Age-related risk factors affecting the population morbidity

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Abstract
This article analyzes age-related risk factors that affect the population health.
Risk factors that contribute to poor health are those that increase the likelihood of getting sick or injured. Risk factors are often presented individually, but it is confirmed that they are often interrelated in practice. For example, physical inactivity will lead to weight gain, high blood pressure, and high cholesterol over time. Together, they significantly increase the chance of developing chronic heart and other diseases, and the older a person is, the more various factors impact his health.
The study aims to identify age-related risk factors affecting the morbidity of the population.
The research was carried out using theoretical methods: the study of scientific articles, literature on the topic, and practical methods: observation and generalization.
As a result, it was revealed what risk factors affect the population’s morbidity, the form and degree of their influence on humans, and methods for reducing the influence of these factors were proposed.

Keywords
Age, Risk factors, Population morbidity, Influence of factors

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Introduction
Risk factors for various diseases surround a person throughout his life, and the older a person becomes, the more likely the emergence of more and more risk factors affecting human health. The most common risk factors at any age include a sedentary lifestyle, smoking, alcohol abuse, obesity, chronic stress, and dyslipidemia. Heart disease, cancer, diabetes and other diseases are most common in older people, and new ones are constantly being added to the list of risk factors.
For example, the risk of injury increases with age. Bones no longer contain the required amounts of calcium and phosphorus, so they become more fragile. And if you add a lack of attentiveness, blurred vision and other factors to this problem, you can eventually fall, leading to fractures and disability. These patients require long-term treatment and rehabilitation, which is not always possible due to the health condition of the elderly.

It is more difficult for older people to earn a living, and a pension alone is not enough to treat all existing diseases. It is how the problem of poverty arises. Older people cannot provide themselves with adequate nutrition and expensive medicines simultaneously, which, unfortunately, does not improve their health. Malnutrition can cause all types of metabolic disorders (proteins, lipids, carbohydrates). The body cannot get the necessary micronutrients and vitamins. At this age, there are no resources to make up for problems.
Depression is also not uncommon among older people, but it is often overlooked or not diagnosed. Common reasons for such violations are not only lack of funds but also loneliness and misunderstanding in modern society. It should be remembered that mental health is essential for any age group and strengthening it is necessary for a fulfilling life.

Scientific Field of Research
Health and disease are closely related to the concept of risk factors. WHO proposes the following definition of risk factors - any property or characteristic of a person or any effect on them that increases the likelihood of developing a disease or injury.
In epidemiological and clinical studies, risk factors are studied using unique methods and become a practical medicine tool. Of course, a competent doctor needs to have an idea of the risk factors list for diseases and understand the degree (level) of risk of each factor, the hierarchy, and their interaction. It is necessary for targeted work with the patient, and it would help distinguish between controlled (changeable) factors that can be corrected and uncontrolled, which must be considered.

**Literature Review**

Ageing is a biological process experienced by humanity. Ageing is a dynamic process driven by the relative size of young and old. However, concern about population ageing is a relatively new phenomenon due to the significant increase in the number and proportion of older people in society. The phenomenon of population ageing has become a severe problem for policymakers worldwide over the past two decades. The downward trend influences the ageing of the population in fertility and mortality, that is, due to low fertility with a long life expectancy. Globally, life expectancy at birth is projected to continue to rise in the coming years. The elderly have unique health problems that are fundamentally different from those of adults and young people. Most diseases in the elderly are chronic - cardiovascular, arthritis, stroke, cataracts, deafness, chronic infections, cancer (Sribas Goswami, 2016).

Ageing is an inevitable process with some specific and distinctive health problems. As life expectancy rises, the elderly population increases day by day, which concerns various aspects of their health problems. Typical forms of diseases were problems with the musculoskeletal system (50.3%), hypertension (43.8%), DU and hyperacidity (27.4%), diabetes mellitus (21.4%) and respiratory problems (19, 4%). (MN Fahmida Asma et al., 2021).

One of the fundamental changes in public health and medicine of the twentieth century was the widespread acceptance of a new concept of the causes of chronic and degenerative disease. It is a lifestyle theory, according to which a person's health is influenced by certain aspects of that person's lifestyle. Just as a person with a medical condition must follow a prescribed regimen to recover from the condition, a healthy person must engage in continuous activities that are an integral part of daily life to maintain health (William G. Rothstein, 2003).

The problem of older people is the presence of several diseases at once. At the same time, previously devastating and often fatal diseases, continuing demographic ageing and increasing population life expectancy have now become chronic conditions. It makes multiple morbidities a severe problem in the world. Multiple morbidities are the simultaneous occurrence of multiple chronic conditions in a person, usually two or more. A combination of certain diseases can trigger superadditive interactions leading to increased functional ability, quality of life, and life expectancy, and ultimately creating complex health needs (Beil, M., Flaatten, H., Guidet, B. et al., 2021.)

Worldwide, the relative and absolute numbers of adults and older people are multiplying, and the problems of old age and ageing are becoming global. Old age is a natural and inevitable process that occurs with age, and ageing reflects an increase in the proportion of older people with a corresponding decrease in young people. It requires society to meet the health and social needs of an ageing population. In the foreground, the problems of older people related to their provision and the need for competent medical care are becoming increasingly evident. With the changes in population structure and the population age increase, there is a need for a more profound knowledge of medical specialists on the age and disease characteristics in adults and the elderly. Medical workers training should take place according to unique training programs, including compulsory training in geriatrics, gerontology, geropsychology (Diana Paskaleva1. Et al., 2017).

Old age is an integral part of life that affects all people. It is well documented in the literature that various changes in the functioning of specific organ systems occur and accompany the elderly. Moreover, with age, a person's cardiovascular system changes, and severe complications and diseases occur, leading to the death of a large number of older people. Health-care providers must have extensive knowledge of the existing illnesses of older people in order to be able to treat them adequately and to protect and promote the health of older people (Lambrini Kourkouta. Et al., 2015).

Samane Zanjani et al. (2015) found that advances in medicine and health care have led to a relative increase in life expectancy for people and the elderly. Common illnesses in older people can be prevented by living a healthy lifestyle. Determining the current status of older people is essential for designing educa-
tional intervention programs to improve their health and quality of life. (Samane Zanjani et al., 2015).

In a study by Mohammad Rabab et al. (2020), older adults had reduced levels of stress management. This finding was supported by studies that highlighted the difficulty of older adults in coping with stressful situations. The high prevalence of physical and psychosocial stressors among older adults, along with decreased independence and compromised coping mechanisms, contribute to poor stress management (Mohammad Rababa et al., 2020).

Isabella Gonska et al. (2021) conducted a study showing that reinforcing correct and changing wrong actions that affect human health significantly improve the quality of life despite irrepressible changes in the physical functioning of ageing people. Assessment of health behaviour level and quality allows for educational activities, care, and treatment to older people. However, it should be emphasized that prevention is the key to maintaining and improving health (Isabella Gonska et al., 2021).

The aim of the study by Medina Si Jylmaz et al. (2019) was to identify patterns of healthy lifestyles for older people with chronic diseases. The results show that the lifestyle of older people with diabetes is better than older people diagnosed with cancer and hypertension. The development of health promotion programs for older people diagnosed with cancer and hypertension will contribute to an active process of improving the quality of life (Medina Si Jylmaz et al., 2019).

According to the Lifestyle Impact Study, Babak Moyeni et al. (2021) found that interventions are recommended for older people to improve their lifestyle and quality of life, especially physical activity (Babak Moyeni et al., 2021).

Results

People are more and more afraid of getting sick as they get older. However, the health burden of ageing can be reduced or avoided by addressing risk factors such as:

- getting injured;
- non-communicable diseases;
- poverty;
- social isolation and discrimination, mental health disorders.

Falls and injuries in older people often account for the bulk of their illness and disability. The frequency of such falls tends to increase with age. For example, fractures (such as a hip fracture) are prevalent in the elderly. In this case, older people require long-term care, even hospitalization.

Healthy ageing is a normal process that occurs in every person's life. Alcohol and tobacco abuse, which are common in life, can reduce the quality of life and even lead to premature death. Poor diet, lack of exercise, smoking and alcohol consumption can lead to various diseases. One of the most common types of diseases is cardiovascular system diseases (Beil, M., Flaatten, H., Guidet, B. et al., 2021.).

The risk of poverty increases with age and is more common in women than in men. The incidence of poverty among people over 65 in Europe (earning less than 60% of government income per capita) varies widely. For example, in the EU countries, the poverty rate ranges from 4% in Hungary, 5% in Luxembourg and 7% in the Czech Republic to 51% in Latvia, 49% in Cyprus and 39% in Estonia.

Loneliness, social isolation and discrimination are significant social and health risks for older people. They harm all aspects of health and well-being, such as mental health, the risk of abuse, dehydration or malnutrition, such as the risk of hospitalization in an emergency. In all countries, the risk of social isolation of older women is higher than that of older men.

Depression in older people is often underdiagnosed, and the estimated prevalence among people over 65 years of age in the European Region is 2-15%. Mental health, including preventive measures, is an essential but often overlooked aspect of health and social care for the elderly (Diana Paskaleva1. Et al., 2017).

Elder abuse is the physical, sexual, psychological and/or financial abuse or neglect of people 60 years of age or older. The magnitude of the problem of elder abuse has not been adequately defined. However, estimates indicate that at least 4 million older people are exposed to it in the WHO European Region, no matter which year we look at. Elder maltreatment affects both their mental and physical well-being and, if not appropriately addressed, leads to a deterioration in the quality of life and an increase in mortality.

Moreover, at present, the elderly are at risk of contracting COVID-19.

The symptoms of Coronavirus Disease 2019 (COVID-19) can vary greatly. Some people have no symptoms, while others become so ill that they ultimately need mechanical assistance to breathe.
The risk of developing dangerous symptoms of COVID-19 may be increased in older people and people of any age who have other serious health problems, such as heart or lung disease, a weakened immune system, obesity, or diabetes. It is similar to what is seen with other respiratory illnesses such as the flu.

While these factors can increase the risk of COVID-19 severe symptoms, people who have several of these other health problems are at even greater risk.

People of all ages, even children, can become infected with COVID-19. However, most often, it affects middle-aged and older people. The risk of developing dangerous symptoms increases with age, with those aged 85 and over being at the most significant risk of developing severe symptoms. About 80% of deaths from the disease occur in people aged 65 and over. The risks for older people are even higher when they have other medical conditions.

Older people are at high risk because they often have multiple health problems associated with old age. Furthermore, germs can spread very quickly between people living close to each other.

Older adults are also more likely to have Alzheimer’s disease, making it more difficult for them to remember the precautions recommended to prevent infection (Smriti Pants, 2020).

Many types of heart disease can increase the likelihood of developing severe symptoms of COVID-19. They include:
- Cardiomyopathy
- Pulmonary hypertension
- Congenital heart defect
- Heart failure
- Cardiac ischemia.

A study was conducted to determine the risk factors for the onset of the disease in the elderly by interviewing patients with cardiovascular diseases in the polyclinic of Tyumen since these diseases are most common in the elderly. Then the questionnaires were analyzed (Appendix 1). The number of respondents was 30 people, including men - 16 people, women - 14 people.

In addition, the distribution of patients by type of disease was carried out.

The data in Figure 1 show that most CVD patients are patients with coronary artery disease. The proportion of patients with angina pectoris and other diseases is the lowest.

Thus, 32% of patients have an acute form, 68% have a chronic form (Figure 2).

It is essential for older people with cardiovascular disease to measure cholesterol levels (Figure 3).

The majority of respondents check their cholesterol levels less than once a year (39% of patients), 25% - more often than once a year, 22% - once a year, and 14% - as needed.

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Fatty foods are very harmful to older people suffering from cardiovascular diseases. It turned out that only seven people have a negative attitude to fatty foods.

Figure 6 shows the most preferred measures for the prevention of cardiovascular disease. Refusal of unhealthy habits - 39% think so, 25% of patients tend to go in for sports, diet - 22% and 14% consider it necessary to monitor a doctor constantly.

The answers to the question: “Do you keep a balanced diet?” are shown in Figure 7. Thus, 27% of respondents always adhere to a healthy diet, sometimes 36% adhere to the rules of a balanced diet, the rest of the respondents, for various reasons, do not care about a balanced diet.

The importance of foster care is shown in Figure 8. Most patients (60%) believe foster care helps prevent severe cardiovascular disease, 29% have difficulty responding, and only 11% of respondents believe foster care is not essential in this regard.

Tobacco smoking is a negative factor that aggravates diseases of the cardiovascular system. Based on the data in Figure 10, we can say that the bulk of patients (70%) excluded this factor.
The majority of patients also have a negative attitude towards alcohol consumption (Figure 11).

After finishing the analysis of the questionnaires, we can conclude that the patients knew little about their health, did not fully follow the doctor’s instructions and did not care about their health in general. Thus, some respondents do not consider the factors affecting their health and do not try to eliminate them.

**Discussion**

Cardiovascular disease (CVD) is the leading cause of death worldwide, and cardiovascular disease is known to increase with age (World Health Organization, 2017). According to the World Health Organization (2017), 17.7 million people die annually from cardiovascular disease, mainly due to coronary heart disease and stroke, accounting for 31% of all deaths worldwide. It is associated with tobacco use, unhealthy diets, physical inactivity and sedentary behaviour, which is reflected in increased hypertension, diabetes, overweight and obesity. The prevalence of these non-communicable diseases increases with age, leading to significant mortality among the elderly, as well as disability, functional decline and health care costs (Yazdanyar A. et al., 2009)

It is essential to better understand the wide range of risk factors for cardiovascular disease and factors specific to this population group. To develop and implement an effective strategy for the prevention and treatment of cardiovascular disease in older people, however, few studies have focused on older people (Chiu H.S. et al., 2004). Once significant risk factors for cardiovascular disease and their prevalence in older people in communities have been identified, researchers and clinicians can design and implement effective intervention strategies for healthy and productive ageing of the population (Li CY et al., 2011)

The association of biological risk factors such as hypertension, diabetes and dyslipidemia with cardiovascular disease has been studied in developed countries. In addition to biological risk factors, many epidemiological studies have shown a positive association between alcohol use, smoking, physical inactivity and obesity with the prevalence of CVD. However, these studies focused on young and middle-aged groups and were from developed countries. The Framingham Generalized 10-Year Cardiovascular Risk Scale is a proven, widely used tool for quantifying the risk of cardiovascular disease. Research on the prevalence and risk factors for cardiovascular disease in older adults is limited. Therefore, it is necessary to strive to determine the prevalence of risk factors for cardiovascular diseases and associated cardiovascular risk factors using non-laboratory methods among the elderly (Yazdanyar A. et al., 2009)

Coronavirus Disease 2019 (COVID-19), an infectious disease caused by the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), has hit the world very hard, affecting millions of people around the world, posing a severe threat to the global health scale. This new virus is thought to enter the host and cause infection by attaching its structural protein known as S-glycoprotein to angiotensin-converting enzyme 2 (ACE2). With the rapid spread of COVID-19 and its consequences worldwide, healthcare professionals and researchers from all disciplines must be aware of the potential impact of this new virus on their fields of activity and the medical community in general. During infection, the cardiovascular system is affected by unknown pathomechanical processes. Therefore, this explains the increased prevalence of cardiovascular disease (CVD) among patients with COVID-19 (Joseph Adu-Amankwaah et al., 2021).

The impact of COVID-19 on the health of the elderly is more significant when compared to other age groups. Research from around the world has shown that the risk of COVID-19 severity is higher among older adults. Many older people who have become infected or died were medical personnel working on the front lines. Measures such as physical distancing, movement restrictions, and home quarantines have all contributed to increased social isolation, especially among the elderly. It, in turn, can cause problems with their physical, mental and cognitive health. In addition, due to the lack of a permanent source of income and lack of savings, many face financial crises. Despite efforts to help older people, they are suffering the dire consequences of the pandemic. In order to support
and respect older people and their dignified lives, clear policy measures and proper implementation are needed (Smriti Pants, etc., 2020).

Conclusion

Most people aged 65 and over have heart disease, stroke, or coronary artery disease. Heart disease is a leading cause of disability, limited employment and a decline in the quality of life for millions of older people. In older people, the heart and blood vessels may change. For example, as a person gets older, the heart may not beat as fast when exercising or not so hard when younger. However, the number of beats per minute (heart rate) does not change during rest in average old age.

Age-related changes can increase your risk of heart disease. The leading cause of heart disease is the accumulation of fatty deposits in blood vessels for many years, but if you follow the advice, the influence of these factors can be reduced.

Smoking is the leading cause of preventable death, and smoking increases damage to the walls of the arteries. Even at an older age, quitting smoking can reduce your risk of heart disease, stroke, and cancer over time.

Calorie balance maintained with physical activity helps maintain a healthy weight. Some ways to maintain a healthy weight include limiting portion sizes and physical activity, reducing the risk of heart disease.

It is equally vital to cope with stress, as it also affects the health of the cardiovascular system.

References


Attachment

Questionnaire
Dear patients!

We ask you to take part in an anonymous survey dedicated to assessing the morbidity factors of the cardiovascular system.

Only one answer needs to be selected for each question.

1. Gender: □ Male □ Female
2. Your disease is connected with:
   □ hypertension
   □ angina
   □ ischemic heart disease
   □ other
3. Your disease is:
   □ acute
   □ chronic aggravation
4. How often do you donate blood for cholesterol?
   □ once per year □ less than once per year □ more often than once per year □ whenever required
5. Are you monitoring your blood pressure?
   □ always □ sometimes □ I don't care because I have no time □ I don't care because it's not interesting for me
6. Do you keep a diary?
   □ yes □ no
7. What is the most effective method of CVS prevention?
   □ healthy eating □ rejection from bad habits □ sport □ constant observation by a doctor
8. Do you monitor nutritional balance (calories, protein, fat, carbohydrates)?
   □ always monitor
   □ monitor but forget sometimes
   □ no time
   □ not interesting
9. Is foster care necessary in the CVS prevention?
   □ yes □ no □ no answer
10. Do you follow the recommendations of your doctor about the prevention of CVD?
    □ yes □ no
11. Do you smoke?
    □ yes □ no
12. Do you drink alcohol?
    □ yes □ no

Thank you for your answers!