Chapter – I

An Overview
CHAPTER – I
AN OVERVIEW

INTRODUCTION

Health is common theme in most cultures. In fact, all communities have their concepts of health, as part of their culture. Among definitions still in use, probably the oldest is that health is the "absence of disease". In some cultures, health and harmony are considered equivalent, harmony being defined as "being at peace with self, the community, God and cosmos". The ancient Indians and Greeks shared this concept and attributed disease to disturbances in bodily equilibrium of what they called "humors".

Health continues to be a neglected entity despite lip service. At the individual level, it cannot be said that health occupies an important place; it is usually subjugated to other needs defined as more important, e.g., wealth, power, prestige, knowledge, security. Health is often taken for granted, and its value is not fully understood until it is lost. At the international level, health was "forgotten" when the Charter of the United Nations was drafted at the end of the Second World War. The matter of health had to be introduced adhoc in the United Nations Conference at San Francisco in 1945.

However, during the past few decades, there has been a reawakening that health is a fundamental human right and a world-wide social goal that it is essential to the satisfaction of basic human needs and to an improved quality of life; and, that it is to be attained by all people. In 1977, the 30th World Health Assembly decided that the main social target of governments and WHO in the coming decades should be "the attainment by all citizens of the world by the year 2000 of a level of health that will permit them to lead a socially and economically productive life", for brevity, called "Health for all". With the adoption of health as an integral part of socio-economic development

by the United Nations in 1979, health, while being an end in itself, has also become a major instrument of overall socio-economic development and the creation of a new social order.

**CONCEPT OF HEALTH**

Traditionally, health has been viewed as an “absence of disease”, and if one was free from disease, then the person was considered healthy. This concept, known as the “biomedical concept” has the basis in the “germ theory of disease” which dominated medical thought at the turn of the 20th century. The medical profession viewed the human body as a machine, disease as a consequence of the breakdown of the machine and one of the doctor’s task as repair of the machine. Thus health, in this narrow view, became the ultimate goal of medicine.

The ecologists put forward an attractive hypothesis which viewed health as a dynamic equilibrium between man and his environment, and disease a maladjustment of the human organism to environment. Dubos defined health saying: “Health implies the relative absence of pain and discomfort and a continuous adaptation and adjustment to the environment to ensure optimal function”. Human ecological and cultural adaptations to determine not only the occurrence of disease but also the availability of food and the population explosion. The ecological concept raises two issues, viz. imperfect man and imperfect environment.

Contemporary developments in social sciences revealed that health is not only a biomedical phenomenon, but one which is influenced by social, psychological, cultural, economic and political factors of the people concerned. These factors must be taken into consideration in defining and measuring health. Thus health is both a biological and social phenomenon.

The holistic model is a synthesis of all concepts. It recognises the strength of social, economical, political and environmental influences of health. Health implies a sound mind in a sound body, in a sound family, in a sound environment. The holistic approach implies that all sectors of society have an effect on health, in particular, agriculture, animal husbandry, food, industry, education, housing, public works, communications and other sectors\(^6\). The emphasis is on the promotion and protection of health.

**DEFINITION OF HEALTH**

"Health" is one of those terms which most people find it difficult to define although they are confident of its meaning. Therefore, many definitions of health have been offered from time to time.

The widely accepted definition of health is that given by the World Health Organization (1948) in the preamble to its constitution,

"Health is a state of complete physical, mental and social well being and not merely an absence of disease or infirmity"

The WHO definition of health is not an "operational" definition, i.e., it does not lend itself to direct measurement. An "operational definition" has been devised by a WHO study group. In this definition, the concept of health is viewed as being of two orders. In a broad sense, health can be seen as "a condition or quality of the human organism expressing adequate functioning of the organism in a given conditions, genetic or environmental\(^7\)."

In a narrow sense health means: (a) there is no obvious evidence of disease, and that a person is functioning normally, i.e., conforming within normal limits of variation to the standards of health criteria generally accepted for one's age, sex, community, and geographic region; and (b) the several organs of the body are functioning adequately in themselves and in relation to

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one another, which implies a kind of equilibrium or homeostasis – a condition relatively stable but which may vary as human beings adapt to internal and external stimuli.

In recent years, a new philosophy of health has been fostered which may be stated as below:

- health is a fundamental human right
- health is the essence of productive life, and not the result of ever increasing expenditure on medical care
- health is intersectoral
- health is an integral part of development
- health is central to the concept of quality of life
- health involves individuals, state and international responsibility
- health and its maintenance is a major social investment
- health is world-wide social goal

DIMENSIONS OF HEALTH

Health is multidimensional. The WHO definition envisages three specific dimensions – the physical, the mental and the social. Many more may be cited, viz. spiritual, emotional, vocational and political dimensions.

1. Physical Dimensions

The state of physical health implies the notion of “perfect functioning” of the body. The signs of physical health in an individual are: “a good complexion, a clean skin, bright eyes, lustrous hair with a body well clothed with firm flesh, not too fat, a sweet breath, a good appetite, sound sleep, regular activity of bowels and bladder and smooth, easy, coordinated bodily movements”. All the organs of the body are of unexceptional size and function normally: all the special senses are intact: the resting pulse rate, blood pressure and exercise tolerance are all within the range of “normality” for the individual’s age and sex. In the young and growing individual there is a steady gain in weight and in the future this weight remains more or less
constant at a point about 5 lbs (2.3 kg) more or less than the individual’s weight at the age of 25 years\textsuperscript{8}. This state of normality has fairly wide limits. These limits are set by observation of a large number of “normal” people, who are free from evident disease. At the community level, the state of health may be assessed by such indicators as death rate, infant mortality rate and expectation of life. Ideally, each piece of information should be individually useful and when combined should permit a more complete health profile of individuals and communities.

2. Mental dimension

Mental health is not mere absence of mental illness. Good mental health is the ability to respond to the many varied experiences of life with flexibility and a sense of purpose. More recently, mental health has been defined as “a state of balance between the individual and the surrounding world, a state of harmony between oneself and others, a coexistence between the realities of the self and that of other people and that of the environment”\textsuperscript{9}.

3. Social dimension

Social well-being implies harmony and integration, within the individual, between each individual and other members of society and between individuals and the world in which they live. It has been defined as the “quantity and quality of an individual’s interpersonal ties and the extent of involvement with the community”\textsuperscript{10}. The social dimension of health includes the levels of social skills one possesses, social functioning and the ability to see oneself as a member of a large society.

4. Spiritual dimension

Proponents of holistic health believe that the time has come to give serious consideration to the spiritual dimension and to the role this plays in

health and disease. Spiritual health refers to that part of the individual which reaches out and strives for meaning and purpose in life. It is the intangible “something” that transcends physiology and psychology. It includes integrity, principles and ethics, the purpose in life, commitment to some higher being and belief in concepts that are not subject to “state of the art” explanation.

5. Emotional dimension

Historically the mental and emotional dimensions have been seen as one element or as two closely related elements. However, as more research becomes available a definite difference is emerging. Mental health can be seen as “knowing” or “cognition” while emotional health relates to feeling.

6. Vocational dimension

The vocational aspect of life is a new dimension. It is part of human existence. When work is fully adapted to human goals, capacities and limitations, work often plays role in promoting both physical and mental health. Physical work is usually associated with an improvement in physical capacity, while goal achievement and self-realization in work are a source of satisfaction and enhanced self-esteem. The importance of this dimension is exposed when individuals suddenly lose their jobs or faced with mandatory retirement. For many individuals, the vocational dimension may be merely a source of income. To others, this dimension represents the culmination of the efforts of other dimensions as they function together to produce what the individual considers life “success”.

7. Others

A few other dimensions have also been suggested such as\textsuperscript{11}:
- philosophical dimension
- cultural dimension
- socioeconomic dimension
- environmental dimension

\textsuperscript{11} ICSSR and ICMR, “Health for All – An Alternative Strategy”, Voluntary Health Association of India, New Delhi, 1981.
A glance at the above dimensions shows that there are many "non-medical" dimensions of health, e.g., social, cultural, educational, etc. These symbolise a huge range of factors, besides health must contribute if all people are to attain a level of health that will permit them to lead a socially and economically productive life.

DETERMINANTS OF HEALTH

Health is multifactorial. The factors which influence health lie both within the individual and externally in society in which he or she lives. It is a true to say that what man is and to what diseases he may fall victim depends on a combination of two sets of factors—his genetic factors and the environmental factors to which he is exposed. These factors interact and these interactions may be health-promoting. Thus, conceptionally, the health of individuals and whole communities may be considered to be the result of many interactions. The more important determinants are

1. heredity
2. environment
3. life-style
4. socio-economic conditions
5. health and family welfare services
6. other factors

1. Heredity

The physical and mental traits of every human being are to some extent determined by the nature of his genes at the moment of conception. The genetic make-up is unique in that it cannot be altered after conception. A number of diseases are now known to be of genetic origin, e.g., chromosomal anomalies, errors of metabolism, mental retardation, some types of diabetes,
etc. The state of health, therefore depends partly on the genetic constitution of man. Thus from the genetic stand-point, health may be defined as that "state of the individual which is based upon the absence from the genetic constitution of such genes as correspond to characters that take the form of serious defect and derangement and to the absence of any aberration in respect of the total amount of chromosome material in a karyotype or stated in positive terms, from the presence in the genetic constitution of genes that correspond to the normal characterization and to the presence of a normal karyotype"\(^\text{12}\). The "positive health" advocated by WHO implies that a person should be able to express as completely as possible the potentialities of his genetic heritage. This is possible only when the person is allowed to live in healthy relationship with his environment – an environment that transforms genetic potentialities into phenotypic realities.

2. Environment

It was Hippocrates who first related disease to environment, e.g., climate, water, air, etc. Centuries later, Pettenkofer in Germany revived the concept of disease-environment association. Environment is classified as "internal" and "external". The internal environment of man pertains to "each and every component part, every tissue, organ and organ-system and their harmonious functioning within the system". Internal environment is the domain of internal medicine. The external or macro-environment consists of those things to which man is exposed after conception. It is defined as "all that which is external to the individual human host"\(^\text{13}\). It can be divided into physical, biological and psychosocial components, any or all of which can affect the health of man and his susceptibility to illness. Some epidemiologists have used the term "microenvironment" (or domestic environment) to personal environment which includes the individual’s way of living and lifestyle, e.g., eating habits, other personal habits (e.g., smoking or


\(^{13}\) Last, J.M. "A Dictionary of Epidemiology" Oxford University Press, 1983.
drinking), use of drugs, etc. It is also customary to speak about occupational environment, socioeconomic environment and moral environment.

It is an established fact that environment has a direct impact on the physical, mental and social well-being of those living in it. The environmental factors range from housing, water supply, psychosocial stress and family structure through social and economic support systems, to the organization of health and social welfare services in the community.

The environmental components (physical, biological and psychological) are not water-tight compartments. They are so inextricably linked with one another that it is realistic and fruitful to view the human environment in toto while considering the influence of environment on the health status of the population. If the environment is favourable to the individual, he can make full use of his physical and mental capabilities. Protection and promotion of family and environmental health is one of the major issues in the world today.

3. Lifestyle

The term "lifestyle" is rather a diffuse concept often used to denote "the way people live", reflecting a whole range of social values, attitudes, and activities\(^\text{14}\). It is composed of cultural and behavioural patterns and lifelong personal habits (e.g., smoking, alcoholism) that have developed through processes of socialization. Lifestyles are learnt through social interaction with parents, peer groups, friends and siblings and through school and mass media. Health requires the promotion of healthy lifestyle. In the last 20 years, a considerable body of evidence has accumulated which indicates that there is an association between health and lifestyle of individuals. Many current-day health problems especially in the developed countries (e.g., coronary heart disease, obesity, lung cancer, drug addiction) are associated with lifestyle changes. In developing countries such as India where traditional lifestyles still persist, risks of illness and death are connected with lack of

sanitation, poor nutrition, personal hygiene, elementary human habits, customs and cultural patterns. Not all lifestyle factors are harmful. There are many that can actually promote health. Examples include adequate nutrition, enough sleep, and sufficient physical activity. In short, the achievement of optimum health demands adoption of healthy lifestyles. Health is both a consequence of an individual's lifestyle and a factor in determining it.

4. Socio-economic conditions

Socioeconomic conditions have long been known to influence human health. For the majority of the world’s people, health status is determined primarily by their level of socioeconomic development, e.g., per capita GNP, education, nutrition, employment, housing, the political system of the country, etc. Those of major importance are:

(i) Economic Status: The per capita GNP is the most widely accepted measure of general economic performance. There can be no doubt that in many developing countries, it is the economic progress that has been the major factor in reducing morbidity, increasing life expectancy and improving the quality of life. The economic status determines the purchasing power, standard of living, quality of life, family size and the pattern of disease and deviant behaviour in the community. It is also an important factor in seeking health care. Ironically, affluence may also be a contributory cause of illness as exemplified by the high rates of coronary heart disease, diabetes and obesity in the upper socioeconomic groups.

(ii) Education: A second major factor influencing health status is education, especially education of female. The world map of illiteracy closely coincides with the map of poverty, malnutrition, ill health, high infant and child mortality rates. Studies indicate that education, to some extent, compensates the effects of poverty on health, irrespective of the availability of health facilities. The small state of Kerala in India is a striking example. Kerala has an estimated infant morality rate of 14 compared to 65 for all-India in 2001. A
major factor in the low infant mortality of Kerala is its highest female literacy rate of 87.9 per cent compared to 54.2 per cent for all-India\textsuperscript{15}. 

(iii) Occupation: The very state of being employed in productive work promotes health, because the unemployed usually show a higher incidence of ill health and death. For many, loss of work may mean loss of income, and status. It can cause psychological and social damage.

(iv) Political system: Health is also related to the country's political system. Often the main obstacles to the implementation of health technologies are not technical, but rather political. Decisions concerning resource allocation, manpower policy, choice of technology and the degree to which health services are made available and accessible to different segments of the society are examples of the manner in which the political system can shape community health services. The percentage of GNP spent on health is a quantitative indicator of political commitment. Available information shows that India spends about 0.87 per cent of its GNP on health and family welfare. In the Tenth Plan, the total expenditure on health amounts to Rs.27125 crores, accounting for 1.7 per cent of total plan outlay\textsuperscript{16}. To achieve the goal of health for all, WHO has set the target of at least 5 per cent expenditure on each country's GNP on health care. What is needed is political commitment and leadership which is oriented towards social development, and not merely economic development. If poor health patterns are to be changed, then changes must be made in the entire sociopolitical system in any given community. Social, economic and political action are required to eliminate health hazards in people's working and living environments.

5. Health Services

The term health and family welfare services cover a wide spectrum of personal and community services for treatment of disease, prevention of


\textsuperscript{16} Tenth Five Year Plan Draft
illness and promotion of health. The purposes of health services is to improve the health status of population. For example, immunization of children can influence the incidence/prevalence of particular diseases. Provision of safe water can prevent mortality and morbidity from water-borne diseases. The care of pregnant women and children would contribute to the reduction of maternal and child morbidity and mortality. To be effective, the health services must reach the social periphery, equitably distributed, accessible at a cost the country and community can afford and socially acceptable. All these are ingredients of what is now termed "primary health care", which is seen as the way to better health. Health services can also be seen as essential for social and economic development. Whereas, there is a strong correlation between GNP and expectation of life at birth, there is no significant correlation between medical density and expectation of life at birth\textsuperscript{17}. The epidemiological perspective emphasizes that health services, no matter how technically elegant or cost-effective, are ultimately pertinent only if they improve health.

6. Other factors

Other contributions to the health of populations derive from systems outside the formal health care system, i.e., health related systems (e.g., food and agriculture, education, industry, social welfare, rural development) as well as adoption of policies in the economic and social fields that would assist in raising the standards of living. This would include employment opportunities, increased wages, prepaid medical programmes and family support systems.

**INDICATORS OF HEALTH**

Indicators are required not only to measure the health status of a community, but also, to compare the health status of one country with that of another; for assessment of health care needs; for allocation of scarce resources; and for monitoring and evaluation of health services, activities and programmes. Indicators help to measure the extent to which the objectives

\textsuperscript{17} WHO, "WHO Chr ", 32 (9), 356, 1978.
and targets of a programme are being attained. Indicators are only an indication of a given situation or a reflection of that situation. In WHO's guidelines for health programme evaluation they are defined as variables which help to measure changes. Often they are used particularly when these changes cannot be measured directly, as for example health or nutritional status. If measured sequentially over time, they can indicate direction and speed of change and serve to compare different areas or groups of people at the same moment in time.

Health is multidimensional, and each dimension is influenced by numerous factors, some known and many unknown. Understanding of health therefore cannot be in terms of a single indicator, it must be conceived in terms of a profile, employing many indicators.

1. Mortality indicators
2. Morbidity indicators
3. Disability indicators
4. Nutritional status indicators
5. Health care delivery indicators
6. Utilisation rates
7. Indicators of social and mental health
8. Environment indicators
9. Socio-economic indicators
10. Health policy indicators
11. Indicators of quality of life
12. Other indicators

1. Mortality indicators

(a) Crude death rate: This is considered as a fair indicator of the comparative health of the people. It is defined as the number of deaths per 1000 population per year in a given community. It indicates the rate at which people are dying. Strictly speaking, health should not be measured by the

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number of deaths that occur in a community. But in many countries, the crude death rate is the only available indicator of health. When used for international comparison, the usefulness of the crude death rate is restricted because it is influenced by the age-sex composition of the population. Although not a perfect measure of health status, a decrease in death rate provides a good tool for assessing the overall health improvement in a population. Reducing the number of deaths in the population is an obvious goal of medicine and health care, and success or failure to do so is a measure of a nation's commitment to better health.

(b) Expectation of life: Life expectancy at birth is "the average number of years that will be lived by those born alive into a population if the current age-specific mortality rates persist". Life expectancy at birth is highly influenced by the infant mortality rate where that is high. Life expectancy at the age of 1 excludes the influence of infant mortality, and life expectancy at the age of 5 excludes the influence of child mortality. Life expectancy at birth is used most frequently. It is estimated for both sexes separately. An increase in the expectation of life is regarded, inferentially, as an improvement in health status. Life expectancy is a good indicator of socioeconomic development in general. As an indicator of long-term survival, it can be considered as a positive health indicator. It has been adopted as a global health indicator. A minimum life expectancy at birth of 60 years is the goal of Health for All by 2000 AD.

(c) Infant mortality rate: Infant mortality rate is the ratio of deaths under 1 year of age in a given year to the total number of live births in the same year; usually expressed as a rate per 1000 live births. It is one of the most universally accepted indicators of health status not only of infants, but also of whole populations and of the socioeconomic conditions under which they live. In addition, the infant mortality rate is a sensitive indicator of the availability, utilisation and effectiveness of health care, particularly prenatal care. The global strategy of Health for All has suggested an infant mortality rate of not more than 50 per 1000 live births by 2000 AD.
(d) Child mortality rate: Another indicator related to the overall health status is the early childhood (1-4 years) mortality rate. It is defined as the number of deaths at ages 1-4 years in a given year, per 1000 children in that age group at the mid-point of the year concerned. It thus excludes infant mortality.

Apart from its correlation with inadequate MCH services, it is also related to insufficient nutrition, low coverage by immunisation and adverse environmental exposure and other exogenous agents. Whereas the IMR may be more than 10 times higher in the least developed countries than in the developed countries, the child mortality rate may be as much as 250 times higher. This indicates the magnitude of the gap and the room for improvement.

(e) Under-5 proportionate mortality rate: It is the proportion of total deaths occurring in the under-5 age group. This rate can be used to reflect both infant and child mortality rates. In communities with poor hygiene, the proportion may exceed 60 per cent. In some European countries, the proportion is less than 2 per cent. High rate reflects high birth rates, high child mortality rates and shorter life expectancy\textsuperscript{19}.

(f) Maternal (puerperal) mortality rate: Maternal (puerperal) mortality accounts for the greatest proportion of deaths among women of reproductive age in most of the developing world, although its importance is not always evident from official statistics. There are enormous variations in maternal mortality rate according to country's level of socioeconomic status.

(g) Disease-specific mortality: Mortality rates can be computed for specific diseases. As countries begin to extricate themselves from the burden of communicable diseases, a number of other indicators such as deaths from cancer, cardiovascular diseases, accidents, diabetes, have emerged as measures of specific disease problems.

\textsuperscript{19} WHO, "Health for All", Serial No. 4. 1981.
(h) **Proportional mortality rate:** The simplest measures of estimating the burden of a disease in the community is proportional mortality rate, i.e., the proportion of all deaths currently attributed to it. For example, coronary heart disease is the cause of 25 to 30 per cent of all deaths in most western countries. The proportional mortality rate from communicable diseases had been suggested as a useful health status indicator; it indicates the magnitude of preventable mortality.

Mortality indicators represent the traditional measures of health status. Even today they are probably the most often used indirect indicators of health. As infectious diseases have been brought under control, mortality rates have declined to very low levels in many countries. Consequently mortality indicators are losing their sensitivity as health indicators in developed countries. However, mortality indicators continued to be used as the starting point in healthy status evaluation.

2. **Morbidity indicators**

To describe health in terms of mortality rates only is misleading. This is because, mortality indicators do not reveal the burden of ill health in a community, as for example mental illness and rheumatoid arthritis. Therefore morbidity indicators are used to supplement mortality data to describe the health status of a population. Mortality statistics have their own drawback; they tend to overlook a large number of conditions which are subclinical or inapparent, that is, the hidden part of the iceberg of disease.

The following mortality rates are used for assessing ill health in the community\textsuperscript{20}.

a. incidence and prevalence  

b. notification rates  

c. attendance rates as out-patient departments, health centres, etc.  

d. admission, readmission and discharge rates

e. duration of stay in hospital and
f. spells of sickness or absence from work or school.

3. Disability rates

Since death rates have not changed markedly in recent years, despite massive health expenditures, disability rates related to illness and injury have come into use to supplement mortality and morbidity indicators. The disability rates are based on the premise or notion that health implies a full range of daily activities. The commonly used disability rates fall into two groups: (a) Event-type indicators and (b) person-type indicators.

(a) Event-type indicators:
   i) Number of days of restricted activity
   ii) Bed disability days
   iii) Work-loss days (or school loss days) within a specified period

(b) Person-type indicators:
   i) Limitation of mobility: For example, confined to bed, confined to the house, special aid in getting around either inside or outside the house.
   ii) Limitation of activity: For example, limitation to perform the basic activities of daily living (ADL)-e.g., eating, washing, dressing, going to toilet, moving about, etc; limitation in major activity, e.g., ability to work at a job, ability to housework, etc.

4. Nutritional Status indicators

Nutritional status is a positive health indicator. Three nutritional status indicators are considered important as indicators of health status. They are

a. anthropometric measurement of preschool children, e.g., weight and height, mid-arm circumference;

b. heights (and sometimes weights) of children at school entry; and

c. prevalence of low birth weight (less than 2.5kg)
5. Health care delivery indicators
The frequently used indicators of health care delivery are:

- Doctor-population ratio
- Doctor-nurse ratio
- Population-bed ratio
- Population per health/subcentre
- Population per traditional birth attendant

These indicators reflect the equity of distribution of health resources in different parts of the country, and of the provision of health care.

6. Utilisation rates
In order to obtain additional information on health status, the extent to use of health services is often investigated. Utilisation of services or actual coverage is expressed as the proportion of people in need of a service who actually receive it in a given period, usually a year. It is argued that utilisation rates give some indication of the care needed by a population, and therefore, the health status of the population. In other words, a relationship exists between utilisation of health care services and health needs and status. Health care utilisation is also affected by factors such as availability and accessibility of health services and the attitude of an individual towards his health and the health care system. A few examples of utilisation rates are:

- proportion of infants who are “fully immunized” against the 6 EPI diseases.
- proportion of pregnant women who receive antenatal care, or have their deliveries supervised by a trained birth attendant.
- percentage of the population using the various methods of family planning.
- bed-occupancy rate (i.e., average daily in-patient census/average number of beds.)
- average length of stay (i.e., days of care rendered/discharges).
- bed turn-over ratio (i.e., discharges/average beds).
7. Indicators of social and mental health

As long as valid positive indicators of social and mental health are scarce, it is necessary to use indirect measures, viz. indicators of social and mental pathology. These include suicide, homicide, other acts of violence and other crime; road traffic accidents, juvenile delinquency; alcohol and drug abuse; smoking; consumption of tranquilizers; obesity, etc. To these may be added family violence, battered-baby and battered-wife syndromes and neglected and abandoned youth in the neighbourhood. These social indicators provide a guide to social action for improving the health of the people.

8. Environmental indicators

Environmental indicators reflect the quality of physical and biological environment in which diseases occur and in which the people live. They include indicators relating to pollution of air and water, radiation, solid wastes, noise, exposure to toxic substances in food or drink. Among these, the most useful indicators are those measuring the proportion of population having access to safe water and sanitation facilities, as for example, percentage of households with safe water in the home or within 15 minutes walking distance from a water standpoint or protected well; adequate sanitary facilities in the home or immediate vicinity.

9. Socioeconomic indicators

These indicators do not directly measure health, Nevertheless, they are of great importance in the interpretation of the indicators of health care. These include:

a. rate of population increase
b. per capita GNP
c. level of unemployment
d. dependency ratio.
e. literacy rates, especially female literacy rates
f. family size
g. housing: the number of persons per room
h. per capita "calorie" availability
10. Health policy indicators

The single most important indicator of political commitment is “allocation of adequate resources”. The relevant indicators are: (i) proportion of GNP spent on health services (ii) proportion of GNP spent on health-related activities (including water supply and sanitation, housing and nutrition, community development) and (iii) proportion of total health resources devoted to primary health care.

11. Indicators of quality of life

Increasingly, mortality and morbidity data have been questioned as to whether they fully reflect the health status of a population. The previous emphasis on using increased life expectancy as an indicator of health is no longer considered adequate, especially in developed countries, and attention has shifted more toward concern about the quality of life enjoyed by individuals and communities. Quality of life is difficult to define and even more difficult to measure. Various attempts have been made to reach one composite index from a number of health indicators. The physical quality of life index is one such index. It consolidates three indicators, viz., infant mortality, life expectancy and literacy.

12. Other indicators series

(a) Social indicators: Social indicators, as defined by the United Nations Statistical Office, have been divided into 12 categories: population; family formation, families and households; learning and educational services; earning activities; distribution of income, consumption, and accumulation; social security and welfare services; health services and nutrition; housing and its environment; public order and safety; time use; leisure and culture; social stratification and mobility\(^\text{21}\).

(b) Basic needs indicators: Basic needs indicators are used by ILO. Those mentioned in "Basic needs performance"\textsuperscript{22} include calorie consumption; access to water; life expectancy; deaths due to disease; illiteracy, doctors and nurses per population; rooms per person; GNP per capita.

(c) Health for All indicators: For monitoring progress towards the goal of Health for All by 2000 AD, the WHO has listed four categories of indicators.

1) Health policy indicators:
   - political commitment to Health for All
   - resource allocation
   - the degree of equity of distribution of health services
   - community involvement
   - organisational framework and managerial process

2) Social and economic indicators related to health:
   - rate of population increase
   - GNP or GDP
   - income distribution
   - work conditions
   - adult literacy rate
   - housing
   - food availability

3) Indicators for the provision of health care:
   - availability
   - accessibility
   - utilisation
   - quality of care

4) Health status indicators:
   - low birth weight (percentage)

- nutritional status and psychosocial development of children
- infant mortality rate
- child mortality rate (1-4 years)
- life expectancy at birth
- maternal mortality rate
- disease specific mortality
- morbidity-incidence and prevalence
- disability prevalence

HEALTH SITUATION IN INDIA

1. Demographic profile

A major concern today is population explosion. The demographic profile is characterised by:

a. large population base

b. high fertility both in terms of birth rate and family size

c. low or declining mortality

d. "young" population (about 40 per cent of the population) is below the age of 15 years

e. the proportion of illiterate population is close to 48 per cent: this explains why the decline in birth rate has been so slow

f. dependency ratio of 0.9; that is, every economically productive member has to support almost one dependent

Table No: 1-1 summarises the most recent demographic information available.
### TABLE NO: 1.1
**DEMOGRAPHIC PROFILE**

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total population (2001)</td>
<td>1027 million</td>
</tr>
<tr>
<td>Crude birth rate (2000)</td>
<td>25.8</td>
</tr>
<tr>
<td>Crude death rate (2000)</td>
<td>8.5</td>
</tr>
<tr>
<td>Annual Growth Rate per cent (1991-2001)</td>
<td>1.93</td>
</tr>
<tr>
<td>Population rural (2001)</td>
<td>742 million</td>
</tr>
<tr>
<td>Adult literacy rate per cent (2001)</td>
<td>65.4</td>
</tr>
<tr>
<td>Density of Population Per sq.km (2001)</td>
<td>324</td>
</tr>
<tr>
<td>Sex ratio female per 1000 male (2001)</td>
<td>933</td>
</tr>
<tr>
<td>Population below 15 years per cent (2001)</td>
<td>35.6</td>
</tr>
<tr>
<td>Population above 60 years per cent (2001)</td>
<td>6.3</td>
</tr>
</tbody>
</table>

Source: Census of India -2001
Economic Survey – 2002-03

Rate of growth of population is a function of birth rate and death rate. Consequently, variations in birth and death rates can provide an explanation of the acceleration of the population growth experienced in India. The birth and death-rates for India are given in Table No: 1.2.

### TABLE NO: 1.2
**MORTALITY RATE**

<table>
<thead>
<tr>
<th>Decade</th>
<th>Births per 1,000</th>
<th>Deaths per 1,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>1891-1900</td>
<td>45.8</td>
<td>44.4</td>
</tr>
<tr>
<td>1901-1910</td>
<td>48.1</td>
<td>42.6</td>
</tr>
<tr>
<td>1911-20</td>
<td>49.2</td>
<td>48.6</td>
</tr>
<tr>
<td>1921-30</td>
<td>46.4</td>
<td>36.3</td>
</tr>
<tr>
<td>1931-40</td>
<td>45.2</td>
<td>31.2</td>
</tr>
<tr>
<td>1941-50</td>
<td>39.9</td>
<td>27.4</td>
</tr>
<tr>
<td>1951-60</td>
<td>40.0</td>
<td>18.0</td>
</tr>
<tr>
<td>1961-70</td>
<td>41.2</td>
<td>19.2</td>
</tr>
<tr>
<td>1971-80</td>
<td>37.2</td>
<td>15.0</td>
</tr>
<tr>
<td>1985-86</td>
<td>32.6</td>
<td>11.1</td>
</tr>
<tr>
<td>2000</td>
<td>25.8</td>
<td>8.5</td>
</tr>
</tbody>
</table>

Table No.1-2 clearly reveals that the growth of population was held in check by the high birth and high death rates prevalent in India before 1921. Birth rate during 1901-1921 fluctuated between 46 and 49 per thousand and the death rate between 42 and 48. Correspondingly, the growth of population was little or negligible. But after 1921, a clear fall in death rate is noticeable. Death rate which stood at 48.6 per thousand in 1911-20 came down to 19.2 during 1961-70. As against it, the birth rate showed a slight decline. As a consequence of the family planning drive birth rate also registered a decline to 25.8 per thousand in 2000. Death rate has further fallen to a level of 8.5 per thousand. Consequently, the gap between high birth and falling death rates widened with the passage of time and this was reflected in a high survival rate. Thus, the high growth rate of population can be explained in terms of a persistently high birth rate but a relatively fast declining death rate.

Prior to 1921, India was in the first stage of demographic transition. But from 1921 onwards it has entered into the second stage of demographic transition in which the high growth potential of the population was realised as a high actual growth of population. It is expected that shortly India will enter the third stage.
### TABLE NO: 1.3

**BIRTH AND DEATH RATES (1999) FOR 14 MAJOR STATES OF INDIA**

<table>
<thead>
<tr>
<th>S.No.</th>
<th>State</th>
<th>Birth Rate</th>
<th>Death Rate</th>
<th>IMR</th>
<th>Mean Age at Marriage (Females)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Kerala</td>
<td>18.0</td>
<td>6.4</td>
<td>14</td>
<td>22.3</td>
</tr>
<tr>
<td>2.</td>
<td>Tamil Nadu</td>
<td>19.3</td>
<td>8.0</td>
<td>52</td>
<td>20.2</td>
</tr>
<tr>
<td>3.</td>
<td>Andhra Pradesh</td>
<td>21.7</td>
<td>8.2</td>
<td>66</td>
<td>17.8</td>
</tr>
<tr>
<td>4.</td>
<td>Maharashtra</td>
<td>21.1</td>
<td>7.5</td>
<td>48</td>
<td>19.1</td>
</tr>
<tr>
<td>5.</td>
<td>Karnataka</td>
<td>22.3</td>
<td>7.7</td>
<td>58</td>
<td>19.4</td>
</tr>
<tr>
<td>6.</td>
<td>West Bengal</td>
<td>20.7</td>
<td>7.1</td>
<td>52</td>
<td>19.5</td>
</tr>
<tr>
<td>7.</td>
<td>Punjab</td>
<td>21.5</td>
<td>7.4</td>
<td>53</td>
<td>20.3</td>
</tr>
<tr>
<td>8.</td>
<td>Orissa</td>
<td>24.1</td>
<td>10.7</td>
<td>97</td>
<td>19.5</td>
</tr>
<tr>
<td>9.</td>
<td>Gujarat</td>
<td>25.4</td>
<td>7.9</td>
<td>63</td>
<td>20.4</td>
</tr>
<tr>
<td>10.</td>
<td>Haryana</td>
<td>26.8</td>
<td>7.7</td>
<td>68</td>
<td>19.2</td>
</tr>
<tr>
<td>11.</td>
<td>Bihar</td>
<td>31.5</td>
<td>8.9</td>
<td>63</td>
<td>18.6</td>
</tr>
<tr>
<td>12.</td>
<td>Madhya Pradesh</td>
<td>31.1</td>
<td>10.4</td>
<td>90</td>
<td>18.8</td>
</tr>
<tr>
<td>13.</td>
<td>Rajasthan</td>
<td>31.1</td>
<td>8.4</td>
<td>81</td>
<td>18.4</td>
</tr>
<tr>
<td>14.</td>
<td>Uttar Pradesh</td>
<td>32.8</td>
<td>10.5</td>
<td>84</td>
<td>19.3</td>
</tr>
<tr>
<td></td>
<td>All India</td>
<td>26.1</td>
<td>8.9</td>
<td>70</td>
<td>19.3</td>
</tr>
</tbody>
</table>


Statewise analysis of data pertaining to birth and death rates reveals that Kerala, Tamil Nadu, Andhra Pradesh, West Bengal, Himachal Pradesh, Karnataka, Maharashtra, Punjab, Haryana, Gujarat and Assam have achieved a birth rate below 30 per thousand. In this sense, they have entered the third stage of demographic transition. Ironically, Haryana, which occupies a second place in India in terms of per capita income, is also far behind in reducing birth rate. As against it, Uttar Pradesh and Rajasthan, Bihar, Madhya Pradesh have a very high birth rate in range of 31-34 per thousand. All these states are still in the second stage of demographic transition, but taken together they account for 44 per cent of the total Indian population. Unless an impact is made by the family planning programmes in these states, India as a whole will not be able to enter the third stage of demographic transition.
2. MORBIDITY PROFILE
Morbidity is dominated by communicable diseases. According to one estimate, about 17.2 per cent of all deaths and about 20.8 per cent of all illnesses are due to communicable diseases in India\textsuperscript{23}. The major problems continue to be tuberculosis, filariasis, leprosy, malaria, diarrhoeal diseases and malnutrition. Among viral diseases smallpox was eradicated in 1980. Measles continues to exist. Polio is frequent in occurrence, and so is viral hepatitis. Since 1973, the country has been experiencing large-scale outbreaks of Japanese encephalitis. Among bacterial diseases meningococcal meningitis has shown a substantial increase. Cholera has significantly declined, but the other water-borne diseases (e.g., acute diarrhoeas, dysentery and enteric fever) have not been controlled. Half the world’s tuberculosis patients are in India accounting for 14 million cases of which approximately 3.5 million are infectious cases. The country has one-third of leprosy cases in the world, estimated to be about 0.61 million. Tetanus and diphtheria are not yet under control. Among parasitic diseases, malaria-and kala-azar have staged a come-back. During 1995, 2.8 million cases of malaria and 21884 cases of kala-azar were reported. About 420 million people are estimated to be living in known endemic areas of filariaisis of which about 109 million are in urban areas, and rest in rural areas\textsuperscript{24}. Intestinal parasites such as ascariasis, hookworms, giardiasis and amoebiasis are widely prevalent. STD are on the increase.

Non-communicable diseases such as hypertension, diabetes, cancer, road accidents, alcohol and drug abuse are slowly emerging as health problems. One reason for this appears to be changes in lifestyle and growing stresses of urban life. Availability of improved modes of transport has resulted in decreased physical activities. Better economic conditions have produce changes in diet habits. The conditions are more favourable for express ions of diabetes in the population which already has a genetic susceptibility of the disease.