DETERMINANTS OF HEALTH

SUBMITTED BY -

Sourav Sarkar 4th Year B.Sc Nursing Sri Krishna Rukmini College of Nursing Bangalore - 43

INTRODUCTION -

- Health is influenced by many factors and it is multidimensional phenomena.
- In addition to the physical, mental and social factors, health is influenced by environmental factors, i.e. socioeconomic conditions, cultural patters, the political system, behaviour pattern and the health care delivery system.
- Health is determined within the individual as well as the environment in which the person lives.

DEFINITION OF HEALTH —

"A state of complete physical, mental and social well-being and not merely the absence of disease or infirmity"

- WHO

DEFINITION OF HEALTH PROMOTION -

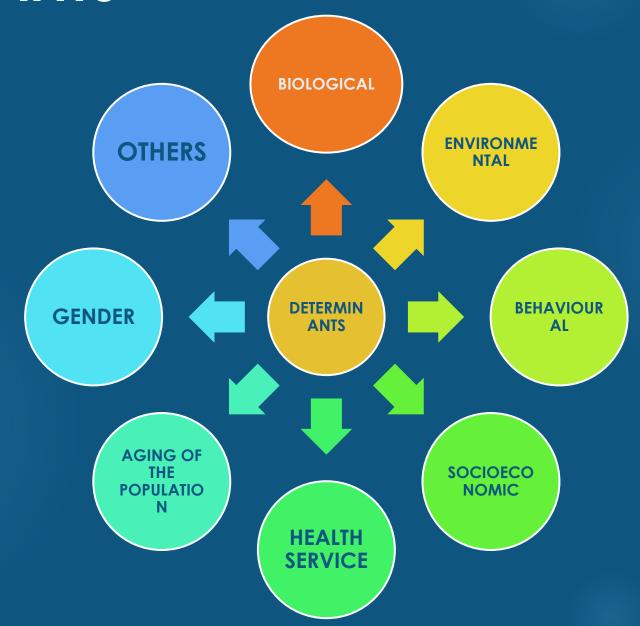
- Health promotion is a process of activating communities, is a process of activating communities, policy makers, professionals and the policy makers, professionals and the public in favor of health supportive public in favor of health supportive policies, systems and ways of living. policies, systems and ways of living.
- It is carried out through acts of advocacy empowerment of people and building empowerment of people and building social support systems that enable people social support systems that enable people to make healthy choices and live healthy to make healthy choices and live healthy lives.

DEFINITION -

Determinants of health include the range of personal, social, economic, environmental factor which determine the health status of the population.

- Health is multifactorial.
- The factors which influence health lie both within the individual and externally in the society in which he or she lives.
- These factors interact and these interactions may be health-promoting or deleterious.

DETERMINANTS -



- 1. Biological Determinants
- 2. Environmental Determinants
- 3. Behavioural Determinants
- 4. Socioeconomic Determinants
- 5. Health Services
- 6. Aging of the Population
- 7. Gender
- 8. Other Factors

1. Biological Determinants -

- 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. Now a days, medical genetics offers hope for prevention and treatment of a wide spectrum of diseases, thus the prospect of better medicine and longer, healthier life. A vast field of knowledge has yet to be exploited. It plays a particularly important role in genetic screening and gene therapy.

- Genetic makeup is unique which cannot be altered.
- Diseases like chromosomal anomalies, errors of metabolism, some types of diabetes etc are genetic in origin.
- From genetic point of view ,Health may be defined as "the presence in the genetic constitution of the genes that correspond to normal characterization and to presence of normal genes.
- Medical genetics offers hope for prevention and treatment of widespread of diseases.

☐ High blood pressure (hypertension)

is a major risk factor for coronary heart disease, stroke, heart failure and kidney failure.

- ☐ It accounts for 8% of burden of disease in Australia Blood pressure
- ☐ High blood cholesterol is a major risk factor for coronary heart disease and ischemic stroke.
- ☐ High blood cholesterol is estimated to cause around 6 per cent of the total burden of disease among Australians blood cholesterol

BODY WEIGHT:

- ☐ World Health Organization (WHO) has labelled obesity a global epidemic
- ☐ Being overweight or obese increases the risk of developing type 2 diabetes, cardiovascular disease, high blood pressure, certain cancers, sleep apnea, osteoarthritis, psychological disorders and social problems
- ☐ 7.6 per cent of the total burden of disease Body weight

2. Behavioural and socio-cultural conditions -

- 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.
- 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.
- Many current-day health problem especially in the developed countries (e.g. coronary heart disease, obesity, lung cancer drug addiction) are associated with lifestyle changes.
- It may be noted that not all life style factors are harmful. There are many that can actually promote health. Examples include adequate nutrition, enough sleep, sufficient physical activity etc.

3. Environment

- It is an established fact that environment has a direct impact on the those living in it.
- The environmental, physical, mental and social well-being of 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.

DEFORESTATION:

According to UN conference in 1992 deforestation is defined as "Land degradation in arid, semi-arid and sub-humid areas resulting from various factors including climatic variation and human activities."

- 1) Shifting cultivation.
- 2) Mining and Dams
- 3) Commercial Logging Deforestation also occurs due to overgrazing and conversion of forest to pasture for domestic animals.
- 4) Expansion of agribusiness that grows oil palm, rubber, fruit trees and ornamental plants has also resulted in deforestation.
- 5) Governmental sponsored programs that resettle landless farmers on forested sites have contributed to deforestation all around the world.
- 6) Other reasons includes fire, pest, etc.

CONTROL OF DEFORESTATION

- Reforestation:- Many countries in the world have started reforestation and forestry, and East Asian nations are leading in this regard. Many East Asian countries, including China, have successfully managed to reverse deforestation.
- Legislation: By making suitable changes in the law, so that cutting trees in a forest will not only lead to deforestation being controlled in a major way, but its flow may also be reversed.

- Wildlife Sanctuaries:-Sanctuaries are very important, not only to save wildlife, but to save trees as well. Sanctuaries go a long way in protecting all wildlife.
- Commercial Forest Plantations:There can be special forest plantations for all the wood that is needed for the industry. This way the wood can be cut in a controlled and regulated environment.

Cities :-

All cities, let alone new cities, have to be managed properly. Their expansion has to be curtailed or at least done in a systematic manner, so that there is enough green cover, and new trees are planted where ever possible.

Incentive to Corporate:Tax cuts should be granted to corporations, to get them actively interested in reforestation.

Water Management :-

Improper water management affects deforestation in a big way. If the wildlife doesn't have water, then the entire ecosystem will falter. The construction of new dams should be planned properly, so that any one area isn't deprived of water, while another area has abundance of it.

AIR POLLUTION

□ DEFINITION:

Air pollution defined as any atmospheric condition in which certain substances are present in such concentrations that they can produce undesirable effects on man and his environment.

The main sources of air pollution are:

(a) AUTOMOBILES:

- Motor vehicles are a major source of air pollution throughout the urban areas.
- They emit hydrocarbons, carbon monoxide, lead, nitrogen oxides and particulate matter.
- In strong sunlight, certain of these hydrocarbons and oxides of nitrogen may be converted in the atmosphere into "photochemical" pollutants of oxidizing nature.

(b) INDUSTRIES:

- Combustion of fuel to generate heat and power produces smoke, sulphur dioxide, nitrogen oxides and fly ash.
- Petrochemical industries generate hydrogen fluoride, hydrochloric acid and organic halides.
- Many industries discharge carbon monoxide, carbon dioxide, ozone, hydrogen sulphide and sulphur dioxide.
- Industries discharge their wastes from high chimneys at high temperature and high speed.

(c) DOMESTIC SOURCES:

Domestic combustion of coal, wood or oil is a major source of smoke, dust, sulphur dioxide and nitrogen oxides.

(d) TOBACCO SMOKE:

- The most direct and important source of air pollution affecting the health of many people.
- Even those who do not smoke may inhale the smoke produced by others ("passive smoking").

(e) MISCELLANEOUS:

These comprise burning refuse, incinerators, pesticide spraying, natural sources (e.g., wind borne dust, fungi, mold, bacteria) and nuclear energy programmes. All these contribute to air pollution.

TYPES OF AIR POLLUTION:

Air pollution can be divided into:

- □ Indoor air pollution (domestic level)
 - Indoor air pollution is one of the most critical global environmental problems,
 - probably exposes more people worldwide to important air pollutants than does pollution in outdoor air.
 - Rural people in developing countries may receive as much as two-thirds (2/3) of global exposure to particulates.

OUTDOOR AIR POLLUTION

- Worldwide it is estimated that 1.3 million people -- more than half of them in developing countries -- die every year from urban outdoor air pollution.
- Urban outdoor air pollution is a major environmental health problem affecting people in both developed and developing countries
- significant decreases in lung function, inflammation and pain when breathing, chronic bronchitis and emphysema, as well as people with heart disease. Exposure can trigger asthma attacks and cause wheezing, coughing, and respiratory irritation in individuals with sensitive airways.

CONTROL OF AIR POLLUTION

- Control and prevention of air pollution WHO has recommended the following procedures for the prevention and control of air pollution:
- Approaches to reduce indoor air pollution
- Approaches to reduce indoor air pollution education and advocacy approaches to reduce indoor air pollution

WATER POLLUTION

DEFINITION –

Water pollution can be defined as presence of solid, liquid or gaseous contaminants in such concentration that may alter the quality of water.

Water pollution is defined as the addition to water of an excess material or heat that is harmful to the living organism or which impairs the beneficial use of water.

Causes of Water Pollution The principal sources of water pollution resulting from exploration and production operations are:

- 1. Domestic waste
- 2. Sewage System
- 3. Solid Waste
- 4. Industrial Waste
- 5. Acid Rain
- 6. Oil Industry

Control measures

- 1. Stabilization of ecosystem
 - Reduction of waste at source
 - Burying of organic waste
 - Fish management
 - Proper use of water
- 2. Sewage Treatment Plant
- 3. Ion Exchange Method
- 4. Reverse Osmosis

Purification Of Water

- Purification of is done by TWO ways:
- 1. Natural Methods
- 2. Artificial Methods

NATURAL METHODS

- Natural Method includes :-
- Aeration
- Sedimentation
- Sunlight
- □ Dilution
- □ Oxidation
- □ Plants & Animals (Aquatic)

A. Purification of Water on Large Scale

- At Large scale, it is done by Filtration, which may be
- i. Slow sand filtration
- ii. Rapid sand filtration
- iii. Desalination

B. Purification of Water on Small Scale / Domestic Level

- At Small scale or Domestic level, is carried out by:
- i. Boiling
- ii. Chemical disinfection
- iii. Filtration

A. Purification of Water on Large Scale

- The purpose of water treatment is to produce water that is safe & wholesome.
- The method of treatment to use depends upon the nature of raw water & the desired standards of water quality. Ex: Ground water (wells & springs) may need no treatment other than disinfection.
- Surface water (e.g River water) which tends to be turbid & polluted, require extensive treatment.
- The components of a typical water purification system comprise one or more of the following measure.
- Purification of Water on Large Scale
- A typical water supply carries the following steps in Purifying the water: I. Storage II. Filtration III. Disinfection

B. PURIFICATION OF WATER ON SMALL SCALE OR DOMESTIC LEVEL

- Boiling is a satisfactory method for destroying disease organisms in water, and it is equally effective whether the water is clear or cloudy, whether it is relatively pure or heavily contaminated with organic matter. Boiling destroys all forms of disease organisms usually encountered in water, whether they be bacteria, spores, cercariae, cysts, or ova.
- Chemical Disinfection Chlorine is a useful disinfectant for drinking water, and is effective against the bacteria commonly associated with water-borne disease.
- <u>Filtration</u> There are two types of filter commonly used in the treatment of household water supplies: the sand filter, which is relatively coarse, and the ceramic filter, which is of a finer texture.

SEWAGE DISPOSAL

Objectives:

- ☐ At the end of this presentation you will have the idea about different methods of sewage disposal.
- ☐ You will certainly be familiar with dilution and land disposal methods of sewage disposal.
- ☐ You will know what sewage sickness means.

SEWAGE SYSTEMS

On site systems Sewage or effluent systems

- Treats the sewage in a septic tank so that most of the sewage becomes effluent and is disposed of in an area close to the house or buildings.
- Example: A septic tank and leach drains

Sewage or effluent system

A sewage or wastewater system disposes of the effluent from a community at a central place usually called a sewage lagoon or effluent pond. The sewage can be treated:

- in a septic tank at each building
- just before the lagoon in a large septic tank or macerator system, or in the lagoon itself

HOUSING

- Housing "in modern concept includes
- ☐ the physical structure providing shelter, as well as
- In the immediate surroundings and the related community services and facilities In the past it was called as Human settlement which was defined as-all places in which a group of people reside and pursue their life goals. But the size of settlement varies from a single family to millions of people.

□ WHO expert group (1961) on public health aspects of housing prefers to use the term residential environment, which is defined as the physical structure including all necessary services, facilities, equipment and devices needed or desired for the physical and mental health and social well being of the family and individual.

HOUSING STANDARDS

- □ Social and economic characteristics such as family income, family size and composition, standard of living, lifestyle, stage in life cycle, education and cultural factors are taken into account.
- ☐ Because of cultural diversity and other factors such as climate and social traditions, standard of housing varies from country to country and from region to region.
- ☐ In short-there cannot be rigid, uniform standards
- ☐ The standards in India are those recommended by the EHC(1947)

4. Socio-economic conditions

- Socio-economic 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 socio-economic 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. the economic status ne purchasing power, standard of the 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 socio-economic groups.

(ii) Education:

- A second major factor influencing health status is education especially female education.
- The World map of illiteracy closely coincides with the maps 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.

(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. 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 of Spent on health is a quantitative indicator political commitment.

FOOD HYGIENE

- Food is a potential source of infection and is liable to contamination by microbes, at any point during its journey from the producer to the consumer.
- Food hygiene may be defined as the sanitary science which aims to produce food which is safe for the consumer and of good keeping quality.
- It covers a wide field and includes the rearing, feeding, marketing and slaughter of animals as well as the sanitation procedures designed to prevent bacteria of human origin reaching food stuff.

- Food hygiene in its widest sense, implies hygiene in the production, handling, distribution and serving.
- WHO (1984) has defined food hygiene as all conditions and measures that are necessary during production, processing, storage, distribution and preparation of food to ensure that it is safe, wholesome and fit for human consumption.
- The primary aim of food hygiene is to prevent food poisoning and other food borne illness.

Pasteurization

☐ Pasteurization is a relatively mild heat treatment, in which food is heated to below 100°C. \square In low acid foods (pH>4.5, for example milk) it is used to minimize the hazards from pathogenic micro-organisms and to extend the shelf life of foods for several days. \square In acidic foods (pH< 4.5, for example bottled fruit) it is used to extend the shelf life for several months by destruction of pathogenic micro organism and enzyme inactivation. □ In this method minimal changes are caused to sensory characteristics or nutritive value.

Different Methods of Pasteurization

□ Low-temperature hold method (LTH): □ conditions of 63oC for 30 min before cooled to 7oC

□ High-temperature short-time (HTST): □ conditions of 71.5oC for at least 15sec before cooled to 10oC

□ Ultrahigh-temperature (UHT): □ 138oC for at least 2 seconds

□ Extreme pasteurization □ kills all microorganisms □ keeping milk in a closed, sterile container at room temperature

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 illness and promotion of health.
- The purpose 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.

6. Aging of the population:

- By the year 2020, the world ill have more than one billion people aged 60 and over, and more than two-thirds of them living in developing countries.
- Although the elderly in many countries enjoy better health than hitherto, a major concern of rapid population aging is the increased prevalence of chronic diseases and disabilities, both being conditions that tend to accompany the aging process and deserve special attention.

7. Gender:

- The 1990s have witnessed an increased concentration on women issues. In 1993, the Global Commission on Women's Health was established.
- The commission drew up an agenda for action on women's health covering nutrition, reproductive health, the health consequences of violence, aging.
- Life style related conditions and the occupational environment. It has brought about an increased awareness among policy makers of women's health issues and encourages their inclusion in all development plans as a priority.

8. Other factors:

- We are witnessing the transition from post industrial age to an information age and experiencing the early days of two interconnected revolutions, in information and in communication.
- The development of these technologies offer tremendous opportunities in providing an easy and instant access to medical information once difficult to retrieve.
- It contributes to dissemination of information worldwide, serving the needs of many physicians, health professionals, biomedical scientists and researches, the mass media and the public.

CONCLUSION:

- The majority of factor that contribute to ill health and health inequities lie outside the traditional mandate of the health sector.
- The social determinants of health must health must be considered within health programs and across government polices in order to reach broader societal.
- Policy makers and bureaucrats must be held accountable for reducing health inequities.

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