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Trends in the incidence of cardiovascular diseases

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на серцево-судинні захворювання
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Introduction

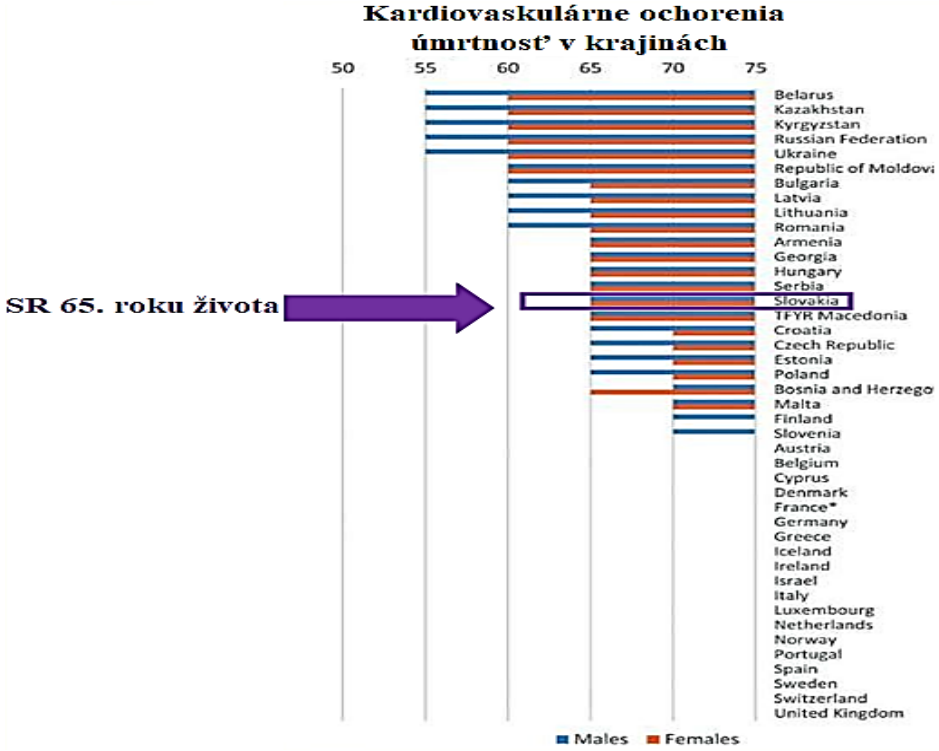
Cardiovascular diseases are serious health problem. Many people think that cardiovascular diseases only threaten the older generation. At present, however, we are more often encountering younger people who suffer from some form of CVD [1]. One of the prerequisites for stopping the growth of CVD is the development and application of new methods for early, fast and sensitive detection of these diseases. At present, we recognize several disorders of the cardiovascular system. The most common are atherosclerosis, ischemic heart disease and hypertension. Angina pectoris, stroke, endocarditis, atrial fibrillation, chronic heart failure, cardiomyopathy, cardiac arrhythmias are also common. Heart disease is the most common cause of mortality in the population. The critical situation in this area is also documented by data from the World Health Organization. The World Health Organization has created a Global Action Plan for the Prevention and Control of Chronic Diseases 2013-2020, out of which two global goals focus directly on the prevention of CVD. These include reducing the prevalence of high blood pressure, which is one of the main risk factors for CVD, by 25%, and providing effective treatment and counselling to people who are at increased risk for CVD.

Cardiovascular disease

The sharp increase in CVD continued in European countries even after the Second World War until the second half of the 20th century. In the late 1960s, Finland documented a record mortality rate from ischemic heart disease, which was almost three times higher compared to some other countries of Central Europe. Thanks to large-scale intensive campaigns aimed at preventing and promoting health and at reducing the incidence of major risk factors in the population, a decrease in mortality from cardiovascular diseases has been observed in Western countries since the 1960s [2]. In contrast to the decline in CVD in developed Western countries, the sharp increase in CVD mortality in the countries of Central and Eastern Europe in the second half of the 20th century remains unexplained. Belarus, Kazakhstan, Russia and Ukraine can be found on the first ranks of CVD-caused deaths.

This can be partly explained by the increase in CVD risk factors, but other factors probably played an important role, too. The protection and support of health and the prevention of CVD were not given sufficient attention, preventive measures by the health care system remained ineffective and the population did not accept the need to change the lifestyle, especially eating habits [3]. In the developed Western countries, a decrease in mortality from cardiovascular and cerebrovascular diseases has been observed since the 1960s, due to the identification of several modifiable risk factors, in particular smoking, hypertension and elevated blood cholesterol levels. An extensive and intensive campaign aimed at primary prevention, health promotion and reduction of the occurrence of the main risk factors in the population also played an important role in this decline. In the USA, for example, due to an intensive campaign against CVD lasting over 10 years (1987-1997), mortality from cardiovascular diseases has fallen by 20%. However, in the 1990s, the decline in mortality in developed countries stopped mainly due to the increased incidence of obesity, type 2 diabetes and smoking [4]. According to the latest study on global stress (2017), Algeria and the Middle East are classified as having a high mortality rate for acute coronary syndrome, with a 26% increase between 1990 and 2017. Statistics make it clear that cardiovascular diseases are currently a leading cause of death worldwide. About 15 million people die of them every year, mostly of working age. As a result, these diseases become not only a health problem, but also a social and economic problem. The same situation is in the Slovak Republic, where cardiovascular diseases are the number one cause of death. In the last ten years, in our country, they have caused an average of up to 55% of deaths [5]. According to the WHO, the Czech Republic is one of the leading countries with the highest mortality from cardiovascular diseases. In 2000, this was true for 53.4% of all deaths. The standardized mortality was 256/100,000 inhabitants for men and 137/100,000 inhabitants for women. The gradual decline from previous years was due

to a decrease in the average values of blood pressure, cholesterolemia and nicotinism. An unfavourable trend of cardiovascular mortality and morbidity still persists in the Slovak Republic. The prevalence of risk factors for these diseases, especially hypertension, is increasing. It is estimated that by 2030, up to 40% of the population will suffer from some form of cardiovascular disease. According to a research, up to a third of all people do not know how to measure blood pressure correctly. Even this ignorance can have fatal consequences for health. Proper measurement of blood pressure can save a person from serious health problems [6].



Graph 1. Cardiovascular disease – mortality in individual countries
(source: http://www.oxfordjournals.org/our_journals/eurheartj/press_releases/freepdf/prpaper.pdf)

Nursing care for patients with CVD

The goal of nursing care is to increase the patient's adherence to non-pharmacological and pharmacological treatment. Interventions to improve adherence to CVD treatment:

- to evaluate patient's knowledge of the therapeutic regimen and assess patient´s perception of the disease and at the same time to identify barriers that lead the patient to not following the treatment regimen, e.g. reduced functional status, personality factors (anxiety, depression, dementia), social influences (low income, loneliness, family problems). It is very important to assess the patient's motivation to change their lifestyle [7]. E.g. on a scale from 0–10 (where 0 means not important at all and 10 means very important) we can assess this motivation with questions such as: To what extent is it important for you to increase physical activity / reduce the frequency of smoking, quit smoking? Are you willing to change your lifestyle? It is also necessary to explain to the patient the consequences of their current lifestyle and its impact on their health;
- to explain the need for proper use of medicaments according to doctor's prescription (missed dose, irregular or incorrect use may worsen the symptoms of the disease, lead to disease progression) it is advisable to consult with the patient or their relatives the current therapy (medicaments names, dose, time of use, side effects) and to find out if the patient is skipping treatment with questions such as: What medications have you taken today? What medications did you take yesterday? Did you miss any medications last week? Do you have a problem taking medication during the day? As part of education about treatment, we can provide the patient or their relatives with a written plan for the use of medicaments. In order to prevent complications of the disease, it is appropriate to explain to the patient the need to avoid infection. In order to improve overall health condition, it is advisable, after consultation with the doctor, to suggest to the patient appropriate physical activity and explain the need to plan activity during the day and the need to increase physical condition as recommended by the doctor. Regular physical activity improves muscle condition and consequently it reduces O2 consumption by muscles, improves endurance, heart and respiratory system function; beneficial effects of physical activity on maintaining normal body weight are known. Physical activity reduces stress, relieves anxiety, 20-30 minutes of walking 3-5 times a week contributes to lowering cholesterol and improving blood pressure. Of course, in the case of acute worsening of heart failure or its decompensation to 35, bed rest is required;

- to explain to the patient the need to reduce smoking and inhalation of cigarette smoke. Smoking has an immediate and long-term effect on human body. The immediate effect includes narrowing of blood vessels, reduction of blood oxygenation, increase of heart rate and blood pressure. Heart rhythm disorders are also possible, it increases the demands on heart work. In the long run, smoking increases the risk of ischemic heart disease, stroke, hyperlipidemia, myocardial infarction, arterial hypertension, ischemic disease of the lower limbs and it also causes blood gas abnormalities. As part of a healthy diet, it is necessary to explain to the patient the need for adequate nutritional intake, because nutritional status affects the severity of symptoms. It is essential to assess appropriate caloric intake, to compile an adequate diet and nutrition plan, therefore it is advisable to involve a nutritional therapist [8];
- regular monitoring of patient's body weight and body mass index (BMI), anorexia, loss of appetite, and other symptoms is very important. It is ideal to monitor the weight daily, preferably in the morning, at the same time each day after emptying. It is necessary to explain to the patient that any weight gain between two weighings of more than 1.5 kg over 2 days is always exclusively water and the suspicion of fluid retention should be discussed immediately with the attending physician. As part of the regimen, it is necessary to explain to the patient that it is essential to limit the intake of common salt below 5 g per day and to reduce fluid intake in the advanced phase of heart failure. We must not forget to educate the patient about the restrained alcoholic beverages consumption, alcoholic cardiomyopathy even requires complete abstinence . Together with the patient, it is necessary to set realistic goals and prepare a realistic plan of activities, to include other experts such as nutrition assistant, physiotherapist, psychologist, family or support group for therapeutic planning. We can have a conversation with the patient and ask them questions about physical activity, for example: Are you able to go for a walk on a flat terrain around your place of residence about twice a week for 15 minutes? Would you be willing to increase the length of the walk to 30 minutes a day? It is necessary to help the patient make a decision by providing them with the required information, repeating the information as needed, and providing them with various educational materials [8].

For health professionals it is necessary to explain the disease to the patient, clarify the mechanism of medications effects, educate them about the consequences of nonadherence, identify risks of nonadherence, answer patients' questions, improve motivation, choose modern pharmacotherapy. As part of the evaluation, we focus on what the patient should adhere to, implement and manage within the treatment and nursing regimen [9].

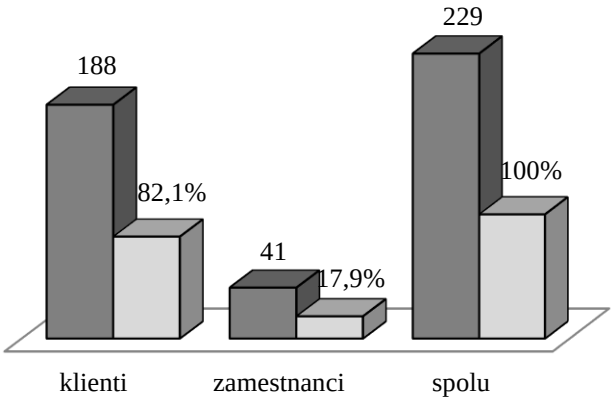
The aim of the research was to map the incidence of CVD and to determine the relationship between the incidence of CVD and demographic (gender, age) and anthropometric (overweight / obesity) data.

Characteristics of the cohort and methodology

The research was carried out in a social reintegration facility, the "Institute of Christ the High Priest" in Žakovce. It ran from January 2020 to October 2020. Out of the total number of 229 respondents of the facility in Žakovce, 188 (82.1%) were clients of the facility and 41 (17.9%) were its employees.

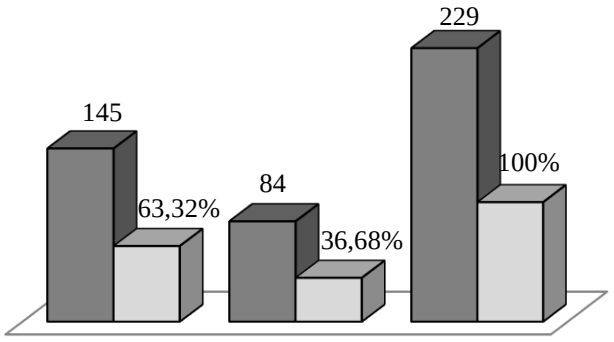
The research sample consisted of 145 men (63.32%) and 84 women (36.68%).

The average age of the respondents was 51.41 with a standard deviation of 12.426.



*klienti – clients, zamestnanci – employees, spolu – total

Graph 2. Research respondents



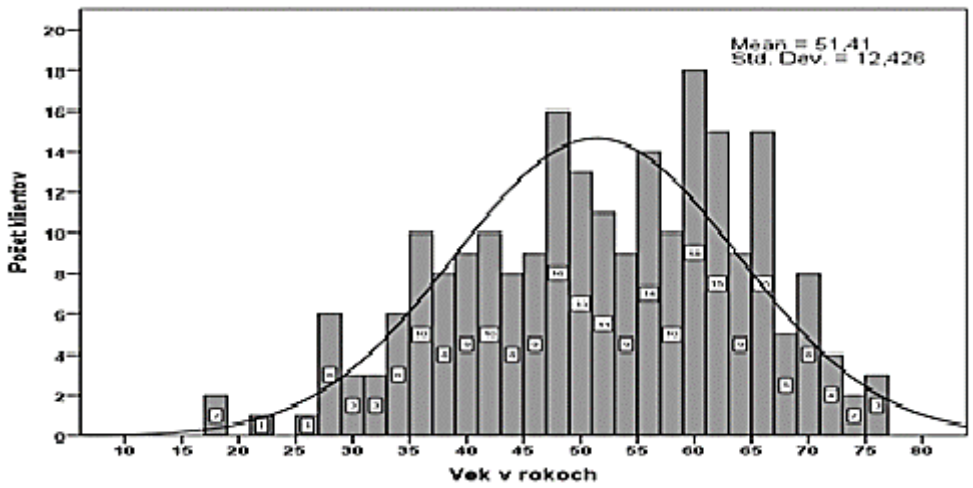
*muži – men, ženy – women, spolu – total

Graph 3. Gender of respondents

Table 1. **Respondents reporting cardiovascular disease**

		Frequency	Percent
Valid	1	63	27,5
Total		229	100,0

Out of the total number of 229 respondents of the social reintegration facility in Žakovce, CVD (AHT, IHD, MI) was reported by 63 (27.5%) clients and employees.



*počet klientov – number of clients, vek v rokoch – age in years

Graph 4. Distribution of the respondents by age

H1 The incidence of cardiovascular disease varies according to gender

Hyp.	Statement of H0	Test	Value „p“	Conclusion
H1	The incidence of CVD does not depend on gender	Mann Whitney	0,518	H0 is true

The relationship between the incidence of cardiovascular disease and gender was verified through the first hypothesis. To verify this hypothesis, we used the Mann Whitney test used for sets with nonparametric variables. We used a significance level of α=0.01 for the calculations. Based on testing, no statistically significant difference p=0.518 was found, i.e. the incidence of CVD does not depend on gender.

H2 The incidence of cardiovascular diseases is related to the age of the clients

Correlations			
		age	CVD
Age	PearsonCorrelation	1	,323**
	Sig. (2-tailed)		,0001
	N	228	228

** Correlation is significant at the 0.01 level (2-tailed).

In the second hypothesis, we investigated the incidence of CVD in relation to the age of clients. Based on testing, a statistically significant difference p=0.0001 was found, Pearson correlation coefficient = 0.323. Calculated p value is significantly lower than the standard required significance level of 0.01. We reject the null hypothesis and accept the alternative, i. e. the occurrence of CVD is related to the age of the clients.

H3 The incidence of cardiovascular diseases is associated with client´s overweight / obesity

Correlations			
		BMI	CVD
BMI	PearsonCorrelation	1	,179*
	Sig. (2-tailed)		,011
	N	205	205

* Correlation is significant at the 0.05 level (2-tailed).

We tested the third hypothesis on the basis of items related to CVD depending on BMI. We determined the nutritional status of our clients by calculating their BMI. 95 (41.4%) respondents had physiological weight, 69 (30.1%) were overweight, 34 (14.8%) were obese and 7 (3%) were malnourished. In the analysis of the relationships between the incidence of cardiovascular disease and overweight / obesity of clients, a statistically significant difference was found, Pearson coefficient = 0.179, p=0.001. The calculated p value is the same as the chosen level of significance 0.01, based on the results of testing we can accept the hypothesis that the occurrence of CVD is related to overweight / obesity of clients. In CVD, the incidence of overweight and obesity is statistically significantly higher.

Conclusions

It is well known that diseases of the cardiovascular system are the most common cause of death. Quite often people do not take it seriously until the time the disease suddenly manifests itself in full. They downplay non-specific symptoms, neglect preventive check-ups and do not pay enough attention to their health in general. Today's modern trends promote a healthy organic diet, eco-consciousness, different types of exercise and the use of various nutritional supplements, but for many people all these trends have only a short-term duration. Then they return to the old usual ways of eating and comfortable living [10]. It would be very welcome to change people's thinking about health so that they do not try to look for excuses and avoid the preventive efforts of some organizations or health promotion campaigns. Even in healthcare, more attention should be paid to the prevention of diseases, not only to the treatment of existing diseases. There are countries where they pay more attention to this area and it brings positive results via lower morbidity rate. We should start taking care of our hearts well before it shows us that we had neglected something.

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Nowadays, human population lives in deregulated environmental conditions, which creates a potential for an emergence and potentiation of several diseases of civilization, including cardiovascular diseases. Even though the state of knowledge in the field of cardiovascular disease (CVD) is due to massive scientific progress extensive, these diseases pose a serious medical problem.

Cohort and aim of the research. The study involved 229 respondents suffering from one of the forms of cardiovascular disease. The aim of the research was to determine the relationship between the incidence of CVD and demographic (gender, age) and anthropometric (overweight / obesity) data.

Methods. To verify the hypotheses we used the tools of inductive statistics – Mann Whitney test and Pearson correlation coefficient. We made the decision on the significance of differences based on the calculated value and the significance level of 0.01.

Results. We detected nutritional status of the clients by calculating their BMI. A statistically significant difference was found in the analysis of the relationship between the incidence of cardiovascular disease and overweight / obesity in clients. We also found a relationship between the incidence of CVD and the age of clients. However, no statistically significant difference was found between the incidence of CVD and gender.

Conclusions. The incidence of cardiovascular diseases is the most common cause of population mortality. It is important to pay special attention to this issue at the level of primary prevention. There are countries where they pay more attention to this area and it brings positive results via lower morbidity rate. We should start taking care of our hearts well before it shows us that we had neglected something.

Key words: cardiovascular diseases, BMI, nursing care, primary prevention.

В даний час населення живе в дерегулюваних умовах навколишнього середовища, що створює потенціал для виникнення рядових захворювань цивілізації, включаючи серцево-судинні захворювання. Незважаючи на те, що стан

знань в області серцево-судинних захворювань (CVD) обумовлена величезним науковим прогресом, ці захворювання представляють серйозну медичну проблему.

Мета дослідження полягала в тому, щоб визначити взаємозв'язок між захворюваністю CVD і демографічних (гендерних, віком) і антропометричними (надмірною вагою / ожирінням) факорами.

Методи. Дослідження включало 229 респондентів, які страждають від однієї з форм серцево-судинних захворювань. Для перевірки гіпотез ми використовували інструменти індуктивної статистики – тестування Уїтні Манна і коефіцієнт кореляції Пірсона. Ми прийняли рішення про значення відмінностей на основі розрахункової ваги і рівня значущості 0,01.

Результати. Ми виявили харчовий статус клієнтів, розрахував їх ІМТ. Статистично значуща різниця була виявлена в аналізі відношення між захворюваністю серцево-судинними захворюваннями і надмірною вагою/ ожирінням у пацієнтів. Ми також виявили відношення між захворюваністю CVD і віком пацієнтів. Однак не було виявлено ніяких статистично значущих відмінностей між захворюваністю CVD і статями.

Висновки. Захворюваність серцево-судинними захворюваннями є найбільш поширеною причиною смертності населення. Важливо приділяти особливу увагу цьому питанню на рівні первинної профілактики. Є країни, де вони приділяють більше уваги цій галузі, і вона приносить позитивні результати завдяки більш низького рівня захворюваності. Ми повинні почати піклуватися про наших серця, перш ніж вони показують нам, що ми щось забули.

Ключові слова: серцево-судинні захворювання; ІМТ; догляд за хворими; первинна профілактика.

В настоящее время человеческое население живет в дерегулированных условиях окружающей среды, что создает потенциал для возникновения рядовых заболеваний цивилизации, включая сердечно-сосудистые заболевания. Несмотря на то, что состояние знаний в области сердечно-сосудистых заболеваний (CVD) обусловлена огромным научным прогрессом обширных, эти заболевания представляют серьезную медицинскую проблему.

Целью исследования состояла в том, чтобы определить взаимосвязь между заболеваемостью CVD и демографическим (гендерным, возрастом) и антропометрическими (избыточным весом / ожирением).

Методы: исследование включало 229 респондентов, страдающих от одной из форм сердечно-сосудистые заболевания. Для проверки гипотез мы использовали инструменты индуктивной статистики – тестирование Уитни Манна и коэффициент корреляции Пирсона. Мы приняли решение о значении различий на основе расчетной стоимости и уровня значимости 0,01.

Результаты. Мы обнаружили питательный статус клиентов, рассчитал их ИМТ. Статистически значимая разница была обнаружена в анализе отношений между заболеваемостью сердечно-сосудистых заболеваний и избыточным весом / ожирением у клиентов. Мы также обнаружили отношения между заболеваемостью CVD и возрастом клиентов. Однако не было обнаружено никаких статистически значимых различий между заболеваемостью CVD и полами.

Выводы. Заболеваемость сердечно-сосудистыми заболеваниями является наиболее распространенной причиной смертности населения. Важно уделять особое внимание этому вопросу на уровне первичной профилактики. Есть страны, где они уделяют больше внимания этой области, и она приносит положительные результаты с помощью более низкого уровня заболеваемости. Мы должны начать заботиться о наших сердцах, прежде чем они показывают нам, что мы что-то пренебрегали.

Ключевые слова: сердечно-сосудистые заболевания; ИМТ; уход за больными; первичная профилактика.

Конфлікт інтересів: відсутній.
Conflicts of interest: absent.

Відомості про авторів

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