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DOI <https://doi.org/10.32782/pub.health.2025.1.2>**Hushchuk Ihor Vitaliyovych,**

Doctor of Medical Sciences, Professor,
Head of the Department of Public Health and Physical Education
of the National University "Ostroh Academy"
ORCID: <https://orcid.org/0000-0002-8075-9388>

Mokienko Andriy Viktorovych,

Doctor of Medical Sciences, Senior Researcher,
Associate Professor at the Department of Public Health and Physical Education
of the National University "Ostroh Academy",
ORCID: <https://orcid.org/0000-0002-4491-001X>

DEMOGRAPHIC CRISIS AND PUBLIC HEALTH: CONCERNING THE ANALYSIS OF SOME RELATIONSHIP VECTORS

Abstract. The purpose of the work. Identification of medical and social problems of society and public health as driving forces of the demographic crisis in Ukraine.

Materials and methods. The work uses the results of demographic and medical and social research, which are available on the Internet.

Results of the study. The paper analyzes the current demographic situation in Ukraine. It is shown that the lifestyle (improper nutrition, alcohol abuse, smoking, harmful work, stress, etc.) of ordinary Ukrainians, especially able-bodied people, is a priority factor influencing the demographic situation. The main risk factors for the occurrence of non-communicable diseases (cardiovascular diseases, cancer, diabetes and chronic lung diseases) lead to 91% of deaths in Ukraine. More than 50% of Ukrainians are currently overweight or obese. 82% of Ukrainians drink alcoholic beverages, and 26% say that they drink more alcohol now than before the war. In total, there are about 9 million active smokers in the country, which make up a third of the entire working population of the country. More than 70% of Ukrainians feel stressed or very nervous. About 80% of Ukrainian youth have chronic diseases. Every year, about 50,000 people are injured at work, 1,500 of them die, and more than 3,500 get occupational diseases. It is justified that the basis of a healthy lifestyle should be a health-preserving (preventive) paradigm. The opinions of leading demographers of the country regarding the significance of the contribution of medicine to the health of the population (30–35%) are expressed. In 2021, 17% of households (or 2.5 million families) experienced catastrophic health care costs. In 2020, public spending on health care accounted for 8% of total spending (12% for EU candidate countries, 14% EU average). The urgent need for serious changes and shifts in the financing mechanism and system of organization of the current health care system was determined.

Conclusions. Post-war recovery and active development of all spheres of social life requires such mandatory components as creating conditions for a healthy lifestyle and the availability of quality medical services.

Key words: population, demography, lifestyle, medicine.

Гушук І.В., Мокієнко А.В. Демографічна криза і громадське здоров'я: щодо аналізу деяких векторів взаємозв'язку

Анотація. Мета. Визначення медико-соціальних проблем суспільства та громадського здоров'я як рушійних сил демографічної кризи в Україні.

Матеріали та методи. У роботі використані результати демографічних і медико-соціальних досліджень, які є у відкритому інтернет-доступі.

Результати. У роботі проведено аналіз сучасної демографічної ситуації в Україні. Показано, що спосіб життя (неправильне харчування, зловживання алкоголем, тютюнопаління, шкідлива праця, стреси тощо) пересічних українців, особливо працездатних осіб, є пріоритетним фактором впливу на демографічну ситуацію. Основні фактори ризику виникнення неінфекційних захворювань (серцево-судинні захворювання, рак, діабет і хронічні захворювання легень) призводять до 91 % смертей в Україні. Понад 50 % українців нині мають надмірну вагу або ожиріння. 82 % українців вживають алкогольні напої, а 26 % кажуть, що зараз вживають алкоголю більше, ніж до війни. Усього в країні нараховується близько 9 мільйонів активних курців, що становлять третину всього працездатного населення країни. Понад 70 % українців відчувають стрес або сильну знервованість. Близько 80 % української молоді мають хронічні захворювання. Щорічно на виробництві травмується близько 50 тисяч осіб, з них 1,5 тис. гинуть, понад 3,5 тис. отримують професійні захворювання. Обґрунтовано, що основою здорового способу життя повинна стати здоров'язберігальна (профілактична) парадигма. Висловлено думки провідних демографів країни щодо значимості вкладу медицини у стан здоров'я населення (30–35 %). У 2021 році 17 % домогосподарств (або 2,5 млн сімей) зазнали катастрофічних витрат на охорону здоров'я. У 2020 році державні витрати на охорону здоров'я становили 8 % від загальних витрат (для країн – кандидатів на вступ до ЄС – 12 %, середній показник ЄС – 14 %). Визначено гостру необхідність серйозних змін і зрушень у механізмі фінансування та системі організації нинішньої системи охорони здоров'я.

Висновки. Повоєнне відновлення й активний розвиток всіх сфер суспільного життя передбачає такі обов'язкові складові, як створення умов для здорового способу життя та доступність якісних медичних послуг.

Ключові слова: населення, демографія, спосіб життя, медицина.

Introduction. In Ukraine, the population decreases every year. According to UN estimates, by 2100 Ukrainians will be 45% less.

According to the Ministry of Finance (<https://index.minfin.com.ua/en/reference/people/>) from 01.01.1990 to 01.01.2022 the population of Ukraine decreased from 51,838.5 million to 41,167.3 million, ie by 10 million.

During independence, the All-Ukrainian Census was held for accounting for the population 2001. The next, according to the Cabinet of Ministers of Ukraine, was appointed for 2023. In 2010 and 2019, trial measures took place in separate administrative-territorial units. In other years, the population and demographic forecasts were evaluated. The research is conducted by the State Statistics Service of Ukraine, the Institute of Demography and Social Research named after MV Ptukha of the National Academy of Sciences of Ukraine (<https://vue.gov.ua/>).

Ukraine is characterized by threatening tendencies of the demographic situation, which were observed even before the deployment of a full-scale war, and now intensified as a result of the intensification of migration flows, physical losses of the population, increasing the level of disability.

Depopulation in Ukraine has lasted since the early 1990s. The scale of demographic losses is evidenced by the fact that, according to official statistics, from 1992 before the start of a full-scale war, the population of Ukraine decreased by almost 20 % (given the decrease in population due to temporary occupation of certain regions of Donetsk and Luhansk regions). Significant demographic components of depopulation for a long time were an extremely high mortality rate, relatively low birth rates and migration. In particular, Ukraine had the highest mortality rate with prolonged stagnation of the level of extinction of the population. The scale of depopulation in Ukraine is largely due to the high level of incidence of the population, and the decisive degree of life, the state of health care system, the availability of medical and other social services.

The purpose of the work. Determination of medical and social problems of society and public health as a driving forces of demographic crisis in Ukraine.

Research methods. The work uses the results of demographic and medical and social studies that are in open online access.

Results of the study. Almost for the entire period of independence, the demographic situation in Ukraine is characterized by a decrease in population, first of all, by exceeding the death rate over fertility. The analysis showed that even before the full -scale war, the size and composition of the population of Ukraine is the subject of discussion [1].

According to official statistics, the number of permanent population of Ukraine was gradually declining throughout the census time (2001). Thus, at the beginning of 2014, before the loss of territories as a result of Russia's aggression, it amounted to 45,245.9 thousand people. After the occupation of the Crimea and part of Donetsk and Luhansk regions, there was a sharp decline in the permanent population, which at the beginning of 2015 was equal to 42,759.7 thousand people (Fig. 1).

After that, the tendency to slow population decrease resumed, at the beginning of 2022 the population of Ukraine, according to official sources, was 40,997.7 thousand people.

Considering that the war becomes protracted, the social and economic situation in Ukraine will only worsen in the short term. To restore at least the pre-war standard of living, the population will require huge resources and a considerable period of time, which will contribute to further migration outflow from Ukraine [1].

The generally recognized classification of factors that affect health includes 4 large groups: 1) the lifestyle of the population (malnutrition, alcohol abuse, smoking, harmful work, stress, etc.) (50–52%); 2) the environment (polluted air, water, food, soil, radiation level, electromagnetic fields, etc.) (20–21%); 3) biological factors (heredity, constitution, gender, age) (19–20%); 4) medical factors (vaccination against infections, medical examinations, quality of treatment, etc.) (8–9%).

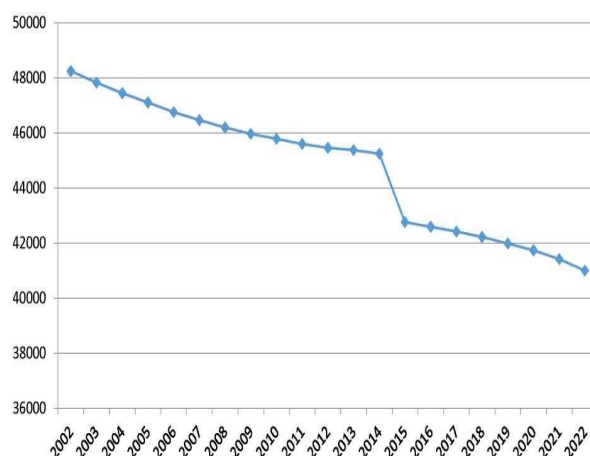


Fig. 1. Dynamics of the permanent population of Ukraine in 2002–2022, thousand people [2]

In this publication, 2 and 3 factors are not considered. Since each of the factors in these two aggregates requires careful consideration in more than one article.

With regard to these factors, the following remark is appropriate in memory of the extended meeting of

the AMS of Ukraine, dedicated to the demographic crisis in Ukraine and the role of medical science in its overcoming, which took place on July 3–4, 2007 [3]. The relevance of scientists' conclusions not only did not weaken, but increased. Then the Director of the Institute of Hygiene and Medical Ecology named after M. Medico-Ecological Prerequisites for the Demographic Crisis in Ukraine and Ways to Overcome it. OHM. Marzeeva of the AMN of Ukraine, Academician of the AMN of Ukraine, Professor A.M. Serdyuk. It is noted that according to the UN Human Development Index for 1997–2007, Ukraine from 173 positions dropped from the 45th to 100th position. In terms of extinction of people, Ukraine was already in the top ten countries of the world community.

The author emphasized the need for urgent implementation of a formulated strategy for the development of medical ecology and life safety, namely in systematic approaches to threat assessment; assessment of real environmental factors on health; fundamental change in the paradigm of individual and public health from the treatment of patients to healthy health; taking into account adaptation-compensatory mechanisms when exposed to various factors; creation and implementation of public health information network; conducting socio-hygienic monitoring; determination of the economic component in risk management; implementation of modern WHO models to control risks of different origin.

It is well known that in order to reproduce the population of any country there should be a positive natural increase. In Ukraine, it was so until 1991, and since 1991 in the country, and in rural areas since 1979, mortality rates began to exceed birth rates, that is, a negative natural population or depopulation was recorded [4]. In 1991, for the first time in the post-war years, the mortality and fertility curves crossed: the mortality curve went up sharply, and the birth rates crawled down. Depopulation with 3.5 ‰ in 1993 increased to 7.0 ‰ in 1999, ie in 7 years increased twice. This is the result of the aggregate action of low birth rate, high mortality and adverse age structure. In just eight years (1991–1998), due to the exceeding the number of dead over the number of living populations of Ukraine decreased by 1 million 969 thousand people. Ukrainian demographers believe that depopulation will be a determining feature of demographic development of Ukraine for a long time.

As mentioned above, lifestyle is decisive in the impact on the health of the population. The analysis of the current state of factors that adversely affect the health of ordinary Ukrainians showed the following.

The study of the prevalence of risk factors for non-infectious diseases in Ukraine has shown that tobacco and alcohol consumption, lack of physical activity and unhealthy nutrition are the main risk fac-

tors for non-communicable diseases (cardiovascular disease, cancer, diabetes and chronic lung diseases) leading to 91% of deaths in Ukraine [5].

According to the Ministry of Health of Ukraine, more than 50% of Ukrainians now have overweight or obesity. Certain malnutrition factors, which are most commonly found, are fast food, overeating, consumption of sugar and salt in large quantities, food before a book or TV, insufficient amount of fruits and vegetables, wrong breakfast or absence, food overnight or hearty dinner, consumption of insufficient fluid.

It is known that a serious problem of obesity is its close connection with chronic non-infectious diseases (HNIn). According to the annual ranking of Obesity and Khniz World Obesity in 2022, this figure (from the lowest /best to the highest/worst) among 183 countries for Ukraine was 79.0 (for comparison Switzerland 1, Belgium 10) [6].

The results of the last poll of the population showed: 82% of Ukrainians consume alcoholic beverages, for 16% of respondents drinking alcohol is an important way to relax and relax; 26% say they now consume alcohol more than before the war. Most of the people who consume alcohol are observed among middle-aged people, that is, working age (36–50 years), regular use is more typical for young people (18–35 years).

In Ukraine, 45% of adult men and 9% of adult women smoke daily, and 45% of boys and 35% of girls among young people. In total, there are about 9 million active smokers in the country, which make up a third of the country's entire working population. According to the World Bank, Ukraine's economic losses from tobacco make up about \$ 2 billion annually. According to official statistics in Ukraine, 120,000 people die every year from smoking diseases.

According to a new Gradus Research study, more than 70% of Ukrainians experience stress or severe nervousness. Half of the respondents experience anxiety and tension. Among the reasons – the fear of their own safety and safety of loved ones, separation from relatives, loss of work.

About 80% of Ukrainian young people have chronic diseases. One of the main factors is the spread of unhealthy lifestyles among adolescents. Most of them suffer from several ailments. The first places are respiratory diseases and gastrointestinal tract. Only 10% of Ukrainian youth regularly play sports, the remaining 90% – neglect physical education as a result of 80% of young boys suffer from chronic illnesses and are not suitable for service in the army. In 60% of young mothers there are pathological births or the inability to give birth to a baby at all. These issues are solved by creating a healthy lifestyle.

Working conditions of the able-bodied population have become more complex and in many cases more dangerous for human life and health. The cost of error in performing production operations has become very high – it can cost life. Mistake and (or) deliberate actions of a person in appropriate conditions can lead to an accident, man-made disaster, death of people [4].

The state of labor protection remains unsatisfactory. The problem of industrial injuries is very acute – about 50 thousand people are injured annually in production, of which 1.5 thousand die, more than 3.5 thousand receive occupational diseases. Due to disability, 2.5–3 million human nodes are lost annually, the average severity of each injury reaches 25 human disability. However, under a systematic decline in production, these indicators do not give a sufficiently objective picture.

The analysis of the efficiency of financing the health care system in Ukraine showed the following.

According to the Law of Ukraine “On State Financial Guarantees of Medical Services” [7], patients have the right to receive the medical services, medical devices and medicines of good quality they needed by them at the expense of the State Budget of Ukraine. What really?

According to the World Bank's calculations in 2019, there were 7.5 beds per capita at \$ 111 in Ukraine. State expenditures for medicine per capita. For comparison in the EU 4.6 beds at \$ 2603; The United Kingdom, one of the leaders of the organization of funding and effective health care system in the

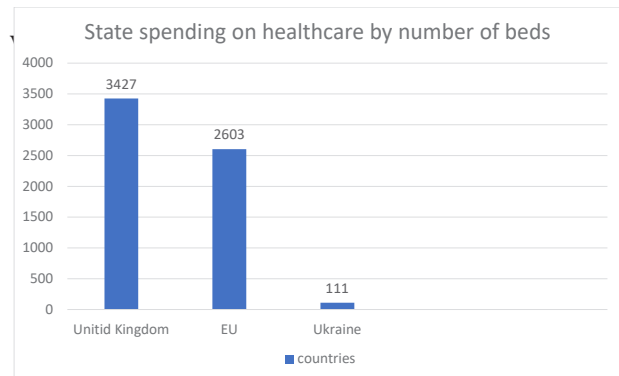


Fig. 2. The state expenditures for medicine per capita by the number of beds

Source: World Bank, 2019

According to the WHO report, “Can people afford to pay for medical care? New financial protection data in Ukraine” [8] in 2021 17% of households (or 2.5 million families) have suffered catastrophic health care costs, mainly due to medicines and inpatient treatment (43% and 44% respectively). Catastrophic costs include those exceeding 40% of the annual income of the family. These figures are much higher compared to European countries and many candidate countries to EU joining (Fig. 3). At present, no mechanisms for the protection of people with low income or other vulnerable sections of the population have been introduced in Ukraine.

The low level of funding for the health care system in Ukraine compared to the average of the EU and candidate countries before entry into the EU is illustrated Fig. 4.

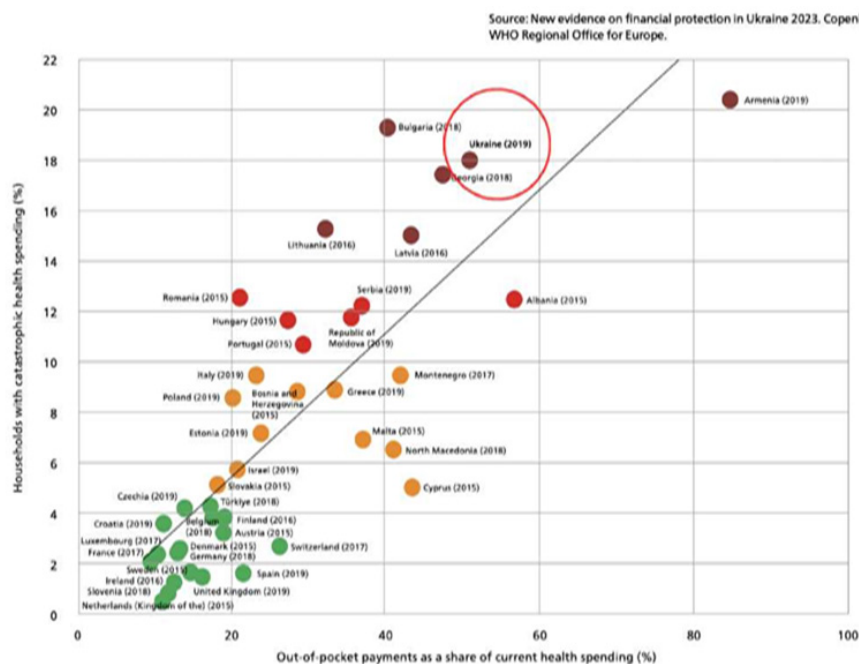


Fig. 3. The frequency of catastrophic health care costs and pocket costs as a share of current health care costs, European regions of WHO, 2019

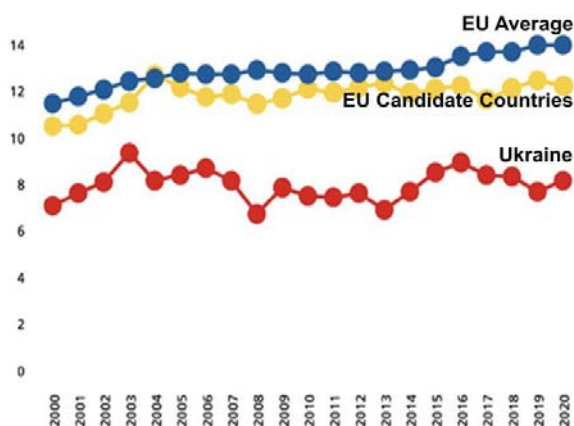


Fig. 4. Public health expenditures as a proportion of general government expenditures of Ukraine, the EU and candidate countries for entry to the EU from 2000 to 2020

Source: health care data, WHO

In 2020, public health expenditures accounted for 8% of the total costs and were much lower than the average for candidate countries for EU accession – 12% and the EU average – 14%. The budget of 2022 was UAH 187, UAH 2 billion, and 203.4 billion UAH was planned for 2024. The total minimum assessment of the need for financing the health care system in Ukraine as of 2019 should be at the level of UAH 320–340 billion.

The analysis of the demographic state in Ukraine in the conditions of deep transformation economic crisis and certain aspects of the quality of life of the population of Ukraine showed the need to develop a scientifically sound integrated program of overcoming the demographic crisis, which would cover not only the issue of simple reproduction of the population, but also its development in a broad social context [9].

Of particular concern is the high incidence and mortality rate of working age in Ukraine. The excess of these indicators compared to EU-27 Member States is 3–4.5 times. Over the past twenty years, the mortality rate of able-bodied citizens in developed countries has decreased, while in Ukraine has increased. It only deepens the medical-demographic and socio-economic crisis [6].

According to the authors of the monograph devoted to the study of the mortality of the population of Ukraine at a working age (2007) [10], health should be the main criterion for the feasibility and effectiveness of any activity. All areas of the economy should be focused on improving living conditions and assimilation of the behavior model, which is based on a healthy lifestyle, identified high-risk groups that require priority measures for the prevention and treatment of diseases.

Reducing the mortality of the population of working age involves, in particular, a reduction in alcohol abuse and smoking; formation of mental priority of healthy lifestyles; Improving the efficiency of the public health care system.

Analysis of the demographic security of Ukraine and the directions of its regulation allowed us to conclude: the health of the population is a national value, and its preservation is the main task of the state [11].

The demographic crisis requires the continuation of research on the role and impact of determinants of health, improvement of approaches to public health, creation of new health care documents, the right choice of health -saving strategy, realization of “safe level” of health in all its manifestations throughout the life of everyone [12].

The demographic situation in Ukraine requires a new comprehensive approach to its evaluation. One of these approaches is to assess the quality of life of the population in demographic dimensions. The index of quality of life of the population of Ukraine as an integral indicator of a demois situation in the country is offered. This will require the development of a complex theory of quality of life of the population, which is not currently absent [13].

Until recently (in the early 2000s) the health care system in Ukraine had significant advantages. Branched infrastructure and general coverage of the population with all types of free medical services provided the population with free access to them. Further limited funding, lack of quality control, neglect of measures of prevention, timely detection and treatment of diseases, prevalence of the practice of unofficial payments for medical assistance in public institutions have demolished the confidence of the population in the state health care system. The volume of government resources (which could be directed to medicine) decreased, as a result, the quality of services has significantly deteriorated and their availability has decreased. In the worst position, the least solvent low -income sections of the population were [1].

As stated at the beginning of this article, medicine is responsible for the formation of public health by only 8–9%. However, according to the authors [14], this thesis does not work in Ukraine and is usually used to justify the insufficient part of funding for the needs of the medical field and justify the low efficiency of its functioning. According to the evaluation of individual experts, the contribution of the health care system in our conditions is at least 30–35%. Confirmation of this is high mortality rates from causes that can be prevented; What medicine, if timely diagnosis and qualitative treatment, can be

affected and minimized. The current health care system is highly changing and shifting in the financing mechanism and the organization.

The authors [14] are convinced that the modern health system should be the health, its preservation and reproduction, not illness and treatment. One of the priority tasks of the industry and the whole society is the formation of life-saving behavior and a high health culture aimed at prevention of diseases. This is necessary not only in medicine, but to society as a whole, since the “rehabilitation” of the entire social system is an important prerequisite for positive demographic shifts.

I.A. Tsvigun in his already mentioned monograph [11] about the need to replace the model of treatment of periodic diseases with a model of prevention for both healthy and patients with chronic conditions. This involves increasing the effectiveness of the primary care system and the reorientation of medical services to increase patient participation in making decisions on their treatment.

Conclusions

1. The demographic situation in Ukraine as a result of reducing the population should be considered extremely difficult. Deepening demographic crisis is a threat to Ukraine's national security.

2. Lifestyle (malnutrition, alcohol abuse, smoking, harmful work, stress, etc.) of ordinary Ukrainians, especially able-bodied persons are extremely harmful to their health, which determines its priority as a factor of influence on the demographic situation. The basis of a healthy lifestyle should be a healthy (preventive) paradigm.

3. It is advisable to agree with the opinion of the leading demographers of the country [14] on the importance of the contribution of medicine to the health of the population (30–35%). This indicates an urgent need for serious changes and changes in the financing mechanism and the system of organizing the current health care system.

4. The post-war recovery and active development of all spheres of public life should give impetus to the growth of quantitative changes into qualitative, and eventually, to the formation of a model of new quality of life of the population of Ukraine. Sustainable income, their purchasing power, achieving a fairer distribution of social resources can be laid down the basis of a new model that will include, in particular, conditions for healthy lifestyles and available quality medical services [1].

5. The issue of demographic situation in Ukraine should be in the field of view of public health professionals in order to form a clear idea of the factors and consequences of crisis phenomena of social and individual life.

The prospect of further research. Given the extraordinary complexity of the current socio-demographic situation in Ukraine, it is necessary to consider comprehensive studies to identify priority risk factors for individual and population health with the development of scientifically sound programs for minimizing and eliminating them. In the context of public health, this involves the definition of national determinants of health and their reasonable ranking depending on demographic, economic, medical, social, ecological-hygienic and mental characteristics of specific regions of the country.

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