

## THE IMPACT OF SELECTED DETERMINANTS ON OUR HEALTH

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**Abstract:** *Determinants of health are characteristics and indicators, which affect the presence and development of risk-factor diseases. The presence of a risk factor, however, doesn't mean that the illness will certainly develop. Current prevalence of multiple risk factors increases the likelihood that the illness will break out. The majority of civilization diseases have several risk factors. The group of the most significant determinants includes demographic, biologic and social-economic determinants, environment and healthcare. These factors affect our physical shape to a large extent, they add to the quality of our lives, its length and early mortality.*

**Keywords:** *determinants of health, civilization diseases, health state, risk-factor*

### Introduction

Term “health” has been recently referred to quite frequently. We use it in different forms and contexts, it's a subject of many studies and research papers, of the conversations between friends and doctors. Therefore an obvious question emerges, what exactly health is and what affects it.

World Health Organization WHO defines health as a condition of complete physical, mental and social comfort of an individual, not only the absence of an illness or disorder (Kimáková, 2008).

Even the definition itself states that our health is affected by various inner and outer aspects and factors. Another expression closely related to our health is its determinant.

The word determinant is derived from Latin and means a deciding element or factor.

What kinds of factors affect human's health, results in a present health condition of each and every one of us. Someone might think of a genetic predisposition, other social and psychological factors, nutrition or an organization and financing of the healthcare. Our health shape is an outcome of all the already mentioned, but also of the following factors such as education, economy, culture, safety, housing, technology, habits but most importantly individual behavior in a relation to our health.

## **The health determinants**

Difference in the life-span and the early mortality due to cardiovascular and oncological diseases between Slovakia and the European Union can't be accounted only for a different quality of healthcare. The fact is, that in the past, the financial resources were insufficient for the financially demanding devices, technologies and drugs, necessary for an early diagnosis and treatment of cardiovascular and oncological conditions. Various impacts are crucial to prevent these diseases as well as to improve the health in general. The inception of the majority of diseases is necessary to be looked for in the decline of the connection between the human organism and the environment in which it lives.

Determinants of health are characteristics and indicators, which affect the presence and development of risk-factor diseases. They vary (genetics, diet, housing, economy, culture, safety, organization and financing of the healthcare, individual health approach, habits, technology etc.) (Rovný and Hegyi, 2003). The presence of a risk factor, however, doesn't mean that the illness will certainly develop. Current prevalence of multiple risk factors increases the likelihood that the illness will break out. The majority of civilization diseases have several risk factors.

The group of the most significant determinants includes demographic, biologic and social-economic determinants, environment and healthcare.

These factors affect our physical shape to a large extent, they add to the quality of our lives, its length and early mortality.

### **1. Demographic determinants**

From the point of demographic indicators the most important ones, concerning health, are the age structure of the population, index of aging and population growth. Accessible information point at the decrease of young generation and a current low percentage of older generation (the percentage of men and women in SVK older than 65 is the lowest among the neighboring countries) regarding the commonly known high rate of sickness and mortality among the middle-aged in Slovakia. A high decrease in natality together with a low natural growth of population and high mortality in the productive age can negatively affect future development of a life-span in Slovakia (Hegyi, 2005). The average life-span at birth is an important indicator which determines the chances of survival. In our male population it reaches low numbers. In the healthiest European country, Sweden, the men live 8 years longer than our. In France, the women have the longest life expectancy in the world (83,5 years), our live 5 years less.

Among the countries of former Soviet Union the position of Slovakia is more optimistic, our women and men live longer than in Hungary, Romania, Bulgaria, Baltic republics, Ukraine, Belarus and Russia.

The difference between the life expectancy in specific Slovak regions is remarkable. The results from 1996 to 2000 prove that the life-span of men older than 70 was dominant in the counties of Bratislava-towns, Piešťany, Bánovce nad Bebravou, Trenčín, Prievidza, Partizánske, Martin, Tvrdošín, Žilina, Košice, Svidník a Bardejov. The shortest life-span of men younger than 67 is in the counties Čadca, Banská Štiavnica, Detva,

Krupina, Rimavská Sobota, Sobrance and Trebišov. The area with the shortest life-span of women is stretching from Dunajská Streda to Trebišov. (Rovný and Hegyi, 2003).

### ***Ethnic heterogeneity of Slovakia***

Being in the opposite situation as the rest of the EU countries Slovakia has a large population of a minority whose health situation is much worse than that of majority. The Roma, minority the number of which is not exactly known, has a considerably shorter life expectancy. The life-span of Rom males is around 62 years. In comparison to the national average, it's about seven years shorter. The Roma shorten the country's life expectancy.

### ***The causes of a short life-expectancy in SVK***

Mortality of the newborns (e.g. the number of deaths of newly born babies in one thousand) significantly affects the average life-span. The mortality of the newborns is gradually decreasing, currently it's 6,2/1000. This value is still slightly higher than in the rest of the EU.

### ***The untimely mortality of men and women due to oncological and cardiovascular diseases***

Five most common causes of death are: cardiovascular diseases, malignant tumors, outer causes (injuries, poisonings, homicides, suicides). The respiratory and digesting system diseases cause 95 % of all of them. A noteworthy portion of the young population is threatened by cardiovascular and oncological diseases. The average life-span of men and women is linked to the cardiovascular and oncological mortality at a rather young age. Slovakia is quite behind the western Europe as far as the above mentioned illnesses (Národná správa, 2007).

## **2. Biological determinants**

This group consists of age, sex and race.

### **Age**

Age is a very strong and neutral risk factor - for example the risk of cardiovascular illnesses increases with a higher age (as risky is considered the age of 55 and over in men and 65 and over in women).

### **Sex**

Sex plays a crucial role regarding some illnesses. The general risk of developing cardiovascular illnesses (especially the ischemic disease of heart) is higher in men than in women. Hormonal contraception used by women, especially smokers, can significantly increase the risk of the ischemic heart disease (ICHS) in younger age groups.

### **Race**

The highest mortality of ICHS is among the blacks (in the USA), it is due to the

high occurrence of risk factors (artery hypertension, diabetes mellitus, smoking, obesity, etc.) which is higher than it is among the whites (Jurkovičová, 2005).

### **3. Socially economic determinants**

Are among the most important, crucial health related factors. Their portion of the overall health fitness is estimated to be 60 % to 70 % (Ághová et al., 1993). The unhealthy lifestyle influences the untimely death, caused mainly by cardiovascular and oncological diseases.

We consider these most important factors to be a part of lifestyle, (influenceable) risk factors:

- diet and eating habits
- physical activity
- smoking
- alcohol consumption
- an increased level of an overall cholesterol, LDL - cholesterol, troalglycerols and an increased level of HDL cholesterol

#### ***Diet and eating habits***

One of the serious risk factors is a chronically low intake of protective factors, antioxidants, that exist mostly in vegetables and fruit, and protect the organism against the free oxygen radicals. These extremely reactive substances play an important part in pathogenesis of arterial and cancerous conditions (Kimáková, 2003). Their harmful effects on organism is augmented by a high alcohol consumption and cigarettes as well as the polluted environment, the factors the occurrence of which was and is high in the region of Slovakia.

#### ***Physical activity***

WHO states in its recommendations the suitability of a daily exercise. If it's thoroughly incorporated into lifestyle, it contributes to improvement of man's physical and physiological fitness, even for the smokers and obese people (Výživová doporučení, 2000).

#### ***Smoking***

Smoking of cigarettes is understood as a nicotine addiction. Nicotine is currently the only legal psychoactive substance, which doesn't have any beneficial effects on health and it is the most common cause of death among its consumers. Smoking is a risk factor especially related to the cardiovascular and cancerous diseases, the respiratory system diseases, stomach boils and Alzheimer's disease (Ševčíková et al., 2006).

#### ***Alcohol consumption***

Alcohol is the most commonly used legal psychoactive substance in our country. The consumption of it is usually highly tolerated in society (integrated into many social rituals) and can lead into a development of an addiction (mental and physical) with an

increased risk of sickness and mortality and is also linked to a higher chance of accidents, injuries, felonies, suicides and domestic violence.

If consumed moderately it can be consumed for a long period of time without any serious complications or addiction.

An excessive alcohol consumption (abusus) has significant negative effects on physical, psychic and social soundness of an individual, as well as the family and the entire society. Direct and indirect consequences of alcoholism are enormous and economically challenging and are not focused merely on the smaller portion of identified alcoholics, but affect the whole population. Alcohol has toxic effects particularly on the nerve system, liver, heart, it negatively affects the kidney function, digestive system, sexual, reproductive and mental health. Alcoholics suffer from tumorous diseases more frequently as well as the degenerative changes of brain, hypertension, and they live to a younger age. The women give birth to babies with a fetal alcoholic syndrome.

According to the WHO data, alcohol is responsible for 9% of all diseases in Europe and 40–60 % of deaths are due to injuries. Alcohol consumption linked with the decline of health and social problems is becoming more common among teenagers and young people. A decrease in alcohol consumption has been recorded over the last twenty years in developed countries, on the contrary in the developing countries (including the countries of former Soviet Union) it's on the rise. Slovakia has the top standing in the refined alcohol consumption per person. In 2000 it was more than 14 liters. The high consumption of distillates is widely known. The number of alcohol addicted women is rising in Slovakia. The number of treated and addicted is only the tip of the iceberg. The real numbers of alcohol addicts are inaccessible (Ševčíková et al., 2006).

### ***Drinking of beer, wine and distillates in Slovakia***

In the surveilled period between 1996 and 2006, the trend of beer consumption of adults has not changed dramatically in 2006, according to the Statistics Bureau of Slovak rep. (Názory občanov, 2006). Beer is drunk by 8 % of the population of Slovakia on a daily basis, at the same time it is occasionally drunk by 40 % of adults. As much as 37 % of the population, however, doesn't drink beer at all. As far as the wine consumption is concerned in adult population the trend is stabilized, and the decrease of the wine consumption doesn't occur. Wine is drunk by the largest number of respondents, occasionally it's 69 %, wine is not drunk whatsoever by 24 % of respondents. In the field of spirits no significant changes took place. A complete spirits' abstinence is admitted by 33 % of adult population respondents (Ochaba et al., 2009).

### ***Education***

Is one of the most important long-term determinants of health. Investment into education is an investment into health. The higher is the number of students who attend secondary schools and graduate, the higher is the likelihood of a healthy population.

In the case of an epidemiological study of a connection between the psychosocial risk factors and cardiovascular diseases, the specialists found a significantly higher risk of cardiovascular diseases among people with primary education in comparison with those educated at secondary schools and universities (Národná správa, 2007).

### ***Alcohol and education***

Observed by the surveys that compared the alcohol consumption among university graduates and those who acquired basic education the following was found: beer is daily drunk by 12 % of university graduates and 35 % of their counterparts, wine is consumed by 7% of graduates and 20 % of people with a lower level of education while the spirits are drunk by 2 % of graduates and 18 % of respondents with primary education.

### ***Diet and education***

Diet of people with a lower level of education contains more animal fat, less fruit, vegetables and milk (presented fact cannot be associated exclusively with a lower consumer confidence of the surveyed group).

### ***Social contacts***

Insufficiently researched factor of health in Slovakia, are the social contacts of an individual with their environment - family, friends, colleagues, community, etc. The feeling of connectedness with other people is extremely important for physical and mental health. Numerous foreign studies have confirmed that people with limited or missing social contacts (loners) have had, during their life a manifoldly increased rate of sickness. The representative studies in the USA found a two to three times higher rate of mortality and up to nine year differences in the life-span between individuals with very poor and very sound social bonds (*Social Ties and Good Health, 2009*). We can assume that people with poor contacts with the environment cumulate more of the negative social factors such as unemployment, family problems and the exclusion from the friend circle. Suicides, alcoholism and mental disorders occur substantially more often in people who live alone.

## **4. Environment**

One of the basic definitions of environment is the one passed by the UNESCO Conference in 1967, which states: Environment of man is the part of the world, with which he interacts, e.g. which he uses, affects and adapts to. From the medical point of view it's defined more comprehensively - as a pool of physical, chemical, biological and social phenomena and processes, which are directly or indirectly linked to health and comfort of people, individuals and population (Ševčíková et al., 2006). The influence of a hazardous environment with various levels of devastation and danger in regions is negatively reflected on health and life-span of humans, gene fund of economically important and independently living kinds of plants and animals, in the ecosystem and the overall economy.

High concentration of heavy metals in atmosphere, soil, water and sediments represent a serious ecological issue (Poráčová et al., 2008; Koréneková et al., 2009).

They enter the food chain and penetrate the human organism where they cumulate. Specific heavy metals show various and multifold activity on living organisms. Closely watched xenobiotics, with their frequent carcinogenic, mutagenic or teratogenic effects, belong to a group of substances that negatively affect living organism (Poráčová et al., 2005; Koréneková et al., 2007).

## 5. Healthcare

The biggest advancement of twenty-first century is a discovery of the fact that majority of noncommunicable diseases are caused by lifestyle and can be prevented.

### *Intervention programs*

With an increasing rate of gravity of the integrated noncommunicable diseases, which are greatly related to a wrong lifestyle - smoking, nutrition, physical activity and alcohol consumption the various long-term, studies, projects, social and social intervention programs were started in all developed countries, that were aimed at discovering the contribution of risk factors in population, their connection with mortality and eventually to improve the health of population.

### *Framingham study*

(USA, 1948) town of Framingham. The study contributed to identifying the risk factors of cardiovascular diseases.

### *Project Northern Karelia*

(Finland, since 1972). Owing to a preventive intervention strategy, a long-term decrease of cardiovascular mortality was achieved.

### *MONICA*

(MONItoring of CARdiovascular diseases) - a huge international project, organized and coordinated by WHO, with an objective to continually survey the state of sickness and mortality of cardiovascular system in a relationship with the prevalence of the most important risk factors at the same time among the same population.

### *CINDI - (Countrywide Integrated Noncommunicable Diseases Intervention)*

The “WHO Intervention program of integrated noncommunicable diseases” has been operating in Slovakia since 1993. Its goal is to decrease the rate of sickness and untimely mortality due to integrated noncommunicable diseases, especially the cardiovascular and oncological ones. It points out the possibility of decreasing the occurrence of such diseases by means of limiting or even eliminating the risk factors such as smoking, excessive alcohol consumption, psychosocial stress combined with the lack of physical activity and unhealthy diet. (Ševčíková, 2006; Výživová doporučení CINDI, 2000).

## Conclusion

The population of Slovakia inhabits the environment which is a continual source of substances that initiate the origin of free radicals. The others are produced by an unwise lifestyle: the high consumption of cigarettes, distillates, medications and burnt fats. Fact that the average life-span of people living in Slovakia, Czech republic, Poland, Hungary and other, mostly former USSR countries, is the shortest in Europe, is closely linked to the predicament. The ideal solution how to decrease the high rate of cardiovascular and oncological related mortality and other civilization diseases in Slo-

vakia and neighboring post communistic countries, is a dramatic change in the structure of nutrition with a substantially increased consumption of the main sources of natural antioxidants (fruit, vegetables, organic oils, cereals, nuts, beans, mushrooms, etc.), a lifestyle change as well as revitalization of the environment. Whether we'll be healthy or succumb to one of the civilization diseases depends largely upon us. Especially in regard to our diet and lifestyle.

## **VPLYV VYBRANÝCH DETERMINANTOV NA NAŠE ZDRAVIE**

**Abstrakt:** Determinanty zdravia sú vlastnosti a ukazovatele, ktoré ovplyvňujú prítomnosť a rozvoj rizikových faktorov ochorení. Prítomnosť rizikového faktora ale neznamená, že sa choroba určite prejaví. Súčasný výskyt viacerých rizikových faktorov zvyšuje možnosť prepuknutia choroby. Prevažná väčšina civilizačných chorôb má niekoľko rizikových faktorov. Do skupiny najvýznamnejších determinantov patria demografické, biologické, sociálno-ekonomické determinanty, životné prostredie i zdravotníctvo. Tieto činitele veľmi výrazne ovplyvňujú náš zdravotný stav, podpisujú sa pod kvalitu nášho života, jeho dĺžku i včasnú úmrtnosť.

**Kľúčová slova:** determinanty zdravia, civilizačná choroba, zdravotný stav, rizikové faktory