



SNS COLLEGE OF NURSING



COIMBATORE-35.

COMMUNITY HEALTH NURSING-I

Course: II YEAR BSc Nursing

Unit III : EPIDEMIOLOGY

Topic: EPIDEMIOLOGICAL TRIAD

S.BHARATHI

VICE PRINCIPAL

LEARNING OBJECTIVES

The students will be able to:

- define epidemiology
- mention about the epidemiological triad
- describe the agent, host and environmental factors of epidemiological triad

DEFINITION

The study of the distribution and determinants of health related states or events in a specified populations, and the application of this study to prevent and control of health problems

- John M Last(1988)



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4. EPIDEMIOLOGICAL TRIAD

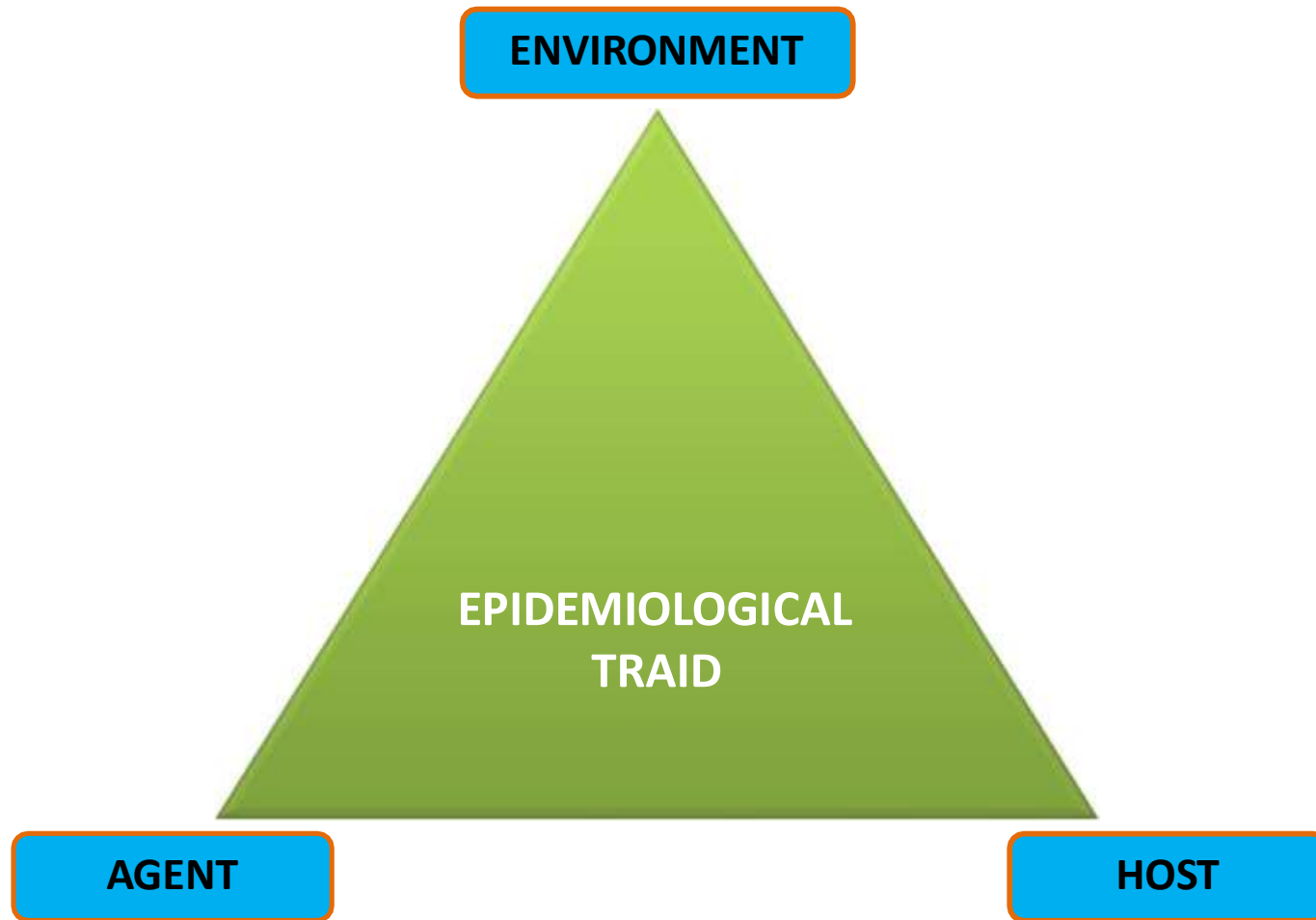
The Epidemiological Triad



4. EPIDEMIOLOGICAL TRIAD contd.,

- Disease results from a complex interaction between man, an agent (or cause of disease) and the environment.
- The term epidemiological triad is a key concept in epidemiology.
- Each disease has its own unique natural history of causes, which is not necessarily the same in all individuals.

4. EPIDEMIOLOGICAL TRIAD contd.,



4.1 AGENT FACTORS

- The first link in the chain of disease transmission is a disease agent.
- The disease agent is defined as a substance, living or non-living or a force, tangible or intangible, the excessive presence or relative lack of which may initiate or perpetuate a disease process
- A disease may have a single agent, a number of independent alternative agents or a complex of two or more facts whose combined presence is essential for the development of the disease

4. EPIDEMIOLOGICAL TRIAD

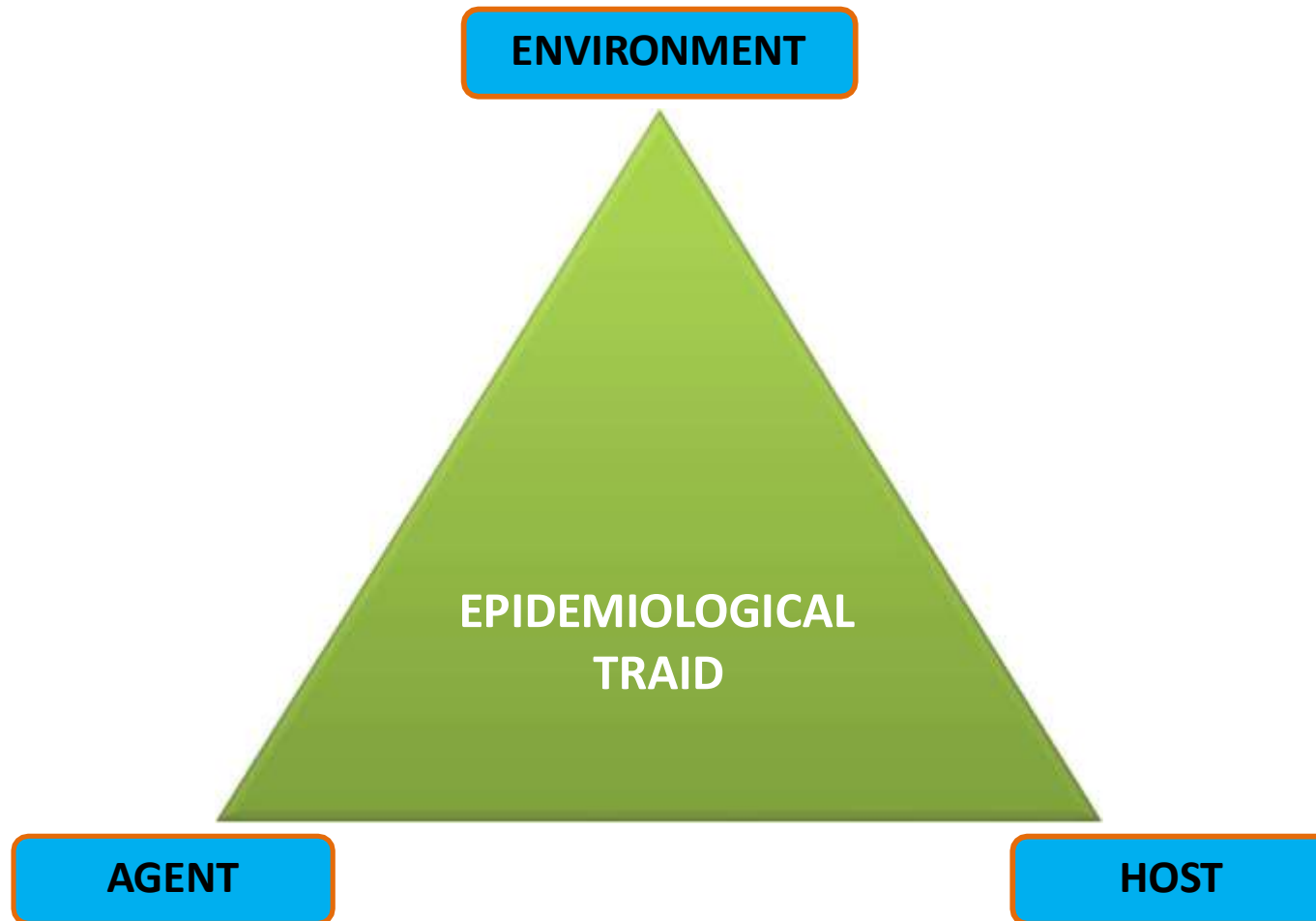
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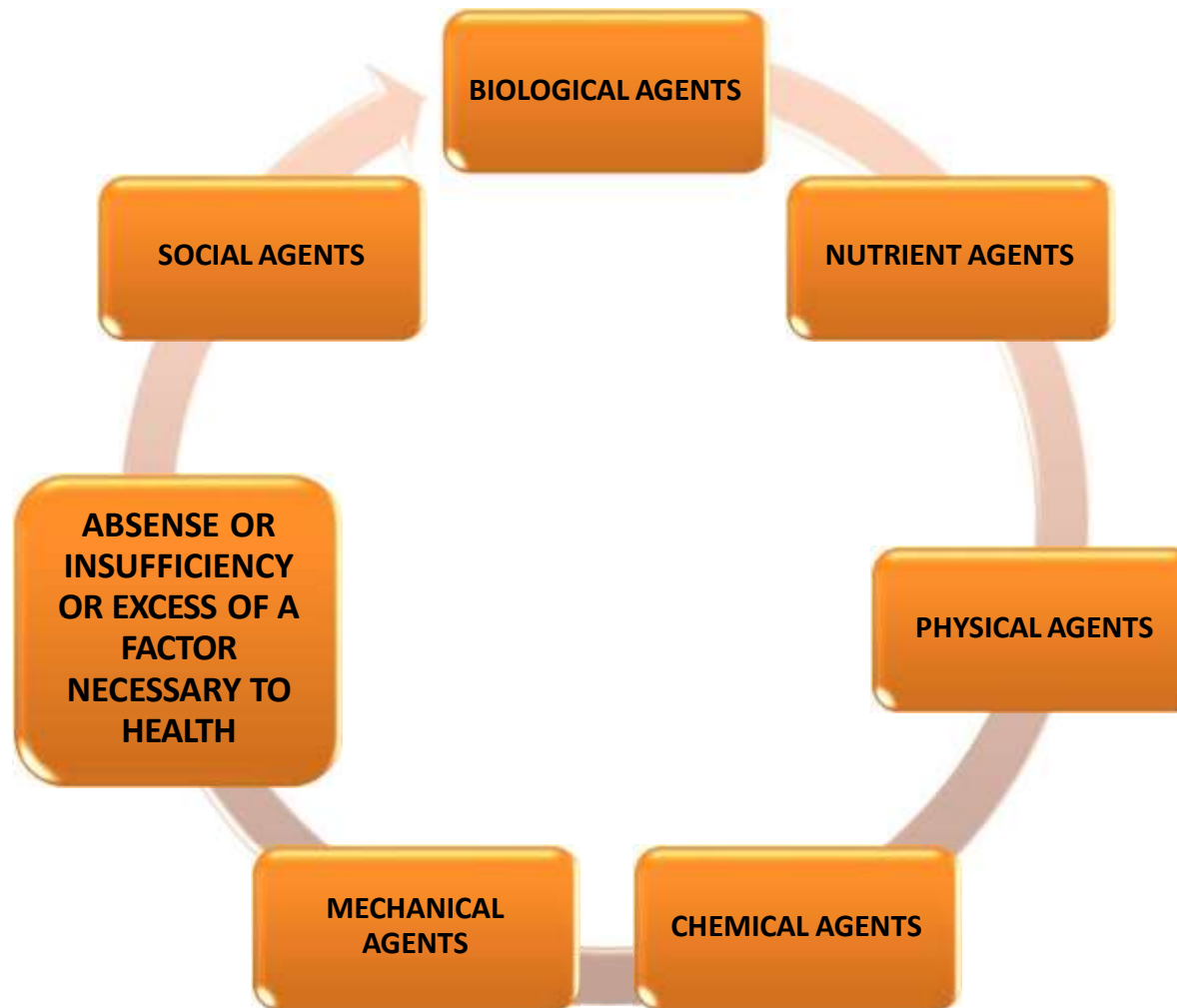
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4.1 AGENT FACTORS contd.,



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- **BIOLOGICAL AGENTS:** These are living agents of disease. viz, viruses, rickettsiae, fungi, bacteria, protozoa and metazoa. These agents having certain biological properties such as **Infectivity, pathogenecity and virulence**
- **Infectivity** is the ability of an infectious agent to invade and multiply in a host
- **Pathogenecity** is the ability to induce clinically apparent illness
- **Virulence** is the proportion of clinical cases resulting in severe clinical manifestations

4.1 AGENT FACTORS contd.,

- **NUTRIENT AGENTS:** These are proteins, fats, carbohydrates, vitamins, minerals and water. Any excess or deficiency of the intake of nutritive elements may result in nutritional disorders. Protein Energy Malnutrition, Anaemia, Goitre, Obesity and Vitamin deficiencies are the some of the current nutritional problems.

4.1 AGENT FACTORS contd.,

- **PHYSICAL AGENTS** :Exposure to excessive heat, cold, humidity, pressure, radiation, electricity, sound etc may result in illness
- **CHEMICAL AGENTS**: (i) Endogenous : Some of the chemicals may be produced in the body as a result of derangement of function eg. bilirubin (jaundice)
- (ii) Exogenous: Agents arising outside of human host. eg.allergens, metals, fumes and gases

4.1 AGENT FACTORS contd.,

- **MECHANICAL:** Exposure to chronic friction and other mechanical may result in crushing, tearing, sprains, dislocations and even death.
- **ABSENCE OR INSUFFICIENCY OR EXCESS OF A FACTOR NECESSARY TO HEALTH:**
These may be (i) Chemical Factors eg. Hormones (ii) Nutrient factors (iii) Lack of structure (iv) Lack of part of structure (v) Chromosomal factors (vi) Immunological factors

4.1 AGENT FACTORS contd.,

- **SOCIAL AGENTS:** It is also necessary to consider social agents of disease. These are poverty, smoking, abuse of drugs and alcohol, unhealthy lifestyles, social isolation, maternal deprivation etc.

4.2 HOST FACTORS

- The human host is referred to as “soil” and the disease agent as “seed”.
- In some situations, host factors play a major role in determining the outcome of an individual’s exposure to infection. Eg. Tuberculosis

4.2 HOST FACTORS contd.,

Demographic
Characteristics
such as age, sex,
ethnicity etc

Biological
characteristics
such as genetic
factors, blood
groups and
enzymes,
immunological
factors, etc

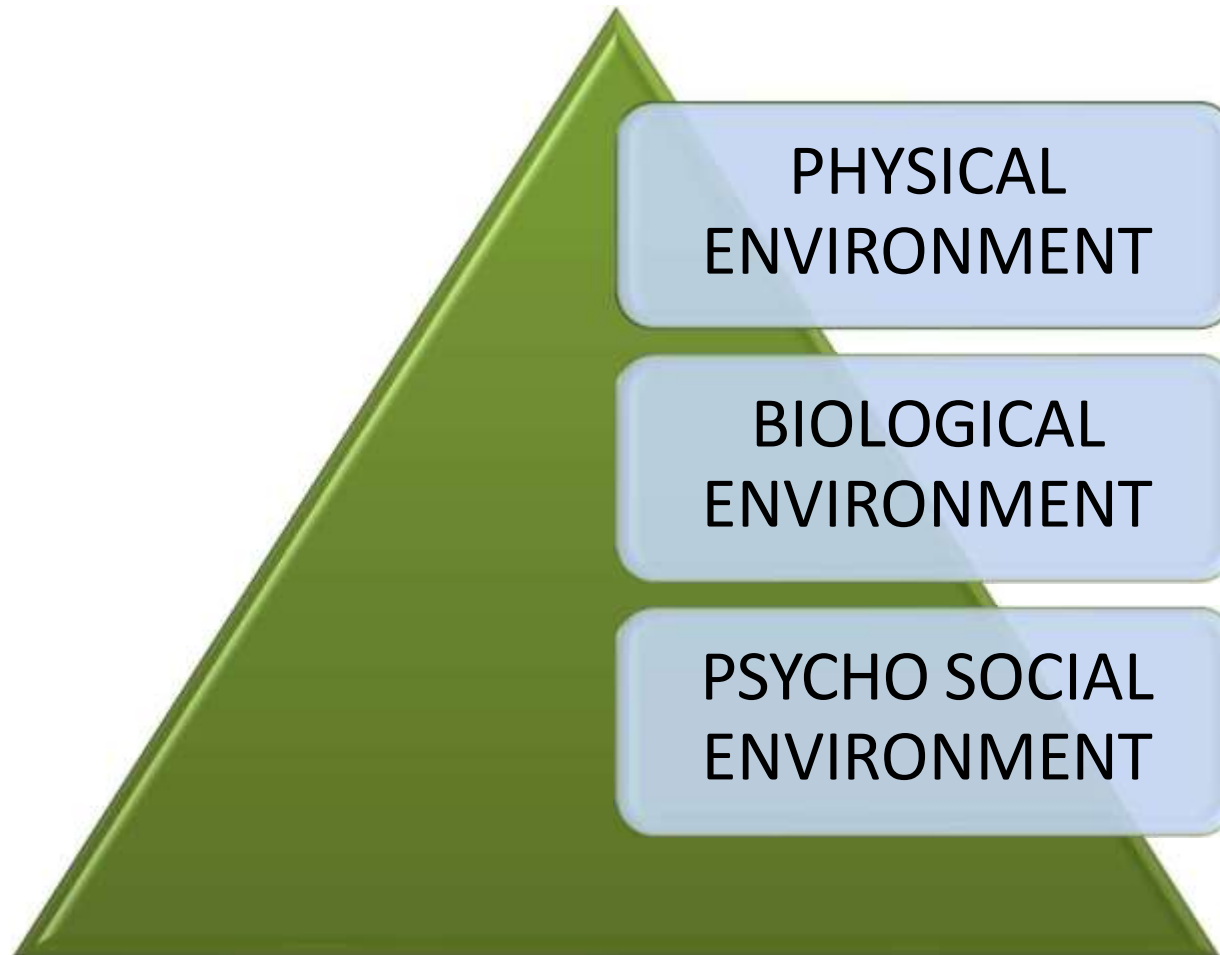
Social and
economic
characteristics
such as socio-
economic status,
education,
occupation,
stress, marital
status, housing,
etc

Life style factors
such as
personality
traits, living
habits, nutrition,
physical exercise
and use of
alcohol, drugs
and smoking etc.

4.3 ENVIRONMENTAL FACTORS

- The external or macro environment is defined as all that which is external to the individual human host, living and non-living, and with which he is in constant interaction. This includes all of man's external surroundings such as air, water, food housing, etc.
- For human beings the environment is not limited, as it normally is for plants and animals, to a set of climatic factors

4.3 ENVIRONMENTAL FACTORS contd.,



4.3 ENVIRONMENTAL FACTORS contd.,

- **PHYSICAL ENVIRONMENT:** Its apply to non living things and Physical factors such as Air,Water,Soil,Housing Etc With Which man is in constant interaction.
- Man has altered practically every thing in his physical environment to is advantage which has created new health problems such as air, water & noise pollution, Urbanization and Radiation hazards.

4.3 ENVIRONMENTAL FACTORS contd.,

- **BIOLOGICAL ENVIRONMENT:** It's the universe of living things which surrounds man including man himself the living things are the viruses, and other microbial agents, insects, rodents, animals and plants
- For the most part, the parties manage to effect a harmonious inter-relationship, to achieve a state of peaceful co-existence, even though this may not be always enduring. When for any reason this harmonious relationship is disturbed, ill health results

4.3 ENVIRONMENTAL FACTORS contd.,

- **PSYCHO SOCIAL ENVIRONMENT:** It includes a complex of psycho social factors which are defined as “those factors affecting personal health, health care and community, well-being that stem from the psychosocial make-up of individuals and the structures and functions of social groups”,

4.3 ENVIRONMENTAL FACTORS contd.,

- They include cultural values, customs, habits, beliefs, attitudes, morals, religion, education, life styles, community life, health services, social and political organization.
- The impact of social environment has both positive and negative aspects on the health of individuals and communities.
- A favourable social environment can improve health, provide opportunities for man to achieve a sense of fulfilment, and add to the quality of life.

4.3 ENVIRONMENTAL FACTORS contd.,

- It can also affect negatively man's health and well-being. For eg, poverty, urbanisation, migration, loss of employment etc may produce feelings of anxiety, depression, anger which may affect the physical health manifested by physical symptoms like headache, palpitations and sweating.

SUMMARY

- Man today is viewed as an agent of his own diseases, his state of health is determined more by what he does to himself than what some outside germ or infectious agent does to him.
- The epidemiologist are so much concerned with psychosocial environment as with physical or biological environment in search of etiological causes of disease

REFERENCES

- K.PARK, “Essentials of Community Health Nursing” Banarsidas Bhanot Publishers, 20th edition
- Prof.Dr.E. Vijay, “Textbook of Community Medicine” 2nd edition, Beacon zen publishers
- Kasthuri Sundar Rao, “Introduction to community Health Nursing”, 4th edition B.I. Publications

EXPECTED QUESTIONS

Essay: (15 marks)

- Describe about the Epidemiological triad in detail

Short Notes: (5 marks)

- Explain about the approaches of epidemiology
- Discuss the Physical agents in detail

Short Answers:(2 marks)

- Draw epidemiological triad
- Mention the factors of environment
- State about the psycho social environment

