Chapter I

INTRODUCTION

Social Epidemiology

Social epidemiology is the systematic and comprehensive study of health, wellbeing, social conditions or problems, diseases and their determinants. Applying epidemiology and social science methods can develop interventions, programs, policies, and health institutions that may reduce the extent, adverse impact or incidences of health or social problems and also promote health.

The approach of social epidemiology reflects the understanding that social variables or conditions can lie on either side of the equation determining the factors that affect health and illness. They can be independent variables, which are the characteristics hypothesized to explain the phenomena of health and diseases. They can also be a social condition or outcome that we are trying to understand, or even the dependent variable. For example, due to alcohol abuse or child neglect, depression becomes a risk factor for some diseases or social conditions\(^1\).

Social epidemiology, as a subdivision of epidemiology, focuses on the social, as opposed to the physical or biological, factors in particular incidences and prevalence of diseases. In the case of the chronic as well as degenerative diseases like fever, common cold, general infection, worm infection, white discharge, dental diseases, congenital anomalies, tuberculosis, old age problems, skin diseases, acid peptic diseases, gastritis, osteoporosis, arthritis, mental retardation, goiter, other gynecological disease, paralysis, deficiency status, bronchial asthma, benign tumors, cancer, deaf mutism, lower

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\(^1\) Note: This section is largely owes to Julie.G.Lwikel, 2006. Social Epidemiology. University Press, Columbia.
respiratory tract infection (LRI), upper respiratory tract infection (URI), diabetes, as well as the mental and behavioral disorders, constitute primary targets of modern epidemiology. Distinctions among hosts, agents, environmental factors and between social and biological or physical factors are becoming increasingly difficult to maintain. (Suchman 1963:98)

The Sociologists of medicine study the organization, roles, attitudes, and behaviors of medical practice and medical practitioners, be they physicians, nurses, lay healers, or traditional healers. These studies seek to understand the role of medical care in relation to other social institutions, such as the economic market, religion, social stratification, and education. Medical sociologists are most likely to be employed in academic settings (Cockerham 1995).

The sociologists in medicine investigate the social factors that are associated with a specific health problem by studying etiology (i.e., the causes or origins of diseases) and the ways in which attitudes differ regarding health and illnesses. The sociologists in medical setting are likely to be employed in diverse settings, not only in schools of medicine, nursing, and public health but also in the public health service and other government agencies in the health and social service system as consultants, planners, administrators, and epidemiologists (Cockerham 1995)

**Roots of Social Epidemiology**

Social epidemiology is not an entirely new discipline. About 2,400 years ago, Hippocrates, today considered the father of modern medicine, recorded his observations about how climate, living conditions, and people's professions affected the people with various types of illnesses as he saw in his practice (Lilienfeld and Lilienfeld 1980). In his
treatise "On Airs, Waters and Places" he implicated the seasons, winds, sources and quality of drinking water, and behavior of the locals in the determination of health status (Hippocrates 460-370 BC). He recommended that before diagnosis, a physician should observe whether patients ate or drank to excess, whether they were industrious or lazy, their exercise habits, and the nature of their working conditions.

Epidemiology of Health

As Terris (1975) pointed out, there is a need to develop a conceptual approach to an epidemiology of health, to counterbalance an epidemiology of pathology. For any given set of risk factors (agent, host, and environment), a wide variety of possible outcomes exist. If the people don’t guard their health against the above three factors, they will be affected by acute physiologic reaction such as infection, pain, or discomfort, the presence of a specific pathologic entity such as disease or trauma; or a state in which both physiologic and pathologic reactions take place. Furthermore, there is a possibility of diseases to be present without any current detriment in health, as in the examples of asymptomatic high blood pressure, tuberculosis, histoplasmosis, or carcinoma of the cervix. As Terris stated, "Health and illness are mutually exclusive, but health and diseases are not" (Terris: 975:1037).

Epidemiological Theory: States of Disease and Wellness

McKeown (1988) took a historical view of disease groupings in his book, The Origin of Human Disease. From the Stone Age, physiology adapted to nomadic hunting and gathering, the human beings moved into agricultural groupings and domesticated animals, forming more permanent settlements. During the latter period, infectious diseases accounted for most morbidity and mortality because of the close proximity of
community members. However, the Industrial Revolution and the ensuing rise in the overall standard of living of the entire population brought new types of health hazards, including exposure to cigarette smoke, industrial smoke, and other types of air pollution; exposure to chemical hazards through factory work and from discharged waste products; and changes in diet and lifestyle with the introduction of refined foods and work demanded less physical exertion. According to McKeown's analysis, diseases can be divided into three major groups:

Prenatal diseases, which are determined either at fertilization through genetic defects or during gestation. Diseases of poverty, which are caused by deficiencies in nutrition or hazardous environmental conditions such as poor sanitation and housing. Diseases of affluence, which are caused by lack of adaptation to the standard and style of living brought about by industrialization. These include diseases of excess, such as obesity and drug abuse, and chronic diseases such as cancer, stroke, and heart diseases. Ironically, as the standard of living continues to improve; these diseases disproportionately affect those at the lower end of the socio-economic continuum, in both developing and developed countries.

**Social Epidemiological Theory**

A theory in the social sciences is defined as "a set of interrelated constructs or concepts, definitions, and propositions that present a systematic view of phenomena by specifying relations among variables, with the purpose of explaining and predicting the phenomena" (Kerlinger 1986:9). In epidemiology, theories are needed to explain how diseases develop and then to determine the most appropriate way of treating them.
There are many types of theories, and one way to categorize them is according to the scope of the phenomena they are intended to be represented. A metatheory covers a wide variety of phenomena that occurs in social situations and interactions. Examples of this type of theory are systems theory (Bertalanffy 1956) and Freud's theory of human behavior (Freud 1933). Smaller-scale theories have been developed to address a specific social phenomenon, such as the theory of bystander apathy (Darley and Latane 1968) or locus of control (Rotter 1966). Depending on the size of the set of events they describe, these are called micro theories.

Occasionally metatheories spawn more circumscribed micro theories. For example, Lewin's field theory was based on the equation $B = f(P, E)$, meaning that behavior ($B$) is a function of the person ($P$), the environment ($E$), and the interaction between them (Lewin 1951). This theory inspired the health belief model developed to describe how decisions are made about a person's health (Becker 1974; Rosenstock 1990), and the theory of person-environment fit to predict job satisfaction or job strain (French, Rogers, and Cobb 1981).

The bio-psychosocial (BPS) model was an integrated way to view health and illnesses. As Pepper (1942) delineated, there are four streams of thought in understanding natural phenomena: formistic, mechanistic, contextual, and organistic thinking. Formistic thinking essentially divides the world into dichotomous, either-or categories (e.g., either sick or well, a case or not a case). Medical diagnoses are based on this type of thinking. Mechanistic thinking asks the question, "What is the specific cause of this specific result?" This is a "one cause-one effect" type of explanation. Germ theory is an example of mechanistic thinking.
Schartz (1971) commented that the development of scientific thought proceeds naturally from formistic and mechanistic thinking to more complicated models as understanding grows more complex and sophisticated and methods allow simultaneous investigation of more variables. Such development allows researchers to proceed to contextual and organistic modes of thinking about health and illness. Contextual thinking does not look for the either-or solution but considers the context and in which phenomena it occurs and the position of the observer. In determining what explains a phenomenon, the contextual thinker would say, "It depends." This type of relational thinking looks at the disease and the person who has the disease and does not necessarily conclude that some specific microbes explain the presence of diseases. Organistic thinking looks at the interactions between multiple causes, which may eventually develop into new clusters of phenomena. For example, systems theory posits that a system functions in a dynamic interaction of its parts that create a new whole (Bertalanffy 1956). Organistic thinking about causality can encompass more than one causal path. In contrast to the either-or manner of thought, organistic thinking is both-end way of looking at the phenomenon. The BPS model capitalizes on the contextual and organistic modes of thinking (Schartz 1979).

**Interlink between Community and Health**

The need of studying health needs of community has been well recognized from time immemorial. During Buddhist period in India health services originated with meeting community and societal needs of the poor and the pauper. Health needs arise out of physical, social and cultural milieu. This fact was well conceived by Hippocrates (460-370 B. C.) the 'father of modern medicine', who called upon the physicians to study
community, water, air, place, housing, clothing, habits of eating and drinking of the people and also to see their effect on health and disease profile in a community. Sigerist (1960), a medical historian of the West in his writings from 1931 to 1955 asked the doctors of the world to study and meet the social and emotional needs of the patients. Sigerist toured all over the world, visited hospitals and found doctors working round the clock but he was very sorry not to find social physicians who could meet the social and emotional needs along with physical health needed by the patients.

Thus, health and illnesses are not only biological they also develop and diminish in social climate produced by the well function or dysfunction of the social system composed of various subsystems like medicine, education, religion, etc., as well as the existing social structure and cultural configuration. Man's interaction with these systems socializes him and determines his total philosophy of life style.

In the context of the health needs of the society, Gupta (1981) emphasized on the need of an alliance between the physicians and the sociologists to study pathologies in the physical and social systems to meet the corresponding needs.

So far as the works of social scientists are concerned, they have been mostly working in the areas of mental health, hospital organization, social class differences in diseases, problems of rehabilitation, social aspects of medical profession, doctor-patient relationships and so on. The anthropologists have explored cultural aspects of health systems in the primitive societies. They have studied religion, caste, kinship, rituals, marriage and economy of tribal and rural areas so far as these factors affect the health and illness situation of a group of people.
An attempt is being made here to review some of the important researches done so far on socio-medical aspects of health and illness in two parts viz., the social and cultural environmental studies in which we have discussed the studies related with supernatural powers, faith and belief system of the people and also about health and diseases, and studies related to the social structure and social economy affecting health needs and services; studies related to the life style and health habits of the people and studies related with the medical profession, health services and their utilization.

Socio-Cultural Environmental Studies

The studies of Carstairs (1955), Bharara (1961), Opler and Khare (1963), Jelliffe and Gould (1969) explain the social and cultural context of illness, health and medicine as well as the interaction between scientific and folk medicines in rural India.

Mani (1970) studied the ethnomedical beliefs and behavior regarding sterility, fertility, conception, gestation and abortion in rural Tamilnadu. Through a closer examination of attitudes and actions regarding illnesses, their etiology, nosology, symptoms, diagnostic procedures and therapeutic strategies, he pointed out that the underlying value orientations of people shape the world view of the villagers and influence their social relations in day to day life and also affect their cognitive system underlying the ethno-medical scene. In other words, the constituents of the ethno-medical panorama seem to epitomize the general value systems, organization and the philosophy of the larger universe of the Indian culture.

Singer (1971) found that the villagers of India, along with their magico-religious beliefs, are quite familiar with the philosophic-scientific developments which took place in the large ancient urban centers of India in the times of Carak (5th Century B. C.).
Gandhi (1974) in 'Sociology of Illness and Medicine’ states that if we view illness as a part of the interactive process of "Socialization and the latter as conditioned by the culture in which it takes place then it makes sense to find that the folklore of simple people in India consists of magico-religious ideas which describe disease as caused by the supernatural powers. He says that with the changes in community its institutions of socialization also undergo change, and the, definition of illness also changes.

Nichter (1978) found multiple variables including cultural beliefs, age, economic capacity, education and practitioner’s accessibility that influenced to lay medical decisions in south Karanataka in south India. He suggested that the practice of medicine be culturally responsive and physicians be trained to communicate effectively with their patients. It is also suggested that existing indigenous medical manpower be maximized by short-targeted training programmes designed to reinforce regional patterns of resort and medical need. He thinks that 'co-operation between modern and indigenous medical practitioners is a must for a society like India'.

Social Structure and Economy: Marriott (1969) who studied a north Indian village through participant observation found that social structure determines the health behavior and health action in traditional societies. The following factors are important in determining health needs in a community.

- Lack of clear national health policies and poor linkage of health services systems with other components of national development.
- Lack of clear priorities.
- Opposition to changes in the social aspects of health policy.
- Inadequate community involvement in providing health care.

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- Inappropriate training of health personnel.

Problems of Resources:
- Inadequacy and misdistribution of resources for health services.
- Non utilization of actual and potential resources.
- Restricted use of primary health workers.
- The rising cost of health services.

Problems of the General Structure of Health Services:
- Lack of effective planning machinery.
- Weak development of the 'total system' concept.

Technical Weakness:
- Inadequate health education.
- Lack of basic sanitation.
- Deficiencies in communication and transport.
- Lack of adequate health information.

**Morbidity in India**

‘Morbidity’, a state of ill health, has been increasingly recognized as a measurable indicator of wellbeing. But it is more difficult to measure the morbidity rate than the death rates and the infant mortality rates.

Some other observations of the NCAER 1993 Survey (Shariff, 1995) are as follows:

The two individuals attribute gender and age of the individual which show important associations with morbidity. The results highlight extremely high levels of morbidity prevalence among the very young (0-4 years) and the very old. Further
disaggregations suggest that most of the male advantage in morbidity comes from the 15-34 and 35-59 age categories, thus, pointing to high reproductive morbidity among the Indian women. A higher natural resistance of females to morbidity in the younger ages is apparent which gets converted to high level of risks in subsequent ages, mostly emerging out of the socio-behavioral factors.

Another remarkable finding of this analysis is the apparent lack (not-significant) of the education effect on the risk of morbidity. There is a fairly clear negative and significant effect of household income on morbidity. The magnitude of this association is larger and much stronger among the younger population. Thus, it is true that households having relatively higher income may invest relatively more in health maintenance and morbidity inhibiting goods and services. To that extent the relatively poorer sections of the population appear to be bearing a disproportionately higher morbidity load.

This analysis clearly highlights age and gender based discrimination with regard to the utilization of hospitalization services both in rural and urban areas. Very young persons are less likely to get hospitalized for the treatment of sicknesses, whereas the middle age adults are likely to avail treatments. When compared to people suffering from fevers, those suffering from infectious and non-infectious diseases have availed themselves of hospital treatment as inpatients in considerable proportions in all parts of the country. The tendency to choose public hospitals for hospitalization services is also significant and large.

As expected, the relatively well off and well educated choose private facilities for treatment of sickness. Women in productive ages also have a tendency to resort to private health care in all parts of India. The public health care utilization is relatively high in the
case of Hindus, those living in the eastern parts of India and those suffering from infectious sickness in rural and those from non-infectious in urban areas. As distance to the service centre increases, resort to public facilities declines when compared with the private services\(^3\).

**Indicators of health**

Health status includes a set of indicators used to provide important health and health-related data regarding incidence and prevalence of disease, health risks and performance of health systems. Health status provides a broad overview of morbidity and mortality patterns in communicable and non-communicable diseases. Besides, it provides an overview of reproductive and child health as well as disability prevailing in the country.

Morbidity among communicable diseases include incidence, prevalence, deaths and performance of disease control programme for malaria, tuberculosis, AIDS, leprosy, dengue, cholera, kalazar, Japanese Encephalitis, measles, whooping cough, viral hepatitis, diphtheria, ARI tetanus and neonatal tetanus.

Morbidity indicators for non-communicable diseases include incidence, prevalence, deaths and performance of disease control programme for blindness, cancers, coronary heart disease and diabetes. This accounts for the second largest share of the disease burden in India after communicable diseases.

The number of cases of coronary heart disease was estimated to be nearly 3.6 crore for the year 2005, which is expected to reach a figure of nearly 6.1 crore cases in the year 2015. This pattern is nearly the same across age groups. More than half of this

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\(^3\) Sharriff Abusalah, Heath Transition in India, NACER, New Delhi 1995.
rise can be accredited to demographic change but the contribution of increased prevalence of risk factors is also substantial.

According to estimates for 2007 based on cancer registries across the country, cervix and breast cancers accounted for more than 36 per cent of cancer incidence in the country.

Estimated prevalence of blindness in 2004 was 11.2 (10.2 among male and 12.2 among female) per thousand population and is expected to remain more or less the same during the next two decades.

**Magnitude of Non-Communicable Disease and Risk Factors in India**

In the next two decades, the health needs of the world's population will undergo dramatic changes. Many developing countries of the world are going through a transition phase. Non-communicable diseases such as depression and heart disease are rapidly replacing infectious diseases and malnutrition as the leading cause of disability and premature death. Seventy nine per cent of total deaths due to non-communicable diseases occur in the developing countries. Cancer, cardiovascular diseases and diabetes are becoming more seriously concerned, accounting for 52 per cent of deaths and 38 per cent of disease burden in the region. The top five causes of Disability Adjusted Life Years (DALYs) lost in 2020 will be ischemic heart disease (IHD), unipolar major depression, road traffic injuries, cerebro-vascular diseases, and chronic obstructive lung diseases.

It is estimated that by 2020, over 70 per cent of the global burden of disease will be caused by non-communicable diseases (NCDs), mental health disorders, and injuries. Middle and low-income countries are likely to witness a sharp increase in NCD cases between now and the year 2020. Ageing populations and increasing exposure to tobacco
and other risk factors are resulting in a NCD epidemic, and this is becoming of high relevance, especially in the developing region. The World Health Report, 2000 lists, Indonesia, Sri Lanka and Thailand amongst the South East Asian countries as having mortality stratum of low child low adult, while other countries in the region, including India, lie in the high child high adult mortality stratum. Deaths due to non-communicable diseases in countries like India were the highest for cardiovascular diseases.

**Health and Disease**

**Socio-cultural Dimensions**

In each human society, health and disease co-exist. Society changes and adapts itself to the varying needs of its individuals. Since ancient times, it has been the endeavour of the society to seek ways of eradication of illness and human suffering.

No society or individual is free from illness although the frequency and degree varies from man to man and society to society. Every society has developed a system to cope with diseases according to its beliefs and values. In other words, every human society has created a "pharmacopia and a therapeutic system, be it magico-religious, secular or scientific" (Castiglioni, 1947).

Health and disease presents a contrasting picture at the global level. There is a vast difference in their definitions, their magnitude, their mode of treatment and the causes of disease. The nature of the definition is dependent upon the complex interaction between individuals, their socio-cultural settings and the physical environment. Thus every community generates its own patterns of health and illness. (Morris. 1973)

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4 National Health Profile 2008, Government of India, Central Bureau of Health Intelligence.
Social Consequences of Disease and Illness

Illness is generally assumed to be relatively infrequent, unusual, abnormal social phenomena. It occurs in all societies and is defined and fought in terms of particular cultural forces prevalent in the society. The cultural differences provide a different understanding of the illness itself. Everyone can potentially fall sick at some time in his or her life, since no one is immuned to all diseases, disabilities and disorders. Infact illnesses are everyday facts of life which we all live with or consult about or treat or see in other people or pass judgment on or fear or ignore or take precautions against it. Thus, disease is a universal phenomenon and therefore it affects all people everywhere despite understanding and control of the diseases but not always to the same degree or in the same way.

Sickness is a condition which deviates from normally. However, this deviation is not willful in the sense that one has no control over one's sickness and cannot get over it by merely wishing for it. In that sense, the role of sick person is contingent one, which means that anyone irrespective of age, gender, class and caste can fall sick. Further, illness represents a situation in which the reactions of the individual are regulated by the social expectations. The values and customs of a community significantly determine the perception of the disease, interpretation of symptoms and the techniques of the treatment.

Consequences of disease or ill health in the society have a relationship with the social, cultural, technological, economic, political, legal, health and welfare systems of the society in which it occurs. Illnesses, particularly if it is serious, set up an out-of the ordinary situation. The daily routines of individual and family life are disturbed, the effects of illness at the individual level and also at group level-in a family, occupation
and society in general can be seen. The three most important effects that a disease may have in community are illness, disability and death with some expectations. Other social and economic effects of a disease are directly related to its severity which can be measured by these factors.

**Various Roles during Sickness**

As stated earlier, in a study in Manchwa and Begas villages, a person in any of these two villages is considered ill when he is confined to bed and he stops daily work. Almost all the people of village Manchwa and Begas expected a sick person to take rest, treatment and diet as per the advice of the traditional or modern healer. Affection, love, grief, sorrow, fear, the expenditure of money, worry ones work and disturbances in routine life were the factors that came into play during a person's illness, according to the respondents.

In joint families of all the different castes of Manchwa and Begas villages, it was found that care during illness was provided by the elderly members of the family, that is, by the mother in-law, sister-in-law, grand father, father and brother. In single family, during a long illness a close relation from other village is supposed to take care of the patient, usually the mother-in-law, the sister in-law or the sister. Villagers were concerned about the sickness of an income earner, an adult and the head of the household as compared to the other members of the family. During childbirth in single households, usually the mother of the woman or her sister is supposed to look after the mother and the child.\(^5\)

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Private Health Care in India

Private health sector has played a dominant role in health service right from pre Independence days. Over the period, the growth of private health sector in India has been considerable in both provision and financing. The present health expenditure scenario in India suggests that about 80 per cent of the total health expenditure in the country constitutes the private expenditure component, most of which is in the nature of out-of-pocket expenditure. There are wide variations in out-of-pocket health expenditure of households across states. While Kerala spends on an average Rs.2548 per capita per annum in 2004-2005, households in Bihar spent Rs.1021 per capita per annum accounting for 90 per cent of total health expenditure in the state. During independence, the private sector in India had only 8 per cent of health care facilities but today 93 per cent of all hospitals, 64 per cent of beds, 80-85 per cent of doctors are in the private sector.

India is a low-income country covering about 16% of the world population. Public spending on health in India is low. It gradually declined from 1.05 per cent of GDP during mid eighties to around 0.9 per cent of GDP at present. Per capita health spending by the government in 2003-2004 was Rs.215, which is far below the international aspiration of US$12 recommended for essential health care package by the World Bank and $36 recommended by the Commission on Macroeconomics and Health (WHO). As a result of stagnant budgetary allocations, the quality of care suffered substantially and affected the utilization of public health services by households. National
Surveys (NSSO 46th and 52nd round) clearly showed a considerable decline in the utilization of public health services by the poor, particularly in the rural areas\textsuperscript{6}.

This chapter elaborates about the social epidemiology, its root and theory. Socio-cultural studies and morbidity level in India and the magnitude of non-communicable diseases and its risk factors of India are also discussed. In addition to these, the disease, sickness and illness are also analyzed.

\textsuperscript{6} Tiwari, V.K. & Nair, K.S. 2006. “Private Health Care in India”. Health for the Millions, 6, 6-7.