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COMPARATIVE ANALYSIS OF INDICATORS THAT DETERMINE THE EFFECTIVENESS OF THE IMPLEMENTATION OF SOCIO-ECONOMIC DETERMINANTS OF HEALTH IN EUROPE AND UKRAINE

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The introduction of national strategies aimed at improving the well-being of the population of the country is one of the current approaches to reforming the public policies of the countries of the world. It is the socioeconomic determinants of health that determine the conditions in which people are born, grow, live and getting old, as well as the spheres of influence on these conditions, such as public policy, state of economic development, demographic trends, etc.

The aim. *In this way, our research has focused on a comparative analysis of macroeconomic indicators that determine the effectiveness of socioeconomic determinants of healthcare in Europe and Ukraine, that are used to provide scientific justification for the construction of humanistic models for the provision of pharmaceutical care to the population in the context of the rapid stratification of Ukrainian society according to socioeconomic indicators.*

Materials and methods. *The research methodology is based on the principles of systems analysis and an interdisciplinary scientific and systemic approach. The study used the empirical method, the method of comparative analysis and synthesis of statistical data, the graphical method.*

Results. *A comparative analysis of the socioeconomic determinants of health in the countries of the European region and in Ukraine was carried out on three levels of indicators: the level of health-care expenditure, the structure of health-care expenditure and expenditure on medicines.*

The analysis revealed that in 2019, the average health expenditure of the countries analyzed was 8.2 % of GDP. Only two of the 34 countries – Ukraine and Turkey – have a rate below the 5 % that recommended by WHO.

Public health financing schemes and compulsory health insurance are the main funding mechanisms in all countries, with the exception of Cyprus. Ukraine, Russia, Greece, Latvia and Bulgaria have the largest share of direct costs to patients as a source of health care financing.

The results of the analysis of the medicine expenditure indicator as a proportion of total health expenditure showed that the highest level was in Bulgaria (35.4 %), the lowest in Denmark (6.4 %). Overall, five countries have high levels of pharmaceutical expenditures.

In most European countries, the cost of purchasing medicines has been found to range from 346 to 619 USD per person per year. The highest value of this indicator from the European region is in Switzerland (894 USD per person), and the lowest is in Ukraine (73 USD).

Based on the results of the comparative analysis, the countries were grouped according to key indicators into three categories – high, medium and low.

Conclusions. *A comparative analysis of key indicators of the socio-economic determinants of health in the country of the European region has been carried out*

Keywords: *socioeconomic determinants, financing of healthcare and pharmaceutical provision, comparative analysis, Ukraine, European region*

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1. Introduction

The priority task of the World Health Organization (WHO) is to preserve the health and harmonious development of each individual [1]. According to the WHO recommendations, the main objectives of each country's national policy should be to ensure equal and equitable access to medical and pharmaceutical services; microeconomic efficiency (quality of care and patient satisfaction should be maximized at the

lowest possible cost); macroeconomic monitoring of health expenditure [2, 3].

In 2005, WHO created The Commission on Social Determinants of Health (CSDH), which reviewed the evidence, conducted a social debate, and recommended policies to improve the health of the world's socially disadvantaged. CSDH has articulated three main principles to guide national programming. They include the following:

– improvement of daily living conditions - conditions in which people are born, grow, live, work and getting older;

– addressing, at the global, national and local levels, inequities in the distribution of power, money and resources, which are the shaping factors that determine the conditions of daily life;

– measuring the extent of the problem, evaluating actions, expanding the knowledge base, training people with skills in the social determinants of health and raising public awareness of the importance of these determinants [4, 5].

Considerable attention was paid by the commission to indicators such as the level of income in the country and the level of development of the country, and the impact of social factors on the health of the population was studied. In response to increasing disparities within and between countries in income, opportunity, life expectancy, health status and access to health care, CSDH published a report in 2008. «Closing the gap in a generation: health equity through action on the social determinants of health» [6]. Since that publication, the extent and social causes of these injustices have become much better understood, as the report draws on global evidence and recommends policies, aimed at making progress in reducing health inequities and health disparities in all countries, including low-income countries, Taking action on the social determinants of health by influencing the course of life of the individual and in the broader social and economic spheres to achieve greater health equity and protect future generations [7, 8].

In 2010 WHO published the report «Equity, social determinants and public health programmes» with the aim of introducing knowledge into concrete effective steps. WHO has developed the programme «Health 2020», to address key public health and health policy issues [9, 10].

The ultimate goal of the new European health policy «Health 2020» was to improve the health and well-being of the people of Europe. The achievement of this goal should become the basis of the implementation of the «Health 2020» policy in all its stages and in all countries of the WHO European Region, taking into account the situation in each individual country.

One of the areas in which public policy objectives in the twenty-first century need to be reoriented is the adoption of strategies to improve the well-being of the population. Modern concepts should focus on the relationship between health and well-being, on the basis of which the rational use of resources, the identification of factors that lead to and support health and well-being. The point is that society must help people to live a life that brings joy, not simply to avoid disease.

Since 2014, significant changes have taken place in Ukraine, affecting practically all spheres of activity of the society. The most painful processes of systemic change are in the socially dependent sectors of the economy, to which the pharmaceutical sector can be attributed with full responsibility. At present, there is a trend in

the pharmaceutical supply system towards a qualitatively new relationship between the main actors involved in the provision of pharmaceutical care and services. This end-use orientation in the provision of a pharmaceutical care or service is seen as a strategic goal in achieving the socially important objectives of the transformation of public policy in the national health system [11, 12].

In recent years, studies have been conducted on the socioeconomic determinants of health [13, 14]. At present, however, there are no studies in Ukraine that present the results of the analysis of the socioeconomic determinants of health care, specifically, to identify trends in national health-care expenditures and compare them with WHO recommendations and state guarantees, as well as to identify general trends in the financing of pharmaceutical provision for patients in the European region. This led to the purpose and main directions of the study.

The aim of the research was to make comparative analysis of macroeconomic indicators that determine the effectiveness of socio-economic determinants of health in Europe and Ukraine to provide scientific justification for the construction of humanistic models of pharmaceutical care to the population in the context of the rapid stratification of Ukrainian society according to socioeconomic indicators.

2. Planning (methodology) of the research

The objects of the research was the official data of the Organization for Economic Cooperation and Development (OECD), the European Regional Office of the World Health Organization (WHO) and international sources and publications, which present the results of the analysis of healthcare determinants [15, 16]. A set of macroeconomic indicators of health and pharmaceutical care of the population, which directly affect the conditions of the implementation of socio-economic determinants of healthcare, was selected for analysis. In particular, the level of public spending on health as a percentage (%) of GDP in Ukraine and in the countries of the European region; health cost structure; level of pharmaceutical expenditures as a percentage (%) of the total expenditures, expenditures for the purchase of medicines in USD per capita [17, 18].

To achieve this goal, we have developed an algorithm for the study, which consists of 5 stages (Fig. 1).

At the first stage, the analysis and systematization of data from international sources and publications, in which the results of research of socio-economic determinants of health are presented, was carried out. In the second stage, based on the analysis of the level of public spending on health as a percentage (%) of GDP in Ukraine for 2014–2019, the dynamics of national spending on health was determined and compared with WHO recommendations and state guarantees

To determine the main trends in financing health care system in the European region (the third stage) an analysis of costs level for healthcare as a percentage of GDP and expenditure patterns healthcare system by 2019 in the European region was carried out.

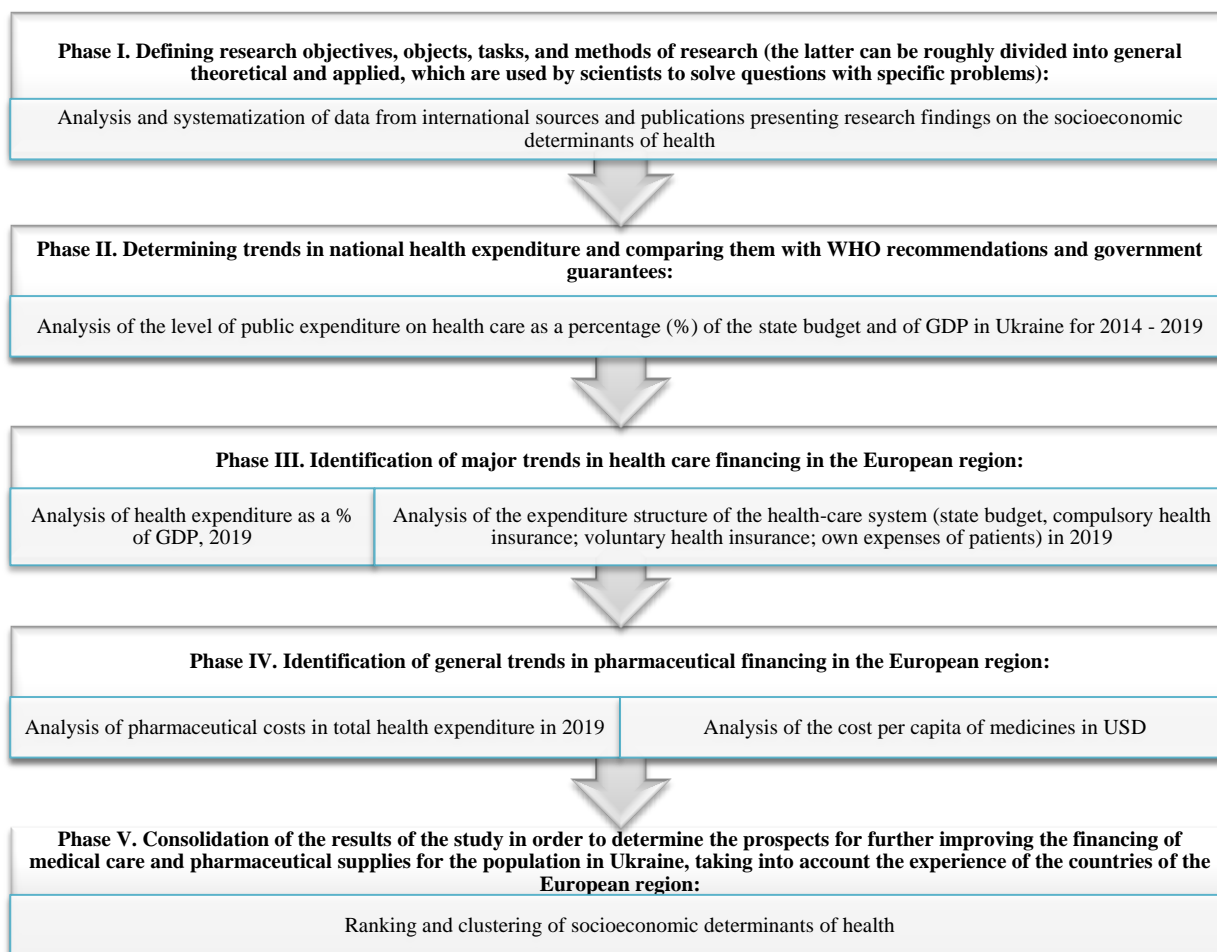


Fig. 1. Algorithm for conducting a comparative analysis of indicators that determine the effectiveness of socioeconomic determinants of healthcare in Europe and Ukraine

At the fourth stage, the general tendencies of financing of pharmaceutical care of patients in the countries of the European region are defined. To do this, an analysis of the level of expenditures on pharmaceutical provision of the population in the structure of total expenditures on health care in 2019 and the cost of purchasing drugs in USD per capita were carried out.

The fifth section includes summarizing the results of the study to improve the financing of pharmaceutical supply to the population in Ukraine, taking into account the experience of the countries of the European region.

3. Material and methods

The research methodology is based on the principles of systems analysis and an interdisciplinary scientific and systemic approach. We used the empirical method (data collection, research and comparison), the method of comparative analysis and aggregation of statistical data, the graphical method for presenting the results. Data processing and analysis was done using the Microsoft Office Excel 2010 spreadsheet processor.

To summarize the results, we ranked and grouped macroeconomic indicators into three groups (n): high, medium, and relatively low. According to the formula for calculating the step length (h) [19]:

$$h = \frac{\max - \min}{n}, \quad (1)$$

where max – the maximum value of the indicator; min – the minimum value of the indicator; n=3 (number of level groups).

The step length of the interval in terms of health expenditures from GDP in the countries of the European region was 2.9. The first group (high level of health expenditures from GDP) was formed by regions, which were characterized by fluctuations in the range of 12.1 – 9.2, the second (medium level) – from 9.1 to 6.2, the third (low level) – from 6.1 to 3.2.

The step of the interval on the indicator of expenditures for pharmaceutical provision of the population in the structure of total expenditures on health was 9.6. The first group (high level of expenditures on pharmaceutical care) included regions with fluctuations in the range of 35.4–25.8, the second (medium level) – from 25.7 to 16.1, the third (low level) – from 16.0 to 6.4.

The step of the interval in terms of the cost of purchasing drugs in USD per capita was 272. The first group (high level of costs for the purchase of medicines) included regions that were characterized by fluctuations in the range of 894–621, the second (medium level) – from 620 to 347, the third (low level) – from 346 to 73.

4. Results

The socioeconomic determinants of health determine the conditions, in which people are born, grow, live and age, as well as the spheres of influence on those conditions, such as public policies, the state of economic development, demographic trends, etc. In order to make a comparative analysis of the socioeconomic determinants of health, we have identified three levels of indicators:

the level of health expenditure, the structure of health expenditure and the expenditure on medicines.

The ratio of health expenditure to the overall development of the economy may change over time because of the difference in the growth of health expenditure compared to the overall economic growth of the State. First of all, we analyzed the level of health expenditure in Ukraine (Fig. 2).

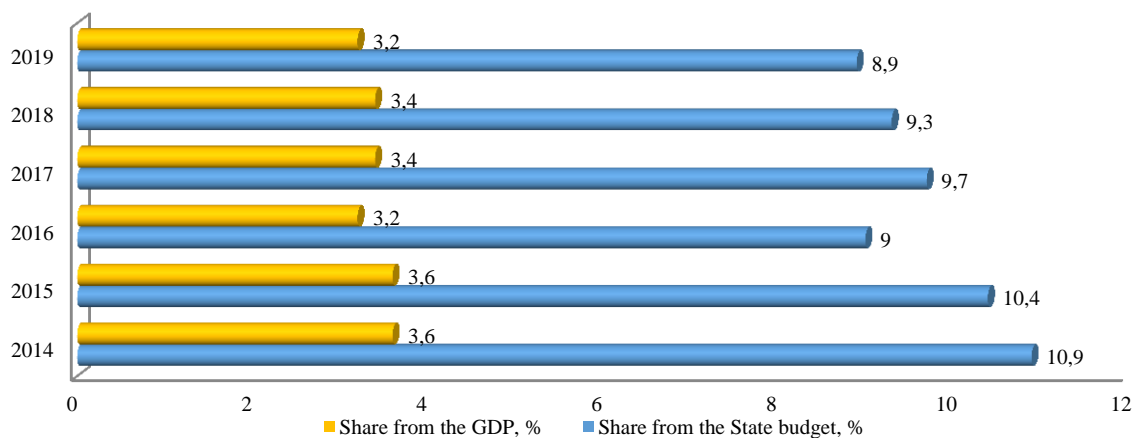


Fig. 2. Level of health expenditure in Ukraine in 2015 - 2019

From 2015 to 2019, the level of health care expenditure was 3.2 % – 3.6 % of GDP, which is below the 5 % recommended by WHO and provided for by the Law of Ukraine on October 19, 2017 No. 2168-VIII «On State financial guarantees of medical care for the population in Ukraine». This is connected with the unstable socioeconomic situation in the state: military conflict, servicing of foreign debt, «aging population» (increase of social pension expenses). At the same time, expenditure on the programme of medical guarantees is a protected item in the budget and in 2019 accounted for 8.9 % of the expenditure of the state budget in Ukraine.

The average level of health expenditure in countries of the European region is 8.2 % of GDP (Fig. 3). Switzerland has the highest rate of health expenditure in 2019 from the European region – 12.1 % of GDP. High-income countries, such as France, Sweden, Germany, spent about 11 % of GDP on health. Countries with low health expenditures (<6.1 %) include Ukraine, Turkey, Russia, Luxembourg and Romania. Overall, of the 34 countries analyzed in the European region, 13 have high levels of health expenditure, 16 have medium spending and 5 have low spending.

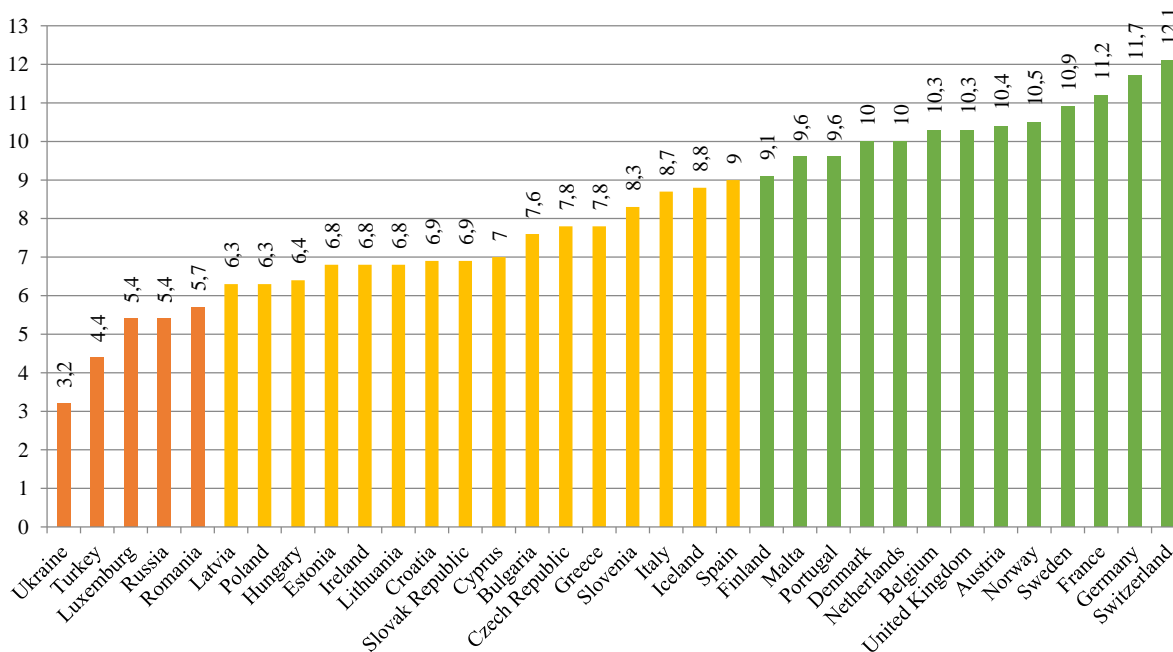


Fig. 3. Level of health expenditure in 2019 (% of GDP)

Together, public health financing schemes and compulsory health insurance are the main financing mechanisms in all countries (Fig. 4). The exception is Cyprus, where most of the costs are covered by voluntary health insurance. A separate source of funding is also the direct costs of patients, which are the highest in countries such as Ukraine, Russia, Bulgaria, Latvia and Greece.

In the next step, we analyze the share of pharmaceutical expenditure, which includes the cost of medi-

cines dispensed through a pharmacy (excluding medicines consumed in hospitals and other health facilities), in total health expenditure (Fig. 5).

The highest level of pharmaceutical expenditure in Bulgaria was found to be 35.4 %, which differs significantly from other countries in the European region. Overall, five countries have high level of pharmaceutical expenditures, 12 average and 17 low, representing 50 % of the total.

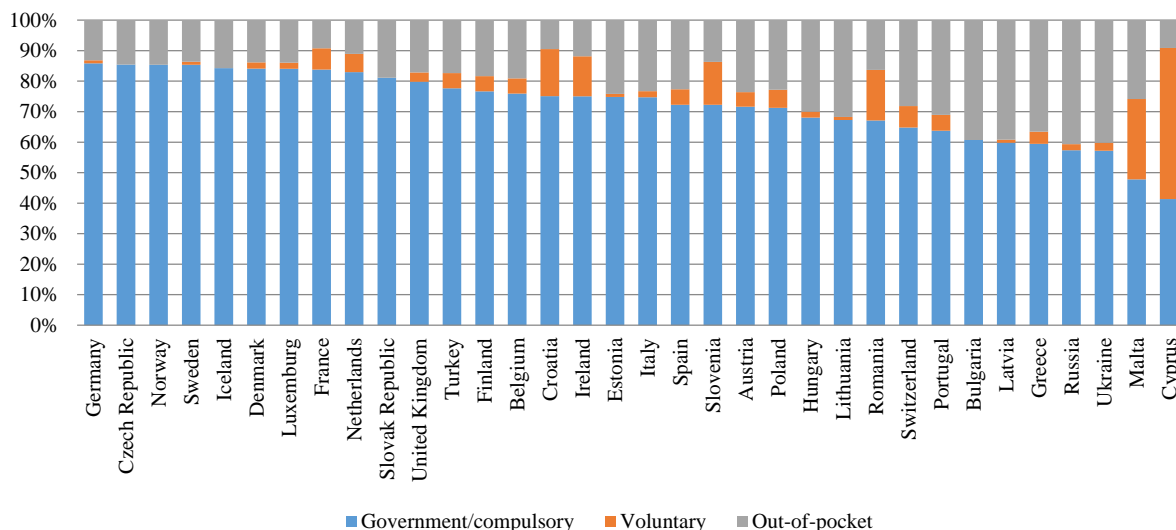


Fig. 4. Structure of health spending by sources in 2019

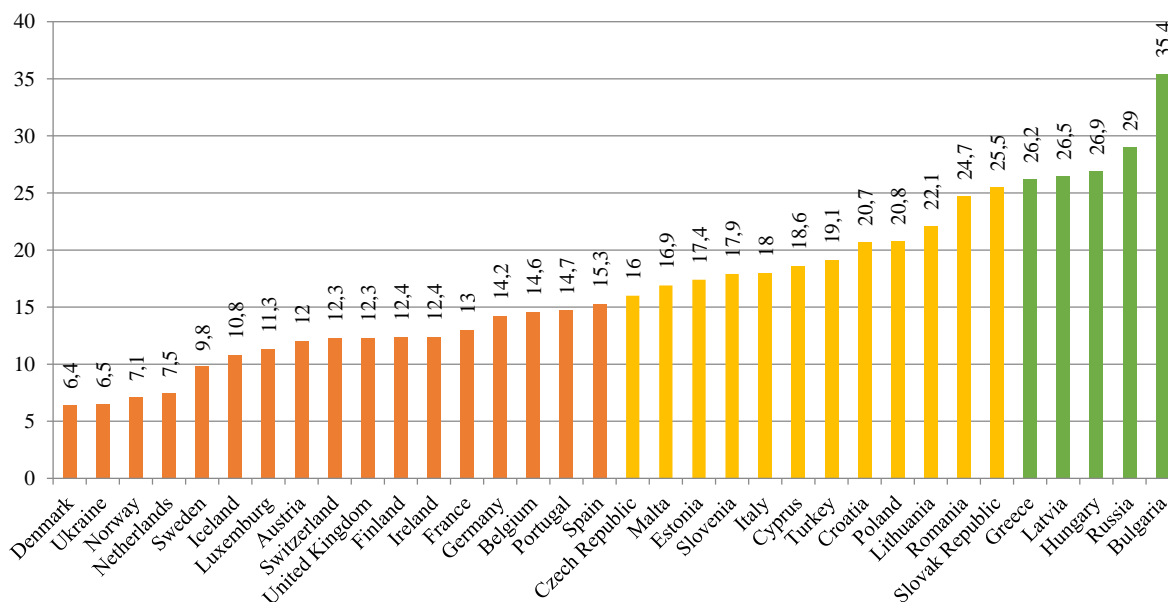


Fig. 5. Level of pharmaceutical expenditure in 2019 (% of health spending)

One of the key socioeconomic determinants of health is expenditure on medicines per person (Fig. 6). Thus, the highest value of this indicator from the European region in Switzerland is 894 USD per person. The lowest in Ukraine is 73 USD. Most countries (23, 67.65

%) have average medicines expenditures, three countries (Ukraine, Turkey, Denmark) have a low value and eight countries are high.

In the next stage we grouped the country of the European region according to key indicators (Table 1).

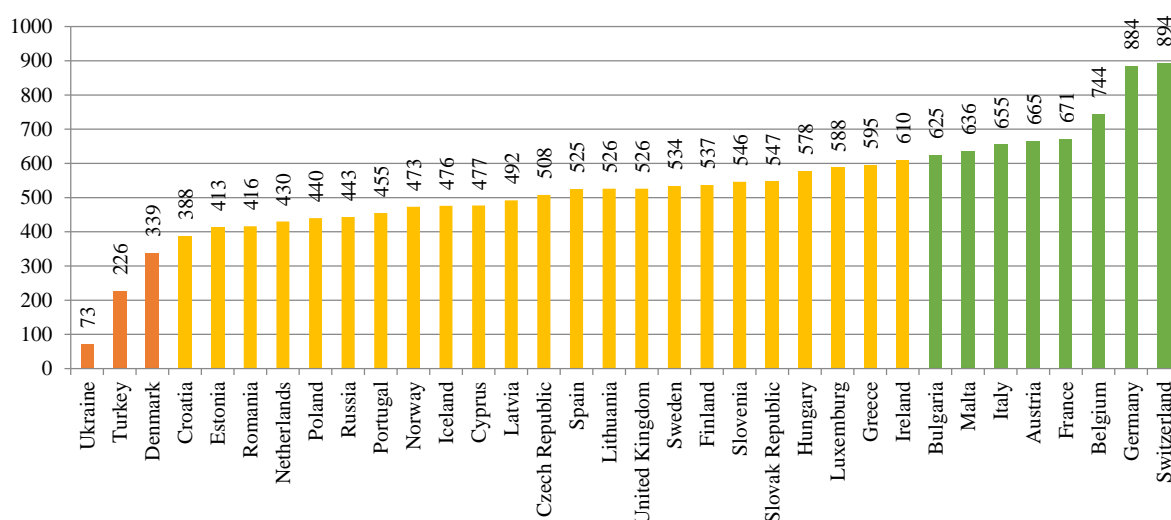


Fig. 6. Level of pharmaceutical expenditure in 2019 (USD per capita)

Table 1

Comparative analysis of key indicators of the socioeconomic determinants of health in countries of the European region

Indicators of the socioeconomic determinants	Level		
	High	Medium	Low
Health expenditure (% of GDP)	12.1 – 9.2	9.1 – 6.2	6.1 – 3.2
	Switzerland, Germany, France, Sweden, Norway, Austria, Belgium, Great Britain, Denmark, Netherlands, Malta, Portugal, Finland	Spain, Iceland, Italy, Slovenia, Greece, Czech Republic, Bulgaria, Cyprus, Slovakia, Croatia, Ireland, Lithuania, Estonia, Hungary, Poland, Latvia	Romania, Luxembourg, Russia, Turkey, Ukraine
Pharmaceutical expenditure (% of total health expenditure)	35.4 – 25.8	25.7 – 16.1	16.0 – 6.4
	Bulgaria, Russia, Hungary, Latvia, Greece	Slovakia, Romania, Lithuania, Poland, Croatia, Cyprus, Italy, Slovenia, Estonia, Malta, Czech Republic, Turkey	Spain, Portugal, Belgium, Germany, France, Ireland, Finland, Switzerland, United Kingdom, Austria, Luxembourg, Iceland, Sweden, Netherlands, Norway, Denmark, Ukraine
Expenses for purchasing medicines (USD per capital)	894 – 621	620 – 347	346 – 73
	Switzerland, Germany, Belgium, France, Austria, Italy, Malta, Bulgaria	Ireland, Greece, Luxembourg, Hungary, Slovakia, Slovenia, Finland, Sweden, United Kingdom, Lithuania, Spain, Czech Republic, Latvia, Cyprus, Iceland, Norway, Portugal, Russia, Poland, Netherlands, Romania, Estonia, Croatia	Ukraine, Turkey, Denmark

5. Discussion of research results

Based on the results of a comparative analysis of macroeconomic indicators that determine the effectiveness of the implementation of socio-economic determinants of health in Europe and Ukraine, the following conclusions can be made. First, the level of health expenditures during 2015–2019 does not meet WHO recommendations (below 5 %) and state guarantees. Thus, at the legislative level it is determined that the amount of funds of the State Budget of Ukraine directed to the provision of primary health care and pharmaceutical provision of the population is annually determined by the Law of Ukraine on the State Budget of Ukraine in the amount

of not less than 5 % of GDP. Expenditures on the medical guarantee program are protected items of budget expenditures. Therefore, for further implementation of health sector reforms, it is necessary to ensure the stability of the health budget.

Secondly, the analysis of the level of expenditures for pharmaceutical provision of the population in the structure of total expenditures on health care and expenditures for the purchase of drugs in USD per capita in 2019 in the European region showed that Ukraine has the lowest spending levels. In our opinion, this leads to the fact that a significant share of drugs is inaccessible to the majority of the population of Ukraine, in particular so-

cially vulnerable groups who do not have adequate social protection.

The low level of domestic macroeconomic indicators, compared to the data observed in the countries of the European region, suggests the need for more decisive action, which should lead to a reformatting of the role of the state in the formation of socio-economic determinants of health.

American scientists conducted studies of macroeconomic indicators that determine the effectiveness of the implementation of socio-economic determinants of health. Targeting resources to address what actually makes them sick is a cost-effective means to address what may eventually develop into an expensive chronic illness and overall health inequity. While we have long understood that prevention is less expensive than treatment in the health delivery system, the same is true for the social and environmental factors that impact our health. Other high-income countries already understand the cause and effect. It is time to address the root cause [20]. In addition, scientists on the basis of a study using international databases to search the literature, which is devoted to substantiating the conceptual model of social determinants of health (SDH) proved that reduction of socioeconomic inequalities in health requires understanding of mechanisms and causal pathways; therefore, every country needs to design the specific model. As the available models are for developed countries, lack of a specific model for developing ones is tangible. As there is no gold standard related to SES indicators, therefore, it is proposed to use the various indicators based on life course approach, which leads to understanding and adopting effective policy interventions [21].

The obtained results of the research allow forming a more rational state policy, which creates favourable conditions for the implementation of socio-economic determinants of health in Ukraine. In addition, they can be used only when making organizational and economic decisions.

Study limitations. At the current stage of the study, we have taken into account only a few macroeco-

nomical indicators that determine the effectiveness of the implementation of socio-economic determinants of health in Ukraine. At the same time, the analyzed indicators do not fully characterize the socio-economic policy of the state.

Prospects for further research. Thus, the main directions of further research include the following: expanding the list of indicators that determine the effectiveness of the implementation of socio-economic determinants of health and analysis of them in the dynamics of the years; determining the causal links between the socio-economic situation and socio-economic determinants of health of the population of Ukraine; substantiation of measures for construction of humanistic models of pharmaceutical provision of the population in the context of fast stratification of the Ukrainian society on social and economic indicators.

6. Conclusion

A comparative analysis of key indicators of the socio-economic determinants of health in the country of the European region has been carried out.

It has been determined that health-care expenditure averages 8.2 %. The lowest level of health-care expenditure is in Ukraine.

The majority of health-care expenditures are financed from the budget or from compulsory health insurance. The exception is Cyprus.

Half of the countries in Europe region have low expenditure on pharmaceutical supply as a proportion of total health expenditure; the highest level of expenditure in Bulgaria.

In most European countries, the cost of purchasing medicines is in the range of 346 – 619 USD per person a year.

Conflict of interests

The authors declare there is no conflict of interests.

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