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ВЕСТНИК

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NAS RK is pleased to announce that Bulletin of NAS RK scientific journal has been accepted for indexing in the Emerging Sources Citation Index, a new edition of Web of Science. Content in this index is under consideration by Clarivate Analytics to be accepted in the Science Citation Index Expanded, the Social Sciences Citation Index, and the Arts & Humanities Citation Index. The quality and depth of content Web of Science offers to researchers, authors, publishers, and institutions sets it apart from other research databases. The inclusion of Bulletin of NAS RK in the Emerging Sources Citation Index demonstrates our dedication to providing the most relevant and influential multidiscipline content to our community.

Қазақстан Республикасы Ұлттық ғылым академиясы «ҚР ҰҒА Хабаршысы» ғылыми журна-лының Web of Science-тің жаңаланған нұсқасы Emerging Sources Citation Index-те индекстелуге қабылданғанын хабарлайды. Бұл индекстелу барысында Clarivate Analytics компаниясы журналды одан әрі the Science Citation Index Expanded, the Social Sciences Citation Index және the Arts & Humanities Citation Index-ке қабылдау мәселесін қарастыруда. Web of Science зерттеушілер, авторлар, баспашылар мен мекемелерге контент тереңдігі мен сапасын ұсынады. ҚР ҰҒА Хабаршысының Emerging Sources Citation Index-ке енуі біздің қоғамдастық үшін ең өзекті және беделді мультидисциплинарлы контентке адалдығымызды білдіреді.

НАН РК сообщает, что научный журнал «Вестник НАН РК» был принят для индексирования в Emerging Sources CitationIndex, обновленной версии Web of Science. Содержание в этом индек-сировании находится в стадии рассмотрения компанией Clarivate Analytics для дальнейшего принятия журнала в the Science Citation Index Expanded, the Social Sciences Citation Index и the Arts & Humanities Citation Index. Web of Science предлагает качество и глубину контента для исследователей, авторов, издателей и учреждений. Включение Вестника НАН РК в Emerging Sources Citation Index демонстрирует нашу приверженность к наиболее актуальному и влиятельному мультидисциплинарному контенту для нашего сообщества.

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ENVIRONMENTAL QUALITY AS A FACTOR OF INFLUENCE ON MORTALITY FROM COVID-19

Abstract. It is essential to assess the destructive factors influencing the mortality rate of patients with COVID-19. This analysis may be necessary to form a roadmap for governments to focus on preventing and reducing the effects of COVID-19. The research aims to analyze the factors influencing mortality caused by COVID-19, based on data from countries around the world and national levels. Among such factors, the influence of the environmental component is highlighted. Methodology and scientific approaches: a comparative analysis – in establishing the average level of indicators for groups of countries depending on the human development index HDI, as well as for critical indicators to characterize the level of environmental "load" at the level of regions of Ukraine, synthesis method – economically justified analysis results average level of indicators for groups of countries depending on the human development index HDI, the method of generalization – at formation the general conclusions of the study, statistical methods (correlations and the method of averages) – in assessing the impact of factors on mortality from COVID-19. The study results: the article conducted a study on the analysis of factors influencing mortality caused by COVID-19. Indicators that participate in the analysis of factors influencing mortality from COVID-19 are identified.

The leading indicators for assessing the standard of living and health of the population used in the world are marked. The average levels of indicators for groups of countries depending on the human development index HDI are calculated. The dependences of these indicators and their impact on the mortality rate on COVID-19 are economically substantiated. In terms of regions of Ukraine, an analysis of the effects of indicators that affect the mortality rate from COVID-19, using some components of the environmental "load." The study of the leading indicators for assessing the consequences of the spread of COVID-19 is carried out, and their significance at the regional level is analyzed. The possibility of using the results in further research may relate to the formation of an economic model of factors influencing mortality caused by COVID-19, which will predict different scenarios of destructive indicators on mortality from COVID-19 depending on the implementation of measures to combat the spread of the disease among governments countries. The study's practical significance is that based on the analysis of the results of the survey, governments can form effective management decisions to counter the spread of COVID-19 at the international and national levels. The social consequences include the social effects that result from the results of this analysis through effective health care decisions by governments.

Key words: assessment, level of economic development, mortality, ecology, COVID-19.

Introduction. With the development of modern market relations, there is a need to manage the risks of external action, including the global epidemic caused by the coronavirus COVID-19, which negatively affects the health of the population and the level of economic life in the world. The authors note the need for scientific research because their quality will depend on the organizational and financial management of threats to the mortality of COVID-19 and the formation of effective strategies to control the disease COVID-19 and prevent recurrence of these disasters in the future. It should also be noted that based on the analysis of destructive factors influencing mortality caused by COVID-19, it is possible to form a practical roadmap for governments of countries, regions, districts on the system of reducing mortality from COVID-19. It is also necessary to divide this issue into the level of external action (delayed international recognition of the problem of the disease, simultaneous quarantine in different countries, almost complete lack of resistance to the spread of the disease in "third" world countries, etc.), which led to the rapid spread of the disease, between states, and at the level of internal action (untimely: introduction of weekend quarantine, total quarantine in the "second" wave, inadequate control over compliance with quarantine restrictions), which causes the spread of COVID-19 in the country.

Analysis of recent research and publications. Many scientists are interested in this topic because

it is incredibly relevant, based on the fact that COVID-19 causes economic, social, environmental damage to countries and has large-scale humanitarian consequences due to high mortality and inability to combat the disease. On COVID-19, at the present stage. In the fourth quarter of 2020, the licensing of experimental vaccines against COVID-19, which were developed in the world's leading countries (USA, Germany, Israel), has not yet been carried out, which affects the deployment of the "second wave" of the disease.

Researcher Harris J. studied the effects of COVID-19 on the incidence rate among the population of Florida, USA [4]. Scientists Malet R., Reynes F., Landa G., Hamdi-Cherif M., Sausei A. [8] evaluated the short-term and long-term economic effects of COVID-19 in France. Scientist Price G.N. [13] studied the impact of the COVID-19 pandemic on the ethical behavior of people in society, which characterizes the level of the psychological component of life during the global pandemic. Authors MaisigovaL.A. et al. In their article [7], pay attention to indicators of the effectiveness of national health systems in different countries (USA, UK, Russia, etc.) and the audit of such systems. Much attention is paid to the fact that demographic indicators, indicators of average life expectancy, indicators of the general morbidity of the population и др. должныбытьучтеныприоценке medical effectiveness. Scientist Rogers G. [15] noted the impact of the COVID-19 pandemic on the level of labor resources in India. The processes of economic modeling of scenarios for the development of the COVID-19 pandemic in the country and the study of predicting the negative consequences of its impact on public life are essential, and this issue at the level of South Korea was studied by scientists Park N., Kim C. [11]. Authors Yermolenko V.M. et al., in their article [17], reveal the problems with implementing medical reform in Ukraine, especially in assisting the rural population, where more than 30% of the total population of Ukraine lives. The low level of provision with modern medical equipment, equipment, and medicines makes it practically impossible to provide timely and high-quality medical services in rural areas. The medical centers themselves in rural areas are in an unsatisfactory state. The level of development of the country is of great importance and therefore its medicine. For example, for Ukraine, COVID-19 has become a challenge for the entire healthcare system. Of course, the facts indicated in the article of these authors make it impossible to provide proper care for the moderate or severe period of COVID-19, which can be a factor in mortality even for the young population. In addition, one of the determining factors affecting the mortality rate from COVID-19 is not only economic factors but also the ecological situation in the country, which causes hassle in Ukraine. Among the analysis of literature sources, there is a lack of scientific substantiation of the analysis of destructive factors influencing mortality caused by COVID-19, which leads to the formation of the purpose and objectives of this study.

Setting objectives.The research aims to analyze the factors influencing the mortality caused by COVID-19 disease, based on data from countries worldwide and national levels (including the impact of environmental factors).

The main tasks of scientific research include the following:

- to determine indicators for the analysis of factors influencing mortality from COVID-19;
- note the leading indicators for assessing the standard of living and health of the population used in the world;
- calculate the average levels of indicators for groups of countries around the world depending on the human development index HDI and economically justify their impact on the level of disease at COVID-19;
- to analyze the indicators that affect the mortality rate from COVID-19 in terms of regions of Ukraine, using specific components of the environmental "load";
- to analyze the leading indicators to characterize the level of environmental "load" in the regions of Ukraine with the definition of regions of the country with the highest and lowest level of ecological "load";
- to analyze the leading indicators for assessing the consequences of the spread of COVID-19 at the regional level;
- to make appropriate conclusions on the subject of scientific research.

Results. COVID-19 disease and mortality statistics are collected internationally by many organizations, including the Worldwide Dashboard [2].

Even a very cursory analysis of the figures at this link makes it possible to conclude that mortality in the most developed countries is higher than in the "third" world. Explanations of this "paradox" can be the following: countries with a low development level (including common indicators of the Human Development Index) have much fewer opportunities for testing to identify both patients with COVID-19 and, accordingly, the causes of death due to this disease; in countries with a low development level, we have a younger population, which, because it is not at risk for this disease, affects the lower mortality rate.

However, in the most developed countries, the fact that the situation with the state of the environment is better than the situation in another world is still important. But the state of the environment also has its "paradoxes." In the most backward agricultural countries, the problem with the environment may be better because there is less industrial production, hence fewer emissions. The worst situation will be in countries with lower than average levels of development, where there is still no attention to

the environment, which is in the most developed countries. Still, there is already significant pollution due to the organization of industrial production.

So, let's analyze what factors currently (actually, this is the first eight months of the spread of COVID-19, and then the situation may change) affect mortality from COVID-19.

In general, the indicator that will characterize mortality for our analysis will be the death rate per 1 million population [2].

Let's take it, not the percentage of deaths from the number of patients, because the registration of the number of patients depends on the testing capabilities and the latter on the country's level of development.

Therefore, in table 1, we give the designation and essence of indicators for further analysis according to sources [2,1].

Table 1 – Designation of indicators for analysis

Designation	Indicator
deaths_per_mln	The total number of deaths per 1 million population
md_age	Median age, years
65_old	Percentage of people 65-70 years,%
70_old	Percentage of people over 70 years,%
gdp_per_cap	GDP per capita, USD
pp_share	Share of poor people,%
cardvasc_rate	The mortality rate from cardiovascular diseases per 1000 population
prev_diab	Prevalence of diabetes per 1000 population
hosp_bed_per_thous	Number of hospital beds per 1,000 population
life_expect	Life expectancy, years
HDI	Human Development Index

To date, too little time has passed for scientists to obtain more or less evidence of factors influencing mortality from COVID-19.

However, researchers from different countries indicate that mortality and severity of the disease are affected by the general health of the patient with COVID-19: age and the presence of chronicdiseases (diabetes, cardiovascular disease). Also, critical, of course, is the availability of beds which generally characterizes the state of medicine, in hospitals, the level of development of the country, and the "environmental" burden that affects the health of the nation. To assess the latter, the Environmental Performance Index, EPI a composite indicator of the state of the environment and the effectiveness of natural resource management [3]. The EPI has been calculated since 2006 under the United Nations Development Program according to a methodology developed by researchers at Yale University in collaboration with a group of independent international experts. Statistical data of national institutes and international organizations are used as data. The results are published once every two years, the last – for 2020.

EPI has two key components: Environmental Health (HLT) and Ecosystem Vitality (ECO), which have a combined weight of 40 and 60%, respectively. Each of these components, in turn, contains sub-indices and indicators: Environmental Health – 4 sub-indices and seven indicators, Ecosystem Vitality – 7 sub-indices, and 25 indicators. That is when determining the EPI in 2020. used 32 indicators, previously – 22, including reflecting the state of the environment with its impact on public health, the degree of burden of economic activity on the environment, and others.

In terms of Environmental Health (HLT), it takes into account Air Quality (AQ), Sanitation & Drinking Water (SDW), Heavy Metals issue (HM) and Waste Management (WM). The overall result is a combined value, which for 2020 is designated by the authors [3] as EPI Score 2020.

Traditionally, the Scandinavian countries have the best values (close to 100) in this index, and the lowest – Afghanistan, Bangladesh, India.

According to [3], in different years (among 160-180 countries for which the EPI was calculated), Ukraine ranked approximately 90th in air quality and 65th water quality.

Using data on mortality from COVID-19, environmental indicators, age, the prevalence of diseases that complicate the course of COVID-19, key economic macroeconomic indicators, as well as the level of human development, we analyze the relevant available data for 178 countries at the end III quarter 2020. The data were grouped by country according to the level of human development HDI (table 2):

Table 2 – Average levels for groups of countries depending on the human development index HDI (calculated by the authors)

Indexes	Groups of countries by the value of the Human Development Index						
	under 0,5	0,5-0,6	0,6-0,7	0,7-0,8	0,8-0,9	0,9-1,0	Total
Number of countries	22	28	26	48	32	22	178
deaths_per_mln	15,3	23,8	177,0	252,4	314,0	269,9	191,2

md_age	19,2	20,6	25,7	32,8	39,0	41,1	30,2
65_old	3,0	3,4	5,2	8,7	13,4	17,3	8,5
70_old	1,7	2,0	3,2	5,4	8,8	11,3	5,4
gdp_per_cap	1550,0	4052,5	6960,7	14534,0	34852,2	50382,9	18009,3
pp_share	43,1	34,0	10,0	1,7	1,0	0,4	14,4
cardvasc_rate	328,0	294,2	306,0	266,1	242,3	123,4	262,5
prev_diab	4,5	6,0	8,1	9,7	9,2	6,7	7,8
hosp_bed_per_thous	0,7	1,2	2,0	3,2	4,4	4,6	2,9
life_expect	61,9	64,7	71,2	75,2	78,0	82,3	72,7
HDI	0,444	0,547	0,657	0,755	0,843	0,923	0,706
Ecological indicators							
EPI	30,0	31,8	37,2	46,3	57,6	74,7	46,2
EH	20,0	21,9	31,2	46,0	62,1	90,8	45,3
AQ	28,0	25,3	29,6	42,7	55,7	87,8	44,1
SDW	12,1	17,2	33,6	50,5	69,8	94,8	47,5
HM	33,0	39,5	36,5	52,9	66,2	90,6	53,1

Note. Symbols and units of measurement see in table.1.

The data in Table 2 show that as the human development index increases, the number of deaths caused by COVID-19 per 1 million population first tends to increase (with an increase in HDI) and then decreases. For the median age in general, with its rise in HDI groups, the mortality rate increases in parallel, except for the last group of 22 countries with the highest HDI: with a mortality rate of 269.9, the median age is 41.1 years. But for the group where HDI is in the range of 0.8-0.9, with a median age of 39.0 years, the average mortality rate is 314 cases per 1 million. In the last group of countries with the highest HDI level and the highest proportion of older adults, the mortality rate from COVID-19 is lower than in the previous group of 32 countries. The prevalence of diabetes has a similar trend (in countries with the highest HDI, it is almost average, not the highest level).

Other indicators are quite logical with the growth of HDI:

- A decrease in the prevalence of poverty;
- An increase in GDP per capita;
- An increase in life expectancy;
- An increase in the number of hospital beds.

Environmental indicators also show a clear trend: with increasing HDI increases EPI Score and its components The Environmental Health, The Air Quality, The Sanitation & Drinking Water, The Heavy Metals issue, although with some exceptions (for a group of 28 countries on The Air Quality and a group of 26 countries on The Heavy Metals issue).

In other words, for countries with the highest HDI levels, it is true that with increasing environmental quality, we have better public health and lower mortality rates from COVID-19 than for the previous group with HDI from 0.8 to 0.9. But such a conclusion is valid for countries with the highest human development. The "paradoxical" increase in mortality with increasing HDI against the background of an overall improvement in the environment in these countries can be explained by the more significant influence of the median age, which in groups with HDI from 0.3 to 0.8 increased rapidly from 19.2 to 32, 8 years old. While for the last two groups with an HDI greater than 0.8 have only risen from 39.0 to 41.1 years.

The correlation analysis yielded the following main results: the mortality rate mainly depends on the median age of the population (Pearson's correlation coefficient 0.40) and the quality of the environment according to the EPI Score (Pearson's correlation coefficient 0.45) at $p = 0.05$. Other factors from the table. 2 have a much lower correlation with mortality rates.

Further, to verify the impact of these factors on the mortality rate in terms of regions of Ukraine, we use the information on specific components of environmental "load," taken from the statistical collection "Environment of Ukraine for 2018" [16] and the National Report on drinking water quality and drinking water supply in Ukraine in 2018"[9].

The source [12] states that the population stratification of the region's population can be carried out using an integrated indicator of environmental quality, which takes into account: pollution Cs137, gamma radiation doses, air pollutants, surface air pollution from stationary sources, stationary sources—toxic wastes of industrial production of I-III class of danger.

Of course, in addition to these indicators, the following are essential: the concentration of nitrates in the soil (mg/kg), the average annual dose of radon radiation (MZv). But the environmental monitoring system is not working correctly in Ukraine. Thus,

measurements of nitrate concentration (carried out by the Central Geophysical Observatory [14]) are carried out quite rarely; there is no coverage of all regions of the country and a centralized source of information about the results. Information on the contamination of the Cs137 territory and the gamma radiation dose in the context of the regions of Ukraine is also episodic. It is often given only for areas that have received the status of contaminated by the Chernobyl disaster. But there are others, including natural, the causes of significant levels of radiation. By the way, according to ecologists, in the areas adjacent to the uranium mines of the Kirovograd region, radiation levels are not measured.

Regarding the content of nitrates in the soils of agricultural lands, according to the materials of the "Review of the state of environmental pollution in Ukraine" [14], it was generally below the permissible level. And the most significant values were found in the soils of Vinnytsia, Poltava, and Zaporizhia regions (2016) and Cherkasy, Rivne, Odesa regions (2018).

Therefore, taking into account the information opportunities, the key characteristics of the impact on the health of the population of Ukraine will be the following:

- emissions of pollutants into the atmosphere, thousand tons [14];
- wastewater discharge, million cubic meters[16];
- water samples that did not meet the standards for sanitary and chemical indicators,% of the total [9];
- creation of wastes of I-III classes, thousand tons [16];

They are because large areas of a particular region are classified as contaminated due to the Chornobyl catastrophe or due to natural causes (uranium deposits, etc.).

Using data on the volume of emissions into the atmosphere, wastewater discharges, the generation of waste in absolute units (tons or cubic meters), we list them in indicators per capita of a particular area (from [10]). And then compare with the average values in Ukraine. Of course, for example, water quality should be such that samples that do not meet the standards should not be. However, since we do not make comparisons relative to the middle or between countries, we choose the average level in Ukraine as a basis. The authors summarized the indicators summarized in Table 3 per person, taking into account the general population in the regions of Ukraine. And on this basis, the number of indicators (out of 5) above the national average per 1 person.

Table 3 – The leading indicators to characterize the level of environmental "load"

Region	Emissions of pollutants into the atmosphere, thousands of tons	Wastewater discharge, million cubic meters	Water samples that did not meet sanitary and chemical parameters, %	Creation of waste of I-III classes, thousand tons	Average annual dose of radon irradiation, MZv	The number of indicators that are above the national average per 1 person
Areas with the highest rates						
Donetsk	790,2	1035	41,6	152,6	4,8	5
Zaporozhye	174,7	888	47,2	18,3	5,2	4
Dnepropetrovsk	614,3	693	47,9	26,3	3,1	3
Kharkiv	44,7	299	19,5	60,4	2,2	3
Areas with the lowest rates						
Volyn	5,1	28	7	0,9	2,2	-
Transcarpathian	4	37	5,2	0,6	2,2	-
Ivano-Frankivsk	221,4	62	1,2	3,8	2,2	1
Mykolayivska	13,1	65	8	21,5	2,2	1
Rivne	9,1	53	39,6	0,5	3,1	1
Ternopil	10,2	36	5	14,9	3,1	-
Khmelnytsky	22,1	47	12,3	2,7	2,2	-
Chernivtsi	2,7	40	1,1	0,1	2,2	-

The main results are as follows: among the oblasts for which we have the most significant exceedances of the five key ones are Donetsk, Zaporizhia, Dnipropetrovsk, Kharkiv. And the lowest levels of "environmental load" are typical for Volyn, Zakarpattia, Ivano-Frankivsk, Mykolaiv, Rivne, Ternopil, Khmelnytsky, Chernivtsi regions.

This means that the general level of health (and life expectancy) there should be generally better than that of the population of the first group of regions.

The data confirm this: Ivano-Frankivsk (life expectancy – 73.67 years), Ternopil (73.39

years), Chernivtsi (73.83 years), Rivne (71.88 years) against the indicators in the region's most "contaminated"regions: Dnipropetrovsk (70.46), Zaporizhia (71.11), Kharkiv (71.4).

This conclusion is generally confirmed by the results of self-assessment of public health, which is currently conducted annually since 2016, and the consequences of which are presented in the form of a report "Health Index. Ukraine. The results of a nationwide study"[5]. Thus, in Ivano-Frankivsk and Ternopil regions, the information records the best health indicators.

Finally, the analysis of key indicators on the consequences of the spread of COVID-19 gives the following conclusions: the indicator "recovered / sick" looks better data from the following regions: Vinnytsia, Volyn, Zakarpattia, Lviv, Rivne, and Ternopil regions than the results of Kharkiv, Zaporizhia, Odesa, Dnepropetrovsk regions.

Table 4 – Key indicators for assessing the effects of the spread of COVID-19 as of the date of analysis

Region	Sick	Recovered	Dead	Recovered per 100 patients
Vinnytsia	15658	8891	271	56,78
Volyn	22221	14517	403	65,33
Transcarpathian	21903	12123	510	55,35
Rivne	28461	21215	360	74,54
Ternopil	26051	20274	360	77,82
Dnepropetrovsk	30606	12343	763	40,33
Zaporozhye	25242	4112	256	16,29
Kharkiv	51992	23743	715	45,67
Odssa	38766	8730	517	22,52
Ukraine	647976	299358	11263	46,20

It should be noted the importance of analyzing the impact of destructive factors on mortality caused by COVID-19, taking into account the environmental component, because it, as the analysis showed, also directly affects the population's health, and hence the consequences of COVID-19.

Conclusions. Indicators that participate in the analysis of factors influencing mortality from COVID-19 are identified. The leading indicators for assessing the standard of living and health of the population used in the world are marked. The average levels of indicators for groups of countries depending on the human development index HDI were calculated, and their impact on mortality from COVID-19 was economically justified. It has been found that as the human development index increases, the number of deaths caused by COVID-19 per 1 million population first tends to increase (with an increase in HDI) and then decreases. The analysis of the impact of indicators that affect the mortality rate from COVID-19 in the context of the regions of Ukraine, using some components of the environmental "load." The leading indicators for characterization of the level of ecological "load" in the regions of Ukraine with the definition of the regions of the country with the highest and lowest level of environmental "load" are analyzed. The main results are as follows: among the oblasts for which we have the most significant exceedances of the five key ones are Donetsk, Zaporizhia, Dnipropetrovsk, Kharkiv. An analysis of the leading indicators for assessing the consequences of the spread of COVID-19 at the regional level. The result of the study of critical indicators on the effects of the reach of COVID-19 gives the following conclusions: according to the indicator "recovered / sick," the data of the following regions look better: Vinnytsia, Volyn, Zakarpattia, Lviv, Rivne, and Ternopil regions than the results of Kharkiv, Zaporizhia, Odesa, Dnipropetrovsk areas. Thus, the study's main result is that factors influence COVID-19 (such as mortality and severity of the disease) in the population's age structure and the value of the human development index (when comparing countries). In the case of a comparison between the regions of Ukraine, we must consider the impact of the factor of "environmental load" and the general level of health of the population in the region. The possibility of using the results in further research may relate to the formation of an economic model of factors influencing mortality caused by COVID-19, which will predict different scenarios of destructive elements COVID-19 on morbidity depending on the implementation of measures to combat the spread of COVID-19 among the population by governments.

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ҚОРШАҒАН ОРТА САПАСЫНЫҢ COVID-19 ӨЛІМІНЕ ӘСЕР ЕТЕТІН ФАКТОРЫ

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КАЧЕСТВО ОКРУЖАЮЩЕЙ СРЕДЫ КАК ФАКТОР ВЛИЯНИЯ НА СМЕРТНОСТЬ ОТ COVID-19

Аннотация. Целью научного исследования является проведение анализа факторов влияния на смертность, вызванную заболеванием COVID-19, на основе данных по странам мира и национальном уровне. Среди таких факторов выделено влияние экологической составляющей. Методология и научные подходы: сравнительный анализ – при установлении среднего уровня показателей для групп стран в зависимости от индекса человеческого развития (HDI), а также для основных показателей для характеристики уровня экологического «нагрузка» на уровне регионов Украины, метод синтеза – при экономическом обоснованные полученных результатов анализа среднего уровня показателей для групп стран в зависимости от индекса человеческого развития HDI, метод обобщения – при формировании общих выводов исследования, статистические методы (корреляции и метод средних) – при оценке влияния факторов на смертность от COVID-19. Проведено исследование по анализу факторов влияния на смертность, вызванную заболеванием COVID-19. Определены показатели, которые участвуют в анализе факторов влияния на смертность от COVID-19. Отмечены основные индикаторы оценки уровня жизни и здоровья населения, используемые в мире. Рассчитаны средние уровни показателей для групп стран в зависимости от индекса человеческого развития HDI и экономически обоснованы зависимости данных показателей и их влияние на уровень смертности на COVID-19. В разрезе областей Украины проведен анализ влияния показателей, которые влияют на уровень смертности от COVID-19, используя отдельные составляющие экологической «нагрузки». Проведен анализ основных показателей для оценки последствий распространения COVID-19 и проанализированы их значение на региональном уровне. Возможность использования результатов в дальнейших исследованиях может касаться формирования экономической модели факторов влияния на смертность, вызванную заболеванием COVID-19, что позволит спрогнозировать различные сценарии влияния деструктивных факторов на уровень смертности от COVID-19 в зависимости от внедрения мер противодействия распространению данной болезни среди населения правительствами стран. Практическое значение исследования заключается в том, что на основе проведенного анализа результатов исследования является возможность формирования действенных управленческих решений правительствами стран с целью противодействия распространению COVID-19 на международном и наиональном уровнях. Исследование выполнено в рамках научно-исследовательской темы «Механизм синергетического взаимодействия инструментов экономической политики как драйвер стабилизации секторов экономики в контексте растущих факторов уязвимости вследствие пандемии COVID-19» (Регистрационный номер проекта: 0120U104765), финансируемой за счет средств Национального фонда исследований Украины, 2020- 2021.

Ключевые слова: оценка, уровень экономического развития, смертность, экология, COVID-19.

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