# Livelihood Struggles of the Chronic Poor in Rural Bangladesh (2)

by

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Chapter 4 Health and Nutrition

# Chapter 4
# Health and Nutrition

## 4.1 Introduction

As in the case of education, health is another dimension of human capital. On the other hand, incidence and recurrence of diseases and the impoverishment of health affect productivity of people and level of livings. Like education Bangladesh has had an impressive improvement in health outcome over the years. Infant and under-five mortality has reduced and life expectancy has increased to a large extent. Substantial progress has also been made in prevention of diarrhea and cholera. Polio and small pox are in near elimination. If the current progress continues Bangladesh may achieve the Millenium Development Goal (MDG) in the area of infant and child mortality rates. These improvements have been achieved mainly due to implementation of basic national health programs by the government and NGOs in the area of family planning, immunization, child health care, reproductive health services etc. In spite of having some improvement in health outcome, the child malnutrition is still among the highest in the world.

An important factor affecting the well-being of rural people in Bangladesh is universal lack of functioning health facilities and preventive health system. In rural area, there is little choice for sick people but to seek help at the closest and cheapest health services. Poor quality of medical staff and lack of medicines are also important factors for not getting good health services. The resource allocation on health, population and welfare sector has also increased tremendously over the period but still it is not sufficient for the present vast population size. The people is likely to be affected for not having required amount of resources or if health resources allocation remain at inconsistent level, there may have some negative interaction between health facilities and population. The resource allocation in Annual Development Program (ADP) from 1999-2000 to 2003-2004 is shown in

Tabel 4.1 below.

Table 4.1: Trends in Resource Allocation in ADP on Health, Population and Welfare Sector

| Year | Allocation on health as | | Per capita allocation in US$ |
|---|---|---|---|
| | % of total ADP | % of GDP at current price | |
| 1999-2000 | 8.80 | 0.61 | 2.6 |
| 2000-2001 | 8.88 | 0.64 | 2.3 |
| 2001-2002 | 9.02 | 0.53 | 1.9 |
| 2002-2003 | 9.02 | 0.51 | 2.0 |
| 2003-2004 | 10.38 | 0.59 | 2.5 |

Source: Bangladesh Economic Review, 2004, MoF.

It reveals that ADP allocation in health sector increased from Tk.14522.3 million in 1999-2000 to 19727.5 million in 2003-2004 showing about 9.0 percent increase per annum. The percentage share of allocation in health sector to total allocation in ADP varies between 9 to 10 percent, while the share of allocation to GDP was only about 0.6 percent. Although about 9-10 percent of the total ADP allocation was spent in this sector over the period the per capita allocation was very small and it was US$2.64 in 1999-2000, US$1.9 in 2001-2002 and US$2.5 in 2003-2004. Moreover, there is no empirical evidence to support that the benefits of expenditure on health sector are being equally shared by the poor people. The per capita health expenditure on average is US$2.26 as against the threshold level of US$42.0 as suggested by the WHO. However, this expenditure figure (US$2.26) is only a public expenditure and it excludes private expenditure. Figure 4.1 shows the per capita resource allocation on health.

### 4.2 Access to Health Services

Poverty is said to be the main cause of health problem. It is also said that ill-health induces poverty and thus they are enforcing each other. Ill-health also reduces productive capabilities of individuals. More specifically, malnutrition due to

inadequate food intake make the people prone to disease and increase the possibilities of morbidity and mortality. Morbidity through its manifestations put people in different diseases and make them suffer and resulting in bad health situation. The survey data suggest a high degree of morbidity in rural Bangladesh. Of the 6398 sample population, 2005 (31%) household members suffered from different diseases during three months preceding the survey among which 26.1 percent in non-poor households, 18.2 percent in ascending poor, 17.5 percent in descending poor, and 38.3 percent in chronically poor households (Table 4.2). Thus more members from chronically poor households suffered from different diseases and there exists a distinct variation in prevalence of disease across economic class. The incidence of illness is significantly higher ($P<0.05$) in chronically poor households than in non-poor households. Figure 4.2 indicates the variation in morbidity across economic class.

Figure 4.1: Per capita resource allocation on health

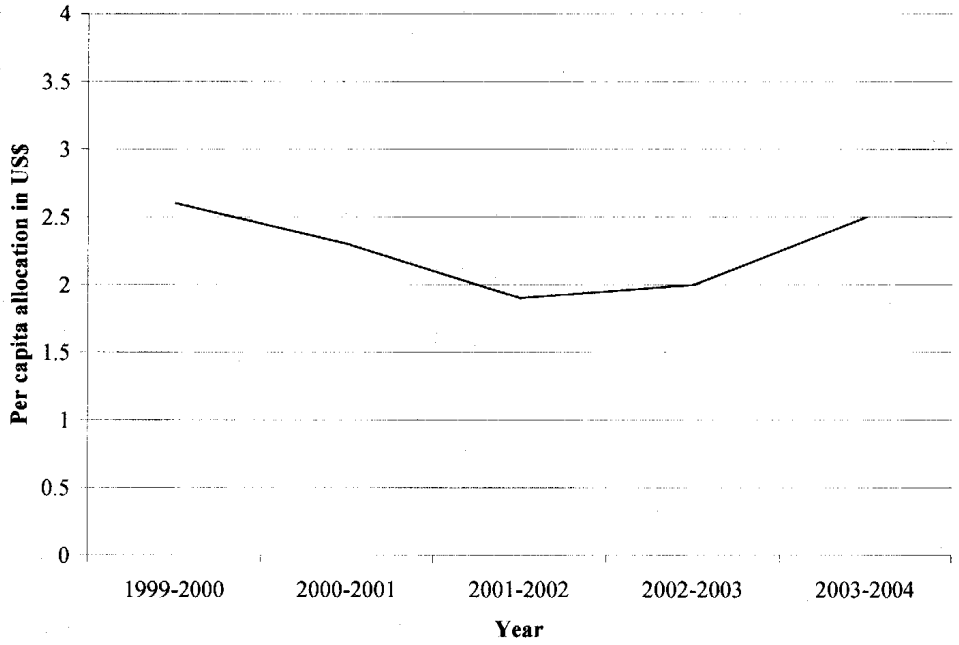
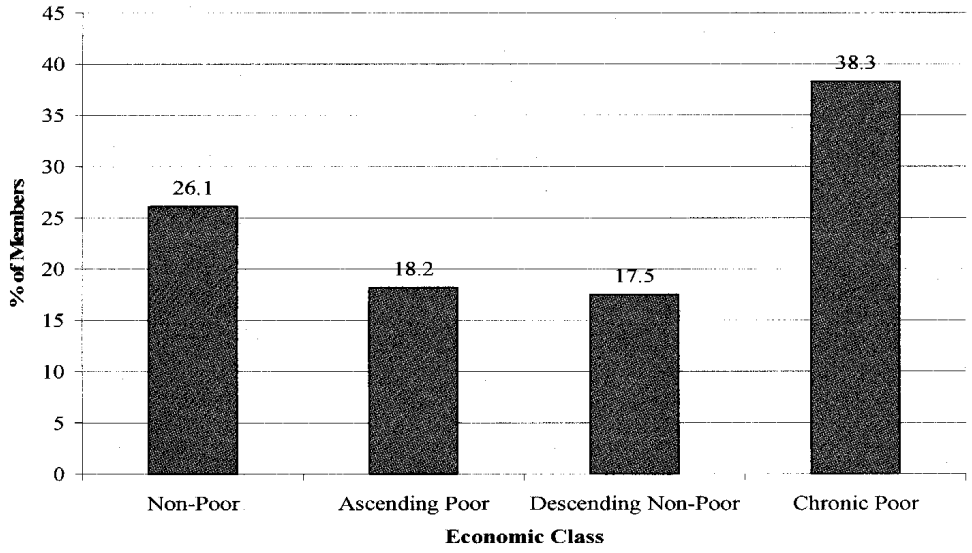


Table 4.2: Percentage of Household Members Suffered from Different Diseases in the Last Three Months Preceding of Survey by Economic Class

| Economic Class | Number of Members Suffered from Illness | % of Members |
|---|---|---|
| Non-Poor | 524 | 26.1 |
| Ascending Poor | 364 | 18.2 |
| Descending Non-Poor | 350 | 17.5 |
| Chronically Poor | 767 | 38.3 |
| Total | 2005 | 100.0 |

Figure 4.2: Morbidity by Economic Class.




The main obstacle for improving the health situation is the inability of people to access to health care services due to poverty and some disparities in access to health care services separate the poor and non-poor. The morbidity profile obtained from sample data reveals the following major diseases that make people more morbid (Table 4.3).

Table 4.3: Proportion of Morbidity From Top 20 Symptoms/Diseases in the Past Three Months Preceding of Survey by Economic Class

| Disease suffered | % of individuals suffered | | | | Total |
|---|---|---|---|---|---|
| | Non-Poor | Ascending Poor | Descending Non- Poor | Chronically Poor | |
| Fever with Cold/Headache | 36.3 | 40.9 | 42.3 | 42.0 | 40.0 |
| Respiratory Problem | 6.3 | 9.3 | 7.7 | 8.1 | 7.8 |
| Diarrhea | 5.5 | 6.3 | 7.1 | 7.0 | 6.5 |
| Injury/arthritis/Waist Pain | 6.7 | 8.0 | 4.9 | 5.3 | 6.1 |
| Stomach Pain/Peptic Ulcer | 6.7 | 4.7 | 4.6 | 6.8 | 6.0 |
| Skin Disease/Scabies | 4.0 | 2.7 | 3.1 | 4.4 | 3.3 |
| Rheumatic/Rheumatic fever | 3.8 | 3.6 | 4.0 | 2.5 | 3.3 |
| Physical Sickness/Kidney Problem/Appendicitis | 4.4 | 3.6 | 2.0 | 3.1 | 3.3 |
| Dysentery | 3.1 | 3.3 | 3.7 | 2.9 | 3.1 |
| Cough | 2.7 | 3.0 | 4.3 | 2.0 | 2.7 |
| Malaria | 2.5 | 3.0 | 2.0 | 2.3 | 2.4 |
| Small Pox | 2.7 | 0.5 | 0.9 | 1.4 | 1.5 |
| Ear Problem/Toothache | 1.9 | 0.3 | 2.0 | 1.4 | 1.4 |
| Hypertension | 2.1 | 0.8 | 0.9 | 1.6 | 1.4 |
| Typhoid | 1.0 | 1.4 | 1.7 | 0.9 | 1.1 |
| Influenza | 1.1 | 1.1 | 1.1 | 0.8 | 1.0 |
| Blood Deficiency/Anaemia | 1.0 | 1.1 | 1.7 | 0.8 | 1.0 |
| Paralysis/Stroke/Disabled | 0.3 | 0.5 | 0.96 | 0.5 | 0.6 |
| Diabetes | 0.4 | 0.3 | 0.3 | 0.3 | 0.3 |
| Others | 7.4 | 5.5 | 4.9 | 5.9 | 6.0 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Although, the prevalence of general fever with cold was noticeably high (36.3% in non-poor households, 41.0% in ascending poor households, 42.3% in descending non-poor households and 42% in chronically poor households), the respiratory (7.8%) problem and diarrhea (6.5%) ranked second and third in respect of incidence of illness. However, members were also most affected by injury and other related pain (6.1%) and stomach pain (6%). It is interesting to note that the members from chronically poor households had the highest prevalence rate, but no significant socio-economic differentials persisted in respect of prevalence of

morbidity rate for diseases such as diarrhea, dysentery, respiratory problem, injury, stomach problem, malaria etc. It is somewhat surprising that survey data provided in Table 4.3 did not show any difference in propensity to be sick across chronically poor and non-poor households. This may be due to the fact that chronically poor and less wealthy people are less likely to report their illness.

Nearly 50 percent of the household members who were exposed to different diseases suffered for 1-7 days, 23 percent for 8-15 days, 3.8 percent for 16-21 days, 6.5 percent for 22-30 days, 2.9 percent for 31-60 days and 14.5 percent for more than 60 days (Table 4.4), depending on the nature and intensity of diseases.

Table 4.4: Number of Days Suffered from Sickness by Economic Class

| No. Days Suffered | % of members | | | | Total |
|---|---|---|---|---|---|
| | Non-Poor | Ascending Poor | Descending Non-Poor | Chronically Poor | |
| 1-7 | 46.2 | 50.3 | 50.6 | 50.1 | 49.2 |
| 8-15 | 21.4 | 24.9 | 23.7 | 23.3 | 23.3 |
| 16-21 | 4.0 | 2.5 | 4.3 | 3.8 | 3.8 |
| 22-30 | 7.6 | 7.2 | 6.3 | 5.6 | 6.5 |
| 31-60 | 2.9 | 2.5 | 1.4 | 3.9 | 2.9 |
| 60+ | 17.9 | 12.7 | 13.7 | 13.3 | 14.5 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

## 4.3 Income Erosion Due to Illness

The Socio-economic consequences of illness are profound, resulting in income erosion, lost productivity and reduced working capacity. It impairs income opportunities particularly for the poor households. However, income erosion was occurred for 8.5 percent of the total individuals who suffered from different diseases. Table 4.5 shows the average income erosion due to illness in the last three months preceding the survey by economic class.

Table 4.5: Average Income Erosion due to Illness by Economic Class

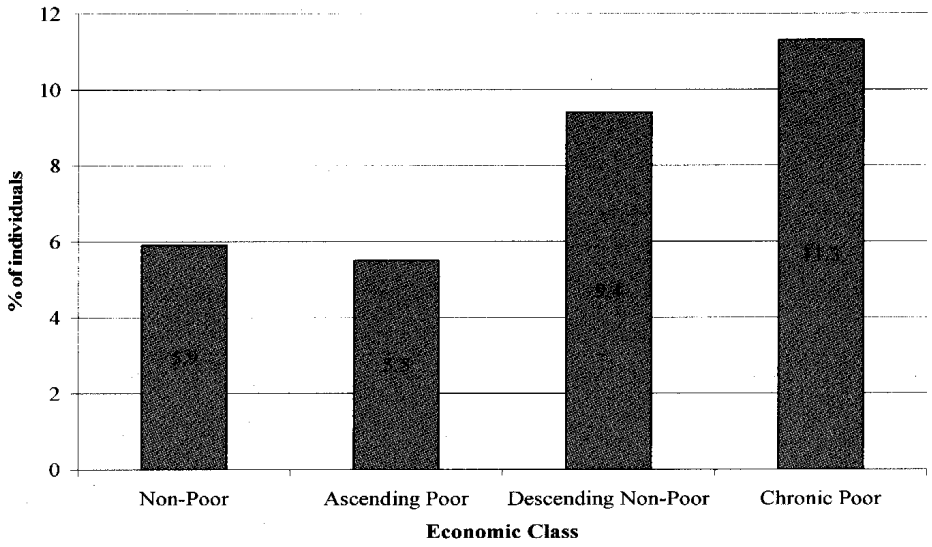
| Economic Class | No. of Person | Income erosion in Tk. | Inequality in income erosion |
|---|---|---|---|
| Non-Poor | 31 (5.9) | 803 | 0.488 |
| Ascending Poor | 20 (5.5) | 826 | 0.299 |
| Descending Non-Poor | 33 (9.4) | 497 | 0.428 |
| Chronically Poor | 87 (11.3) | 436 | 0.486 |

Figure in parenthesis indicates the percentage of people who lost income due to illness.

The average income erosion due to illness in ascending poor households was the highest (Tk.826), followed by non-poor (Tk.803), chronically poor (Tk.486) and descending non-poor households (Tk.428). It is interesting to note that more than Tk.500 was eroded for majority (38.7%) of the non-poor, ascending poor and descending non-poor household members, while income erosion for the majority (83%) of the chronically poor household members was between Tk.101 to Tk.250. Since the chronically poor are involved in low paying occupations, their income erosion was lower compared to other groups but the inequality as measured by Gini index in distribution of eroded income is 0.486 for chronically poor.

Although the average income erosion was the highest for ascending poor, the inequality was the lowest (0.299). About 524 persons in non-poor households were suffered from illness, but income erosion was occurred for only 6 percent of them. Similarly, the proportion of persons who lost income due to illness was 6 percent for ascending poor, 9 percent for descending non-poor and 11 percent for chronically poor household members. Figure 4.3 shows the percentage of individuals whose income was eroded.

Figure 4.3: Percentage of individuals whose income was eroded




## 4.4 Private Health Expenditure

There are two components of private health care expenses. One expense is on account for hospital services and another one is for medicine, pathological test and conveyance. Table 4.6 shows the average private health expenses by economic class.

Table 4.6: Average Private Health Expenditure for Treatment in the Last Three Months Preceding of the Survey

| Economic Class | Expenditure | |
|---|---|---|
| | Hospital | Medicine, test and conveyance |
| Non-Poor | 6647.3 (15) | 1122.3 (476) |
| Ascending Poor | 616.8 ( 8) | 410.6 (323) |
| Descending Non-Poor | 916.7 ( 3) | 497.7 (329) |
| Chronically Poor | 340.9 (14) | 289.6 (630) |

The average expenditures both for hospital and purchases of medicines, tests and conveyance are the highest for non-poor household members, while it is the lowest for the chronically poor household. Since the non-poor household are economically better off they can afford for better treatment over costly private clinic and specialized doctor. As a result, expenditure on account of hospital, medicine and

pathological tests are higher compared to other groups. The average expenditure, however, conceals the distributional pattern of expenditure on health services among the individuals. Table 4.7 gives the inequality in distribution of health expenditure by economic class.

Table 4.7: Gini Index for Heath Expenditure

| Economic Class | Gini Index for | |
|---|---|---|
| | Hospital expenditure | Medicine, test and conveyance |
| Non-Poor | 0.371 | 0.547 |
| Ascending Poor | 0.436 | 0.511 |
| Descending Non-Poor | 0.497 | 0.565 |
| Chronically Poor | 0.534 | 0.612 |

The estimated Gini index reveals that inequality in health expenditure within chronically poor households is much higher compared to other groups which means that many people who suffered from illness in chronically poor households are unable to bear expenses for hospital and buy medicine and they have less access to health facilities. Inequality in health expenditure is much higher for expenses incurred on account of medicine, test and conveyance compared to expenses on account of hospital beds.

## 4.5 Maternal and Child Health Care

### 4.5.1 Ante-Natal Care

Ante-natal Care (ANC) during pregnancy is one of the important phenomena in preventing an adverse pregnancy outcome. But its number of visit and timing of first visit are important to reduce risks of mother and child during delivery. To be most effective it is recommended that ANC visits should be made monthly for the first seven months, fortnightly in the eighth month and then weekly until the birth is occurred. The survey results show that most mothers in rural areas (58%) do not

receive ante-natal care. Table 4.8 shows the proportion of women under 49 years who had delivery in the last three years preceding the survey and received at least one ANC by type of health personnel.

Table 4.8: Percentage distribution of Last Births in the Three Years Preceding the Survey by Source of ANC Provider and Economic Class.

| Economic Class | ANC Providers | | | None (%) |
|---|---|---|---|---|
| | Public health service providers | Private health service providers | Non-Medical Personnel (Birth Attendant) | |
| Non-Poor | 23.0 | 14.6 | 5.5 | 56.9 |
| Ascending Poor | 15.9 | 20.7 | 7.3 | 59.8 |
| Descending Non-Poor | 14.7 | 16.9 | 9.6 | 58.8 |
| Chronically Poor | 17.6 | 15.9 | 7.6 | 58.8 |
| Total | 18.0 | 16.7 | 7.4 | 57.9 |

It is observed that ANC is most commonly sought in the Thana Health Complex/District Hospital/Medical Colleges where professional doctors are available. The second important source of ANC, service was the satellite/NGO clinic. Birth attendant (non-medical personnel) also provided ANC service. It is encouraging fact that ante-natal care of chronically poor pregnant women are as likely as the non-poor to use services from different sources. The data may overestimate the actual extent of coverage, since women were asked about ANC received during pregnancies but we did not ask whether they received ANC from medical personnel or not.

### 4.5.2 Post-Natal Care

The use of post-natal care (PNC) has also increased but much more slowly and it is still fairly low. Compare to ANC fewer number of mothers and children sought post-natal care and on average 17 percent of the mothers received PNC during and after delivery in three years preceding the survey (Table 4.9). The proportion of mother who took PNC is the highest (27%) among non-poor household, while it is

lowest among chronically poor household (11%). Figure 4.2 shows the percentage of mother who took post-natal care.

Figure 4.4: Percentage of mother who took post-natal care

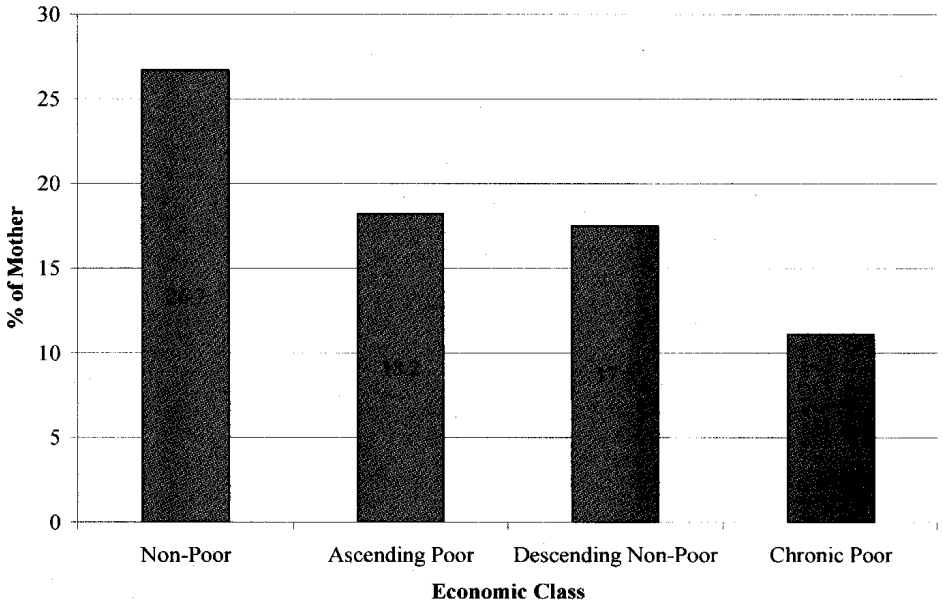



Table 4.9: Proportion of Mother Who Took PNC by Economic Class

| Economic Class | % of Mother who took PNC | None (%) | Total |
|---|---|---|---|
| Non-Poor | 26.7 | 73.3 | 100.0 |
| Ascending Poor | 18.2 | 81.8 | 100.0 |
| Descending Non-Poor | 17.5 | 82.5 | 100.0 |
| Chronically Poor | 11.1 | 88.9 | 100.0 |
| Total | 17.4 | 82.6 | 100.0 |

## 4.6 Tetanus Toxoid Vaccination

Tetanus is a fatal disease and it is transmitted by unhygienic conditions at child birth. For this reason tetanus toxoid injections are given to pregnant women for prevention of tetanus among newborn babies. The recommended dose for full protection is to take two doses of the toxoid during pregnancy. To estimate the coverage of tetanus toxoid during pregnancy, the data were collected for the last

birth in the three years preceding the survey. The survey results are shown in Table 4.10.

Table 4.10: Percentage Distribution of Pregnant Women who Received TT Injection During Pregnancy in the Three Years Preceding the Survey by Economic Class.

| Economic Class | % Women Received TT | % Women not Received TT | Total |
|---|---|---|---|
| Non-Poor | 98.9 | 1.1 | 100.0 |
| Ascending Poor | 95.8 | 4.2 | 100.0 |
| Descending Non-Poor | 95.8 | 4.2 | 100.0 |
| Chronically Poor | 97.6 | 2.4 | 100.0 |
| Total | 97.2 | 2.8 | 100.0 |

The data seem to be overestimated since this proportion includes single, double and more doses of TT injection and indicate that tetanus toxoid coverage is appeared to be widespread in Bangladesh. There is no significant variations in coverage between economic classes.

## 4.7 Delivery Care

Delivery care has two main components. One is place of delivery and the other is type of assistance taken during delivery. These two factors are important in reducing the risk of complications and infections that may cause death or illness for either mother or the newborn babies.

## 4.8 Place of Delivery

The sample data show that almost 95 percent of all deliveries took place at home (Table 4.11). This figure is 90 percent for non-poor households, 94 percent for ascending poor, 93 percent for descending non-poor and 99 percent for chronically poor households. Thus home is still much more common place for delivery in rural areas. Only a few used Thana Health Complex / District Hospital / Medical College and Private Clinic / NGO Clinic as the place of delivery (Figure 4.3). So most of

the deliveries are occurred in unhygienic conditions which resulted in higher percentage of infant mortality rate particularly in rural areas.

Figure 4.5: Percentage of Delivery by Place and Economic Class.

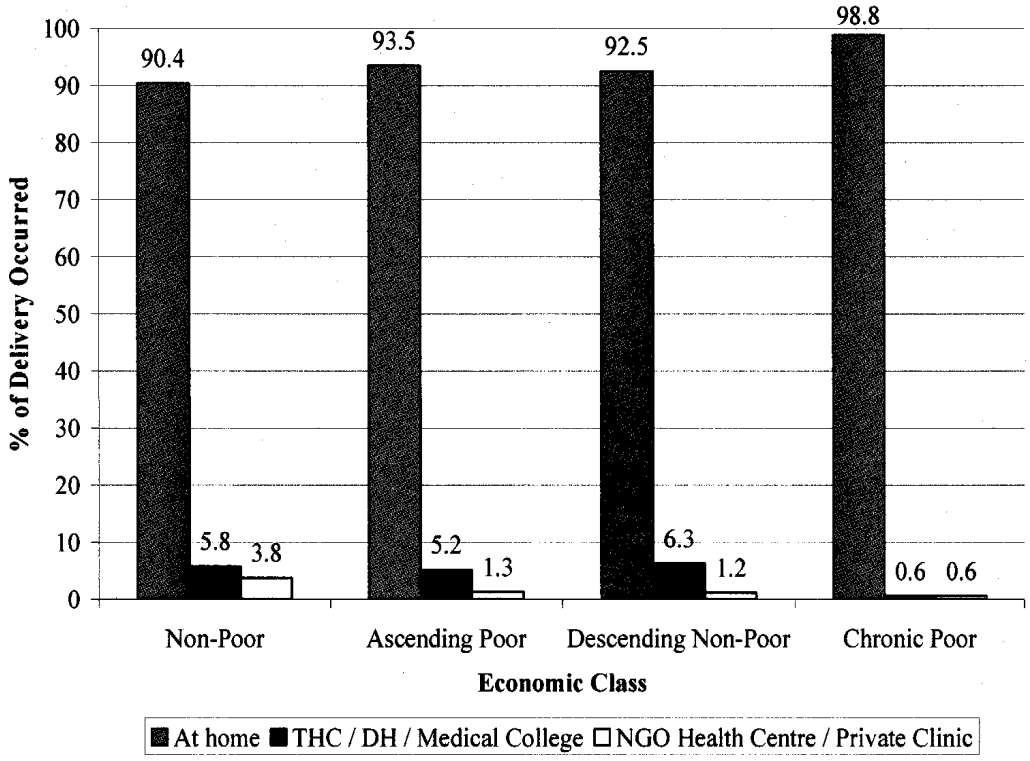



Table 4.11: Percentage Distribution of Delivery in the Three Years Preceding the Survey by Place of Delivery and Economic Class.

| Economic Class | % of Delivery Occurred | | | Total |
|---|---|---|---|---|
| | At home | THC/DH/ Medical College | NGO Health Centre/Private Clinic | |
| Non-Poor | 90.4 | 5.8 | 3.8 | 100.0 |
| Ascending Poor | 93.5 | 5.2 | 1.3 | 100.0 |
| Descending Non-Poor | 92.5 | 6.3 | 1.2 | 100.0 |
| Chronically Poor | 98.8 | 0.6 | 0.6 | 100.0 |
| Total | 94.6 | 3.8 | 1.6 | 100.0 |

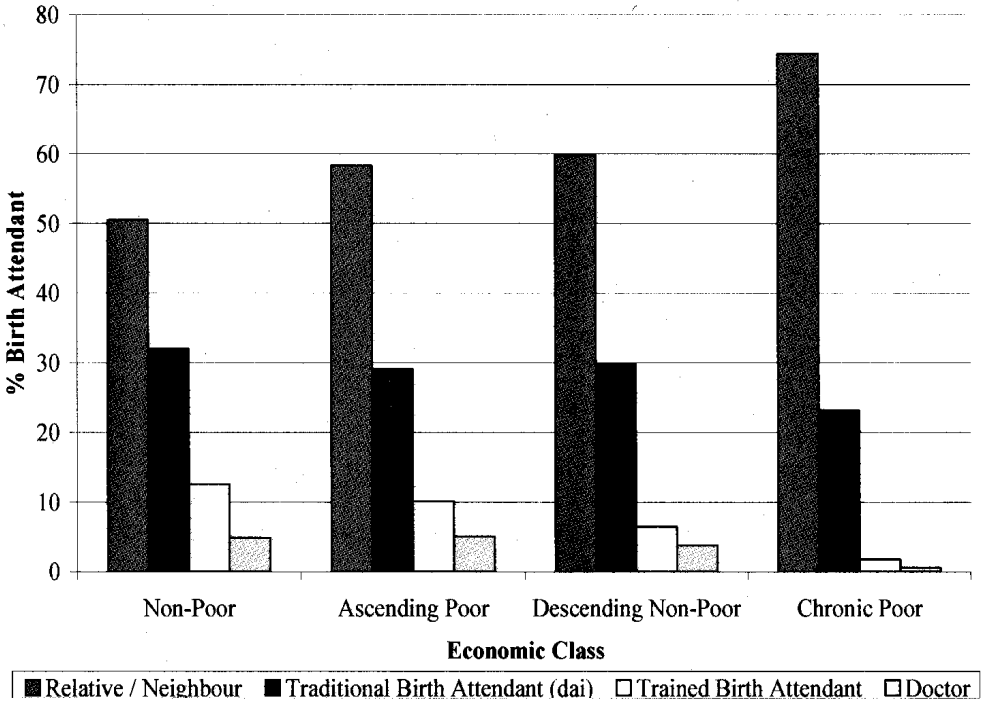
## 4.9 Delivery Attendants

Deliveries at home are more likely to be delivered with assistance of non-trained and non-medical personnel. It appears from Table 4.12 that about 50.5 percent of the total deliveries among non-poor households were assisted by relatives/neighbours, 32 percent by traditional birth attendant Dai, 12.6 percent by trained birth attendant and 5 percent were assisted by qualified doctor. Disparities between non-poor and chronically poor households in using birth attendant are quite large and women in chronically poor household gave birth with high risk for mother and newborn baby. More than 74 percent of the total deliveries of pregnant women in chronically poor households were assisted by non-medical personnel (relative/neighbour), while only 0.6 percent of the deliveries were assisted by doctors. Figure 4.4 illustrates deliveries by birth attendant.

Table 4.12: Utilization Rates of Birth Attendant by Economic Class.

| Economic Class | % Birth Attendant | | | | |
|---|---|---|---|---|---|
| | Relative/ Neighbour | Traditional Birth Attendant (dai) | Trained Birth Attendant | Doctor | Total |
| Non-Poor | 50.5 | 32.0 | 12.6 | 4.9 | 100.0 |
| Ascending Poor | 58.3 | 29.1 | 10.1 | 5.1 | 100.0 |
| Ascending Non-Poor | 59.8 | 29.9 | 6.5 | 3.8 | 100.0 |
| Chronically Poor | 74.4 | 23.2 | 1.8 | 0.6 | 100.0 |

Figure 4.6: Deliveries by Birth Attendant




## 4.10 Immunization Service

Child immunization coverage has increased to a great extent but the rates not yet reached universal coverage. However, more than 90 percent of the children below 5 years have received at least one major vaccination.

Table 4.13: Percentage of Children Below 5 Years who had Received Specific Vaccines by Economic Class.

| Economic Class | % of Children (<5 years) who received | | | | | | | Measles |
|---|---|---|---|---|---|---|---|---|
| | BCG | DPT | | | Polio | | | |
| | | 1 | 2 | 3+ | 1 | 2 | 3+ | |
| Non-Poor | 100.0 | 6.4 | 3.2 | 90.4 | 4.8 | 5.6 | 89.6 | 86.6 |
| Ascending Poor | 100.0 | 1.0 | 4.0 | 95.0 | 2.0 | 2.0 | 96.0 | 91.3 |
| Descending Non-Poor | 98.9 | 5.4 | 2.2 | 92.4 | 5.3 | 1.1 | 93.6 | 89.9 |
| Chronically Poor | 98.1 | 4.0 | 2.5 | 93.5 | 3.9 | 4.4 | 91.7 | 88.6 |

Immunization programme in Bangladesh is more successful than any other programmes. Disparities between economic class in receiving vaccination are not

wide. The public sector is playing an important role in providing immunization services and more than 90 percent of all immunizations provided in a government facility or by government health workers (World Bank, 2003). An encouraging fact is that the targeting of the poor with immunization services has been so successful that the poor are just as likely as the non-poor to use services.

### 4.11 Anthropometric Measures of Child Nutrition

The prevalence of child malnutrition is very profound in Bangladesh. It adversely affects child body growth and health and finally increase human misery. High malnutrition reduces capabilities of production, intellectual ability and learning capacity and impairs mental and cognitive development. It also affects schooling performance and educational attainment thereby perpetuates poverty by preventing the poor from increasing their income. Several research findings indicated that stunting has a direct negative impact on labour productivity [World Bank, 2003].

Moreover, the health risk is directly related to wasting and stunting. Anthropometric failure is one of the important determinants of child malnutrition which finally leads to child mortality. Nutritional status depends on multiple factors. These are closely related to food, education and health care. Children of age 6-59 months are our subject of anthropometric studies. The following parameters have been measured for each child in our sample households:

(i) age in months

(ii) weight in kg., and

(iii) height in cm.

These data have been subsequently used to interpret nutritional status of children in relation to standard reference data for childhood weight, height and age. The reference standard for children's anthropometry formulated in 1975 by the National Centre for Health Statistics (NCHS)/Centres for Disease Control (CDC) in USA

has been used to compare the nutritional status of our sample children. For comparison, the following three widely accepted anthropometric indices of physical growth have been used to measure nutritional status of children:

(i) weight-for-height (wasting),

(ii) height-for-age (stunting), and

(iii) weight-for-age (underweight).

Each of these indices indicates somewhat different characteristics about the nutritional status of children. The first index measures body mass in relation to body length and explains how thin or fat a child is in comparison to his/her height. Weight-for-height is affected by a acute shortage of food intake. The second index measures linear growth retardation and tells how tall or short a child is in relation to his/her age. Inadequacy in height-for-age is an indicator of long-term effects of malnutrition due to food shortage. The third index (weight-for-age) is a measure of child's weight in relation to his/her age and it is influenced by combined effects of height-for-age and weight-for-height.

In order to measure nutritional status of children, Z-score (or standard deviation score) has been calculated for each individual from the mean value of the reference population and Z score <-2 SD of the NCHS reference and <-3 SD of the NCHS reference have been used as cut-off point to describe moderate and severe outcome of nutritional status of children respectively.

The cut-off levels for nutritional Z-score index used here to describe nutritional status of children and is given in Table 4.14).

Table 4.14: Cut-off Levels of Z-score Indices

| Anthropometric Index | Cut-off Level | |
|---|---|---|
| | <-2.00 | <-3.00 |
| Weight-for-age Z-score (WAZ) | Moderate underweight | Severe underweight |
| Weight-for-height Z-score (WHZ) | Moderate wasting | Severe wasting |
| Height-for-age Z-score (HAZ) | Moderate stunting | Severe stunting |

## 4.12 Description Statistics of Z-Score

There were 541 under 5 children in the sample household among which 123 were in non-poor households, 95 in ascending poor, 105 in descending poor and 218 in chronically poor households. The Z-score for each child is estimated and their mean and skewness by economic class is shown in Tables 4.15-4.17.

Table 4.15: Description of Statistics for underweight children by Economic Class

| Economic Class | Mean | Skewness | SD of skewness |
|---|---|---|---|
| Non-poor | -1.56 | 0.784 | 0.218 |
| Ascending poor | -1.79 | 1.120 | 0.247 |
| Descending non-poor | -1.98 | 2.180 | 0.236 |
| Chronically Poor | -1.98 | 0.261 | 0.165 |
| Overall | -1.85 | 0.985 | 0.105 |

Table 4.16: Description of Statistics for wasting children by Economic Class

| Economic Class | Mean | Skewness | SD of skewness |
|---|---|---|---|
| Non-poor | -0775 | 0.862 | 0.180 |
| Ascending poor | -0.782 | 0.127 | 0.250 |
| Descending non-poor | -1.052 | -0.369 | 0.237 |
| Chronically Poor | -0.883 | 0.008 | 0.164 |
| Overall | 0.874 | 0.177 | 0.105 |

Table 4.17: Description of Statistics for stunting children by Economic Class

| Economic Class | Mean | Skewness | SD of skewness |
|---|---|---|---|
| Non-poor | -1.492 | 0.607 | 0.220 |
| Ascending poor | -1.899 | 1.166 | 0.250 |
| Descending non-poor | -1.993 | 0.314 | 0.238 |
| Chronically Poor | -1.986 | 1.151 | 0.167 |
| Overall | -1.857 | 0.903 | 0.106 |

### 4.13 Inequality in Malnutrition

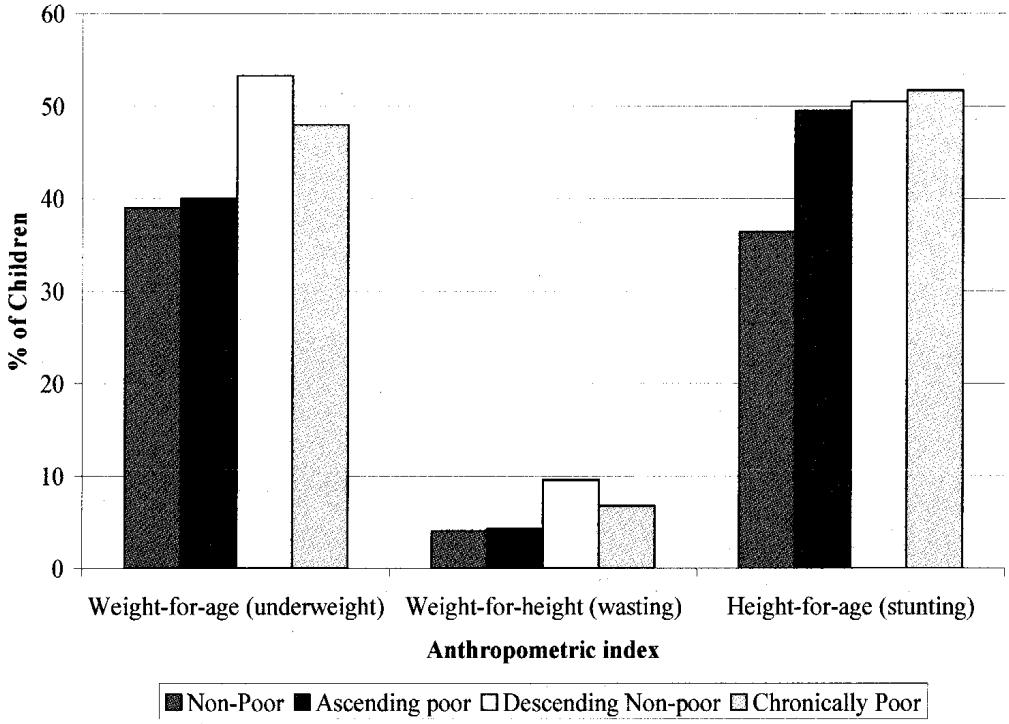
#### 4.13.1 Moderate Malnutrition

Based on the Z-score classifications the prevalence of underweight, wasting and stunting by economic class of households have been evaluated and it is observed that there exist a significant variation ($P<0.05$) in prevalence of underweight, wasting and stunting among children of different categories of households (Table 4.18). The prevalence of moderately underweight, wasting and stunting among 6-59 months children in non-poor households were 39.0 percent, 4.1 percent and 36.4 percent respectively. On the other hand, this figure in chronically poor households is 48.9 percent, 6.8 percent and 51.7 percent respectively. The prevalence of underweight and wasting in ascending poor households is more or less similar to non-poor households except stunting. The stunting rate in ascending poor households is 49.5 percent as against 36.4 percent in non-poor households. The prevalence of malnutrition in descending non-poor children is closer to chronically poor children (Figure 4.7).

Table 4.18: Percentage Distribution of Moderately Underweight, Wasting and Stunting Children by Economic Class

| Anthropometric index | Economic Class | | | |
|---|---|---|---|---|
| | Non-poor | Ascending poor | Descending non-poor | Chronically Poor |
| Weight-for-age (underweight) | 39.0 | 40.0 | 53.3 | 48.0 |
| Weight-for-height (wasting) | 4.1 | 4.3 | 9.6 | 6.8 |
| Height-for-age (stunting) | 36.4 | 49.5 | 50.5 | 51.7 |
| Chronically Poor | 74.4 | 23.2 | 1.8 | 0.6 |

Figure 4.7: Moderate Child Malnutrition Rates (%).




### 4.13.2 Severe Malnutrition

The significant variation ($P<0.05$) is also observed between different economic classes in respect of prevalence of severe malnutrition (Table 4.19). It is interesting to note that there is no severely wasted children in non-poor and ascending poor households. Only one child in descending non-poor and 3 children in chronically poor households are found to be wasted. However, 4.9 percent children in non-poor, 9.5 percent in ascending poor, 10.5 percent in descending non-poor and 13.8 percent children in chronically poor are observed to be severely underweight. The severely stunting rate is respectively 14.9 percent, 15.1 percent, 19.4 percent and 19.0 percent (Figure 4.8).

Figure 4.8: Severe Child Malnutrition Rates (%).

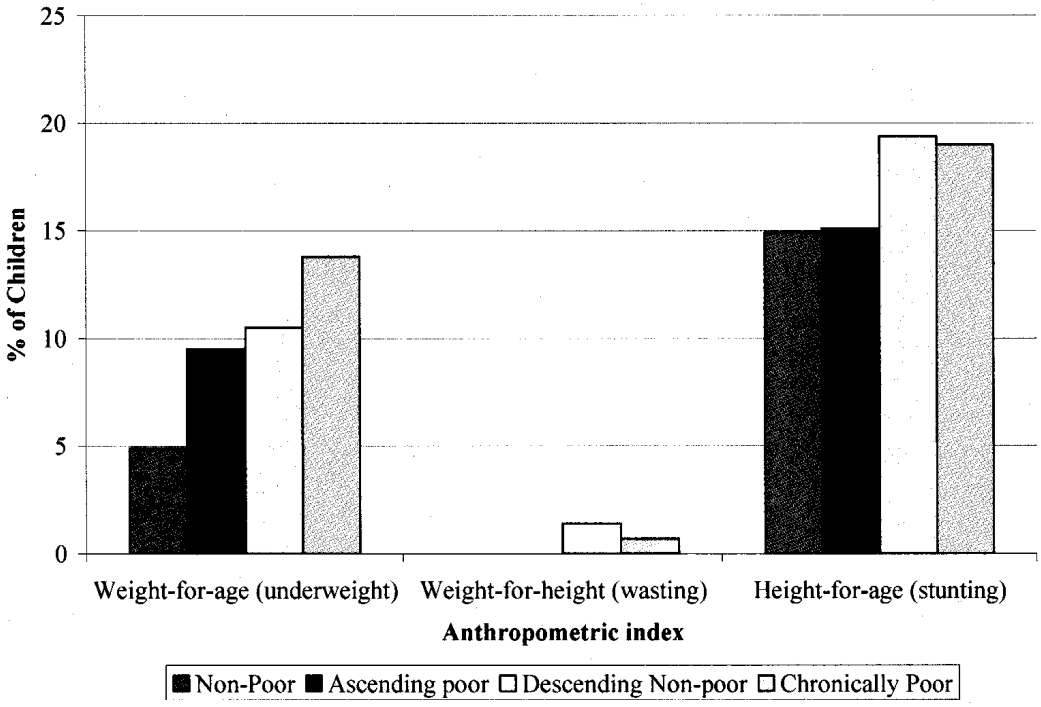



Table 4.19: Percentage Distribution of Severely underweight, wasting and stunting children by Economic Class

| Anthropometric index | Economic Class | | | |
|---|---|---|---|---|
| | Non-poor | Ascending poor | Descending non-poor | Chronically Poor |
| Weight-for-age (underweight) | 4.9 | 9.5 | 10.5 | 13.8 |
| Weight-for-height (wasting) | - | - | 1.4 | 0.7 |
| Height-for-age (stunting) | 14.9 | 15.1 | 19.4 | 19.0 |

Table 4.20 compares the prevalence of malnutrition for the whole sample which represents nutritional status of children in rural areas with that of Child Nutrition Survey (CNS) of Bangladesh conducted by BBS in 2000. Although our sample size is too small (n=541) compared to CNS 2000 study population (n=2,393), the results show a similar pattern and indicate an improving trend in nutritional status between 2000 and 2004. The Chronic Poverty Survey (CPS 2004) shows a decline in the prevalence of nutritional status in rural areas.

Table 4.20: Comparison of Wasting, Stunting and Underweight between CNS 2000 and 2004

| Anthropometric index | Chronic Poverty Survey 2004 | | BBS CNS 2000 | |
|---|---|---|---|---|
| | <-2SD | <-3SD | <-2SD | <-3SD |
| Underweight (WAZ) | 45.8 | 10.5 | 52.6 | 13.2 |
| Wasted (WHZ) | 6.3 | 0.7 | 12.2 | 1.0 |
| Stunting (HAZ) | 47.5 | 17.4 | 50.2 | 19.7 |

Source: CNS 2000, BBS and UNICEF, Child Nutrition Survey 2000

Although there is a sign of some improvement in nutritional status of rural children, the level of child malnutrition in Bangladesh remains one of the highest in the developing countries. Nearly 11-17 percent of children are severely underweight or stunted. This clearly indicates that the children in rural Bangladesh suffer from short-term chronic under-nutrition (as indicated by high rates of stunting). This is one of the most pressing concern of health deprivation in rural Bangladesh. Moreover there are large variations in child malnutrition rates across economic classes, indicating the fact that standard of living is an important determinant of child nutritional status. Child malnutrition is very pervasive among the chronically poor households followed by descending non-poor households.