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DEMOGRAPHIC SITUATION AND HEALTH STATUS ANALYSIS OF THE ADULT POPULATION IN THE NORTHEASTERN REGION OF UKRAINE

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The analysis of demographic situation and health indices of the adult population in the north-eastern region of Ukraine (on the example of the Sumy region) was carried out. Negative tendencies of regional demographic indices and their extremely high rates were determined: population decline in the region, negative natural increase rate, ultra-high mortality rates vs. ultra-low fertility rate, etc. The “peak” values of morbidity and prevalence rate occurred on 2016 and 2017, while in 2019 the prevalence rate and the level of primary disease incidence in the adult population of Sumy region had a gradual downward trend in almost all classes of diseases. In 2019, the first place in the structure of the prevalence rate among the population of the region, as in previous years, was occupied by diseases of the circulatory system (33.30%). The second place belonged to respiratory diseases (17.14%), the third place in the ranking went to digestive diseases (9.85%). The disease distribution was dominated by respiratory diseases (43.94%). Diseases of the circulatory system took second place (8.03%), injuries, poisoning and some other consequences of external causes – the third one (7.97%).

Key words: demographic indices, health status, primary disease incidence, prevalence rate.

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АНАЛІЗ ДЕМОГРАФІЧНОЇ СИТУАЦІЇ ТА СТАНУ ЗДОРОВ'Я ДОРОСЛОГО НАСЕЛЕННЯ ПІВНІЧНО-СХІДНОГО РЕГІОНУ УКРАЇНИ

Здійснено аналіз демографічної ситуації та показників стану здоров'я дорослого населення північно-східного регіону України (на прикладі Сумської області). Визначено негативні тенденції демографічних показників регіону та їх надвисокі темпи: скорочення чисельності населення регіону, від'ємний природний приріст, надвисока смертність – наднизька народжуваність, тощо. «Пікові» значення показників захворюваності та поширеності хвороб припадали на 2016 та 2017 роки, тоді як у 2019 році рівень поширеності хвороб та рівень первинної захворюваності дорослого населення Сумської області мав поступові тенденції до зниження практично за всіма класами хвороб. Перше місце у структурі поширеності хвороб серед населення регіону у 2019 році, як і в попередні роки, займали хвороби системи кровообігу (33,30%). Друге місце належало хворобам органів дихання (17,14%), третє місце у рейтингу залишилось за хворобами органів травлення (9,85%). У структурі захворюваності переважали хвороби органів дихання (43,94%). Хвороби системи кровообігу займали друге місце (8,03%), травми, отруєння та деякі інші наслідки дії зовнішніх причин – третє (7,97%).

Ключові слова: демографічні показники, стан здоров'я, первинна захворюваність, поширеність хвороб.

The work is a fragment of the research project “Comprehensive study of the functional state, adaptive capacity of the organism and the risk of disease in different population groups”, state registration No. 0120U100799.

The health status of the population and the level of health care system is an index of the economic and social well-being of any state [12, 13].

Improving health systems is one of the top priorities for countries across the European region. One of the directions of the new National Health Care System is the public health organization based on the principles of preventive (preserving) medicine [2, 9].

The benchmark of the reform was the European Union program “European Strategic Plan “Health 2020: the foundations of European policy in support of state and society in the interests of health and well-being” [1, 8].

The strategy of health care development in Ukraine is determined by the state and dynamics of public health, the activities of health care institutions, as well as the social, economic and political situation in the country [1, 11].

Health status analysis in Ukraine shows an unsatisfactory medical and demographic situation, which is manifested in low fertility rates, relatively high mortality rates, especially for men of working age, negative natural increase rate, reduction in life expectancy, high prevalence of chronic non-communicable diseases, Anti-Terrorist Operation/Joint Forces Operation in the East of the country [5, 10, 12, 13, 14].

During the years of independence (1991 – early 2020), Ukraine lost more than 10 million people [6]. In 2019, the rate of natural population decline in Ukraine was 272.3 thousand people [6].

The main reason for the decline in the population of Ukraine is a negative natural increase rate – the excess of the number of deaths over the number of live births: 54 live births per 100 deaths [7].

The coefficient of natural increase (decline) has geographical features, which are manifested in its high values in the north, northeast and east of the country: Chernihiv region (-12.3%), Sumy (-9.9%), Poltava (-9.6%), Kirovohrad and Zaporizhzhya (-8.9%), Kharkiv (-8.6%) and Dnipropetrovsk region (-8.6%) [9].

The total mortality rate in Ukraine is twice as high as in the European Union, and the mortality rate of the working age population is 2-4 times higher. In the mortality distribution in Ukraine in recent decades, the first place is occupied by diseases of the circulatory system, tumors occupy the second position, external causes of mortality belongs to the third place [3, 10, 14, 15].

Given the protracted medical and demographic crisis in Ukraine, one of the most important priorities of public policy should be to preserving and improving the health of the population, and the priority of the nation itself – the formation of a healthy lifestyle.

The purpose of the study was to analyze demographic indices and the health status of the adult population in the north-eastern region of Ukraine (on the example of Sumy region).

Materials and methods. The information base of the study was the express issues of the State Statistics Service of Ukraine, statistical reports on the health status of Ukraine and Sumy region for 2010–2019.

The health status of the adult population was determined by the indices of primary disease distribution and prevalence rate by the main classes of diseases according to ICD-10.

The analysis of statistical data was carried out without taking into account the Temporarily Occupied Territory of the Autonomous Republic of Crimea, Sevastopol and part of the Temporarily Occupied Territories in Donetsk and Luhansk regions.

Analytical and statistical methods, method of system approach and comparative analysis were used in the study. Statistical processing was performed according to generally accepted methods of variation statistics using the STATISTICA 8.0 software.

Results of the study and their discussion. Analysis of the demographic situation of the region makes it possible to compare the results of past and present demographic processes in order to predict its further social and economic development.

As of January 1, 2020, the current population of Sumy region was 1,068,247 people. During 2019, the population decreased by 13,171 people, which is mainly the result of the negative dynamics of demographic processes due to changes in the natural and migratory components of the region's

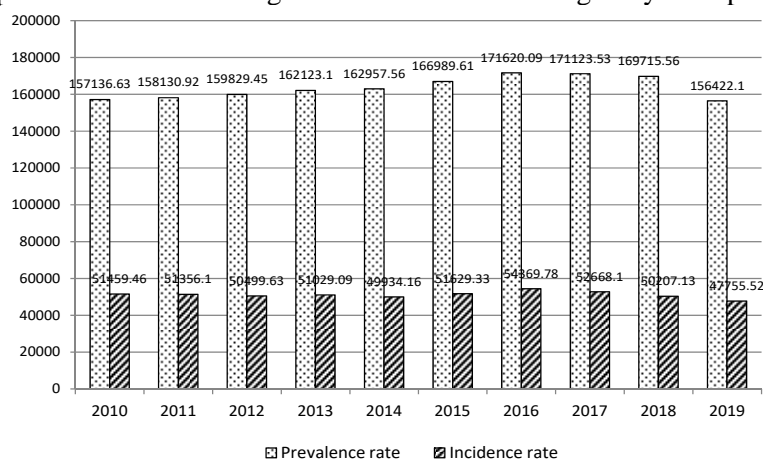


Fig. 1. Dynamics of prevalence rate and morbidity of the adult population of Sumy region for 2010–2019 (per 100 thousand population)

demographic development. The population decline in the region was due to a natural decrease of 10,921 people, due to the migrational one – by 2,250 people. The number of deaths was 2.5 times higher than the number of live births [4].

Against the background of a steady population decline the region (over the past 10 years), the incidence and prevalence of diseases among the population remain high, with peak values in 2016 and 2017 (fig. 1).

The prevalence rate in 2019 decreased by 9.72% and 9.40%, respectively, compared to 2016 and 2017.

The primary disease incidence in 2019 was 47,755.52 per 100 thousand adult population and was 13.85% and 10.29% lower compared to similar indices in 2016 and 2017.

Disease distribution among the adult population of Sumy region by main classes of diseases in 2019 was traditional. As in previous years, the first place in distribution was occupied by diseases of the circulatory system (33.30%). The second place belonged to respiratory diseases (17.14%), the third place in the ranking went to digestive diseases (9.85%) (fig. 2).

Endocrine system diseases, digestive and metabolic disorders were on the fourth place (5.90%). The share of the musculoskeletal system and connective tissue (5.41%) and genitourinary system (5.37%) diseases took fifth and sixth place, respectively.

Analysis of the prevalence rate among the adult population of Sumy region by leading classes of diseases shows a decrease in almost all classes of diseases in 2019 compared to 2010 and 2017 (table 1).

In 2019, the prevalence of tumors increased by 20.94% compared to 2010 and by 4.41% compared to 2017.

The prevalence rate in 2019 remained higher than in 2010 for three classes of diseases: diseases of the musculoskeletal system and connective tissue (+7.85%), diseases of the circulatory system (+3.14%) and diseases of the digestive system (+2.17%).

Table 1

Dynamics of disease prevalence rate by main classes among the adult population of Sumy region (per 100 thousand population)

Class of disease (ICD - 10)*	Years				
	2010	2017	2019	Changes 2019/2010, %	Changes 2019/2017,%
A00-T98	157136.63	171123.53	156422.10	-0.46	-9.40
A00-B99	2983.82	2635.85	2266.16	-31.66	-16.31
C00-D48	4843.59	5856.38	6126.43	20.94	4.41
D50-D89	1554.79	1677.71	1463.36	-6.25	-14.65
E00-E90	9431.39	9923.19	9226.98	-2.22	-7.55
F00-F99	4609.34	4396.84	4301.23	-7.16	-2.22
G00-G99	3043.26	3079.91	2895.96	-5.09	-6.35
H00-H59	8481.23	9214.51	7543.83	-12.43	-22.15
H60-H95	2715.18	2843.96	2432.95	-11.60	-16.89
I00-I99	50440.51	57433.98	52078.71	3.14	-10.28
J00-J99	27503.90	28054.31	26805.04	-2.61	-4.66
K00-K93	15074.20	17124.89	15408.08	2.17	-11.14
L00-L99	3402.37	3992.43	3298.48	-3.15	-21.04
M00-M99	7808.82	8629.94	8473.85	7.85	-1.84
N00-N99	8563.61	9207.53	8398.98	-1.96	-9.63
S00-T98	5144.66	5391.73	4266.02	-20.60	-26.39

Note: * – A00-T98 – all diseases; A00-B99 – some infectious and parasitic diseases; C00-D48 – neoplasms; D50-D89 – diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism; E00-E90 – diseases of the endocrine system, digestive and metabolic disorders; F00-F99 – mental and behavioral disorders; G00-G99 – diseases of the nervous system; H00-H59 – diseases of the eye and adnexa; I00-I99 – diseases of the circulatory system; J00-J99 – diseases of the respiratory system; K00-K93 – diseases of the digestive system; L00-L99 – diseases of the skin and subcutaneous tissue; M00-M99 – diseases of the musculoskeletal system and connective tissue; N00-N99 – diseases of the genitourinary system; S00-T98 – injuries, poisonings and some other consequences of external factors.

In the morbidity distribution of the adult population of Sumy region in 2019, respiratory diseases prevailed with a share of 43.94%. Diseases of the circulatory system took second place (8.03%), injuries, poisoning and some other consequences of external causes – the third one (7.97%). The fourth and fifth places were given to diseases of the genitourinary system (6.53%) and diseases of the skin and subcutaneous tissue (5.43%) (fig. 3).

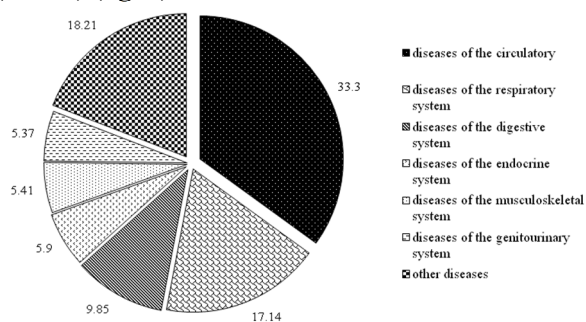


Fig. 2. The structure of prevalence rate among the adult population of Sumy region in 2019, (%)

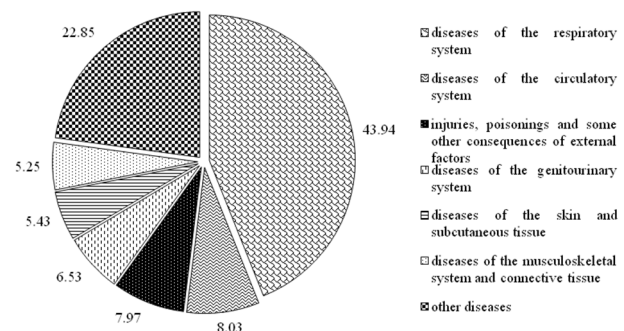


Fig. 3. The incidence structure among the adult population of Sumy region in 2019, (%)

The incidence rate of the adult population of the region by leading classes of diseases in 2019 had a steady downward trend in almost all classes, except for the class of the nervous system diseases (+4.58% and 5.27%), compared to 2010 and 2017, tumors (+3.96%) and diseases of the musculoskeletal system and connective tissue, compared to 2010 (table 2).

It should be noted the decrease in primary disease incidence of the adult population in the region, in particular by classes of diseases: diseases of the blood, blood-forming organs and certain disorders involving the immune mechanism, mental and behavioral disorders, some infectious and parasitic diseases.

Thus, the analysis of trends in the health status of Sumy region over the past 10 years has allowed us to determine the “peak” values of morbidity and prevalence rate that occurred in 2016 and 2017.

Dynamics of morbidity rates by main disease classes among the adult population of Sumy region (per 100 thousand population)

Disease class (ICD-10)*	Years				
	2010	2017	2019	Changes 2019/2010, %	Changes 2019/2017, %
A00-T98	51459.46	52668.1	47755.52	-7.76	-10.29
A00-B99	1821.09	1784.75	1390.72	-30.95	-28.33
C00-D48	984.85	1036.71	1025.46	3.96	-1.10
D50-D89	360.82	335.56	231.18	-56.08	-45.15
E00-E90	962.29	914.6	878.87	-9.49	-4.07
F00-F99	372.61	281.4	254.26	-46.55	-10.67
G00-G99	798.55	792.77	836.90	4.58	5.27
H00-H59	2320.61	2413.69	2129.49	-8.97	-13.35
H60-H95	1794.77	1902.23	1701.31	-0.11	-11.81
I00-I99	3972.14	4274.92	3836.73	-3.53	-11.42
J00-J99	21872.53	22070.3	20982.35	-4.24	-5.19
K00-K93	2099.52	2234.25	1779.15	-18.0	-25.58
L00-L99	2640.49	3090.16	2593.80	-1.8	-19.14
M00-M99	2428.63	2512.75	2504.85	3.04	-0.32
N00-N99	3369.30	3274.32	3117.79	-8.07	-5.02
S00-T98	4691.72	4910.66	3810.05	-23.14	-28.89

Note: – see the note to table. 1.

The demographic situation in Ukraine continues to be one of the most unfavorable among the countries of the European region. Compared to other countries, Ukraine has the largest reduction in medium life span [11, 13]. The established negative trend in the health of the adult population requires prompt response by making effective management decisions in the field of health, aimed at implementing measures to preserve and promote health, disease prevention, reduce morbidity [2, 10, 11].

The results of the regional analysis of the health status (on the example of Sumy region) show a constant population decline in the region due to natural and migratory processes, which may indicate unfavorable social and economic well-being of the region.

Regional dynamics in the health status of the population in the structure of prevalence and morbidity rates is similar to other regions of Ukraine [5, 9, 10, 15].

Conclusion

Demographic dynamics in Sumy region is determined by the depopulation nature: population decline in the region, negative natural increase rate, ultra-high mortality rates vs. ultra-low fertility rate, etc.

The prevalence rate and the level of primary disease incidence in the adult population of Sumy region in 2019 had a gradual downward trend relative to the “peak” indices of 2016 and 2017.

In 2019, the prevalence rate among the adult population of the region decreased compared to 2017 for almost all classes of diseases except for neoplasms, diseases of the musculoskeletal system and connective tissue, diseases of the circulatory system and diseases of the digestive system compared to 2010.

A steady downward trend in the incidence rate of the adult population of the region has been identified by leading classes of diseases in 2019 in almost all classes, except for the class of the nervous system diseases (+4.58% and 5.27%), compared to 2010 and 2017, tumors (+3.96%) and diseases of the musculoskeletal system and connective tissue, compared to 2010.

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ANALYSIS OF PROVISION OF POLYCLINIC DENTAL CARE TO POPULATION OF THE POLTAVA REGION

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Preserving of the dental health of the population is one of the priorities, which is controlled by the European strategy of the World Health Organization to achieve health for all. Bibliosemantic, medical-statistical, system approach and system analysis was performed. We determined relative values, time series. We have analyzed the quantitative indicators of the dental service activity for 2015-2019. The number of visits, including by rural residents, has grown, which may indicate that in the villages of public utilities "dental clinic" is not and, obviously, that villagers prefer the regional institution. The number of teeth treated for caries in children 0-17 years old, inclusive, increased by 26.7%, which may indicate insufficient preventive work. The analysis of planned sanitation and medical work indicates an increase in the number of visits, including by rural residents, indicates an increase in the activity of the population in dental health.

Key words: dynamics, dental service, caries, diseases.

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АНАЛІЗ НАДАННЯ ПОЛІКЛІНІЧНОЇ СТОМАТОЛОГІЧНОЇ ДОПОМОГИ НАСЕЛЕННЮ ПОЛТАВСЬКОЇ ОБЛАСТІ

Збереження стоматологічного здоров'я населення є одним із пріоритетів, який контролюється Європейською стратегією Всесвітньої організації охорони здоров'я щодо досягнення здоров'я для всіх. Бібліосемантичний, медико-статистичний, системний підхід та системний аналіз. Визначені відносні величини, показники динамічного ряду. Метою роботи був аналіз якісних та кількісних показників діяльності закладів, що надають стоматологічну допомогу населенню Полтавської області за 2015–2019 рр. Аналізували кількісні показники діяльності стоматологічної служби за 2015-2019 роки. Кількість відвідувань, у тому числі сільськими жителями, зросла, що може свідчити про те, що в селах комунальних служб "Стоматологічна поліклініка" немає і, очевидно, що жителі села віддають перевагу обласній установі. Кількість зубів, пролікованих з приводу карієсу у дітей 0-17 років включно, зросла на 26,7%, що може говорити про недостатню профілактичну роботу. Аналіз показників планової санації та лікувальної роботи свідчить про збільшення числа відвідувань, в тому числі і сільськими жителями, що говорить про зростання активності населення щодо власного стоматологічного здоров'я.

Ключові слова: динаміка, стоматологічна служба, карієс, захворювання.

The work is a fragment of the research project "Mechanisms of pathogenic factors impact on the dental status of persons with somatic pathology, ways of their correcting and blocking", state registration No. 0115 U001138.

During the last five decades, measures to combat dental caries and periodontitis have been developed, tested and implemented in many populations around the world and are thought to have benefitted millions of people. Despite the huge effort made, a large part of the world's population still suffers from these two oral diseases (Marcenes et al. 2013), which are the main causes of tooth loss [15.]. Systematic reviews demonstrate that untreated cavitated dentine carious lesions make up the single most common disease that affects humans worldwide. Severe periodontitis is not far behind, being the sixth most common disease globally. The reviews