Chapter-I

Introduction

1.1 Introduction:

The most famous modern definition of health is given in the Preamble to the Constitution of the World Health Organization which is adopted by the International Health Conference, New York, 19-22 June, 1946; signed on 22 July 1946 by the representatives of 61 States (Official Records of the World Health Organization, no. 2, p. 100) and entered into force on 7 April 1948. The health is defined as:

"Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." To enjoy good health and longevity is fundamental to the human experience.

Healthy people are more vibrant, energetic, and have a more positive outlook on life. These characteristics not only translate to a positive influence on the social infrastructure, but also affect economic development. The importance of good health is recognized all over the world and, at the same time, the great differences in health status among the people and among the countries of the world have thrown into sharp focus factors beyond health services, genetics and individual lifestyles that affect health at the population level. The evidence has become much clearer that such differences are substantially a manifestation of social, economic, environmental and institutional determinants. What is less clear is the precise quantitative individual roles of these various factors. Evidence from a number of sources now indicates that, in addition to
raising economic wealth in aggregate, it is necessary to give attention to the relative distribution of wealth. Health is best served in more socially cohesive, egalitarian societies with a smaller burden of relative deprivation (Wilkinson, R.G; 1996). In developed societies health is more related to relative rather than absolute income (Kawachi, 1999; Wilkinson, R.G, 1997).

The relationship between health and development is fundamental, and the improvement of people’s health must be a major objective of development. For poor countries there is a clear relation between GDP per head and life expectancy. At the lower end of the GDP range, the relationship is quite steep. In more developed societies, such as those within the European Region where the major causes of mortality and morbidity are non-communicable diseases, there is now strong evidence that the burden of these diseases is also related to the social environment, and there is growing evidence of the complexity of this relationship (Cornia, G.A et al; 2000). While improved health, measured in terms of life expectancy, generally correlates with income per head of population, there are many exceptions to this. There are poor countries with relatively good health and rich countries with relatively poor health. This complexity increases when income differentials within countries are added to the discussion, as there are poor groups within rich countries whose health is well below that of the population of markedly poorer countries. In summary, higher income is a positive factor for health, but because of other operative factors there are many examples where richer people live shorter lives than poorer people. These operative factors have recently been clarified (Wilkinson, R.G; 1996). It appears that, while GDP per head does have a significantly positive correlation with life
expectancy, this relationship works mainly through the impact of GDP on (a) the income of the poor and (b) public expenditure particularly in health care.

The impact of unemployment and poverty on young people is also of particular importance in view of its association with health and social problems such as violence, suicide and substance use. Many studies have quite reasonably demonstrated a link between unemployment and poor health, which arises both from the loss of income and from unemployment’s psychological impacts (Jackson and War, 1984). Also, the fear of unemployment and job insecurity is themselves seen to be a cause of anxiety-related illness (Beale and Nethercott, 1985). The urban poverty is a challenge all over the world. The urban poor are most exposed to disease because of their housing conditions, lack of sanitation, poor diet and occupational hazards. Homelessness has become an important issue in many cities with alarming consequences in terms of overall mortality, prevalence of chronic respiratory diseases and alcohol and drug dependence. In general, absolute poverty is a major determinant of ill-health. The poor are more likely to exist on the fringes of society because of their inability to afford decent housing, education and other things. According to WHO, the resultant social exclusion is ‘socially and psychologically damaging, materially costly and harmful to health’. So, WHO exhorts policy makers to respond to this health threat with minimum wage legislation and minimum income guarantees, as well as labour market policies that reduce social stratification. Ethnic minorities, migrants and refugees are at a particular risk of poor health. Their needs often receive less attention and they cannot always be reached through the usual health and welfare channels.
Different sections of population are at risk of having poor health. At the same time, different factors have complex causal relationship with health. This calls for more and more empirical studies, both micro and macro in nature in diverse and heterogeneous groups of population to gain deeper insight into the complexities of the problem.

The analysis of the effects of health improvements on economic growth has been well explored since Kelley (1988) found result that population had no effect on economic growth. This led to a flurry of research looking at demographic variables and their effect on economic growth (for example Bloom et al., 2004; Webber, 2002). The results have been mixed. But all studies focus on the single line equation of the direct effect of health on economic growth. The health as an economic engine model proposes that health is an important and perhaps critical determinant of economic growth and development. And at the same time, economic conditions are major determinants of health status.

1.2 Nutrition and Health:

Through centuries, food has been recognised as vital for human beings, in health, disease and the very survival of the race. The history of man, right from the days of primitive communism/traditional society, to a large extent has been a struggle to obtain food. Until the turn of the century the science of nutrition had a limited range. Protein, carbohydrate and fat had been recognized early in the 19th century as energy yielding values of foods and much attention was paid to their metabolism and contribution to energy requirements. The discovery of vitamins at the turn of the present century has “rediscovered” the science of nutrition. Between the two world wars, research on protein picked up momentum. By about 1950, all the presently known vitamins and essential amino acids had been discovered. Nutrition gained recognition as a scientific discipline,
with roots in physiology and biochemistry. In fact nutrition was regarded as a branch of physiology and taught as such to medical students.

While attention was concentrated on nutrition deficiency diseases during the first decades of the century, the science of nutrition was extending its influence into other fields, agriculture, animal husbandry, economics and sociology. This led to “green revolution” and “white revolution” in India which increased food production substantially. However, studies of the diets and state of nutrition of people in India showed that poorer sections of the population continued to suffer from malnutrition despite increased food production. One result was that for the first time the problem of nutrition began to attract international attention as a cause of social problems. International activities in the field of nutrition which was initiated by the League of Nations and later continued by Food and Agricultural Organisation, WHO and UNICEF, form a striking part of the story.

Undernutrition and poor health from preventable causes disproportionately affect the well-being of millions of people in the developing world. Factors at individual, household and community levels, or a combination of these factors, may contribute to poor nutrition and health status. In particular, malnutrition among women is likely to have a major impact on their own health as well as their children’s health. More than 3.5 million women and children under age five in developing countries die each year due to the underlying cause of undernutrition (Robert et al., 2008).

The experts realized that intensified actions to improve nutrition in these countries are needed to achieve the Millennium Development Goal of halving severe hunger by 2015 (MDG 1) and also to greatly increase the chances of achieving the Millennium Development Goal of reducing maternal mortality by three-quarters between 1990 and
2015 (MDG 5). In order to resolve the problem of maternal mortality, most researchers recommend the provision of emergency obstetric services by including the use of skilled birth attendants and effective referral systems (Ronsmans et al., 2008). Although providing improved obstetric care is very important, it alone cannot be enough to resolve the problem. Attending the nutritional needs of women in their childbearing age is an equally important aspect of improving women’s/mother’s survivorship.

Malnutrition refers to disorder of nutrition — whether it is due to dietary deficiency, called under-nutrition, or to excess diet, called over-nutrition (Britannica Student Encyclopedia, 2005). Malnutrition results from imbalance between the needs of the body's and the intake of nutrients. Malnutrition worldwide includes a spectrum of nutrient–related disorders, deficiencies, and conditions such as intrauterine growth retardation, protein-energy malnutrition, iodine deficiency disorders, vitamin A deficiency, iron-deficiency anaemia, and overweight/obesity and other diet-related non-communicable diseases (Ratzan et al., 2000).

In earlier days, developing countries experienced high prevalence of under-nutrition, but this era of transition has brought a double burden of under-nutrition and over nutrition. While under-nutrition (underweight and stunting) is still prevalent in most of the developing countries, the rates of overweight and obesity are steadily increasing, especially among adults. Hence, the countries in transition face today new public health problems, while they are yet to eradicate completely the nutritional deficiencies. Once considered a problem related to affluence, the junk food induced overweight and obesity is growing rapidly in many developing countries now a days. This is also due in large part to increasing urbanization and changes in diet and life style, in particular the
“nutrition transition” away from fruit, vegetables and greater consumption of more ‘energy-dense, nutrient-poor’ diets, dependence on television for leisure along with reduced levels of physical activity (World Health Organization 2000, 2003). Overweight and obesity is a risk factor for a number of chronic non-communicable diseases, such as diabetes, hypertension, asthma, cardiovascular disease, some cancers, gall bladder disease and osteoarthritis – all of which are on the rise in developing countries, particularly among the middle-class, urban populations (Gopalan, 1998; Popkin et al., 2001). On the other hand, the Chronic Energy Deficiency (CED) is associated with impaired physical capacity (Durnin, 1994), reduced economic productivity (Kennedy, 1994; Untoro, 1998), increased mortality (National Institute of Nutrition, 1991) and poorer reproductive outcomes (World Health Organization, 1995; Schieve et al., 2000). Some evidences in developing countries indicate that malnourished individuals, that is, women with a Body Mass Index (BMI) below 18.5 kg/m2, show a progressive increase in mortality rates as well as increased risk of illness (Rotimi et al., 1999). The World Health Organization estimates that in 1995, about one million adult deaths resulted from health problems exacerbated by over-nutrition, while half of it was associated with under-nutrition (WHO, 1998).

For social and biological reasons, women of the reproductive age are amongst the most vulnerable to malnutrition (UNACC/SCN, 1992). Several reviews have also emphasized the vulnerability of women throughout their life cycle (Tinker, 1995; Merchant and Kurtz, 1993). Many factors have been associated with both forms of malnutrition of women in the literature. These include the socioeconomic (e.g., occupation, educational background and the standard of living); cultural (e.g., religion and caste); the
demographic (e.g., age and marital status) and dietary characteristics (De Vasconcellos, 1994; Shetty and James, 1994; Stunkard, 1996; Griffiths and Bentley, 2001; Monteiro et al., 2002, 2004b; Shukla et al., 2002; Shetty, 2002; Radhakrishna and Ravi, 2004; Radhakrishna et al., 2004; Roy et al., 2004). Based on the analysis of anthropometric measurements for women age 20-49 in 36 developing countries, Mentez et al., (2005) observed that the proportion overweight exceeded the proportion underweight in a majority of the counties in both urban and rural areas. These results are contrary to the general belief that in developing counties overweight is less prevalent than underweight and that it is primarily concentrated in urban, higher socioeconomic status households. There are several studies on nutrition transition in Asia and the Pacific, as well as the developing world, in general (Popkin 1994; 1998; Popkin et al., 2001). India is typically known for large incidence of undernutrition. But significant proportions of overweight and obese now coexist with the undernourished (IIPS and ORC Macro, 2000) and there is some evidence of even emerging nutrition transition also (Shetty and James, 1994; Griffiths and Bentley, 2001; Shetty, 2002; Shukla et al., 2002; Radhakrishna and Ravi, 2004; Radhakrishna et al., 2004; Arnold et al., 2004).

1.3 Role of health in socioeconomic Development:

Since human capital matters for economic outcomes and since health is an important component of human capital, health also matters for economic outcomes. At the same time, economic outcomes matter for health. Health is determined by genetic, economic, social, cultural and environmental factors. But the health of a population may also, in return, influence the economic context.
In line of the scheme proposed by Bloom et al. (2001), health could contribute to economic outcomes (at both the individual and the country level) in high-income countries mainly through four channels: higher productivity, higher labour supply, higher skills as a result of greater education and training, and more savings available for investment in physical and intellectual capital. These four channels are represented in the right-hand side of Figure: 1

**Figure-1.1: Channels of Development**

As illustrated in the left-hand side of Figure 1, the health of an individual depends on many factors: genetic endowments, lifestyle, living and working conditions (access and use of health care, education, wealth, housing, occupation) and the more general socioeconomic, cultural and environmental conditions (4). Several of these determinants of health can be influenced by public policies.
In assessing the contribution that health can make to growth, it is important to keep in mind the positive feedback from income to health. There are two ways in which income can influence health: through a direct effect on the material conditions that have a positive impact on biological survival and health, and through an effect on social participation, the opportunity to control life circumstances, and the feeling of security. Above a certain threshold of material deprivation, income may be more important because of its link with these social and psychological factors, particularly in societies where social participation depends heavily on individual income (Marmot 2002).

1.4 Necessity of the Study:

Like education, health is regarded as a necessary source of productivity because it can be a proxy of labour quality. Health can be an investment for future economic return and this positive impact of health on economy has been tested by a number of micro studies based on regional or country surveys. Based on a cross country regression analysis, health measured by life expectancy has a positive impact on economic growth. Health status also has indirect impacts on economy through its influence on education. The empirical analysis upholds that health status has a positive effect on educational attainments.

Health along with education is commonly regarded as one source of human capital in the sense that it has a close relation with labour quality. Productivity that is one of the key elements for economic development is substantially influenced by the physical condition of labour, particularly when they undertake heavy or time consuming work. Each person’s economic condition is more or less subject to his or her health status. The overall economic condition of a country, state or region can be profitably influenced through improvement of health condition of people. The economically backward regions
such as the north-east of India, or more particularly, a backward state like Tripura of North-east region, needs thorough investigation on the health condition of its people to find remedies of its socio-economic backwardness. As per Planning Commission Estimates (1999-2000), percentage of population below poverty line in Tripura is quite high at 34.4. This is, in fact, higher than that in Arunachal Pradesh, Manipur, Meghalaya, Mizoram and Nagaland of North-east India (Statistical Hand Book, Assam, 2006). The death rate is also higher in Tripura at 5.5 in 2004 than most of the other states of the North-east region. The health care services in the North-eastern states are still very inadequate. As against all India figures of 0.73 beds per thousand people, only 0.55 beds are available in Tripura out of which 0.11 are in rural areas and 3 are in urban areas. The population served per doctor is as high as 3822 in Tripura with only 23 hospitals and 353 dispensaries in the state. Among the north eastern states, Arunachal Pradesh and Tripura have higher rates of mortality among children.(East India HDR,2004). However, in case of effective literacy, the state Tripura has made satisfactory progress. Its position is second among the north eastern states with effective literacy rate at 73.7 percent.( East India HDR,2004). Despite of this socio-economic and health backwardness of the state of Tripura, empirical studies on health problem of the state is almost absent. The prevailing situation requires that meaningful research is carried out in this area for the development of health condition of the people of the state in particular and the economic condition of the state in general.

1.5 Objectives:

After careful consideration, the following set of objectives is identified as the objectives of the present study:
(i) To estimate health measures such as BMI, Bicep Circumference, etc for representing the health status of individuals.

(ii) To study the socio-economic and other determinants of health and to identify the important correlate.

(iii) To study the socio-economic and other determinants of health, category wise i.e, rural-urban, occupation etc. and to identify important correlate category wise.

(iv) To examine the two way relationship between Health and Income.

1.6 Hypothesis:

The following hypothesis will be tested in the study

(i) There exist simultaneity between health and income.

1.7 Methodology:

The present study seeks to examine the health status of individuals and also to explore relationship between health status and socio-economic and other circumstances of the individuals. As such the units of study in the present study are adult individuals who are the earning members of the households. The health status of individuals is measured with the help of recognized indicators such as BMI, Bicep circumference etc.

Data: The study is based on primary data. Data for the purpose is collected with the help of a pre-tested structured questionnaire from sample individuals through personal interview method. The structured questionnaire is prepared for obtaining information from sample units on his/her physical characteristics such as height, weight, record of
illness, income, education, individual habits, household background characteristics, access to health care facilities, sanitation, potable water, factors on which his/her income depends etc.

**Sample:** The sample comprises of 350 individuals who are the earning members of households belonging to age-group 19-55 years, drawn from rural and urban areas- 200 from rural and 150 from urban areas. The sampling technique followed for the purpose is purposive random sampling where people belonging to different castes, religions, occupations- formal, informal sector, and rural-urban areas etc. – categories are selected. The survey is conducted in the rural-urban areas of the North Tripura District which is one of the most backward developing regions of the state of Tripura. Attempts have been made to make the sample a representative one by including people belonging to different caste, religion, rural-urban areas.

**Data Analysis Techniques:** Simple statistical methods, graphs, diagrams, tables are used for sample data analysis purpose. Further, to meet the objectives and hypothesis of the study Regression analysis, Two Stage Least Square method, Logistic regression methods are applied.

**1.8 Limitations of the study:**

It is important to keep in mind that health is a multidimensional phenomenon and it is impossible to cover all its characteristics in one study. For example, this research does not touch upon any aspect of mental health, which is increasingly understood to be an important determinant of a person’s well-being. Further the study has left health insurance, health infrastructure and health care dimension out of consideration.
We cannot generalize the conclusion of the study only by taking the age group 19-55 years. In this study the age group 0-18 years and 56 years and above population has not been included which constitute a big component of the whole population of the District.

Big sample size generally gives a good picture of any study. The present study has been conducted with a sample size of only 350. So a better picture can be expected with a larger sample size than the present size of sample.

India as well as Tripura is experiencing four different seasons in a year. For the present study a cross-sectional data were collected. So this study has left out of contention an opportunity to see the picture of health by collecting data of all the seasons and a time series data.

It is difficult to include all the socio-economic and other aspects in a particular study due to time constraint and therefore, there are limitations of the present study which admittedly could not be mitigated. However, the limitations of the present study may open up further researches in this interesting area of economics.

1.9 Thesis Chapters:

The thesis is organized into the following chapters:

**Chapter-I: Introduction**

- Concept of health

- Role of health in socioeconomic Development

- Necessity of the study
- Objectives

- Hypothesis

- Significance of the study

- Limitation of the study

**Chapter-II: Review of Literature**

**Chapter-III: A Brief Overview of the health condition and Health infrastructure of Tripura with Special reference to North Tripura.**

**Chapter-IV: Conceptual Framework and Methodology of the Study**

- Conceptual Framework

- Methodology

  Population, Sample, Data, Tools for Data Analysis with Models and Variables

**Chapter-V: Data Analysis and Results**

- Section –A (Data Analysis with Statistical Tables and Diagrams)

- Section-B (Data analysis with statistical and econometric tools)

**Chapter-VI: Discussion on Results, Important Findings.**

**Chapter-VII: Conclusion, Suggestions and Recommendations**

Bibliography