

THEORIES OF ILLNESS & ITS CAUSATION



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INTRODUCTION

Disease is a dynamic process and it is just opposite to the health. Health denotes perfect harmony and normal functioning of all the body system or state of complete wellness whereas disease denotes disharmony and deviation from normal functioning of various body functioning system.

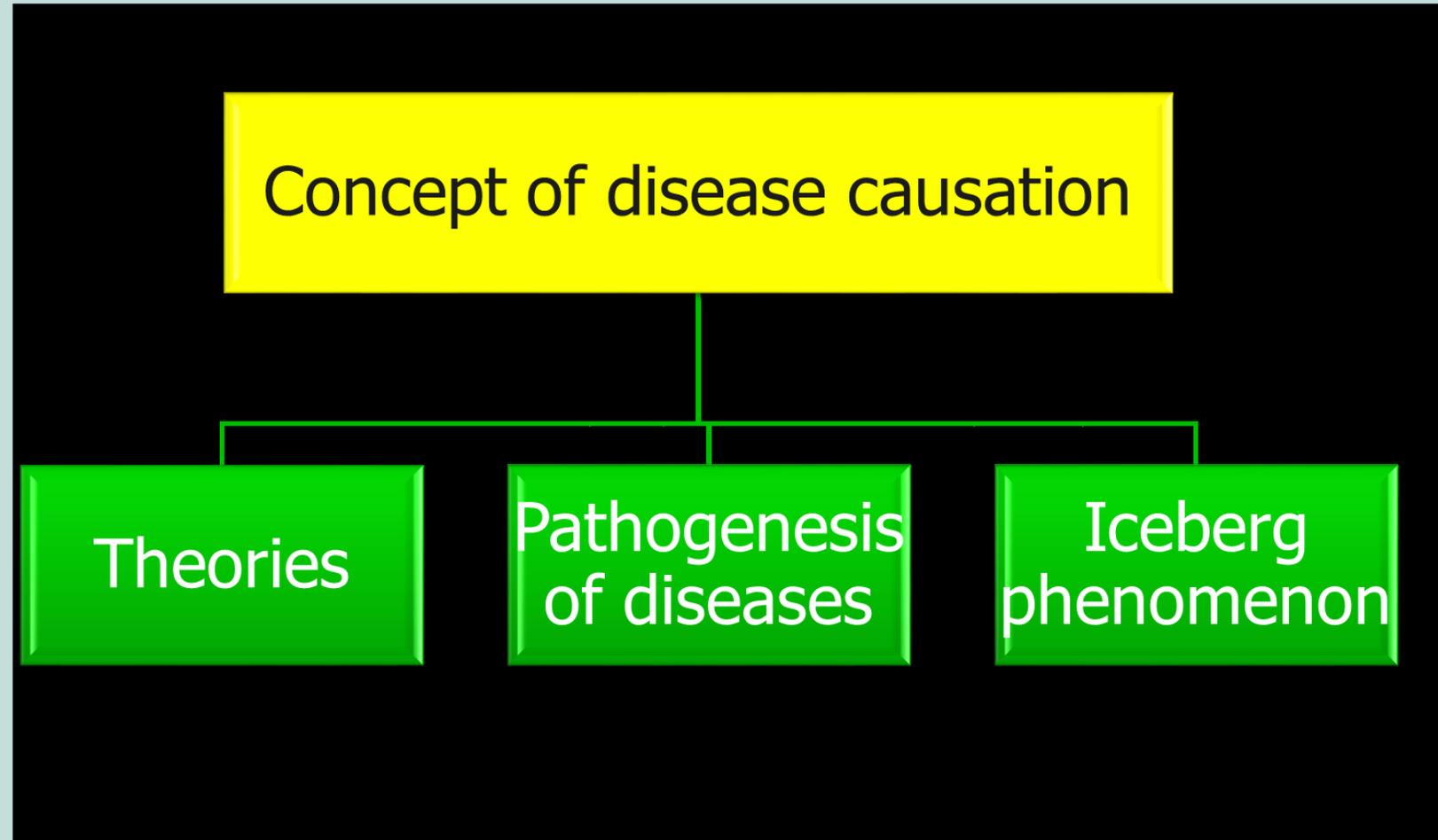


DEFINITION

- ❖ According to WHO, “**Health** is a state of complete physical, mental, and social being and not merely an absence of diseases or infirmity”
- ❖ **Illness**: It is a subjective state of the person who feels aware of not being well.
- ❖ According to Webster, “**Disease** is a condition in which body health is impaired, a departure from state of health, an alteration of human body function and interrupting the performance of vital function”.
- ❖ **Sickness** : It is a state of social dysfunction.
- ❖ **Carrier**: A person with subclinical infectious disease who can transmit the disease to others is called a carrier.

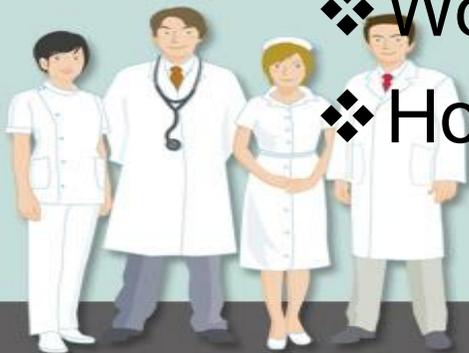


CONCEPT OF DISEASE CAUSATION

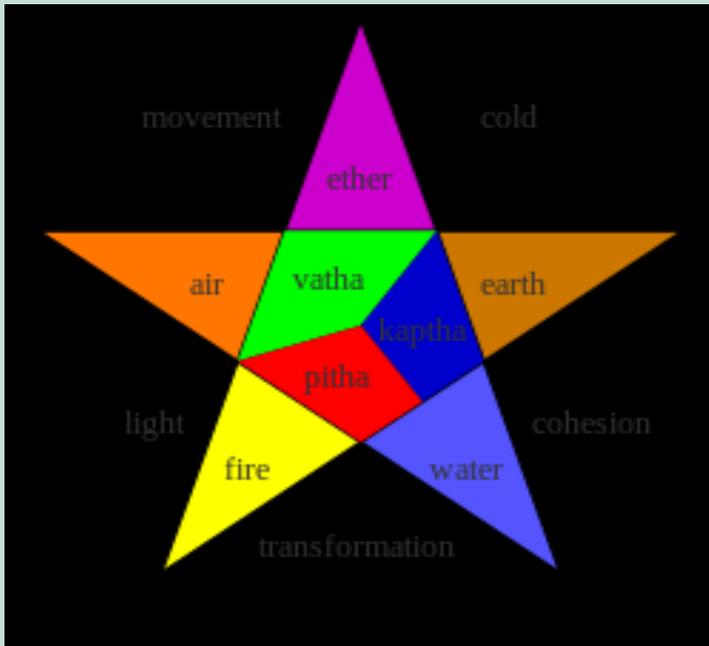


THEORIES OF DISEASE CAUSATION

- ❖ Old theories
- ❖ Germ theory of disease
- ❖ Biomedical model
- ❖ Theory of multifactorial causation
- ❖ Epidemiological traid
- ❖ Lazaru's theories of stress response
- ❖ Wolff's theory of stress, organ maladaptation and disease
- ❖ Holmes and Rahe's theory of life change and onset of illness.



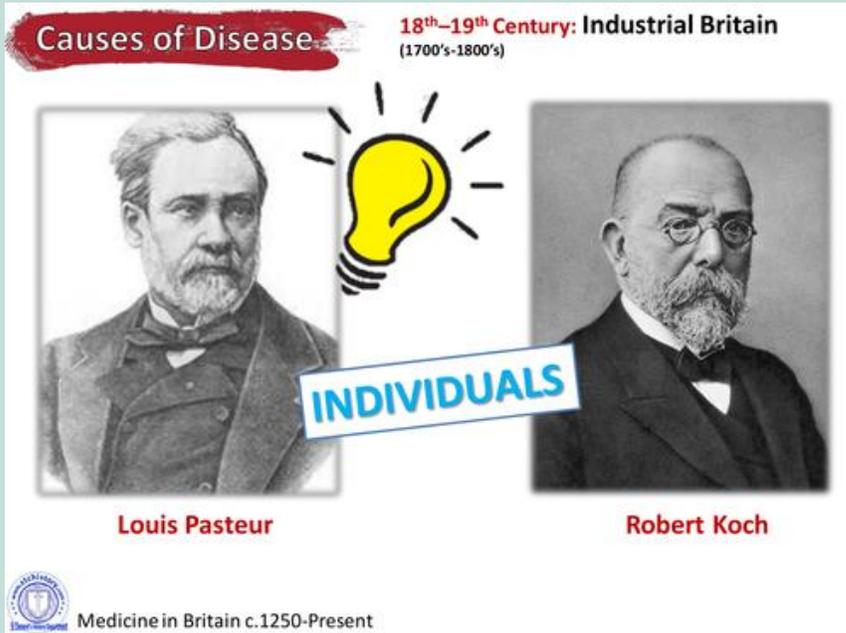
OLD THEORIES



- ❖ Till the end of 18th century, various theories were in vogue, e.g. supernatural theory of disease (e.g. curse of God; an evil eye).
- ❖ The Ayurveda considers that the disease is due to imbalance of the 'tridosha'. These are vata(air), pitta(bile), and kapha(mucus).
- ❖ The Chinese medicine believes that the disease is caused due to imbalance of male principle(yang)and female principle(yin).



GERM THEORY

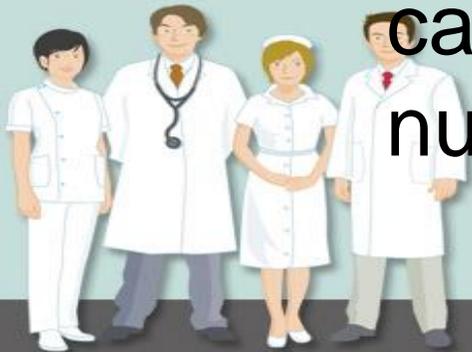


- ❖ The discoveries in microbiology at the turn of 18th century became a turning point in the etiological concept of disease.
- ❖ Louis Pasteur (1860) demonstrated the presence of bacteria in the air.
- ❖ Robert Koch (1877) showed that anthrax was caused by bacteria



GERM THEORY

- ❖ These theories of Pasteur and Koch confirmed the germ theory of disease.
- ❖ Thus, the emphasis has shifted from empirical causes (like bad air as a cause in malaria) of the old theories to microbes of Germ theory.
- ❖ But now it is recognized that a disease is rarely caused by a single agent alone, but depends upon a number of contributory factors.



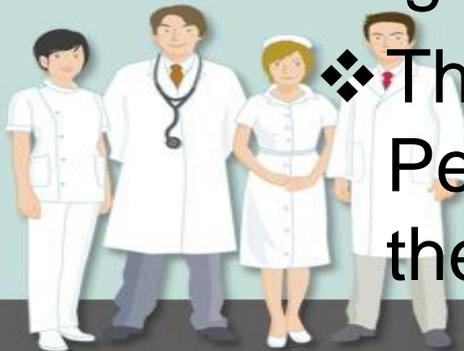
BIOMEDICAL MODEL

This model explains the disease as a result of malfunctioning organs or cells, e.g. diabetes is caused by malfunctioning of pancreas. But the drawback with it is focuses on cause and effect relationships, and ends to ignore the psychosocial component of the disease.

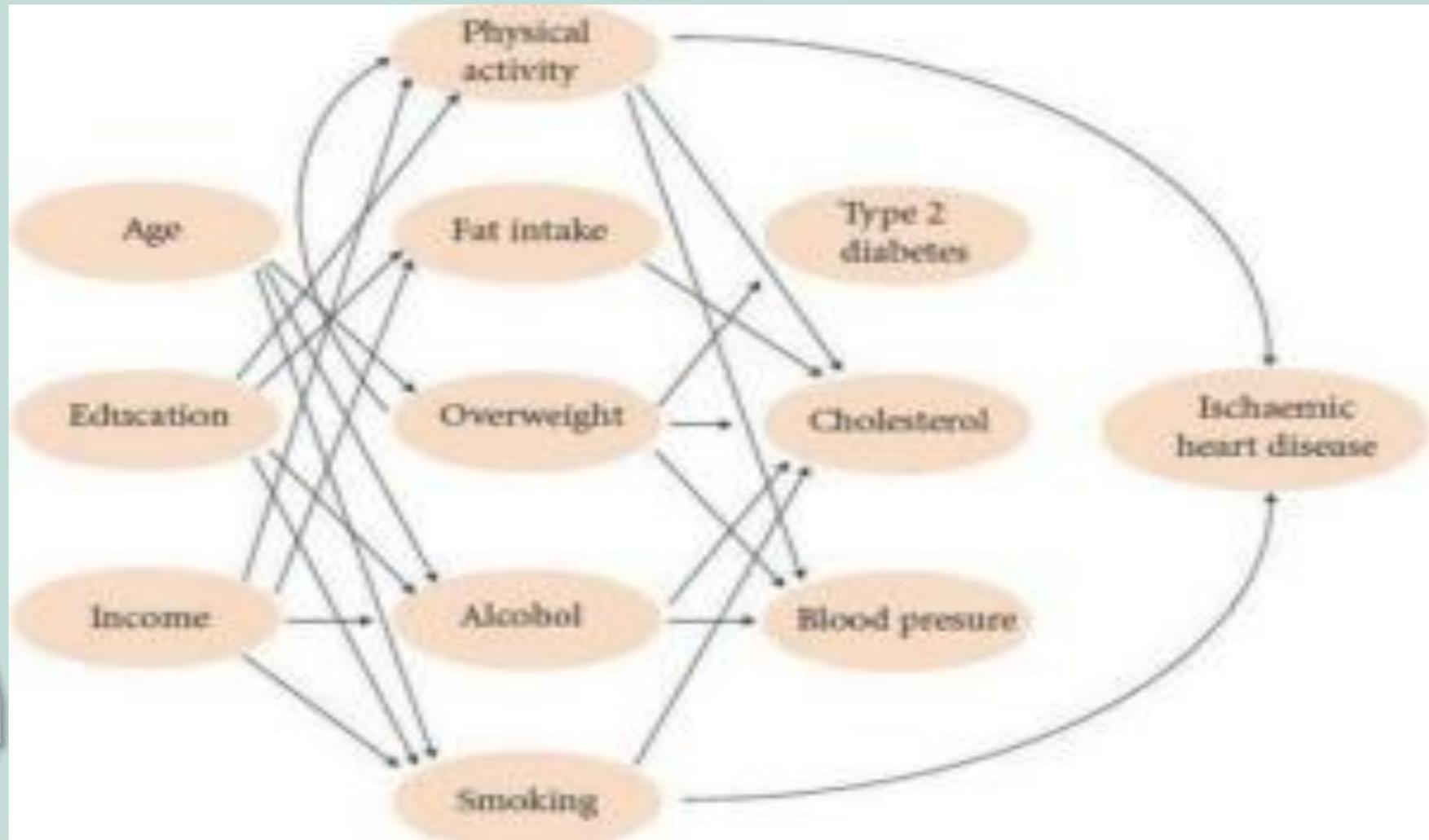


THEORY OF MULTIFACTORIAL CAUSATION

- ❖ Now it is recognized that a disease is not caused by an organism but also predisposed by many factors contributing to its occurrence, specially 'modern diseases' of civilization like lung cancer, diabetes, coronary heart disease, mental illness etc.
- ❖ These predisposing factors are social, economic, cultural, genetic psychological factors, etc. (including poverty, illiteracy, ignorance and poor living conditions).
- ❖ This theory of multifactorial causation was put forth by Pettenkofer Munich (1819-1901). This theory deemphasizes the "Germ theory" (or single cause idea).



THEORY OF MULTIFACTORIAL CAUSATION

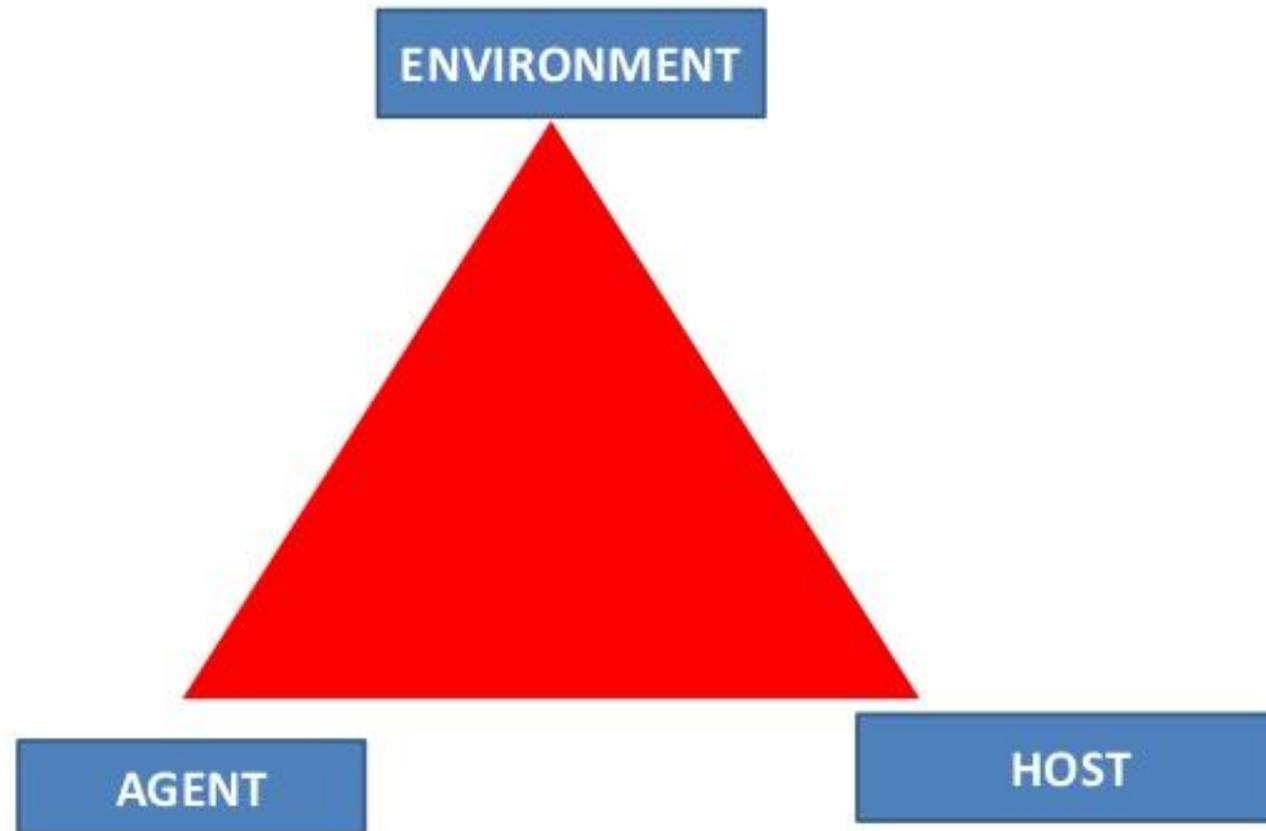


EPIDEMIOLOGICAL TRIAID

The Germ theory of disease has many limitations. For example, it is well known that not everyone exposed to tuberculosis develops tuberculosis. The same exposure, however in an undernourished or otherwise susceptible person, may result in clinical disease. Similarly, not everyone to beta-hemolytic streptococci develops acute rheumatic, environment, which are equally important to determine whether or not disease will occur in the exposed host. This demanded a broader concept of disease that synthesized the basic factors of agent, host and environment.



EPIDEMIOLOGICAL TRIAD



LAZARU'S THEORIES OF STRESS RESPONSE

According to him, in the process of coping, the individual shapes as well as responds to a demand or stress, which can have an impact on the client's resistance to disease.



LAZARUS MODEL

POSITIVE OR NEGATIVE EMOTIONS

THREE TYPES: HARM; THREAT; CHALLENGE

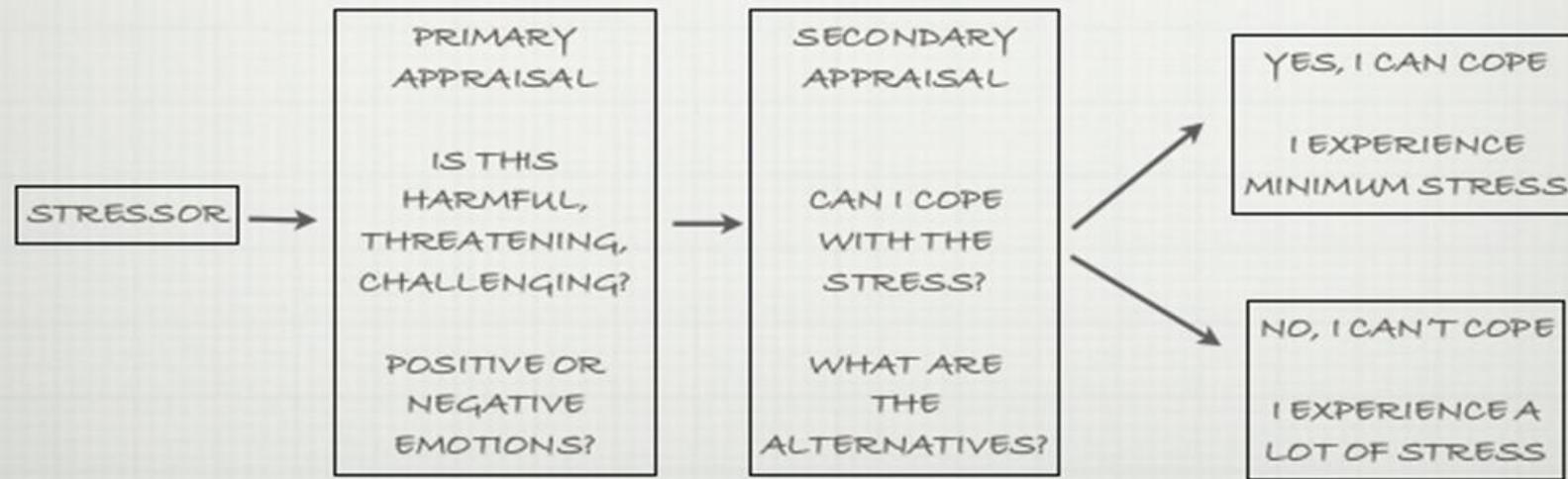


FIG 19.9 TEXT BOOK P 454



WOLFF'S THEORY OF STRESS, ORGAN MALADAPTATION AND DISEASE

- ❖ He studied people's response to chronic stressors, like a frustrating job or an unhappy home life.
- ❖ He believed that a person's total life situation profoundly affects a person's susceptibility to disease.



HOLMES AND RAHE'S THEORY OF LIFE CHANGES AND THE ONSET OF ILLNESS

- ❖ They explored the relationship between the amount of change in a person's life and subsequent illness.
- ❖ They discovered that the higher a person's life changes score, the greater is the likelihood that an illness would develop.



PATHOGENESIS OF DISEASE

- ❖ It means the evolution of a disease process in an individual, from its early stage to final stage of recovery or death, in the absence of any intervention such as prevention or treatment.
- ❖ This differs from disease and from person to person.
- ❖ The natural history of an infectious disease occurs in two phases - prepathogenesis and pathogenesis.



PREPATHOGENESIS PHASE

This phase refers to the period before the onset of disease. During this phase, interaction is taking place among the three components of epidemiological triad namely Agent, Host, and Environment.



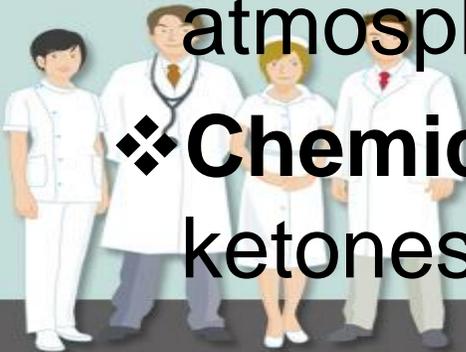
PREPATHOGENESIS PHASE

1. Agent Factors

A disease 'agent' is defined as a substance, living or nonliving or a force, the excessive presence or relative lack of which initiates the disease process. The disease agents are broadly classified into the following groups:

❖ **Physical agents** : Heat, cold, radiation, noise, atmospheric pressure, humidity, etc.

❖ **Chemical agents** : Endogenous: Urea, uric acid, bilirubin, ketones, calcium oxalate, etc.



PREPATHOGENESIS PHASE

- ❖ **Exogenous** : Dust, gas, fumes, metals, allergens, etc.
- ❖ **Biological agents** : viruses, rickettsia, bacteria, fungi, protozoa, helminthes, etc.
- ❖ **Mechanical agents** : friction, force, injury, sprain, accidents, etc.
- ❖ **Nutritional agents** : proteins & fats



PREPATHOGENESIS PHASE

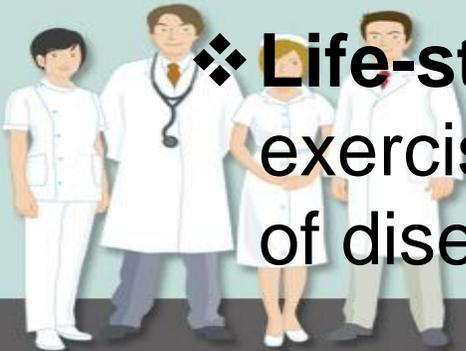
2. Host factors

- ❖ **Age** : certain disease is peculiar in certain age-group.
- ❖ **Sex** : certain disease like lung cancer and coronary heart disease are common among men and rheumatoid arthritis, diabetes, and obesity are common among women.
- ❖ **Ethnicity** : Sickle cell anemia is more frequent among the negroes.
- ❖ **Occupation** : This not only determines the income but also the health hazards arising out of the occupation, e.g. pneumoconiosis
- ❖ **Literacy level** : The higher the literacy level, the lower is the incidence of the disease.



PREPATHOGENESIS PHASE

- ❖ **Income** : This is the 'key' factors determining the standard of living and influences the development of the disease. Lower socioeconomic status predisposes for infectious disease and higher status for non-communicable disease.
- ❖ **Marital status** : cancer of cervix is common among the married women than the unmarried women.
- ❖ **Nutritional status** : poor nutritional status makes a person more vulnerable to infectious disease.
- ❖ **Life-style factors** : Like smoking, alcoholism, drugabuse, lack of exercise, multiple sexual partnership, etc. favor the development of disease.



PREPATHOGENESIS PHASE

3. Environmental factors

These are classified into physical, biological, and sociological environment.

❖ **Physical environment** : Air, water, soil, food, etc.

❖ **Biological environment** : Plants, animals, insects, rodents, microbes, etc.

❖ **Sociological environment** : death, divorce of parents, desertion, loss of employment, birth of a handicapped child, etc.



PATHOGENESIS PHASE

The pathogenesis phase begins with the entry of the disease 'agent' in the susceptible human host. The further events in the pathogenesis phase are clear cut in infectious disease, i.e. the disease agent multiplies and induces tissue and physiological changes, the disease progresses through a period of incubation and later through early and late pathogenesis. The final outcome of disease may be recovery, disability, or death. The pathogenesis phase may be modified by intervention measures such as immunization and chemotherapy.



PATHOGENESIS PHASE

The infection may be clinical or sub-clinical, and when it is subclinical, the person will not have recognizable signs and symptoms but may spread the disease agent to others, acting as a 'carrier', as in typhoid and diphtheria. When the person develops clinical signs and symptoms, he is called a 'clinical case'.

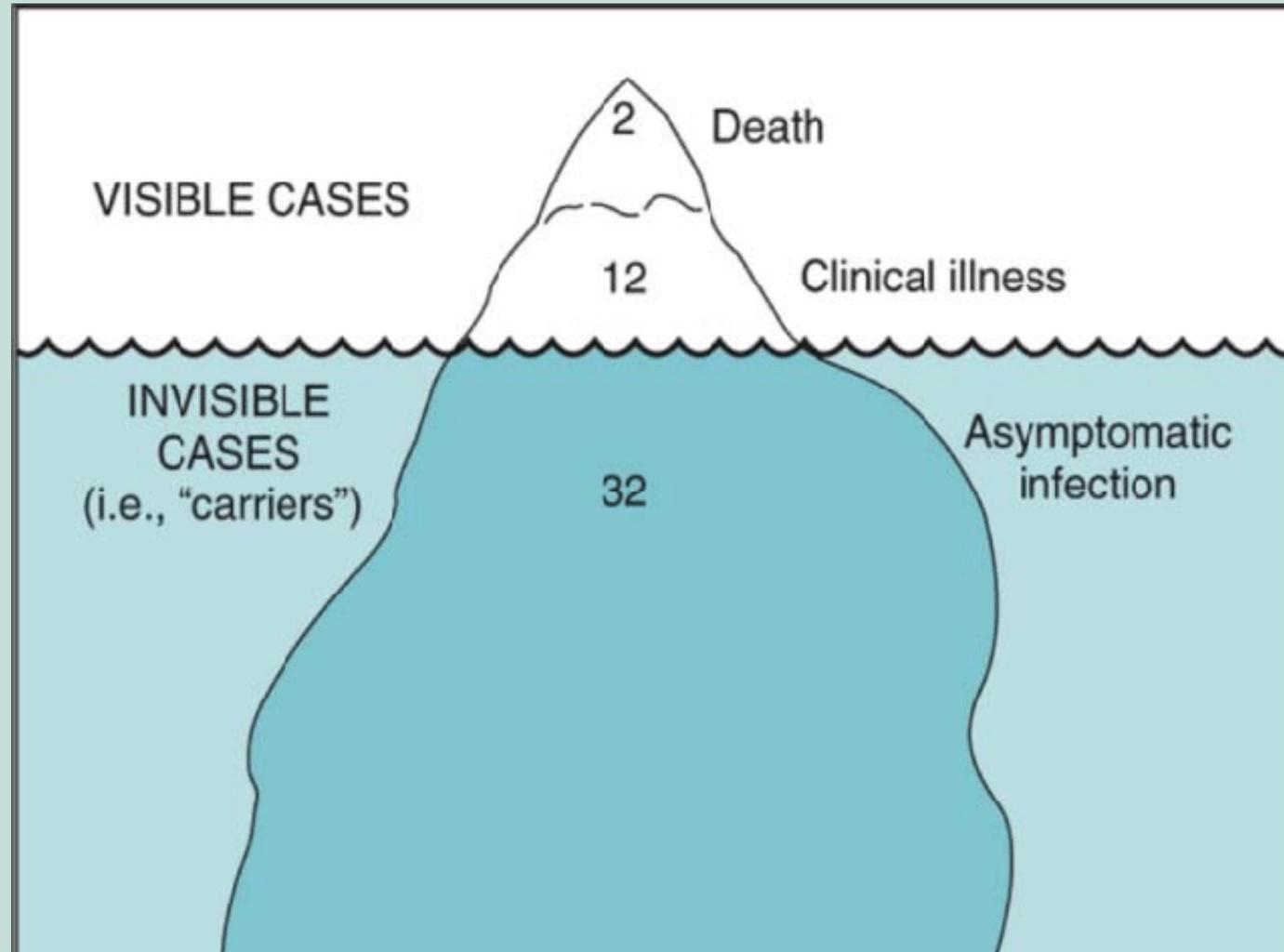


ICEBERG PHENOMENON OF DISEASE

According to this concept, the disease in the community is compared to an iceberg. When a piece of ice is allowed to float on water, a small portion is visible and a major portion is submerged in the water. The visible tip of ice is compared to clinical cases, which the physician sees in the community. The major submerged portion of ice corresponds to the hidden mass of unrecognized disease such as latent cases, in apparent, carriers, asymptomatic, and undiagnosed cases in the community, which are all responsible for the constant prevalence of the disease in the community.



ICEBERG PHENOMENON OF DISEASE



THANK YOU

