

<b>HEALTH PROMOTION AND DISEASE PREVENTION</b> <b>A Handbook for Teachers, Researchers, Health Professionals and Decision Makers</b>	
<b>Title</b>	<b>Human Health, Course of Disease and Health Promotion</b>
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<b>Key words</b>	Health, health explanatory models, disease, natural course of the disease, pathogenesis, salutogenesis.
<b>Learning objectives</b>	After completing this module students should: <ul style="list-style-type: none"> <li>• increase knowledge about different approaches (explanatory models) to health;</li> <li>• especially they should understand and differentiate between the biopsychosocial and biomedical models of health;</li> <li>• increase knowledge about contemporary definition/definitions of health;</li> <li>• understand the natural course of the disease;</li> <li>• understand and differentiate between the concepts of pathogenesis and salutogenesis;</li> <li>• understand the importance of the salutogenetic concept in health promotion.</li> </ul>

<b>Abstract</b>	<p>Health is one of most important elements and attributes in a life of a human being, a prerequisite for daily activities performance and happy life in general. Basically, human health is a reflection of the quality of relationship of human beings one with another, since health as the positive expression of human being wellbeing is tightly connected to the quality of sharing and caring in relationships.</p> <p>There exist several explanatory models of health. The concept of equilibrium (dynamic equilibrium) and the concept of adaptation to the environmental requirements and changes are contained in several of them.</p> <p>In tight connection with the phenomenon of health, it is the phenomenon of the disease. According to concept of dynamic equilibrium, the disease is the disturbance of the equilibrium expressed.</p> <p>In last decades, it has gradually become clear that the biomedical model of health and disease is outdated and inadequate. Health and disease can no longer be considered distinct entities where one exists only in the absence of the other. As well, the total environment needs to be considered in this context. Models, which focus on promoting salutogenic resources and promote the self esteem and coping abilities of individuals and communities, came to the fore.</p>
<b>Teaching methods</b>	Teaching methods include introductory lectures, self learning, and extensive discussion on different health models, natural course of the disease, and concepts of pathogenesis, and salutogenesis.
<b>Specific recommendations for teachers</b>	<ul style="list-style-type: none"><li>• work under teacher supervision/individual students' work proportion: 30%/70%;</li><li>• facilities: a computer room;</li><li>• equipment: computers (1 computer on 2-3 students), LCD projection equipment, internet connection, access to the bibliographic data-bases;</li><li>• training materials: recommended readings are mainly available in the internet;</li><li>• target audience: master degree students according to Bologna scheme.</li></ul>
<b>Assessment of Students</b>	The final mark is derived from assessment of the theoretical knowledge (oral exam).

## **HUMAN HEALTH, COURSE OF DISEASE AND HEALTH PROMOTION**

**Doncho Donev, Gordana Pavlekovic, Lijana Zaletel Kragelj**

### **Health**

Health is one of our life's most important elements and attributes, a prerequisite for daily activities performance and happy life in general. It sounds easy, but when we want to answer the question "What we mean by health", the answer is rather difficult and very diverse (1).

Basically, human health is a reflection of the quality of relationship of human beings one with another, since health as the positive expression of our wellbeing is tightly connected to the quality of sharing and caring in relationships. Thus, in these relationships the total environment is comprised what reflects also in the term "health". Namely, the term "health" derives from an old English word "hael" and is as such tightly connected with other contemporary term "whole" (1).

However, there have been several approaches (explanatory models) of health (1-3).

### **Health approaches**

#### *Historical overview*

The ideas about health development completely follow the development of the medical scientific idea. From ancient times up to date many efforts have been made for more thorough description and definition of health. Chinese in the 26 B.C. believed that disease occurred if people disturbed the natural order of the matters in the universe, and the health is the state of their equilibrium. The health as equilibrium concept, rooted in ancient times, and is most often linked to Hippocrates. However, a group of doctors before Hippocrates believed that the disequilibrium among the four liquids of life: blood, yellow yolk, black yolk and mucus, provoked the disease. It was believed that these liquids continually renewed themselves through food. Later, the basic postulate of the Hippocrates' art of the medicine was based on the principle that the nature continually strived to maintain the equilibrium state and with its won forces adapt and readapt its own elements in order to keep the balance between them. When the balance was established the man was healthy and when different influences disturbed the balance the disease occurred. Thus, the doctor's duty was to help the nature with the medications he prescribed to re-establish the equilibrium. Factors that disturbed the equilibrium are environmental factors (wind, heat, water, food) and personal lifestyle (nutrition, drinks, sex life, work, recreation). The external equilibrium between the man and his surrounding determined the internal equilibrium, the one between the humoral liquids.

The concept of health as equilibrium between the man and his surroundings, unity of body and soul, and natural origin of the disease created the essence of the antique idea about health (2). Indian medicine shared similar ideas.

Pindar (500 B.C.) defined health as "harmonic organ functioning", which even today has its meaning as a prerequisite for health prosperity. This is a narrow medical concept about health which considers the disease as disturbance of such harmony caused by pathological agents in the environment. Therefore, the health preceded the disease or replaced it after the doctor eliminated the harmful agent. Thus, the health was in doctor's hands and the therapy he prescribed.

In his dialogues Plato talked about health as internal harmony, achievement of the highest moral behaviour and philosophical meaning. Democritus linked health to the human behaviour saying that people prayed to God for health, which actually was under their own control.

During the industrial revolution, health was considered as economic category that should provide good condition and work ability and decrease the number of days of work absence due to sickness. Therefore, the health valued as much as the economic profit it made.

According to other definition health was the ability of a person to adjust to the requirements – environmental influences to the level that he/she could bear. At the point where the adjustment process stopped as a natural consequence, the disease occurred. This approach was limited to the biological mechanisms and did not consider the factors that determined these requirements or environmental influences, the environment the person should adjust to and the necessary costs.

The philosophical and mental-hygienic concept considered health as individual's maximal capacity for self-realization and self-achievement. It also considered the human internal strength and capacities as well as the sense of satisfaction or dissatisfaction with his/her interactions with the environment.

The occurrence of the ecological era in the science emphasized the position that the human health could be complete only if the humans fight for it by not disturbing the health of their surrounding and broader environment.

#### *Contemporary understanding of human health*

The social-medical approach at its beginnings pointed out that health should not be observed as a health of the individuals but as a health of groups and the community, which resulted from the individual's interaction with the social environment.

World Health Organization (WHO) formalized the modern understanding of health. In 1948 the WHO added in its Constitution (4, 5) the definition proposed by Andrija Štampar, a distinguished scholar in the field of social medicine, and one of the “fathers” of World Health Organization, born in Croatia, that completely changed the idea about health. This definition states that (4, 6):

*“Health is a state of complete physical, psychological and social welfare not just absence of disease and disability.”*

This definition for the first time on international level in the modern era, in addition to the physical and mental health, included social welfare as an integral part of the total health, which is intimately linked to the social environment and the living and working conditions. Thus, biopsychosocial model of health was officially introduced and a long period of struggle between this approach and biomedical approach started.

In spite of the importance of this definition, it was exposed to many authors' critics, mainly because of its generalization, limitations for quantitative measurements and inability to be used as a base for formulation of concrete goals of the health policy. One of the most known critic/reviewer was Aaron Antonovsky, the “father” of the concept of the salutogenesis (7-10), whose main criticism was that the WHO's definition of health:

- is static, since it treats health as a state and not as a dynamic process;

- is specifying an idealistic model that is impossible to attain, and that
- health, defined in this way is not measurable.

As a response to this criticism, WHO at the end of the nineties accepted more dynamic concept of health (11).

The re-orientation of the public-health policy from the one directed towards disease's problem solving to the one that will be dominantly directed towards health is a complex and difficult process in which theoretical conceptualization of health and its determining factors' identification is only the beginning phase of the process itself.

The polemics over the health definition probably still exist even though in the first article of the Declaration adopted at the International Conference on Primary Health Care (1978, Alma Ata) the health is reaffirmed as "a state of complete physical, psychical and social welfare not just absence of disease and disability." The WHO Constitution's health definition should be embraced as an "ideal goal" to strive to with no time limitations for its accomplishment.

Many health researches and theorists, respecting this definition as a global concept, pledged for adopting work and operative definitions. Adopting the global strategy "Health for All by the year 2000" in 1977 (12), WHO indirectly accepted the pragmatic position considering the health as "ability for leading economically and socially productive life", which is the fundament of this strategy. The attempts to define the health in operative and working sense in order to gain possibility for measurements were fruitful and went far beyond the widely accepted idea about health as simple absence of disease.

The transition from a general to an operative definition is very complex and includes a number of theoretical assumptions and their elaboration. Miller's study about life systems elaborates one of those assumptions highly significant for clarification and understanding of the term health and its operationalization.

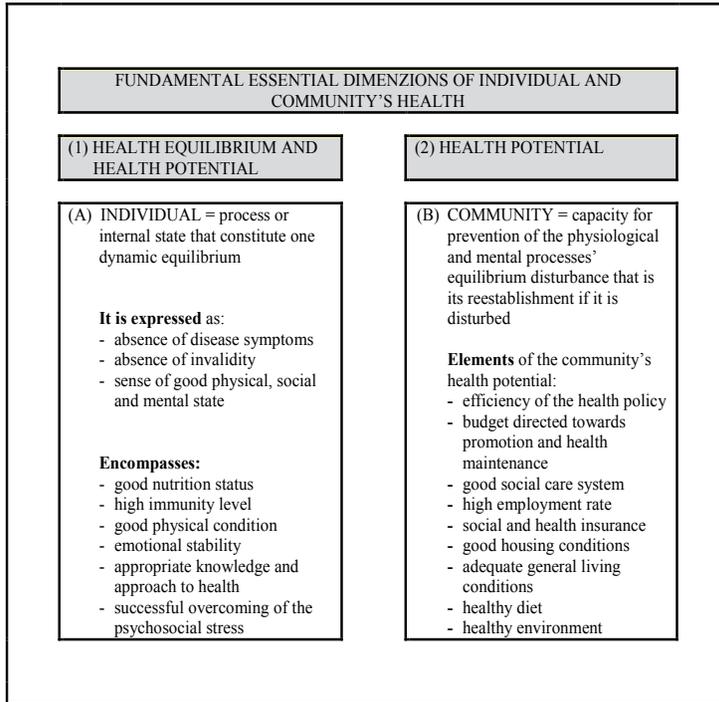
According to Miller's theory of life systems' hierarchy (2,13) the individual by himself is a complex system and is an integral part of a more complex higher systems, such as family, local community and wider, the global social and ecological system. In the individual's complex system there are internal smaller components and natural sub-systems (molecular, cellular and similar, which constitute tissues and organs and they constitute more complex systems – locomotion, cardiovascular, reproductive, nervous etc.) as well as cognitive, affective subsystems etc. Each of these sub-systems has its own function and all together in a mutual interaction define the individual as a whole. The health requires a process that maintains the dynamic equilibrium in each of the above mentioned sub-systems and at every functional level, a process that maintains the equilibrium between the physiological events in the human organism as well as within the social groups – the family, wider community and the entire population.

In recent times the holistic concept of health contained in the term "whole" is more and more accepted. According to this concept the human health should be observed in sense of:

- complexity and multidimensionality,
- as absence of disease and invalidity symptoms,
- as internal equilibrium and equilibrium with the environment, and
- as positively valorised psychological feeling and experience.

Based on these kinds of assumptions nowadays, when the health is discussed two its' dimensions (Figure 1), important for both the individual and the community, are defined: health equilibrium, and health potential (14).

**Figure 1.** Fundamental essential dimensions of individual and community health.



Source: H. Noack. *Concept of Health and Health Promotion (14)*.

1. *Health equilibrium.*

Health equilibrium means maintenance of the physical, mental and social equilibrium. The individual experiences this condition as absence of disease and disability symptoms that is as a sense of good health. The doctors on the other side define the health equilibrium in sense of physiological, psychological and behavioural parameters that vary in determined scale of tolerance.

The health equilibrium at community level is also a dynamic equilibrium of epidemiological and other characteristics of different groups (for example, stability of the mortality rate in certain period of time, correlation between the birth-rate and the mortality, health care requests and health services usage etc.);

2. *Health potential.*

Health potential is a capacity, or special type of interaction between the individual and his/her surrounding, needed for equilibrium maintenance or its reestablishment if the same was disturbed. The health potential on individual level means good nutritive status, immunologic resistance to infectious agents, good physical condition (fitness),

emotional stability, certain knowledge and approach to health, healthy personal habits, positive social interaction with successful overcoming of the psycho-social stress etc. There is a possibility for psycho-physiological, psychological and sociological measurement of more of these variables.

The health potential at community level is expressed in regard to the activities needed for maintenance of the dynamic equilibrium that is for its reestablishment when it is disturbed. Important elements of the community's health potential are the efficiency of the health policy and administration, proportionality of the resources intended for health promotion, social care, employment, appropriate living conditions, nutrition, housing conditions and environmental quality, as well as the access to health, educational and other public services, health behaviour, recreational, social and cultural activities and services.

Number of different factors has influence on the health equilibrium. Some of them support it (the health resources) and some threaten it (the health risks) (Figure 2).

**Figure 2.** Health resources and health risks scheme.

SYSTEMS	Health resources	Health risks
<b>PERSON</b>		
Biological system	- good nutritional status, immunity	- malnutrition
Cognitive system	- self identity, positive health behaviour and knowledge	- susceptibility to infections
The complete person	- emotional stability, physical condition (fitness)	- inadequate health positions and behaviour and misinformation
		- general sensitivity
<b>Health behaviour</b>		
Habits	- healthy personal habits	- smoking, excessive eating and drinking, insufficient physical activity
Work	- satisfaction without stressful situations, recreation	- excessive and stressful work and work at dangerous places
Recreation	- enough sleeping, recreation	- not enough physical activity and sleeping
<b>Socio-structural systems</b>		
Health culture and practice	- positive position towards the health, moderation, lifestyle, religion	- ignoring the health and false believes, unhealthy lifestyle,
Social support	- social integration, social relations	- social isolation and lack of social support
Work organization and work system	- secure work (employment), positive working atmosphere, self-satisfaction with the job position	- unemployment, stressful situations at work, discontent
Health service	- adequate and accessible health service, social services, health education	- deficient and irregular recourses allocation
<b>Physically-biological environment</b>		
Physical resources	- adequate good food supply	- insufficient and low quality food, easy access to cigarettes, alcohol and drugs
Micro-environment	- appropriate housing, healthy drinking water and correct waste materials disposal, secure transportation	- inappropriate housing, water-supply and waste disposal problems, poor transportation conditions
Macro-environment	- healthy climate, preserved nature	- pollution of the environment, exploitation of the nature

The health promotion activities for strengthening the health potential could be directed either towards health resources enhancement or towards health risks reduction for the individual, group or the whole community benefit.

Various models focus on promoting salutogenic resources which promote the self esteem and coping abilities of individuals and communities, eventually leading to less dependency on professional services.

Much of the evidence available to policy makers to inform decisions about the most effective approaches to promoting health and to tackling health inequities is based on a *deficit model* and this may disproportionately lead to policies and practices which dis-empower the populations and communities who are supposed to benefit from them. An assets approach to health and development embraces a “salutogenic” notion of health creation and in doing so encourages the full participation of local communities in the health development process.

The *asset model* aims to revitalise how policy makers, researchers and practitioners think and act to promote a more resourceful approach to tackling health inequities. The model outlines a systematic approach to asset based public health which can provide scientific evidence and best practice on how to maximise the stock of key assets necessary for promoting health.

The Ottawa Charter established that “*health is created in the context of everyday life: where people live, love, work and play*” and introduced a very active and interactive understanding of health. The Charter consisted of the interface between five essential areas of public health action: healthy public policies, supportive environments, personal skills, community action and reorientation of health services (11). The aim of health promotion was to combine a social determinants approach (the old public health) with a commitment to individual and community empowerment (the new public health).

The WHO European Office for Investment for Health Development based in Venice, Italy, is using the term “health assets” to mean the resources that individuals and communities have at their disposal, which protect against negative health outcomes and/or promote health status. These assets can be social, financial, physical, environmental or human resources (e.g. education, employment skills, supportive social networks, natural resources, etc.), (15).

As such, a “health asset” can be defined as any factor (or resource), which enhances the ability of individuals, groups, communities, populations, social systems and /or institutions to maintain and sustain health and well-being and to help to reduce health inequities. These assets can operate at the level of the individual, group, community, and /or population as protective (or promoting) factors to buffer against life’s stresses. It is possible to identify health promoting / protecting assets from across all the domains of health determinants including our genetic endowments, social circumstances, environmental conditions, behavioural choices and health services. An inventory of health and development assets would, as a minimum, include:

- at the *individual level*: social competence, resistance skills, commitment to learning, positive values, self esteem and a sense of purpose. For example, with respect to young people an asset approach to health and development could involve prevention activities which focus on protective factors that build resilience to inhibit high-risk behaviours such as substance abuse, violence, and dropping out of school;
- at the *community level*: family and friendship (supportive) networks, intergenerational solidarity, community cohesion, affinity groups (e.g. mutual aid), religious tolerance and harmony. For example, the cohesiveness of a community measured by a set

of strong and positive interlocking networks may be seen as a health asset. In this instance, the asset has the potential to be health promoting irrespective of the levels of disadvantage in that community;

- at the *organisational or institutional level*: environmental resources necessary for promoting physical, mental and social health, employment security and opportunities for voluntary service, safe and pleasant housing, political democracy and participation opportunities, social justice and enhancing equity. For example, health systems across Europe are under utilised instruments for social and economic development. In an asset model, planners would ask how health services can make the best use of their resources (and maximise their assets) to help reduce health inequities by impacting on the wider determinants of health, to build stronger local economies, safeguard the environment and to develop more cohesive communities.

### Developing the assets model

Working together, assets based approaches add value to the deficit model by:

- identifying the range of protective and health promoting factors that act together to support health and well being and the policy options required to build and sustain these factors;
- promoting the population as a co-producer of health rather than simply a consumer of health care services, thus reducing the demand on scarce resources;
- strengthening the capacity of individuals and communities to realise their potential for contributing to health development;
- contributing to more equitable and sustainable social and economic development and hence the goals of other sectors.

In reality, both models are important; however, more work needs to be done to redress the balance between the more dominant deficit model and the less well-known (and understood) assets model. The asset model presented here promotes a more systematic approach to understanding the science and practice of an asset approach to health and development. In doing so, it has the potential to create a more robust evidence base that demonstrates why investing in the assets of individuals, communities and organisations can help to reduce the health gap between those most disadvantaged in society and those who achieve best health.

The asset model draws on a number of current and resurgent ideas found in the literature. The first of these is already mentioned concept of salutogenesis (7, 8). This concept focuses attention on the genesis of health, in comparison to the concept of pathogenesis, which focuses on the genesis of the disease. Salutogenesis asks, “What causes some people to prosper and others to fail or become ill in similar situations?” It emphasizes the success and not the failure of the individual and it searches for the foundations of positive patterns of health rather the foundation of negative outcomes.

The asset model also incorporates the idea of asset mapping as a way of promoting effective implementation of equity focused policies by taking a positive approach to measuring and diagnosing community capacity to engage in health development activities. Kretzmann & McKnight (16) describe asset mapping as a process of building an inventory of the strengths and gifts of the people who make up a community prior to intervening. Asset mapping reveals the assets of the entire community and highlights the interconnections among them, which in turn reveals how to access those assets. McKnight (17) claims that asset mapping is necessary if local people are to find the way toward empowerment and renewal.

The asset model also promotes a multidisciplinary approach to the evaluation of complex interventions, deriving a new set of “salutogenic” indicators useful for measuring the effectiveness of these interventions in different contexts.

The asset model can be utilised to:

- generate a “salutogenic” evidence base that identifies the most important health promoting and /or protective factors for health and the actions that need to be taken to create the necessary conditions for health;
- assess how most effectively to implement the actions required to create these conditions for health;
- develop the most appropriate measures and evaluation frameworks to assess the effectiveness of these actions.

### **Using salutogenesis to build an evidence base for health**

Evidence-based public health is now well established and forms an integral part of the decision making process for health development. Much work has already been done to create the scientific base for action (18-20), and a range of methodologies developed to evaluate these actions.

The asset model seeks to complement these achievements by building a more systematic approach to collecting and synthesising evidence based on the theory of salutogenesis.

The “salutogenic” perspective or ‘the origin of health’ allows us to identify those factors which keep individuals from moving toward the disease end of the health and illness spectrum (10). It can help us to identify the combination of ‘health assets’ that are most likely to lead to higher levels of overall health, well-being and achievement. Specifically, the concept embraces the need to focus on people’s resources and capacity to create health. It argues that the more individuals understand the world they live in, which is manageable and has meaning, the more they can utilise their own resources and those around them to maintain their own health. Lindstrom (10) argues that the concept can be applied at an individual, group and societal level.

A “salutogenic” approach to building an evidence base for public health would include the need to identify those health promoting or protective factors (assets) that are most important in creating health and to understand the implications for action.

At its core, salutogenesis asks:

- Which external factors contribute to health and development;
- Which factors make us more resilient more able to cope in times of stress);
- What opens us to more fully experience life, and
- What produces overall levels of well-being.

Applying this concept in searching evidence on the determinants of health and evidence of the most effective actions has the potential to explain further what is required to tackle inequities in health. It also encourages the discipline of modern epidemiology to move towards finding answers to what creates health, rather than its traditional focus of generating evidence about the causes and distribution of disease and early death. The asset model therefore calls for a rethinking of the theoretical basis on which the public health evidence base is built. The key questions for an epidemiology of health would include:

- Which are key assets for health and development at each of the key life stages;
- What are the links between these assets and a range of health outcomes;

- How do these assets work in combination to bring about the best health and well being outcomes, and
- How may of these factors should be used to contribute to reductions in health inequities.

Of course, there are many examples where this approach to research is already being taken. The assets model aims to encourage a more systematic way of collecting and synthesising this research to ensure that it features in the ongoing practice of evidence-based public health, which is still dominated by a positivist biomedical approach to understanding ‘what works.’

The concept of resilience has been identified as an example of an important health asset to support the healthy development of young people, particularly those who are growing up in difficult circumstances.

Resilient young people possess problem solving skills, social competence and a sense of purpose, which can be utilised as an asset that can help them rebound from setbacks, thrive in the face of poor circumstances, avoid risk-taking behaviour and generally continue on a productive life.

The Search Institute has developed 40 essential developmental assets for young people, particularly during adolescent years, which foster resilience capabilities and support growing up as healthy, caring and responsible people (21). Many of the factors associated with resilience in young people relate to the social context within which they live.

## Disease

### The concept of dynamic equilibrium

The concept of equilibrium (dynamic equilibrium) and the concept of adaptation to the environmental requirements and changes are contained in several explanatory models of health. The disease according to this idea is the equilibrium disturbance expressed on different levels that is in different parts of the system or the organism (cellular, organic, on the behaviour, socialization and communication, etc.). The disturbance manifests itself differently depending on the level at which occurs.

### Occurrence of disease

Occurrence/onset of the disease is closely linked to the existence of different factors of “outer” and “inner” environment of a human being.

#### *Environmental factors*

The environmental factors – causes are so called natural agents present in the physical and biological environment, the inheritance, and the causes resulted from the individual’s lifestyle and behaviour, that is, agents produced by the humans:

#### 1. The physical environment.

The physical environment consists of the still life surrounding the people: soil, water, air, sunlight, winds, radiation and the like, as well as the physical environment produced by the humans like new materials, objects, machines, roads, etc.. Humans with their activities disturb and pollute the environment, soil, water and air, creating additional challenges for their health disturbance.

#### 2. The biological environment

The animal and vegetable world in the people’s surrounding consist the biological environment. It is a source of number of challenges as potential causes of disease:

protozoa, bacteria, viruses, fungi, rickets etc. Humans cause changes in biological environment with their activities and they present new challenges for their health disturbance.

3. The social environment

The social environment is a typical human characteristics and it is created by the people and their narrower and wider communities where people live and interact. The humans within the social environment through the process of social evolution developed all those specific characteristics that converted them from natural to social creatures. And, instead of obeying to the laws of the nature they build their own social laws that determine their further evolution and behaviour. The fundamental characteristics of the social environment are:

- *work* through which people assure their own and their families' existence and change and build the world collaborating, communicating, associating and acting together with other people;
- *creating certain groups and communities* (family, work collectives, colonies etc.) within which greater interaction and communication between people is achieved;
- *culture* is a complex entirety that includes knowledge, believes, art, customs, moral, laws and habits acquired through the life course and transferred to the younger generations. It also considers the people's attitude towards themselves and other people, their position towards their own health and the health of their surrounding, the lifestyle, the housing, the dressing code, the nutrition etc.;
- *socially-economic and production relations*;
- *living standard (social and personal)*;
- *science and technology*;
- *industrialization and urbanization*;
- *different activities and institutions, including health institutions.*

Each component of the social environment is a significant factor for human health promotion and prevention, but also a challenge for its disturbance. These challenges could be:

- alienated job position (without interest and enthusiasm, only for existence);
- deviant communication among people when instead of collaboration arises aggressiveness, violence, limitation of human liberties and rights;
- low level of socially-economic development and life standard (despite the significant scientific and technological progress there are still parts of the world where people face hunger and diseases and struggle for survival);
- sudden and intense changes in certain environments, such as industrialization and urbanization, migration from rural to urban communities when people fail to adapt to the newly emerged conditions which results in occurrence of various diseases as neurosis, hypertension, alcoholism, injuries at work, ulcer, etc.;
- low level of general and health culture;
- bad habits and lifestyle (smoking, alcohol, bad diet, physical inactivity etc.);
- lifestyle in wider sense of the word (housing, water-supply, waste materials disposition, population density, traffic and relations etc.).

*Hereditary factors and biological-psychosocial characteristics of the human beings*

Hereditary factors could be challenges that arise from the individual's internal structure as an inherited susceptibility to certain conditions and diseases. The heredity carriers are the genes contained in the chromosomes of the cell's nucleus. Each one of the different cells in one individual's body has the same genotype and the same potential written in the identical DNA packages in their nucleuses/nuclei. After the fertilization follows the process of differentiation when the newly formed cells, even though they have the same potential, gain distinct roles and form different tissues. The little zygote grows into an adult human being, at first in the mother's body and after the birth in the external environment where it receives the material needed for the new cells. Thus, the individual's features do not completely result from the inherited genotype. Nevertheless, the environment influences the individual's characteristics as well. For example, if two identical twins (meaning born with identical genes) are separated and grow in different environments, later they will differ in many characteristics including their physical appearance. It means that despite the identical genetic composition (genotype) that influences both the physical appearance and the characteristics, the complete appearance – the phenotype – results from the interaction between the environment and the inheritance.

The environment has influence on people during their entire life as well as before their birth. Some diseases affecting the mother (rubella), various physical influences during pregnancy (radiation exposure), taking medicaments with teratogenic activity, genetic mutations and similar could harm the foetus. Later, the development of individual's psycho-physical potentials depends on the environment where he/she lives. It means that the person's achievements depend on the environment and the possibilities he/she has to use his/her genetic potentials and the potentials of the environment. Thus, the individual becomes "product" of the environment and its integral specific part. People with their activities change the environment; adjust it to their needs and they adjust themselves to it. This dynamic equilibrium determines the health and the entire human psychosomatic development. The environmental factors and the human internal factors are intimately linked so the changes in the external environment trigger changes in the internal environment and vice versa.

Considering the inheritance and the diseases, the diseases could be conditionally divided in three groups:

- diseases in which genetic factors predominate while environmental influence is minimal (haemophilia, phenylketonuria etc.);
- diseases in which the influence of genetic factors and environment has approximately same impact (diabetes, hypertension, congenital anomalies etc.);
- diseases in which the genetic factors influence is negligible and the environmental influences dominate (contagious diseases, injuries etc.).

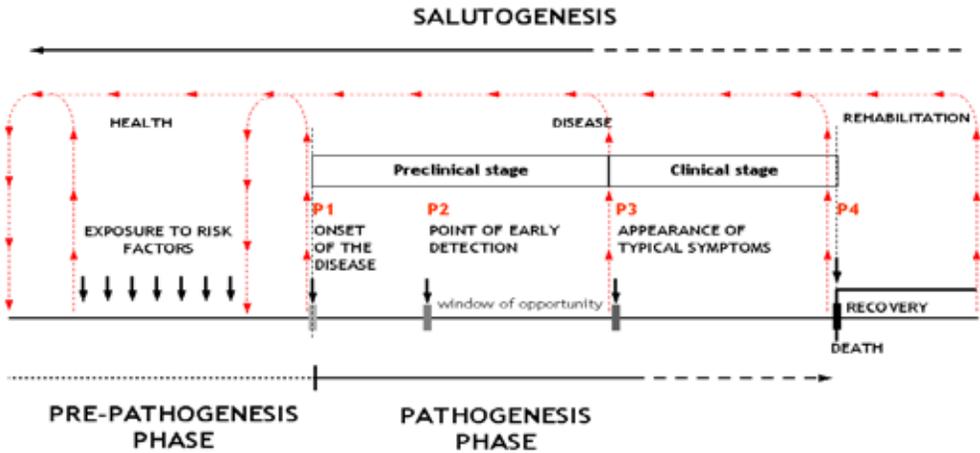
Thus, the disease occurrence is usually restricted by combination of several challenges that lead to adjustment and dynamic equilibrium disturbance. The dynamic equilibrium depends on the individual's capacity to interact with the nature and the social and cultural environment through various communication and information exchange skills.

Therefore, the health is a dynamic characteristic of the individual enabling him/her to adapt to the environment even when it imposes unusual risks or requests (health disturbers or disease stimulators) to certain intensity level or when they are short lasting and could be tolerated and controlled.

### Natural course of the disease

The disease course has several phases. The term “natural course (or history) of the disease” designate a course of the disease from the onset to restitution of integrity of a human being (22, 23) (Figure 3). The stages/phases of natural course of the disease are:

**Figure 3.** Natural course of the disease.



1. Phase of pre-pathogenesis.

The phase in which the individual is healthy and with the help of the adjustment mechanisms and the defence capacity maintains the internal dynamic equilibrium, despite the disease causes and stimulators.

If the health is a process of continued reciprocal interaction and dynamic equilibrium between the biological and psychosocial characteristics of the individual and the ecological and social characteristics of the environment, and a process of continual adjustment to the changes, then the disease is a failure in the adjustment process, restriction of the adjustment’s mechanisms or even an inadequate adjustment. Some factors may have a long-term activity exhausting the adjustment mechanisms. These are the so called “risk factors”, which sooner or later could provoke a disease unless they are eliminated. Other group of challenges could be sufficiently strong and sudden and could immediately disturb the equilibrium, resulting in the onset of diseases since adjustment to this kind of factors is not possible.

2. Onset of the disease.

3. Phase of pathogenesis.

*Phase of pathogenesis* is the next phase of the natural course of the disease. In this phase the dynamic equilibrium is disturbed and certain disease occurs, due to greater alterations in the environment or internal changes above the tolerance level that cannot be controlled by the adjustment’s mechanisms and the immune system. In the phase of pathogenesis there are two stages:

- *preclinical, latent or asymptomatic stage* of the disease, and
- *clinical stage of manifested disease*.

In certain diseases, the so called window of opportunity exists in the preclinical stage. In this window early detection of a disease is possible, as well as intervention, which can alter the disease course. This is typical for cardiovascular diseases and cancer.

### **Health approaches and health promotion**

In last decades, it has gradually become clear that the biomedical model of health and disease is outdated and inadequate. Health and disease can no longer be considered distinct entities where one exists only in the absence of the other. A physiological condition that prompts one person to seek medical treatment may be perfectly acceptable to another person. Therefore, despite the importance of biological phenomena with respect to the aetiology of diseases, thorough evaluation of a disease cannot be based solely on biological factors. Indeed, psychological and social factors must also be considered, such that the question of what is healthy and what is not becomes very subjective, and is more properly explained by the concept of illness. Whereas the biomedical model restricts itself to searching for a specific underlying cause of disease, the biopsychosocial model explores all aspects of a disease, and is thus a more valuable diagnostic tool for the modern health care.

Approach to the health and disease understanding, described above has opened an opportunity for its further elaboration done in the concept “health promotion”. This approach is also a base for a series of public-health interventions and strategies, most important of which is the WHO’s “Health for All”.

Health promotion is defined as a process of training people to undertake the control over their health in sense of its prevention and promotion and not only in sense of prevention of disease occurrence.

Here, along with the concept of health promotion we have to mention again the concept of salutogenesis; the concept that focuses on factors that support human health and well-being rather than factors that cause disease; the concept that today represents an integral part of the theoretical foundations of health promotion.

### **Exercise**

#### **Task 1:**

Carefully read the content of this module and the papers:

Antonovsky A. The salutogenic model as a theory to guide health promotion. *Health Promotion International* 1996;11:11-8. Available from: <http://heapro.oxfordjournals.org/cgi/content/abstract/11/1/11> (Accessed: August 19, 2007).

and

Lindström B, Eriksson M. Salutogenesis. *J Epidemiol Community Health* 2005;59:440-2. Available from: <http://jech.bmj.com/cgi/content/reprint/59/6/440n> (Accessed: September 9, 2007).

#### **Task 2:**

Discuss with other students different explanatory models of health, and critically evaluate their strengths and limitations.

#### **Task 3:**

Identify the characteristics of the concept of salutogenesis and confront it to the concept of pathogenesis.

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## **Recommended readings**

1. Antonovsky A. The salutogenic model as a theory to guide health promotion. Health Promotion International 1996;11:11-8. Available from: <http://heapro.oxfordjournals.org/cgi/content/abstract/11/1/11> (Accessed: August 19, 2007).
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