e. taka 2,758.

Table 16: Absolute and relative income forgone
due to illness

Total No. of household months with loss of income due to Illness	Mean monthly income	Mean loss of income due to Illness
396	2304	561
	100%	24.3%

2. ABSOLUTE AND RELATIVE LOSS OF HOUSEHOLD INCOME DUE TO ILLNESS BY HOUSEHOLD INCOME LEVEL

Table 17 presents average income forgone due to illness by income quintile. It shows:

- A steady increase in the absolute loss of income due to illness, except for income-quintile one, where the figure is marginally higher than the one for the second quintile;
- In contrast, as a percentage of household income during the months with income loss due to illness, the association is reverse: the lower the income level the higher this percentage. From as much as 38% in the lowest income-quintile, it drops first with about one-fourth to 27.5% in the second income quintile, and with another one-fourth over the next three income-quintiles to 17.3% in the highest quintile;
- The quintile-wise mean monthly incomes in Table 17 (except for the highest quintile) are similar to the figures on monthly income, given in Table 16 of HEP Working Paper 3-98. It appears thus that total household income in the months with reported loss of income is not affected by this loss of income. We will further analyse this finding in Chapter 13 of this Working Paper on 'Household coping strategies with loss of income due to illness.'

Table 17: Absolute and relative loss of household income
due to illness by household income

Income quintile	Mean monthly income (1)	Mean loss of income due to illness	
		Amount	as % of (1)
1	1327	501	37.8
2	1807	497	27.5
3	2322	515	22.2
4	3051	659	21.6
5	4253	736	17.3
All	2304	561	24.3

These trends are similar as the one found for all causes on income-earning incapacity combined (see HEP Working Paper No.3-98).

CHAPTER 9
TRAVEL AND WAITING TIME

As indicated in the Introduction to this Part of the Working Paper, we discuss here only the 'time' dimensions of travel time and waiting time, and not their monetary implications.

A. TRAVEL TIME

Travel time by health-care option is detailed in Table 18. The findings can be summarised as follows:

- The highest *proportions of reported contacts with travel time* per health-care option are found for all three types of modern institutional care (90-95%), i.e. modern private, public and non-government care, and, for homeopathy. Next in line are the unqualified healers (84%), pharmacies (75%), traditional care (63%), and finally, home-care which is understandably only 11%.

- When *time intervals* for travel are considered, then **public care** stands out with about one-third of those traveling, requiring more than 30 minutes (9% take more than one hour). The next one is **non-government care** with 20% (and 3% more than one hour). In contrast, modern private care has proportions of 8% (and only .8% more than one hour), and homeopathy has a similar pattern. Seventeen percent of those travelling to see traditional healers need more than 30 minutes.
  Pharmacies, being conveniently located, and unqualified healers are virtually all reached within less than 30 minutes (and about 75% within 15 minutes). Those traveling for home-care do likewise (83% within 15 minutes).

- If the *mean travel time* by illness severity and health-care option is considered (the denominator includes all contacts whether travel time was reported or not), the following is observed:
  - The mean travel times for contacts with home-care, modern unqualified and traditional healers are statistically similar in mild and severe illness cases (1 minute, 12 minutes and about 15 minutes respectively);
  - The mean travel times for contacts with the three modern institutional health-care options is higher than for any other health-care option, and, they are statistically significantly higher in severe illness cases (i.e. the 95% confidence intervals do not overlap). In both mild and severe illness cases, it is the highest for public care (24 and 36 minutes respectively), followed by non-government care (17 and 28 minutes), and modern private care (17 and 21 minutes);
  - In contrast, the mean travel time for contacts with pharmacies is only 8 minutes in mild illness cases and 11 minutes in severe cases (statistically significant

difference);

- Finally, the mean travel time for contacts with homeopathy is also statistically lower for mild illness cases (13 versus 21 minutes).

Pharmacies and unqualified healers are thus clearly more accessible in terms of travel time than all three the modern qualified health-care options. The fact that travel time is the highest for public care followed by non-government care is not surprising. As the map in the annexes of HEP Working Paper No.4-98 shows, most public hospitals are concentrated in one main area from Central to South Eastern Dhaka. The same can be said about non-government services for curative care, particularly for the few hospitals that are run by NGOs. One of the two main public hospitals and the main non-government hospital are located in front of each other, and both are only at a short distance away from the second main public hospital. Furthermore, many other public and non-government hospitals are 'specialised' clinics and hospitals, such as clinics for Family Planning and some Mother and Child Health, for children, infectious diseases, nutritional rehabilitation, cancer, cardiovascular diseases, orthopaedics, etc. These facilities do not provide general out- and/or in-patient departments.

The high travel times for public care and to a lesser extent for non-government care are also reflected in the reasons for their non-use in Working Paper 4-98, Part C.

Table 18: Travel time by health-care option

Time in minutes	Home-care (%)	Phar-macy (%)	Modern private (%)	Public care (%)	Non-govt. (%)	Unqua-lified (%)	Homeo-pathy (%)	Tradi-tional (%)
No. of contacts	482	1950	1381	390	781	205	415	540
% of total No. of contacts	10.7	75.1	95.3	92.2	90.5	84.0	90.0	62.5
1-15	83.0	73.5	48.4	33.3	49.4	75.1	53.7	53.9
16-30	14.7	24.3	43.9	33.1	31.1	22.0	36.6	29.1
31-45	.2	1.4	3.1	9.0	6.2	1.5	4.8	3.3
46-60	1.7	.8	3.8	15.9	10.8	1.5	3.9	9.3
60+	.4	-	.8	8.7	2.6	-	1.0	4.4
Mean time Mild ill (SE in min)	1.1 (0.2)	7.6 (0.2)	16.6 (0.6)	23.6 (2.0)	17.1 (0.8)	12.5 (1.3)	13.9 (0.9)	13.1 (3.3)
Mean time Severe ill (SE in min)	1.6 (0.1)	11.4 (0.3)	20.8 (0.5)	36.4 (1.9)	27.7 (1.2)	11.4 (0.7)	20.9 (1.5)	20.0 (2.2)

B. WAITING TIME

Table 19 details waiting time and reveals the following:

• The highest *proportions of reported contacts with waiting time* per health-care option are found for all three types of modern institutional care, i.e. non-government care (82%), public care (80%), and modern private care (65%). Next are homeopathy (52%), traditional care (32%), pharmacies (30%), unqualified care (23%) and finally home-care, as expected, with only 2%.

• When *waiting time intervals* are considered, then **public and non-government** care stand far above all other health-care options with waiting times of more than 45 minutes in more than 50% of the contacts, and of more than one hour in 29% and 23% of their contacts respectively. All other health-care options have more than 45 minutes waiting time in less than 10% of the contacts (particularly as expected, home-care and pharmacies), except traditional care where it is 14%.

• If the *mean waiting time* by illness severity and health-care option is considered (the denominator includes all contacts, whether waiting time was reported or not), the following is observed:
- The mean waiting times are fairly similar in minor and severe illness cases;
- The mean waiting times are very small for home-care (less than one minute), pharmacies (2-4 minutes), and unqualified care (5-2 minutes);
- Health-care options with middle-range waiting times are traditional care (8 minutes), homeopathy (12 minutes) and modern private care (13-16 minutes);
- Health-care options with by far the highest waiting times - about 50 minutes - are non-government and public care.

Table 19: Waiting time by health-care option

Time in minutes	Home-care (%)	Phar-macy (%)	Modern private (%)	Public care (%)	Non-govt. (%)	Unqua-lified (%)	Homeo-pathy (%)	Tradi-tional (%)
No. of contacts	84	776	939	337	703	57	240	280
% of total No. of contacts	1.9	29.9	64.8	79.7	81.5	23.4	52.1	32.4
1-15	89.3	85.8	49.8	20.2	10.0	77.2	55.8	45.4
16-30	7.1	13.3	40.4	20.8	29.3	17.5	32.9	39.3
31-45	0.0	0.3	1.9	4.5	4.3	0.0	2.1	0.7
46-60	2.4	0.5	5.6	25.5	33.7	5.3	5.8	8.9
60+	1.2	0.1	2.2	29.1	22.8	0.0	3.3	5.7
Mean time Mild ill (SE in min)	.1 (.02)	1.8 (.2)	12.5 (1.0)	42.5 4.0	50.8 (2.3)	5.2 (1.5)	12.0 (2.1)	8.5 (1.3)
Mean time Severe ill (SE in min)	.4 (.1)	3.8 (.2)	16.0 (.7)	58.5 (3.9)	53.5 (3.2)	2.0 (.4)	11.9 (1.2)	8.6 (.8)

C. TRAVEL AND WAITING TIME COMBINED

Finally, when **mean travel and waiting times** are **summed up**, the following is observed (Table 20):

- Public and non-government facilities have by far the highest combined travel and waiting time. In *severe* illness cases, they amount to more than one and a half hours for public care, and more than one hour twenty minutes for non-government care. In *minor* illness cases, each option still has more than 1 hour. Middle-range combined times in both minor and severe illness, are found for modern private care, homeopathy and traditional care (about 25-35 minutes). Low-range combined times are observed for modern unqualified care (15 minutes) and pharmacies (9 - 15 minutes).

- When non-government facilities and modern private care are compared, the travel times are fairly similar in both mild and severe illness cases. Non-government services, however, loose out as regards to waiting times, that are 3 to 4 times longer than for modern private care.

- For all modern health-care options, except modern unqualified healers, the combined time for travel and waiting times are higher in severe illness cases. This is mainly due to increases in travel time, except for public care (similar increases for travel and for waiting time).

- When the pattern for severe illnesses is compared with the one for minor illness cases, then public care has also by far the highest absolute difference in combined time (29 minutes), followed by non-government care (13 minutes). All other health-care options have between 7.4 and - 4.3 minutes difference.

Table 20: Travel and waiting times combined by health-care option

Health care option	Minor illness			Severe illness			Increase Severe Minor	
	Mean travel time	Mean waiting time	Total	Mean travel time	Mean waiting time	Total	Abso-lute	%
Pharmacy	7.6	1.8	9.4	11.4	3.8	15.2	5.8	69
Mod. Priv.	16.6	12.5	29.1	20.5	16.0	36.5	7.4	25
Public	23.6	42.5	66.1	36.4	58.5	94.9	28.8	43
Non-govt.	17.1	50.8	67.9	27.7	53.5	81.2	13.3	20
Mod.Unqual.	12.5	5.2	17.7	11.4	2.0	13.4	-4.3	-76
Homeo	13.9	12.0	25.9	20.9	11.9	32.8	6.9	27
Traditional	13.1	8.5	21.6	20.0	8.6	28.6	7.0	32

PART C

DISCUSSION OF STUDY FINDINGS ON HEALTH-CARE USE AND HEALTH-CARE USER EXPENDITURE

Introduction

In this part the findings of the study are discussed in light of data from the literature. In addition, household-coping strategies with direct expenditure and loss of income due to illness are discussed

In Chapter 10, the findings on *health-care use* and *direct user expenditure* will be discussed. For this purpose, papers on health-care use and direct user expenditure in South and South East Asia published in two international journals (Health Policy and Planning, and Social Science & Medicine) during 1987-1997 were reviewed. This database was complemented by information from other international journals and data sources where appropriate, and from Bangladeshi journals.

In Chapter 11 the findings on *loss of income due to illness* and on *travel time* and *waiting time* have been compared with what is available in the literature on the Bangladeshi context.

Finally, Chapters 12 and 13 document, based on our data, how households cope with the economic implications of illness. Chapter 12 discusses the strategies the households adopt to cope with treatment and travel costs in the case of illness. Chapter 13 examines how households adjust to the loss of income due to illness.

CHAPTER 10

PATTERNS OF HEALTH-CARE USE AND DIRECT USER EXPENDITURE

Tipping and Segall, in their recent extensive review of the literature on health-care-seeking behaviour in Africa, South and South-East Asia[1], state that the association between household *economic status* and health-care use appears 'unambiguous'. Studies in Indonesia[2,3] and India[4] indicate that the poorer the people, the less use is made of (more expensive) modern formal health services, while cheaper alternatives are preferred, such as home-based and traditional care in Indonesia and of public care in India. The findings of our study support this pattern: first, because the slum people are economically poor compared to the rest of the urban society, the use of modern health-care is limited compared to other options, such as 'wait-and-see' and home-care (cheap) and pharmacies (less cheap, but everywhere available). In addition, larger use is made of modern private for-profit and public care when household income is higher. Direct user costs per illness episode are by far the highest for these two health-care options and may, thus, reflect this pattern, the more that the main reasons for their non-use are economic. Finally, our data suggest that the slum people represent a heterogeneous, though poor, micro-society, in which economic status influences health-care use in the same way as illustrated at the macro-level in the findings from India and Indonesia.

Some studies have shown little or no effect of the *health-care price* on the demand of particular services.[5,6] It has been pointed out that this finding masks the effect of user fees on demand by vulnerable groups, such as the poor, women and children.[5,7] It was further argued that, in a situation of relative under-use of modern health-care during severe illness, any further drop due to health-care price may lead to exacerbation of the illness and consequent health-care costs and negative externalities. Our findings on the reasons for use and non-use support these views by demonstrating, first, that the predominant reason for non-use of modern private for-profit care is its direct cost, and this is the more so, the poorer the household. Secondly, high direct cost and considerable time that is to be taken for seeking treatment in severe illness, constitute together 35% and 50% of all stated reasons for non-use of non-government and public care respectively. In addition, economic reasons for the use of wait-and-see, such as the absence of money in the household, are clearly related to household income, and become almost 40% of all stated reasons in severe illness cases in the lowest income quintile. These findings clearly emphasise that the anticipated price of modern qualified health-care options is a deterrent to their use. This expected price correlates with what urban poor in reality spend : modern private and public care have in our study by far the highest user expenditure per contact of all health-care options, and, public and non-government care by far the highest sum of travel and waiting times combined.

Regarding *gender*, Gilson[8] in her review on health-care use, points out that 'in many Asian countries there is a documented bias against females in the allocation of household resources, including the use of health-care by women and girls.' In rural Bangladesh, female use, even where free non-profit services are concerned, was found to be lower, despite the

fact that illness rates are similar to those of males.[9] Similar bias against women, when comparing health needs with health-care use and cost (both indirect and direct), are reported from other countries in South-Asia, such as India[4,10], where higher morbidity rates and longer disability in females neither resulted in higher health worker use rates nor in higher spending per episode. Our findings emphasize the systematically lower median user expenditure per illness episode in females compared to males, regardless of age-groups, for the same set of illness categories, and less use made in female adult illness of more expensive modern private for-profit care compared to a higher use of cheaper options, such as the 'wait-and-see' attitude, and of public and non-profit providers. In addition, the data indicate a reduction in their use of pharmacies. The literature and our data further indicate that this pattern may be attributed to sociocultural factors, such as the restricted mobility of women, to economic factors that limit the household ability to meet monetary and time costs[11], and to provider-related factors, such as the non-availability of female drug-vendors in the pharmacies.

As far as *infants and children* are concerned, findings from Indonesia[3] suggest that, overall, children tend to receive favourable treatment. Our study findings, however, indicate that for a same set of illness categories, health-care use in infant and child illness cases compared to adult illness is dependent upon the type and characteristics of health-care options, with pharmacies and modern private for-profit care being used less in child illness than home-care, homeopathy, and modern non-government care. The data further point out that the larger use of the latter two is related (1) to the fact that some health services, such as many non-government facilities, specifically target children (and/or women), and, (2) to popular belief that they are better suited for children, such as homeopathy. Finally, direct health-care expenditure for the same set of illness categories, is found to be lower for children than for adults.

Results of the studies reported in local Bangladeshi journals and reports also identify socioeconomic variables, such as household income, gender, and parents' education level in the case of child illness, as major determinants in the use of health-care.[12] Our data show evidence that higher education levels of fathers or mothers are associated with higher levels of use of modern qualified care and of direct expenditure per illness episode. These associations, however, may be confounded by the association between levels of household income and education of household head and spouse.

Local papers also describe that non-use of health-care is influenced by factors, such as payment of a fee, timing of services and behaviour of the healer.[13,14,15] Similarly, our study highlights that the single most important barrier to the use of modern private care is its direct cost, and of modern public and non-government care its time cost. In addition, inappropriate provider behaviour as a reason for non-use of modern qualified care, is only reported in our findings for public and non-government care; in comparison, good provider behaviour is only for modern private care a stated reason for its use.

The local literature further reveals the importance of the private modern health-care sector and of traditional healers, and the extensive use of large hospitals as primary contacts.[16,17] The first finding is, however, only partially supported by our findings, in that modern qualified health-care options are, overall, only marginally used. Of these options, however, private-for-profit care is by far the most used, and, public and non-government care combined are used only as much as traditional care. Our data also strongly support the

second finding that large hospitals are much more often used as primary contacts than as referral-level facility.

An interesting paper by Nessa et al.[18] on rural Bangladesh showed that about one-fifth of the interviewed patients did not receive any treatment. It further highlighted the importance of the "wait-and-see" attitude and "self-care" as initial steps of health-care seeking behaviour. Additionally, it pointed towards a sequence of steps taken in care-seeking: from the wait-and-see attitude over self-care to doctor/hospital care. When the latter in turn does not help, an equal choice for the three other options is observed. In the case of self-care, the type of treatment seemed to be specific for the type of disease. Although the above findings relate to the rural situation, our findings on the urban poor are similar, while they add marked differentials in health-care option use when illness severity, sociocultural and economic indicators are considered. As indicated above, our data on 'why wait-and-see was used' show that in one-fifth of the cases the reason was non-availability of money. The respondents in our study, however, do seem to know that use of wait-and-see may be inappropriate in severe illness cases, because the single most important reported reason for its non-use in these cases is that the illness was severe and/or acute. In addition, our data further indicate that wait-and-see and home-care as the only health-care option or in combination, are used in more than 50% of the minor illness cases and still in 22% in severe illness cases. Pharmacies as the sole health-care option or in combination with wait-and-see and/or home-care, are by far the most used 'modern' health-care option, 17% in minor cases and 23% in severe cases.

Important national sources of information on health-care seeking behaviour are the Bangladesh health finance and expenditure study series, conducted by national institutions, such as Bangladesh Institute for Development Studies (BIDS) and Bangladesh Bureau of Statistics (BBS).

The 1988 study[19], for instance, found that about two-thirds of urban women (compared to less than 25% of rural women) with pregnancy-related complications visit government health centres or non-government clinics. In addition, one out of ten visits homeopaths, and a same proportion spiritual healers. Half of the deliveries take place at home, and only one-fourth at a clinic. Those attending deliveries are traditional birth attendants, called *dais*, for 40%, MB,BS doctors for about one-third, and relations or neighbours for about one-fourth of the deliveries. These data apply to the whole of the urban female population and are, thus, not specific for the slum population. Our findings (see HEP Working Paper No. 6-98) on the urban poor show a clearly higher percentage (more than 80%) of home-deliveries, which were almost all attended by a *dai* or a relative recognised for their ability to attend deliveries, but most of them formally untrained. In addition, the high percentage of still-births found in our study points out the absence of a functional referral system for deliveries at risk.

Other findings for the urban setting from the same 1988 study include the positive association between household expenditure and expenditure on health-care at the household level, and, the considerably higher overall average consultation fee in urban areas with treatment cost patterns reflecting epidemiologic transition. Sources of health financing are predominantly savings, but also include loans and sale/mortgage of land, assets, or crops.

The most recent data are gathered from the Bangladesh Bureau of Statistics, based on the 1994 morbidity and health status survey.[20] Sources of treatment of sick persons as percentages of treatments received for the total Bangladeshi population were found to be 24% for self-treatment, 53% for unqualified physicians, and 23% for qualified physicians, with small differences in regards to gender and season. In addition, per capita expenditure in urban areas in the lowest household income groups, is estimated between US$ 6.00 and 7.00. National data on direct expenditure per illness episode for those who received treatment is taka 225.

Our findings on health-care option use highlight the very large use made of wait-and-see and home-care, little use of modern qualified health-care, particularly public and non-government care, and the importance of pharmacies as modern health-care option. In addition, our findings on health-care expenditure confirm the positive association between absolute, but not relative, direct health-care expenditure and overall household expenditure. Sources of health financing in illness episodes with lower direct costs, are primarily cash outlays and savings, with loans only becoming important when health-care becomes more expensive. (This will be further elaborated in chapter 12 of this paper.) The per capita expenditure of US$ 6.00 to 7.00 is somewhat higher than our data of US$ 5.50 per capita suggest. This may be attributed to the inclusion in national surveys of non-slum households (with higher income than slum households) in the lowest income category. Furthermore, compared to the national figure of taka 225 per illness episode for those who received treatment, the overall mean direct expenditure per illness episode is in our survey on the urban poor much lower, namely taka 36. This is due among others to the fact that, unlike the data from the BBS study, our denominator not only includes illness episodes 'of those who received treatment,' but also the illness episodes where no action is taken and/or where home-remedies are used (in our study narrowly defined as proper body-care and food). The latter represent 41.24% of the total number of illness episodes. Adjusting for these cases, the mean per illness episode becomes taka 61. If the same procedure is followed for the severe illness episodes only (which in the data of our study presented so far do not include chronic cases), the mean direct expenditure per illness episode becomes taka 84.5. This is still substantially lower than the BBS national average presented above. Again, the inclusion of non-slum households in the lowest income group in the BBS study may at least partially account for this difference.

Finally, annual per capita expenditure in our study stands at US$ 4.60. This is nearly two times higher than the estimated US$ 2.40 per capita public expenditure on curative care.[21]

CHAPTER 11

LOSS OF HOUSEHOLD INCOME DUE TO ILLNESS.
TRAVEL AND WAITING TIME

A. LOSS OF INCOME DUE TO ILLNESS AND ITS COMPARISON WITH DIRECT HEALTH-CARE EXPENDITURE

In her case study on health-care costs and the effects of ill-health on household income in 208 households living in an urban slum of Khulna, a middle-range city in Bangladesh, Pryer found that loss of income due to illness was 7 times higher than mean direct health-care expenditure i.e. 28% versus 4% of household income in households with both a severely undernourished child and an incapacitated earner, all belonging to the lowest income group.[22]
Our findings, based on a large data set of slum households with an incapacitated earner, irrespective of the presence of malnourished children, point out the same direction (Table 21): in the lowest income quintile, the mean monthly direct health-care expenditure during the months with reported loss of income due to illness is standing at taka 71, while the mean monthly income forgone due to illness during the same months is taka 501. Income forgone due to illness in the lowest income quintile is, thus, 7 times higher than the related direct expenditure, whereas overall, it is almost 5 times higher. Our findings further support Pryer's data that the percentage of income forgone due to illness is conversely related to household income.

In addition, particular findings of our study suggest (Table 21) that direct health-care expenditure as a *percentage* of average monthly income in the months with illness-related income-earning incapacity does not relate to household income (one should, however, consider that our data show that direct health-care expenditure in *absolute* figures does relate to household income).

Table 21: Comparison between income forgone due to illness and direct health-care costs

Income quintile	Average monthly income (1)	Average loss of income due to illness		Average direct health-care expenditure		
		Amount (2)	as a % of (1)	Amount (3)	as a % of (1)	(2) / (3)
1	1327	501	37.8	71	5.4	7.1
2	1807	497	27.5	97	5.4	5.1
3	2322	515	22.2	105	4.5	4.9
4	3051	659	21.6	159	5.2	4.1
5	4253	736	17.3	242	5.7	3.0
All	2304	561	24.3	121	5.3	4.6

Pryer's and our findings clearly demonstrate that:

- when the effects of ill-health on household income are considered, loss of income is a far greater problem than direct health-care expenditure; and,
- the poorer the households, the more they are vulnerable to economic consequences of ill-health both in their ability to pay for health-care (in absolute terms) and in the possible loss of income due to illness (in relative terms).

B. TRAVEL AND WAITING TIME

The data on travel and waiting times from our study are compared here with those found in the 1988 study of the Bangladesh Health Finance and Expenditure study series.[23] The data from both the studies are detailed in Table 22. The two studies show striking differences and a number of similarities:

About *travel time*:
- Travel time is more or less similar for modern public and non-government providers and for home-care;
- In contrast, travel time is in our study more than double for traditional care, two-thirds higher for homeopathy, and 50% higher for modern private care. For modern unqualified care, travel time is half in our study.

About *waiting time*:
- Waiting times are similar for modern private care, homeopathy and traditional practitioners.
- However, for public and non-government facilities, waiting times in our study are 2.5 and 5 times higher, while for unqualified and traditional care, they are two-thirds and one-third lower respectively.

The disparities between the findings of the two studies may be attributed to:
(a) the substantially higher numbers of observations in our study;
(b) the fact that our study is only on urban poor, while the data considered of the Bangladesh Health Finance and Expenditure study cover the total urban population; and
(c) methodological differences, i.e. the 1988 study had a cross-sectional design with recall period of three months and thus more loss of memory than in our study that had a longitudinal follow-up design with a recall of only two weeks.

Table 22: Comparison of average travel and waiting times from
2 studies for health-care options used in urban areas

Health-care option	Average[1] travel time		Average[1] waiting time		No.of obs	
	1988 study	Our study	1988 study	Our study	1988 study	Our study
Home-care	1.8	1.3	0	.2	21	4501
Pharmacy	-[2]	9.6	-[2]	2.8	-	2597
Modern private	13.0	19.1	16.1	14.7	337	1449
Public care	26.0	31.2	19.7	52.0	94	423
Non-govt	23.5	21.7	10.7	52.0	23	863
Unqualified	22.1	11.8	10.3	3.0	12	244
Homeopathy	11.7	17.9	10.1	11.9	38	461
Traditional[3]	8.8	18.0	12.3	8.6	16	864

[1] Time in minutes. [2]Data not available. [3]Data for Kobiraj and Hekim.

CHAPTER 12

HOUSEHOLD COPING STRATEGIES WITH DIRECT HEALTH-CARE EXPENDITURE

Introduction

Part B of this Working Paper showed that loss of income due to illness is much greater than direct expenditure on health-care. In addition, Parts A and B clearly show the socioeconomic inequalities between households regarding direct and indirect health-care expenditure. Therefore, attention is drawn in this and the following chapter on the strategies adopted by households to cope with these two types of health-care expenditure. The variable used to reflect household socioeconomic status is household income.

To cope with both direct health-care expenditure and loss of income due to illness. the urban poor may utilize a set of 'entitlements'. Entitlements have been extensively studied by Sen in rural populations during periods of famine.[24] For the urban poor populations, some entitlements listed by Sen are not relevant in our study, such as own crop production[?] or common property rights (e.g. for grazing or crop production). The other entitlements are:

1. Exchange entitlements of household assets and labour;
2. Extended entitlements: they are as Russell puts it, 'not necessarily legal rights..., but are part of broader social relations which make certain claims legitimate but not enforceable by law.'[25] They are particularly relevant for intra-household distribution (e.g. of food or health-care) or inter-household transfers from kin during financial crisis by taking loans or receiving grants;
3. Forego consumption of other essential commodities, such as food;
4. Government provision of free health-care, or more general switching from more expensive to less expensive health-care options.

A good understanding of these entitlements, or in other words, current and potential household resources, is crucial to the analysis of households' ability to cover direct health-care costs and to cope with illness-related loss of income.[24] In this chapter all entitlements are systematically examined to understand how they assist in our survey-households to cope with direct health-care expenditure.

A. EXCHANGE ENTITLEMENTS OF LABOUR

These are cash money and savings from labour. (HEP Working Paper No.3-98 contains a full account of the occupation, and individual and household income profile of the households under investigation.) Table 25 on page 64 indicates that cash and savings

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[?] Although recently urban agriculture is increasingly becoming a means to supplement household consumption.

are the main sources of financing (in the short run) used by households in order for them to cope with direct health-care expenditure, although its contribution decreases the higher the health-care costs. This is also exemplified in Table 23. It shows, from the socioeconomic follow-up data, the mean monthly household income by household income-quintile for different monthly levels of health-care expenditure. It indicates that, within income quintiles (except to a certain extent for the highest quintile), the income levels remain similar whatever the level of health-care expenditure, indicating thus that cash and savings may not suffice to cover direct health-care costs particularly when they are high.

Table 23: Household income levels by income quintile
for different levels of health-care expenditure

Income quintile	Monthly health-care exp 1-100 taka		Monthly health-care exp 101-300 taka		Monthly health-care exp 301-500 taka		Monthly health-care exp >500 taka	
	No. of months	Mean income	No. of months	Mean income	No. of months	Mean income	No. of months	Mean income
1	459	1299	60	1272	15	1203	8	1286
2	418	1818	116	1821	15	1830	14	1829
3	476	2314	130	2347	20	2370	10	2310
4	497	3092	140	3063	33	3191	24	3103
5	456	5147	204	5524	44	5795	58	5791

B. EXCHANGE ENTITLEMENTS THROUGH SALES OF HOUSEHOLD ASSETS

In HEP Working Paper No.3-98, it was pointed out that the total mean and median values of *assets* and *rural land* owned by households are quite small and related to household income levels. These data are reproduced here in Table 24. In addition, mobilisation of cash through sales of assets is not easily realised, when one 'suddenly' needs cash, such as to cover treatment costs in illness cases. This hypothesis is sustained by the results in Table 25 (on page 63): they indeed show that, in our study sample, sales of assets, as a means to cope with direct health-care costs, are almost nonexistent in all categories of direct health-care expenditure per illness episode.

Table 24: Mean and median values of assets owned
and mean value of rural land owned

Income quintile	Total value of assets owned		Mean value of rural land owned
	Mean	Median	
1	1822	1360	1405
2	2448	1680	2126
3	3692	2650	1539
4	4504	2905	3049
5	9450	5840	6625
Total	4384	2440	2949

C. EXTENDED ENTITLEMENTS

Extended entitlements are claims given in the form of *grants* (not reimbursable) and *loans* (reimbursable without or with interest) received from relatives, friends and others, such as employers for those who are employed. Table 25 indicates that, overall, the contribution of loans increases with increasing direct health-care expenditure. In addition, its use tends to be conversely related to household income.

Summarising for the first three entitlements, the data indicate the following (see Table 25 for details; some caution should be applied for the analysis of the data of the two highest expenditure categories, because of the relatively small numbers of observations):

• Overall, the contribution of *cash/savings* in covering health-care costs decreases with the increase in health-care expenditure per illness episode, and the contribution of *loans* decreases accordingly. Cash/savings cover up to 90% of the expenditure in the lowest expenditure category (taka 1 - 100 per illness episode), and about 50% in the highest category (more than taka 500 per illness episode). Conversely, loans cover about 5% to 13% of the expenditure in the former category, and 30-50% in the latter.
The contributions of *grants* and *sales/mortgage* are minimal. They appear, however, to increase with the increasing expenditure per illness episode.

• Use of these four modes of expenditure recovery tends to be associated with household income: the higher the household income, the more use of cash/savings is observed. Concurrently there is less use of the other three modes, except in the highest health-care expenditure category where loans become an importance source of financing, irrespective of income level.
In the lowest and the second expenditure category, the contribution of loans is about 3 times higher in the lowest income quintile than in the highest one.

• Even for smaller health-care expenditure, loans are taken in small amounts to bridge gaps between cash availability in the household and the immediate cost of health-care.

• The fact that there are so few sales/mortgage of assets, may be associated (1) to the finding discussed above that the assets that can be exchanged in times of economic crises are limited, and that this is the more so, the poorer the households, and, (2) to the issue mentioned above that it is difficult to rapidly mobilize cash from sales/mortgage of assets.

Table 25: Modes of contribution in covering health-care expenditure
by household income quintile

Income quintile	Expenditure per illness episode											
	1-100 taka						101-300 taka					
	No. of epi-sodes	Total Exp	Recovery				No. of epi-sodes	Total Exp	Recovery			
			(1)	(2)	(3)	(4)			(1)	(2)	(3)	(4)
1	768	16960	85.8	12.9	1.2	–	68	11285	68.7	27.9	2.4	1.2
2	911	21955	92.7	7.3	–	–	110	17213	80.1	17.6	1.2	1.2
3	1001	24520	92.8	6.7	.3	.2	101	16995	81.8	15.4	2.7	.1
4	1118	28713	92.3	5.1	.4	.1	132	22763	83.3	15.1	.7	.9
5	1218	33281	94.7	4.4	.5	.5	191	33703	89.3	10.3	.1	.3

(1)= % cash/savings; (2)= % loan; (3)= % grant; (4)= % sales/mortgage.

Income quintile	Expenditure per illness episode											
	301-500 taka						>500 taka					
	No. of epi-sodes	Total Exp	Recovery				No. of epi-sodes	Total Exp	Recovery			
			(1)	(2)	(3)	(4)			(1)	(2)	(3)	(4)
1	11	4091	67.8	20.2	5.9	6.1	7	7718	51.9	48.1	–	–
2	9	3059	60.4	39.7	–	–	15	16165	60.5	39.5	–	–
3	15	5652	85.7	14.3	–	–	12	12097	47.2	30.5	22.3	–
4	34	12917	74.1	22.0	–	3.9	24	17925	60.1	36.9	3.1	–
5	24	9662	86.0	14.0	–	–	45	88742	53.8	44.1	2.2	–

(1)= % cash/savings; (2)= % loan; (3)= % grant; (4)= % sales/mortgage.

Finally, a specific analysis was conducted to find out by income quintile, the first level of expenditure per illness episode that is covered for less than 95% by cash/savings. Table 26 shows that these levels are:

- taka 11-20 per episode for the lowest income quintile,
- taka 41-50 for the second and third quintile,
- taka 51-60 for the fourth quintile, and
- taka 71-80 for the fifth quintile.

Table 26: Cash/savings as a mode of contribution in covering health-care expenditure by household income quintile for the lowest health-care expenditure categories

Income quintile	Expenditure categories (% cash/savings)								
	1-10 taka	11-20 taka	21-30 taka	31-40 taka	41-50 taka	51-60 taka	61-70 taka	71-80 taka	81-90 taka
1	96.5	92.0	92.9	85.9	88.8	81.2	76.5	80.8	87.4
2	98.8	98.3	97.2	100.0	92.6	86.4	89.3	84.3	74.3
3	99.9	97.2	97.1	95.5	87.3	87.2	90.4	91.9	95.3
4	99.0	97.9	99.2	98.9	98.4	94.7	91.7	94.1	83.2
5	100.0	99.3	95.2	94.6	96.0	89.3	95.3	93.8	91.2

D. FOREGO CONSUMPTION OF OTHER ESSENTIAL COMMODITIES

Annex 5 gives in full details the monthly household expenditure trends in our survey by different levels of health-care expenditure, taken from the socio-economic surveillance system.

In the literature, most of the attention is focused on food as a commodity of which consumption can be foregone.[24] Here we first consider all the other commodities on which data were collected in our socioeconomic surveillance system. They include shelter, clothing, occupation-related expenses, education, gas/electricity/water/sanitation (GEWS), and miscellaneous expenses. For each of these commodities, details on spending patterns were presented in HEP Working Paper No.3-98. Based on these details and on the data in Annex 5, a scenario is given hereunder on how consumption of each item may be forgone during economic hardship times. These scenarios were discussed with the members of the study's research team.

1. In the case of **shelter**, actual payment may be deferred for a short while, or the household may move to another cheaper place, or migrate out to the family's country-home. However, out-migration of individuals or households due treatment constitutes (only) 2% of all reasons for out-migration.

2. Expenses on **clothing**, as explained in HEP Working Paper No.3-98, are mostly incurred in specific periods around religious festivals with opportunities of cheap

sales. As mentioned there, an important Muslim festival, Eid-ul-Azha took place in 1993 on 2 June. These expenses may be foregone, if in the same period other important expenses need to be met. However, the data in Annex 5 do not show evidence that levels of expenses on clothing are affected by increasing levels of health-care expenditure, except for the lowest income quintile and the highest levels of health-care expenditure.

3. **Occupation-related expenses** represent about 3% - 4% of the total expenses, irrespective of the household income. However, absolute figures increase with the household income. They cover small expenses, such as maintenance costs of a rickshaw, repair costs of the small shop of a vendor. These outlays are essential for the household to keep their economic activities continuing to ensure the household income. Consequently, it is not expected that these expenses are exchanged against health-care expenses. In general, this hypothesis is confirmed by the data in Annex 5 which show occupation-related expenses remaining similar for different levels of health-care expenditure in all income quintiles. However, in the lowest quintiles and higher health-care expenditure levels, they tend to decrease, supporting the possibility of exchange of some occupation-related expenses against health-care expenditure in the poorest households at these higher level of health-care expenditure.

4. In HEP Working Paper No.3-98, it was found expenses on **education** to be limited to approximately 1.5% to 2% of the average household expenditure budget. Similarly, expenses on **GEWS**, although reported under one heading, are limited and regular. In the literature, it is suggested that investment on education may be under threat, particularly when health-care expenditure coincides with the increase in demand for education, such as the beginning of the school year.[26] However, our data in Annex 5 neither show particular trends in absolute expenditure levels on education nor on GEWS, when comparing different health-care expenditure levels.

5. **Miscellaneous expenses** are the third most important expenditure (after staple food and other foods) in all income quintiles, except the highest one. It comprises of expenses on a wide variety of items. A number of these items may be considered as less 'essential', such as cigarettes, betel leaf, leisure, and possibly sending money to the household's relatives in the country home. They could, thus, be replaced by other expenses, such as for health-care, when required. However, the figures in Annex 5 indicate no particular trend in the level of miscellaneous expenses when different levels of health-care expenditure are considered.

Finally, in our study, questions on **'food' consumption** were addressed as two items: rice or wheat (i.e. staple food) consumption and consumption of other food items. As explained in HEP Working Paper No.3-98 in chapter 5 on 'Poverty measurements', estimates of food requirements are used for defining poverty levels. Weaknesses of these definitions were outlined there. Here a pragmatic approach is taken to estimate minimal requirements of food consumption. The level of these estimates was defined with the members of the research team as follows:

Minimal requirements for staple food are estimated to be *500 g a day for an adult*. The monetary correlate for our survey is taka 5.5 a day or **taka 165** per month. It is further estimated that a 50% monetary value or **taka 82.5** per month is needed to cover minimal requirements of other food items (these items are then one small raw onion, one piece of raw chili, and a pinch of salt).Together, the *minimal per capita food requirements* correspond, thus, to taka **247.5 per month**. This relates to about 75% of what the World Bank terms as level of 'hard-core poverty', i.e. 1600 calories per day or 1993 taka 335 per month. Consequently, we consider our estimated level of minimal food requirements as impossible to compress further in exchange against cash to cover health-care expenditure.

Based on this estimated level, the **mean monetary values per household member** by income quintile for the months 'without' and 'with' health-care expenditure were computed, using two more variables:

* a *'scale-for-age'* to depict age differences in consumption. This scale is: 'one' for age groups 13-18 years and 19-45 years; .75 for the more than 45-years age group; .50 for the 6-12-years age group; and .25 for the 0-5-years age group;
* applying this scale-for-age on household age compositions, *'adjusted mean household sizes'* by income quintile were computed from the survey data for the household-months 'without' and those 'with' health-care expenditure (Tables 27a and 27b).

Tables 27a and 27b show that the mean household size is larger in each income-quintile in the months *'with'* health-care expenditure than in the months *'without'* health-care expenditure. This may be attributed to: (1) 324 births that took place during the survey and which incurred costs, and (2) to the fact that 3.2% of the in-migrations were for treatment of illness, resulting further in a number of social visits and in-migrations of dependents and relatives to these cases.

Table 27a: 'Adjusted' age compositions and mean household size by income quintile in household-months 'without' health-care expenditure

Age group (years)	Score	Income quintiles				
		1	2	3	4	5
0-5	0.25	0.87	1.04	0.95	0.99	1.08
6-12	0.5	0.68	0.91	0.92	1.06	1.45
13-18	1	0.28	0.32	0.40	0.55	0.84
19-45	1	1.54	1.81	1.90	2.21	2.55
>45	0.75	0.33	0.18	0.34	0.27	0.59
Average 'adjusted' HH size		3.70	4.25	4.51	5.07	6.51

Table 27b: 'Adjusted' age compositions and mean household size
by income quintile in household-months 'with'
health-care expenditure

Age group (years)	Score	Income quintiles				
		1	2	3	4	5
0-5	0.25	1	1.20	1.14	1.10	1.09
6-12	0.5	0.71	0.94	1.21	1.32	1.26
13-18	1	0.27	0.33	0.51	0.62	1.02
19-45	1	1.70	1.87	2.01	2.21	1.23
>45	0.75	0.29	0.31	0.32	0.45	0.73
Average 'adjusted' HH size		3.98	4.65	5.20	5.68	5.33

Fig. 29 shows then the **'theoretical'** mean monetary value estimates of per capita minimal food requirements by income quintile for the months 'without' and 'with' health-care expenditure. This is computed for each income quintile by:

(1)   calculating for each age-group the monetary value as 'tk 165 x adjusted number of individuals in the age-group obtained from our study and presented in Tables 27a and b;

(2)   summing up the age-group based monetary values, and, dividing the sum of the individual monetary values by the average adjusted household size presented in Tables 27a and b.

Fig. 30 shows the **'reality'** for the same two categories of household-months 'with' and 'without' health-care expenditure data. They are based on the data in Annex 5 on the average values of food consumption per household, divided by the adjusted mean household sizes from Tables 27a and b.

Fig. 29: Theoretical monthly monetary value estimates of per capita
minimal food requirements by income quintile

Household months without health-care expenditure

Household months with health-care expenditure
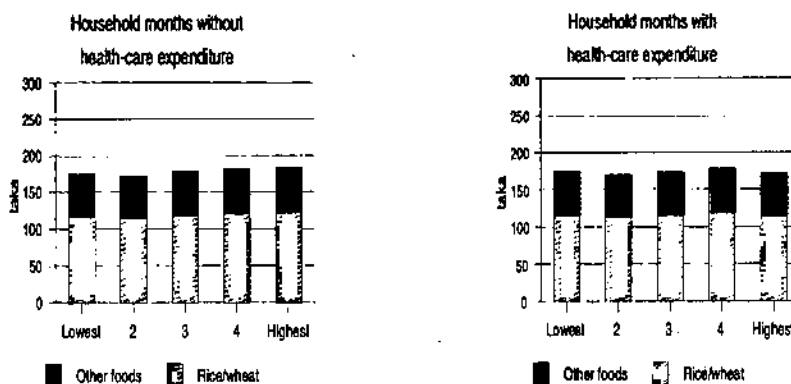
Fig.30: Real monthly monetary values of per capita
staple and other food consumption by income quintile
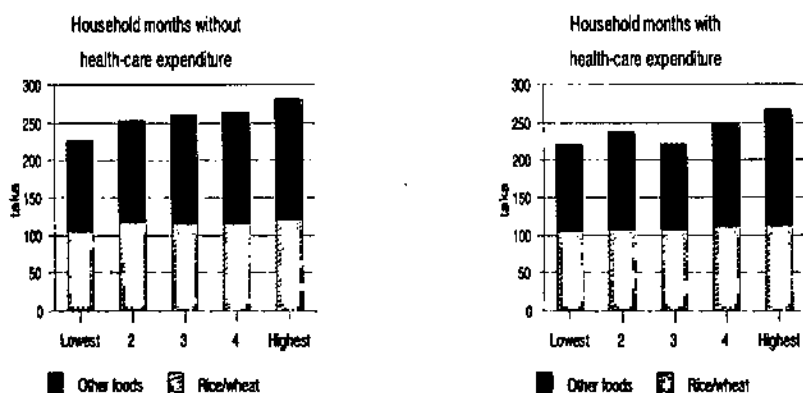
The findings from Figures 29 and 30 can be described as follows:

For staple food:

- In Fig. 29, the adjusted 'per capita' monthly monetary value is between taka 115 and 120 in each income quintile, down from the non-adjusted taka 165 per capita presented in the Box on p.67.
- By doing so, the theoretical values in Fig. 29 become very similar to the real values in Fig. 30.
- There is hardly any difference in monetary value for staple food in each income quintile and among the income quintiles, whether there is health-care expenditure or not, and whether we consider real values ore theoretical estimates.

These findings strongly suggest the thesis that (1) the theoretical values for staple food indeed represent absolute minimum levels of consumption, and, consequently that thus (2) no compression is possible at these levels.

For 'other food' items, the situation is different:

- Theoretically estimated consumption is similar for all household quintiles, whether there is health-care expenditure or not. In comparison, there is some increase in real consumption from the lowest to the highest income quintile, in both the months with and without health-care expenditure.
- The real consumption (Fig. 30) is about double our theoretically estimated absolutely minimal consumption (Fig. 29).
- Except for the lowest income-quintile where there is no reduction, real consumption is reduced by 5 to 20%, dependent upon the income quintile, in the household-months 'with' health-care expenditure compared to those without expenditure.

These findings indicate that (1) real consumption of 'other food' items is only moderately foregone when there is health-care expenditure. (2) In the household-

months with health-care expenditure. the potential for more savings per month per household as a result of further foregoing consumption down to the theoretical minimal values are: for the lowest income quintile. taka 231; for quintile 2, taka 330; for quintile 3, taka 286; for quintile 4, taka 443; and for the highest quintile, taka 506. (3) However, faced with health-care expenditure, all slum households, including the hard-core poor families, prefer, thus, to ensure at least some quality in food, rather than to forego 'other food' consumption to the absolute minimum levels of our theoretical estimates (which, as indicated in the Box on p.67, only include one small onion, one piece of raw chili, and a pinch of salt). While preserving this quality, they in reality only reach a consumption level of about taka 250 a day. This is still about 25% short of the non-adjusted World Bank estimates of absolute poverty mentioned above. i.e. 1600 calories per capita per day, corresponding to taka 335 per month.

The subsequent question now stands: *'How is it possible that in the case of health-care expenditure, slum households do not have to forego consumption of 'other food' items down to the absolute minimum level of our theoretical estimates ?'*

Several hypotheses may be formulated. according to the entitlements listed in the introduction of the chapter:
1. The household foregoes consumption of other non-food commodities.
2. The household uses exchange entitlements by selling assets or labour.
3. The household uses extended entitlements. such as loans and grants, to cover health-care costs.
4. The household foregoes the use of health services or replaces more appropriate. but more expensive health-care by less appropriate, but cheaper health-care, e.g. replacing modern qualified care by home-remedies or a 'wait-and-see' attitude.

Let us discuss each of these hypotheses in light of the information reported above in the chapter:

1. The household foregoes consumption of other non-food commodities.

We discussed above that, although household expenditures other than on food are considerable, no particular compression on them could be observed with the increasing levels of health-care expenditure.

2. The household uses exchange entitlements and sells assets or labour.

It was previously shown that, in order to cover direct health-care expenses, very few assets were sold, regardless of levels of health-care expenditure. With regard to labour, we showed in Table 23 that the mean household income level does not increase with the increasing levels of health-care expenditure.

3. The household uses extended entitlements, such as loans and grants, to cover health-care costs.

It was pointed out above that loans are an important means of covering health-care costs. Here we explore the possibility of such a step and how it is operated, including reimbursement. For this, we use the data of our study in Table 28a and 28b (most data compiled from Annex 5 and Table 23).

Table 28a shows that:
- Mean household expenditure is in all income quintiles larger in household-months 'with' health-care costs than in household months 'without'. This is, of course, due to the health-care costs themselves, but also because of higher overall consumption due to the larger household size in the months with health-care expenditure (each factor may account for approximately 50% of the difference in expenditure, when the figures on health-care expenditure in the last column of Table 28a are considered).
- Household income is smaller than household expenditure in income quintiles 1 and 2, and becomes gradually greater than household expenditure for the other three quintiles in the household-months with and those without health-care expenditure.

Table 28b shows the monthly mean household income, mean household expenditure and mean health-care expenditure for different levels of health-care expenditure. The data indicate that:
- For the lowest two income quintiles, household income is smaller than household expenditure at all health-care expenditure levels.
- For quintile 3, household income becomes smaller than household expenditure at the taka 101-300 health-care expenditure level, for quintile 4 at the next level (taka 301-500), and for quintile 5 at the highest level (taka more than 500).
- Over the health-care expenditure levels, health-care expenses gradually take a bigger share in the differences between income and expenditure in the two lowest income quintiles (from 25-30% up to 80-100%).
- In addition, in every health-care expenditure level, the share taken by health-care expenses in the difference between household income and expenditure becomes gradually bigger the poorer the households are.

Table 28a: Comparison of mean household income and expenditure in household months without and with health-care expenditure by income quintile

Income quintile	HH-months without health-care expenditure		HH-months with health-care expenditure		
	Mean HH income	Mean HH expenditure	Mean HH income	Mean HH expenditure	Health-care expenditure
1	1227	1313	1293	1473	80
2	1819	1927	1819	2028	105
3	2293	2007	2322	2215	103
4	3071	2560	3091	2763	130
5	5235	3694	5334	4174	286

Table 28b: Comparison by income quintile and health-care
expenditure level, of mean household income, mean household
expenditure and mean health-care expenditure, in household-months
with health-care expenditure

Income quintile	Health-care expenditure taka 1-100			Health-care expenditure taka 101-300		
	Mean HH income	Mean HH expenditure	Health-care expense	Mean HH income	Mean HH expenditure	Health-care expense
1	1299	1409	37	1272	1676	185
2	1818	1972	44	1821	2138	186
3	2314	2125	45	2347	2405	193
4	3092	2627	46	3063	2927	196
5	5147	3896	54	5524	4097	197

Income quintile	Health-care expenditure taka 301-500			Health-care expenditure taka >500		
	Mean HH income	Mean HH expenditure	Health-care expense	Mean HH income	Mean HH expenditure	Health-care expense
1	1203	1984	408	1286	2669	1199
2	1830	2114	454	1829	2702	873
3	2370	2518	414	2310	3435	1032
4	3191	3348	437	3103	3809	1072
5	5795	4698	430	5791	6232	2311

How are these expense surpluses then covered ?

The findings presented above suggest that :
- In the absence of any other monetary alternative that might increase means of cash/savings, the only monetary option left is, thus, covering these surpluses by loans and grants;
- The data further indicate that their relative contribution to the coverage of health-care expenditure should become more important, the poorer the household and the higher the health-care expenditure. (This was demonstrated in Table 25 (page 64) which also shows that loans are far more important than grants.);
- Finally, the data emphasize the precarious situation of the two lowest income quintiles with income levels that are systematically lower than expenditure levels, regardless the presence or absence of health- care expenditure, but worsening with increasing levels of such expenditure.

How are these loans then reimbursed ?

- For income quintiles 3 to 5, loans can be reimbursed by future savings, because the monthly household income is in most of the months greater than the total monthly household expenditure. (Table 28a: the latter is more so, the higher the income

quintile: as a result, the 'ease' with which loans are reimbursed will increase with the increasing household income level, as does the borrowed amount).

- However, for income quintiles 2 and particularly 1, reimbursement of loans is not possible through future savings, because reported household income is systematically smaller than household expenditure.

How may this shortfall then be covered could not be documented in this report, because it needs more in-depth analysis of the available data. In addition, it should be noted that the duration of the study's longitudinal survey, i.e. 6 months, may prove too short to properly discuss this question. However, as income data are always smaller than expenditure data for these income quintiles, it is likely that this chronic shortfall is in the long run covered in a vicious circle of chronic borrowing and reimbursement, making these households extremely vulnerable as they may face long-term indebtedness and socioeconomic impoverishment. It may be noted here that, with the poverty levels estimated for our study sample in Chapter 5 of HEP Working Paper 3-98, the households in these two income-quintiles, and particularly the lowest one, were classified as the hard-core poor households.

4. The household foregoes the use of health services or replaces more appropriate, but more expensive health-care options by less appropriate, but cheaper options.

One last 'alternative' to poor households is to delay, reduce or stop the use of (expensive, but appropriate) health-care options and to turn to less expensive, but also less appropriate health-care options.

The findings reported in this paper and HEP Working Paper No.4-98 (on use of health-care options) sufficiently show the great extent to which these phenomena occur, and the reasons why.

Particularly in severe illness cases, modern qualified health services are required and should, thus, be extensively used. The findings, however, show that this is not the case. Cheaper health-care options are preferred, because modern qualified care is too expensive in treatment and/or time costs. Often this means that no health-care is sought at all. The study findings further clearly demonstrate that the poorer the households, the stronger these trends are.

CHAPTER 13

HOUSEHOLD COPING STRATEGIES WITH LOSS OF INCOME DUE TO ILLNESS

As mentioned in the Introduction to the previous chapter, we will focus our attention in this chapter on the strategies households adopt in order to cope with loss of income due to illness.

In Part B of this Working Paper we showed that loss of income due to illness is about five times greater than direct expenditure on health-care and that this is associated with household income levels.
We also indicated there that the mean income levels of the households reporting loss of income due to illness are in each income quintile, except in the highest income quintile, similar to the overall means income levels. Table 29 shows only for the households who reported loss of income due to illness, that the mean household income levels by income-quintile - including the highest income quintile - are similar for the survey-months 'without' and 'with' such loss. In this chapter we will therefore, analyse how households manage to keep household income at the same level in the months with loss of income due to illness as in those without such loss.

Table 29: Mean income levels by income quintile in survey-months *with* and *without* loss of income due to illness in households reporting such loss

Income quintile	Household-months without loss of income		Household-months with loss of income		No. of HHs involved
	No. Obs	Mean Income	No. Obs	Mean Income	
1 (lowest)	248	1281	115	1327	69
2	241	1817	83	1807	60
3	206	2326	78	2322	50
4	244	3047	68	3051	53
5	140	4407	52	4253	32
All	1079	2405	396	2304	264

We will use for the analysis the set of entitlements presented in the Introduction to the previous chapter on coping strategies with direct expenditure. These are :

1. Exchange entitlements of household assets and labour;
2. Extended entitlements: changes in intra-household distribution (e.g. of food or health-care) or inter-household transfers from kin during financial crisis by taking loans or receiving grants;
3. Forego consumption of essential commodities, such as food.

Table 29 further shows, as indicated in Part B of this Paper, that there are 396 household-months with reported loss of income due to illness, and that these months occurred in 264 households. There were thus in several households-months more than one income earner with such loss : this is not surprising, because we indicated in HEP Working Paper 3-98 that there are on average 2.16 income-earning occupations per household. From Table 29 can further be deferred that - as there are in each quintile the same number of households, there is an increase in the number and percentage of households reporting income-earning incapacity with decreasing income level (from 18% to 38%).

Table 30 reveals that of these 264 households, slightly more than half reported loss of income due to illness and to (an)other cause(s) in different months, and another 10% in the same month. Thirty-eight percent or 99 households reported only illness as cause of earning incapacity : these households will be used for the analysis of mechanisms that are adopted at the household level to cope with incapacity due to illness of its earning members(s).

Table 30: Causes of income-earning incapacity in the households reporting loss of income due to illness

Income quintile	Cause of income-earning incapacity			No. of HHs
	Only illness	Illness + other cause		
		in the same month	in different months	
1 (lowest)	26	4	39	69
2	27	2	31	60
3	15	10	25	50
4	17	8	28	53
5	14	3	15	32
Total	99	27	138	264

In these 99 households, there are 151 income-earning months with reported loss of income due to illness (Table 31). The duration of incapacity was variable : there is clearly more short-term incapacity in daily wagers as well as in monthly wagers.

Table 31: Number of income-earning months with incapacity due to illness by duration of earning incapacity and by wage unit

Wage unit	Duration of earning incapacity (days)					Total No.
	1 - 5	6 - 10	11-15	16-20	21-31	
Daily wagers	53	39	15	7	8	122
Monthly wagers	12	6	4	2	2	26
Weekly wagers	-	3	-	-	-	3
Total No.	65	48	19	9	10	151

For each of the 151 cases mentioned above, a search was carried out to find data that could explain how the income lost is compensated : to do this, the month with reported loss of income was considered and the months immediately before and after.

The analysis shows that there are several specific mechanisms within (and outside) the types of entitlements listed above, that slum households may use when faced with loss of income due to illness. These mechanisms are :

1. For the exchange entitlements :
- Our analysis shows that daily wagers have on average 20 to 25 working days a month in months without reported earning incapacity : daily wagers do thus not work every day without interruption, they do take some holidays. This is thus about 1 to 2 days a week, but these are not necessarily the weekend days. Therefore, working days lost due to illness may be 'compensated' (totally or partially in terms of income lost) by a daily wager by 'sacrificing' holidays once he/she is recovered. This is a strategy that can be adopted particularly in cases of short-term earning-incapacity due to illness;
- In the households where there is more than one income earner (particularly when there are several earners), the decrease in relative contribution to total income by one income earner may be compensated by an increase in the contribution by other income earners : this is 'easiest' done (1) when the ill earner is not the main earner in the household, and (2) by daily wagers;
- Another mechanism is to put households members into the labour force who previously were not working;
- Finally, the sick income-earner may 'diversify' his/her income basis, by taking on a supplementary income-earning occupation.

2. Foregoing consumption of essential commodities, such as food.
There may be a slight drop in income due to earning incapacity of a few days of the main income earner or of a few days more when it does not concern the main income-earner : this drop may be compensated by temporary minor reductions/adjustments in the household consumption pattern.

3. There may be situations in which there is no real effect of earning incapacity on the contribution of the sick earner into the household income of the month :
Monthly earners, while reporting that they had a number of days off-work due to illness, in reality still receive at the end of the month their total monthly salary and thus report this salary as their contribution into the household income;

4. Finally, savings from previous months may be used to cover the temporary shortfall in household income due to earning incapacity in the household.

In view of what precedes, we use in Tables 32a and b below the following mechanisms that may explain how households compensate for reported earning incapacity:
1. For *daily wagers* : sacrificing holidays, exchange entitlements of labour, slight drop in income and consequent temporary foregoing of consumption of commodities, taking loans, using savings, contribution by the employer;

2.   For *monthly wagers* : no real effect of earning incapacity on the contribution of the sick earner into the household income, exchange entitlements of labour, slight drop in income and consequent temporary foregoing of consumption of commodities, taking loans, using savings, contribution by the employer.

Table 32a: Contribution by duration of earning incapacity of
         different types of mechanisms adopted by households
         to cope with reported loss of income due to illness
                          (DAILY WAGERS)

Mechanism*	Duration of earning incapacity (days)					Total No.
	1 - 5	6 - 10	11-15	16-20	21-31	
Sacrificing holidays	49	10	-	-	-	65
Exchange labour	3	16	9	6	6	34
Foregoing consumption	7	11	3	2	1	23
Taking loan	-	4	1	1	1	4
Using savings	-	-	-	2	-	2
Contribution employer	-	-	1	-	-	1
Total No. of Income-earning months	53	39	15	7	8	122

* In some income-earning months 2 mechanisms were found. Therefore, the sum of the mechanisms adopted is greater than 122.

Table 32b: Contribution by duration of earning incapacity of
         different types of mechanisms adopted by households
         to cope with reported loss of income due to illness
                          (MONTHLY WAGERS)

Mechanism	Duration of earning incapacity (days)					Total No.
	1 - 5	6 - 10	11-15	16-20	21-31	
No real effect	9	4	-	-	-	13
Exchange labour	1	1	2	-	2	6
Foregoing consumption	2	1	1	2	-	6
Taking loans	-	-	-	-	-	-
Using savings	-	-	-	-	-	-
Contribution employer	-	-	1	-	-	1
Total No. of Income-earning months	12	6	4	2	2	26

For the 3 weekly income-earning months with loss of income due to illness, the mechanisms are 'no real effect on income' in 2 cases, and a slight drop in income with

consequent temporary foregoing of consumption in the other. All three the cases reported 6 to 10 days earning incapacity each.

From Tables 32a and b we can conclude that the choice of mechanism to cope with is related to the *duration* of income-earning incapacity due to illness and to the *type of wage unit* :

* In order to cope with brief periods of income-earning incapacity (1 to 10 days), the main strategy for daily wagers is sacrificing holidays. In contrast, monthly wagers when faced with these brief periods of income-earning inability, do not experience a drop in their income because they receive their full salary : these are in fact cases of sick leave without effect on the pay level.
* The second most important mechanism in short periods of incapacity of 1 to 5 days in **daily wagers** is accepting a (slight) drop in income with consequent (minor) adjustments/reductions in the household consumption pattern. This is followed by exchange of labour in a few cases. In the case of periods of 6 to 10 days, however, these two mechanisms have similar importance with sacrificing holidays. With increasing duration of earning incapacity beyond 10 days, exchange of labour clearly becomes the main strategy.
* In the case of **monthly wagers**, the numbers of cases is too small to make distinctions in importance of the mechanisms exchange of labour and foregoing of consumption.

In addition, the following was found during the analysis :

* In the case of daily wagers, five cases were found with earning incapacity periods of 6 to 10 days that did not concern the main income-earner. Exchange of labour was limited, because the contribution of the sick income-earner into total household income was limited when he/she is not ill. Furthermore, when it concerned the main income earner, often he added during the period that he was not ill, a secondary source of income so as to compensate for the loss of income. These 4 cases are put in Table 32a under 'sacrificing holidays', because they sacrifice time for this second income-earning activity that otherwise would not have been spent on earning income.
* In a number of cases the exchange of labour concerned putting into labour the spouse (3 cases) or children (7 cases): all these cases concerned daily wagers and incapacity of minimum 15 days, except one case of 10 days. It appears thus that the labour market of daily wagers is flexible enough to immediately provide job opportunities to household members, when the illness of the main income-earner continues for more than two weeks.
* In a number of daily wager cases with income-earning incapacity, there was a moderate (6 cases) or big (2 cases) drop in income (thus without any compensation through exchange of labour or other strategies) with consequent decrease in household expenditure. They concerned periods of 6 to 10 days and for two cases 16 to 20 days (i.e. the 2 cases of considerable drop in household income due to earning-incapacity). These 2 cases concerned two monthly wagers in the same household and the same month.
* The loan amount taken by households with sick daily wagers are usually related to

the length of the earning-incapacity period.

Overall, the findings show thus that daily wagers are extremely vulnerable for socioeconomic consequences of income-earning incapacity due to illness. These consequences can take a variety of expressions, from sacrificing holidays or taking on a second temporary job by the income-earner who is ill, over temporarily foregoing some consumption or harder working for those already engaged in income earning activities or taking loans, to putting a spouse or children or another household member into the labour force.

In contrast, monthly wagers (and consequently the households to which they belong) appear to be more protected against the socioeconomic consequences of ill-health, particularly if the duration of illness does not exceed 10 days. As only a relatively small number of observations was examined for monthly wagers, further findings on monthly wagers could, however, not be fully substantiated.

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ANNEXES

Annex 1: **Direct expenditure per illness episode for demographic variables**

A. AGE

Age (in Years)	Minor			Severe			All		
	Median	Mean	SE	Median	Mean	SE	Median	Mean	SE
0-5	0	12.2	.8	15	36.5	3.0	2	20.6	1.2
19-45	2	17.3	1.5	14	54.9	5.2	5	32.1	2.3
All	0	14.0	.7	15	44.1	2.8	3	25.0	1.1

B. AGE AND GENDER

Age (in years)	Male						Female					
	Minor		Severe		All		Minor		Severe		All	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
0-5	13.5	1.3	44.0	5.4	24.8	2.2	11.0	0.9	28.3	2.0	16.6	0.9
6-12	10.4	1.2	39.0	12.1	18.3	3.5	12.3	3.2	25.5	3.4	16.4	2.4
13-18	11.5	3.1	60.0	17.2	31.0	7.4	15.0	3.1	50.9	13.7	25.2	4.6
19-45	18.8	2.0	59.2	6.7	35.9	3.1	16.3	2.1	51.4	7.7	29.4	3.2
> 45	11.5	2.4	62.4	14.0	3.24	6.2	16.6	3.1	42.5	14.0	25.8	5.4
All	13.9	0.8	49.7	3.8	27.2	1.5	13.3	0.9	37.8	3.0	21.5	1.2

	Median					
Age (in years)	Male			Female		
	Minor	Severe	All	Minor	Severe	All
0-5	0	15	3	0	13	0
6-12	0	11	2	0	6.5	0
13-18	0	16	4.5	0	20	0
19-45	4	20	10	0	10	3
> 45	4	20	6	3	5	4
All	0	16	5	0	10	2

C. HOUSEHOLD LOCATION

Slum type	Minor			Severe			All		
	Median	Mean	SE	Median	Mean	SE	Median	Mean	SE
Public	0	17.6	1.02	12	54.5	3.6	3	30.8	1.5
Private	0	12.8	.84	15	74.1	14.1	4	41.0	6.5
All	0	15.5	.68	15	65.3	8.0	3	35.8	3.3

Direct expenditure per illness episode for socio-cultural variables

A. HOUSEHOLD RELIGION

Religion	Minor			Severe			All		
	Median	Mean	SE	Median	Mean	SE	Median	Mean	SE
Muslim	0	15.4	0.7	15.0	65.9	8.3	3	36.0	3.4
Hindu	0	15.9	2.6	16.5	52.1	10.6	2	31.0	4.8
All	0	15.5	0.7	15.0	65.3	8.0	3	35.8	3.3

B. HOUSEHOLD ETHNICITY

Ethnicity	Minor			Severe			All		
	Median	Mean	SE	Median	Mean	SE	Median	Mean	SE
Bengali	0	14.0	0.7	14	66.3	8.8	3	36.6	3.9
Bihari	3	21.9	2.2	16	56.5	8.0	4	31.4	2.7
All	3	15.5	0.7	15	65.3	8.0	3	35.8	3.3

C. EDUCATION

Education (in years)	Father								
	Minor			Severe			All		
	Median	Mean	SE	Median	Mean	SE	Median	Mean	SE
0	0	12.7	1.0	13.0	39.4	2.8	2	22.6	1.2
1-5	0	15.6	2.2	20.0	55.7	6.8	3	30.6	3.0
> 5	0	16.1	1.7	15.0	60.5	9.9	4	31.3	3.6
All	0	13.8	0.8	15.0	45.8	2.7	3	25.6	1.1

Education (in years)	Mother								
	Minor			Severe			All		
	Median	Mean	SE	Median	Mean	SE	Median	Mean	SE
0	0	13.3	0.9	15.0	42.3	2.5	2	24.1	1.1
1-5	0	17.0	2.6	15.0	55.5	8.6	4	31.2	3.6
> 5	0	18.7	4.5	11.5	91.2	26.5	2	46.8	10.9
All	0	14.0	0.8	15.0	45.8	2.6	3	25.9	1.1

Annex 3: Direct expenditure per illness episode for economic variables

A. HOUSEHOLD INCOME

Income quintile	Minor			Severe			All		
	Median	Mean	SE	Median	Mean	SE	Median	Mean	SE
1 (lowest)	0	9.9	1.1	8.0	33.4	3.4	0	20.1	1.6
2	0	13.6	1.3	13.5	52.0	5.5	3	27.8	2.2
3	0	12.4	1.2	12.0	43.0	4.2	3	25.5	2.0
4	0	19.3	2.0	18.0	61.0	4.4	5	36.3	2.2
5	0	20.2	1.5	21.0	127.1	34.9	6	62.9	14.0
All	0	15.5	0.7	15.0	65.3	8.0	3	35.8	3.3

B. OCCUPATION

1. DIRECT EXPENDITURE PER ILLNESS EPISODE BY WAGE UNIT

Wage unit	Minor			Severe			All		
	Median	Mean	SE	Median	Mean	SE	Median	Mean	SE
Monthly	2	24.2	3.2	15	115.2	45.9	5	66.4	21.8
Daily	2	16.4	1.8	18	62.8	6.4	8	39.3	3.4
All	2	20.1	1.8	15	82.1	18.5	5	48.9	8.7

2. DIRECT EXPENDITURE PER ILLNESS EPISODE BY WAGE UNIT AND GENDER

2.1. **Daily wagers by gender**

Years	Minor			Severe			All		
	Median	Mean	SE	Median	Mean	SE	Median	Mean	SE
Male	3	14.5	1.6	20	61.0	8.4	8	33.7	3.7
Female	0	5.4	1.5	10.5	43.0	23.5	2	23.2	11.3
All	3	13.3	1.4	16	58.0	8.0	7	32.2	3.6

2.2. **Monthly wagers by gender**

Years	Minor			Severe			All		
	Median	Mean	SE	Median	Mean	SE	Median	Mean	SE
Male	6	23.4	3.6	20	53.4	8.2	10	36.2	4.2
Female	0	18.4	3.8	8	45.4	10.7	3	28.0	4.6
All	3	20.7	2.6	15.6	49.6	6.7	6	31.9	3.1

3. DIRECT EXPENDITURE PER ILLNESS EPISODE BY TYPE OF OCCUPATION AND AGE

3.1. **In the 6-12-year age group**

Type of occupation	Minor			Severe			All		
	Median	Mean	SE	Median	Mean	SE	Median	Mean	SE
Non-school	0	10.6	2.1	10	33.8	10.3	0	17.1	3.3
School attend	0	13.2	3.6	10	30.8	5.1	2	18.7	3.0
All	0	11.6	1.9	10	32.6	6.3	1	17.7	2.3

3.2. **In the 13-18-year age group**

Type of occupation	Minor			Severe			All		
	Median	Mean	SE	Median	Mean	SE	Median	Mean	SE
Income-earner	1	10.0	2.9	17	50.5	13.9	4.5	25.8	5.9
School attend	0	14.1	6.0	48.5	110.4	40.7	0	41.6	13.4
All	0	11.5	2.9	20	66.4	15.0	3	31.0	5.9

4. DIRECT EXPENDITURE PER ILLNESS EPISODE BY OCCUPATION CATEGORY AND GENDER

4.1. **For male income-earners**

Occupation categories	Minor			Severe			All		
	Median	Mean	SE	Median	Mean	SE	Median	Mean	SE
Rickshaw	3	15.1	3.8	18	43.7	5.8	6	27.9	3.5
Service	6	17.5	3.9	11	53.8	19.1	10	28.6	6.6
Sales	5	15.7	2.3	29.5	82.4	23.0	10	40.3	8.9
Garment	5	7.5	2.7	28.5	43.9	9.3	10	24.9	5.4
All	4	15.2	2.0	20	55.2	7.3	8	31.3	3.3

4.2. **For female income-earners**

Occupation categories	Minor			Severe			All		
	Median	Mean	SE	Median	Mean	SE	Median	Mean	SE
Garment	0	18.9	9.9	15	41.2	12.0	4	26.7	7.7
Service	2	29.0	9.2	8	30.9	7.6	4	29.7	6.5
Brick/stone	0	6.6	4.1	15	103.8	79.6	8	64.0	47.4
Other PCT	.5	8.2	3.4	5	34.5	19.1	3	19.7	8.7
All	0	20.8	5.6	10	44.2	11.3	4	29.8	5.6

Annex 4:   Direct expenditure per illness episode for proximate
indicators of socio-economic status

A. HOUSEHOLD SIZE

Household size	Minor			Severe			All		
	Median	Mean	SE	Median	Mean	SE	Median	Mean	SE
1-2	0	16.5	2.7	12.5	51.1	6.6	3	31.4	3.3
3-4	0	14.7	1.2	13.0	57.7	4.6	3	32.2	2.1
5-6	0	15.6	1.1	13.0	79.9	22.2	4	42.5	9.3
>6	0	16.0	1.3	16.0	58.7	4.4	4	32.8	1.9
All	0	15.5	0.7	15.0	65.3	8.0	3	35.8	3.3

B. LAND OWNERSHIP

Land ownership	Minor			Severe			All		
	Median	Mean	SE	Median	Mean	SE	Median	Mean	SE
0	0	15.3	0.8	15	62.2	7.0	3	54.5	2.9
1-33	0	13.6	1.4	12	81.4	39.8	3	41.8	16.6
>33	0	21.3	2.6	20	69.2	11.5	4	39.1	4.7
All	0	15.5	0.7	15	65.3	8.0	3	35.8	3.3

C. NUMBER OF ROOMS OCCUPIED BY THE HOUSEHOLD

Number of rooms	Minor			Severe			All		
	Median	Mean	SE	Median	Mean	SE	Median	Mean	SE
1	0	15.0	0.7	14	54.6	2.6	3	31.0	1.2
2	0	15.7	1.4	15	77.4	29.0	5	41.9	12.3
>2	0	23.0	5.1	25	210.6	132.8	4	94.7	50.9
All	0	15.5	0.7	15	65.3	8.0	3	35.8	3.3

D. HOUSE STRUCTURE

House structure	Roof								
	Minor			Severe			All		
	Median	Mean	SE	Median	Mean	SE	Median	Mean	SE
Non-perm	0	16.9	3.2	10	43.4	8.0	2	29.3	4.1
Semi-per	0	16.4	1.0	15	66.2	13.8	4	34.7	5.2
Permanent	0	14.7	0.9	15	68.4	11.1	3	38.3	4.9
All	0	15.5	0.7	15	65.3	8.0	3	35.8	3.3

House structure	Wall								
	Minor			Severe			All		
	Median	Mean	SE	Median	Mean	SE	Median	Mean	SE
Non-perm	0	15.9	3.3	10	32.8	5.4	2	24.4	3.2
Semi-per	0	15.1	0.8	14	60.5	6.9	3	33.3	2.8
Permanent	0	18.0	1.8	20	117.1	47.7	7	58.8	19.7
All	0	15.5	0.7	15	65.3	8.0	3	35.8	3.3

House structure	Floor								
	Minor			Severe			All		
	Median	Mean	SE	Median	Mean	SE	Median	Mean	SE
Non-perm	0	12.9	0.7	14	55.7	7.5	3	31.8	3.3
Semi-per	0	14.9	3.5	10	47.2	8.3	2	28.8	4.2
Permanent	3	21.1	1.6	16	107.3	29.3	5	48.1	9.3
All	0	15.5	0.7	15	65.3	8.0	3	35.8	3.3

E. ASSETS

1. ALUMINIUM COOKING POTS

No. of pots	Minor			Severe			All		
	Median	Mean	SE	Median	Mean	SE	Median	Mean	SE
0	0	13.8	1.7	24	56.9	7.3	5	31.0	3.2
1-5	0	11.6	0.9	12	52.5	4.5	4	28.5	2.0
6-10	0	15.7	1.2	11	47.4	3.1	3	28.1	1.4
11-15	0	14.8	1.4	18	104.8	37.0	4	50.9	14.9
>15	0	23.2	2.6	20	96.6	35.3	5	56.6	16.2
All	0	15.5	0.7	15	65.3	8.0	3	35.8	3.3

2. BEDS

Beds	Minor			Severe			All		
	Median	Mean	SE	Median	Mean	SE	Median	Mean	SE
0	0	11.4	0.9	10	45.3	3.7	3	26.2	1.7
1	0	16.6	1.0	15	68.2	10.3	3	36.9	4.1
>1	0	18.7	1.9	20	97.7	38.5	5	50.7	15.7
All	0	15.5	0.7	15	65.3	8.0	3	35.8	3.3

3. FANS

Fans	Minor			Severe			All		
	Median	Mean	SE	Median	Mean	SE	Median	Mean	SE
0	0	12.7	0.7	12	48.1	2.5	3	27.7	1.2
1	0	19.8	1.5	18	84.7	18.4	5	44.6	7.2
>1	0	21.9	3.9	23	201.9	133.6	5	87.3	48.7
All	0	15.5	0.7	15	65.3	8.0	3	35.8	3.3

4. WATCHES

Watch	Minor			Severe			All		
	Median	Mean	SE	Median	Mean	SE	Median	Mean	SE
0	0	13.6	0.8	12	47.8	2.4	3	28.2	1.1
1	0.5	18.7	1.7	20	93.8	28.6	5	46.7	10.7
>2	0	21.1	2.2	25	168.3	76.2	5	70.2	25.6
All	0	15.5	0.7	15	65.3	8.0	3	35.8	3.3

Annex 5: Household expenditure trends of different levels of household health-care expenditure

1. Household-months without health-care expenditure

Item	Income quintile 1			Income quintile 2			Income quintile 3			Income quintile 4			Income quintile 5		
	Mean	SE	%	Mean	SE	%	Mean	SE	%	Mean	SE	%	Mean	SE	%
Rice	388.2	9.0	29.6	495.1	9.6	25.7	518.2	10.4	25.8	588.7	13.4	23.0	782.7	19.1	21.2
Food	451.7	10.1	34.4	583.5	9.4	30.3	655.1	10.1	32.6	750.9	15.2	29.3	1046.2	24.8	28.3
Educ	4.2	1.0	.3	12.2	2.2	.6	21.2	3.4	1.1	36.4	5.1	1.4	77.0	9.4	2.1
Health	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cloth	72.7	14.6	5.5	146.5	19.7	7.6	125.9	17.3	6.3	206.5	28.5	8.1	293.6	39.9	8.0
House	144.9	8.1	11.0	197.9	9.8	10.3	237.4	12.4	11.8	281.5	16.2	11.0	256.1	24.6	6.9
GEWS	8.0	1.0	.6	15.6	1.8	.8	20.9	2.0	1.0	23.8	3.0	.9	107.0	20.6	2.9
Occup	26.7	3.9	2.0	107.9	9.6	5.6	87.1	8.9	4.3	154.4	15.4	6.0	159.0	18.1	4.3
Others	216.2	8.7	16.5	368.8	16.6	19.1	341.3	15.5	17.0	517.7	25.5	20.2	972.2	147.7	26.3
Total	1312.6	30.5	100.0	1927.4	35.7	100.0	2007.2	32.2	100.0	2560.0	50.4	100.0	3693.8	160.9	100.0

2. Household-months with expenditure on health-care

Item	Income quintile 1			Income quintile 2			Income quintile 3			Income quintile 4			Income quintile 5		
	Mean	SE	%	Mean	SE	%	Mean	SE	%	Mean	SE	%	Mean	SE	%
Rice	414.9	7.3	28.2	498.4	8.4	24.6	555.3	7.8	25.1	627.2	9.5	22.7	827.1	12.4	19.8
Food	460.9	8.1	31.3	596.0	8.6	29.4	681.2	8.6	30.8	780.3	10.9	28.2	1122.3	19.2	26.9
Educ	3.0	.7	.2	8.9	1.4	.4	20.3	2.2	.9	43.7	4.2	1.6	136.6	9.7	3.3
Health	80.4	7.4	5.5	104.6	7.0	5.2	102.6	6.5	4.6	130.3	9.0	4.7	285.9	40.9	6.9
Cloth	81.8	12.3	5.6	157.5	16.6	7.8	175.7	18.5	7.9	243.4	22.8	8.8	343.2	27.0	8.2
House	157.8	7.1	10.7	197.3	9.7	9.7	205.6	9.3	9.3	270.2	11.8	9.8	241.0	15.1	5.8
GEWS	10.4	1.0	.7	22.3	2.1	1.1	29.2	2.4	1.3	34.5	2.6	1.3	87.3	5.6	2.1
Occup	33.3	3.5	2.3	73.1	6.3	3.6	65.6	6.3	3.0	95.4	6.2	3.5	165.0	12.7	4.0
Others	231.0	8.1	15.7	370.1	13.7	18.3	380.0	13.1	17.2	537.8	23.7	19.5	965.4	60.8	23.1
Total	1473.4	27.0	100.0	2028.1	28.7	100.0	2215.5	29.8	100.0	2762.8	41.4	100.0	4173.8	91.4	100.0

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3. Expenditure on health-care from 1 to 100 Taka per household-month

Item	Income quintile 1			Income quintile 2			Income quintile 3			Income quintile 4			Income quintile 5		
	Mean	SE	%	Mean	SE	%	Mean	SE	%	Mean	SE	%	Mean	SE	%
Rice	408.1	7.6	29.0	502.7	10.2	25.5	556.5	9.0	26.2	624.7	10.8	25.6	809.0	15.6	20.8
Food	461.8	8.9	32.8	599.7	9.9	30.4	672.2	9.8	31.6	771.0	12.6	31.5	1061.0	22.4	27.2
Educ	2.3	.6	.2	8.1	1.5	.4	18.5	2.3	.9	46.2	5.4	1.9	116.1	11.6	3.0
Health	36.5	1.2	2.6	43.7	1.5	2.2	45.2	1.4	2.1	46.2	1.4	1.9	54.1	1.5	1.4
Cloth	76.5	12.7	5.4	146.4	17.6	7.4	150.7	18.0	7.1	210.9	23.9	8.6	348.7	36.8	9.0
House	156.7	7.7	11.1	203.9	11.5	10.3	220.5	11.2	10.4	266.4	14.1	10.9	252.4	20.7	6.5
GEWS	10.9	1.1	.8	19.4	2.1	1.0	25.7	2.4	1.2	36.8	3.3	1.5	73.4	6.2	1.9
Occup	33.9	3.9	2.4	75.1	7.4	3.8	70.6	7.9	3.3	89.5	7.1	3.7	175.0	18.7	4.5
Others	222.6	8.1	15.8	373.0	16.8	18.9	365.5	14.2	17.2	353.7	30.0	14.5	1006.0	91.2	25.8
Total	1409.4	26.8	100.0	1971.9	31.5	100.0	2125.4	30.7	100.0	2445.2	44.3	100.0	3895.7	118.5	100.0

4) Expenditure on health-care from 101 to 300 Taka per household-month

Item	Income quintile 1			Income quintile 2			Income quintile 3			Income quintile 4			Income quintile 5		
	Mean	SE	%	Mean	SE	%	Mean	SE	%	Mean	SE	%	Mean	SE	%
Rice	458.5	23.2	27.4	488.3	15.5	22.8	551.8	17.8	22.9	631.7	21.8	21.6	852.4	23.7	20.8
Food	457.0	20.9	27.3	603.4	13.6	28.2	711.0	20.2	29.6	783.6	24.0	26.8	1169.6	38.4	28.6
Educ	2.1	1.2	.1	8.6	3.2	.4	28.6	6.6	1.2	37.4	7.7	1.3	159.6	19.7	3.9
Health	184.9	7.4	11.0	186.2	5.1	8.7	193.4	5.2	8.0	195.0	5.3	6.7	196.9	4.0	4.8
Cloth	119.4	48.5	7.1	200.4	45.8	9.4	231.5	53.9	9.6	332.6	65.8	11.4	366.6	53.2	9.0
House	145.8	21.5	8.7	174.7	19.3	8.2	175.0	17.8	7.3	267.8	25.1	9.2	237.5	26.2	5.8
GEWS	7.6	2.1	.5	24.1	4.5	1.1	37.3	6.3	1.6	30.7	4.5	1.1	106.8	12.9	2.6
Occup	40.8	10.7	2.4	71.5	14.4	3.3	47.3	8.0	2.0	104.2	13.7	3.6	163.9	19.7	4.0
Others	259.6	28.7	15.5	380.8	24.5	17.8	429.1	33.1	17.8	543.8	45.3	18.6	843.8	69.9	20.6
Total	1675.6	88.3	100.0	2138.0	65.1	100.0	2405.0	72.1	100.0	2926.7	103.0	100.0	4097.0	118.4	100.0

5) Expenditure on health-care from 301 to 500 Taka per household-month

Item	Income quintile 1			Income quintile 2			Income quintile 3			Income quintile 4			Income quintile 5		
	Mean	SE	%	Mean	SE	%	Mean	SE	%	Mean	SE	%	Mean	SE	%
Rice	414.0	60.0	20.9	476.0	48.0	22.5	525.0	34.5	20.9	600.9	52.8	18.0	883.0	57.4	18.8
Food	424.0	61.5	21.4	548.0	59.9	25.9	705.0	39.4	28.0	881.8	60.1	26.3	1360.2	105.0	29.0
Educ	20.0	13.6	1.0	26.3	19.9	1.3	16.0	8.9	.6	56.1	15.1	1.7	193.6	44.6	4.1
Health	408.5	15.0	20.6	454.3	15.3	21.5	414.3	12.4	16.5	437.2	10.0	13.1	430.3	9.3	9.2
Cloth	136.7	100.8	6.9	82.7	35.6	3.9	176.0	149.7	7.0	327.9	119.1	9.8	354.0	92.3	7.5
House	166.7	36.0	8.4	187.0	52.4	8.8	130.0	45.2	5.2	286.4	52.3	8.6	175.2	68.5	3.7
GEWS	9.9	4.6	.5	47.7	25.6	2.3	57.3	22.4	2.3	27.6	10.1	0.8	118.6	27.0	2.5
Occup	2.7	1.8	.1	30.5	10.5	1.4	42.0	17.1	1.7	170.6	46.4	5.1	116.2	27.9	2.5
Others	402.4	93.1	20.3	261.9	51.7	12.4	452.8	107.1	18.0	559.3	61.7	16.7	1066.7	233.1	22.7
Total	1983.8	191.4	100.0	2114.5	155.8	100.0	2518.3	236.7	100.0	3347.8	193.9	100.0	4697.8	319.2	100.0

6) Expenditure on health-care more than 500 Taka per household-month

Item	Income quintile 1			Income quintile 2			Income quintile 3			Income quintile 4			Income quintile 5		
	Mean	SE	%	Mean	SE	%	Mean	SE	%	Mean	SE	%	Mean	SE	%
Rice	480.0	87.3	18.0	477.9	39.3	17.7	603.0	85.7	17.6	687.5	59.8	18.1	838.5	53.2	13.5
Food	506.3	70.0	19.0	473.6	47.9	17.5	675.0	60.2	19.7	815.0	58.3	21.4	1256.9	80.3	20.2
Educ	14.4	8.9	.5	17.3	9.8	.6	9.0	7.1	.3	12.1	6.0	.3	172.8	44.8	2.8
Health	1198.9	210.9	44.9	872.9	114.2	32.3	1032.0	186.1	30.0	1071.5	133.0	28.1	2311.5	460.8	37.1
Cloth	-	-	-	214.3	145.6	7.9	637.0	247.1	18.5	280.4	127.2	7.4	209.6	49.8	3.4
House	290.0	70.5	10.9	198.2	71.0	7.3	47.0	35.7	1.4	341.7	68.0	9.0	213.1	40.0	3.4
GEWS	3.8	3.8	.1	65.5	22.8	2.4	33.8	13.3	1.0	18.6	10.9	.5	103.7	22.1	1.7
Occup	-	-	-	72.9	33.1	2.7	109.5	99.1	3.2	64.7	23.0	1.7	128.1	34.1	2.1
Others	176.0	49.7	6.6	309.4	85.3	11.5	288.8	51.1	8.4	517.4	77.8	13.6	997.7	179.5	16.0
Total	2669.3	363.7	100.0	2701.9	305.4	100.0	3435.1	342.4	100.0	3808.9	280.8	100.0	6231.8	512.2	100.0