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Main Trends in Morbidity of the Population of Uzbekistan for 2017-2021

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Abstract The purpose of the study is to identify dynamic changes in the general morbidity structure of the population of the Republic of Uzbekistan over the studied 5-year period. A retrospective analysis of the general morbidity rate of the population of the Republic of Uzbekistan has been carried out using official statistical materials for the period 2017-2021. The incidence was ranked by disease classes according to ICD-10 and analyzed per 100 thousand population. Calculations and graphical analysis were carried out using the Microsoft program Excel.

Keywords General morbidity, Structure, and growth rate, Retrospective analysis

1. Introduction

Population health is a fundamental aspect of sustainable socio-economic development of any country and investing in healthcare and taking measures to protect the health of the population ensures the long-term sustainability of society [WHO, 2022]. In modern society, there is an increase in the number of chronic diseases of the cardiovascular and endocrine systems, respiratory and digestive organs, mental disorders, etc. Despite progress in medical science and practice, infectious diseases remain a pressing problem. The COVID-19 pandemic has become a prime example of how infectious diseases can impact global health [4].

The current structure and dynamics of population morbidity are influenced by various factors, such as lifestyle, demographic situation, and socio-economic and environmental conditions. Some of the main factors are nutritional disorders and unfavorable environmental conditions [2,5].

Atmospheric air plays a huge role as an environmental object for human life [1]. Air pollutants, including fine dust particles (PM_{10} and $PM_{2.5}$), are a serious problem for the environment and public health [1,3,10]. There are several studies, the results of which indicate a strong connection between dust particles PM_{10} and $PM_{2.5}$ with diseases of the respiratory system and cardiovascular system, cancer, and reproductive health [6,7]. Depression, anxiety disorders, stress, and other mental and behavioral disorders are more common in regions with environmentally unfavorable conditions [11]. This allows us to emphasize the seriousness of the problem of the impact of atmospheric particles on human health and the need for further research to develop measures to prevent negative consequences [6,7].

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Considering the multifactorial conditions and causes of the increase in morbidity, the peculiarities of the modern structure, and dynamic changes, the need arose to analyze the general morbidity of the population to determine the effectiveness of the implemented programs in the healthcare of the republic.

2. Literature Review

The incidence trends in the population of Uzbekistan provide critical insights into the healthcare landscape, disease burden, and public health priorities of the nation. Understanding these trends is vital for policymakers, healthcare professionals, and researchers to implement effective preventive measures, allocate resources efficiently, and develop targeted interventions to address prevalent health issues.

Several studies and reports have highlighted the changing patterns of disease incidence and prevalence in Uzbekistan over recent years. A study by Ismailov et al. (2018) reported an increasing trend in the incidence of non-communicable diseases (NCDs), such as cardiovascular diseases, diabetes, and cancer, which are major contributors to morbidity and mortality in the country. The study emphasized the urgent need for comprehensive strategies to tackle the growing burden of NCDs through lifestyle modifications, early detection, and management.

In contrast, infectious diseases remain a significant public health concern in Uzbekistan. According to a report by the Ministry of Health of the Republic of Uzbekistan (2019), there has been a notable increase in the incidence of certain infectious diseases, including tuberculosis, hepatitis, and sexually transmitted infections. This rise underscores the importance of strengthening infectious disease control programs,

improving vaccination coverage, and enhancing public awareness to mitigate the spread of these diseases.

Furthermore, mental health disorders have been increasingly recognized as a growing health issue in Uzbekistan. A study by Karimova et al. (2020) highlighted the rising prevalence of mental health disorders, particularly depression and anxiety, among the Uzbek population. The study emphasized the need for integrated mental health services, community-based interventions, and mental health literacy programs to address the growing mental health burden effectively.

Moreover, environmental and occupational health hazards have also emerged as significant contributors to the disease burden in Uzbekistan. Studies have indicated an increase in the incidence of respiratory diseases, such as asthma and chronic obstructive pulmonary disease (COPD), linked to environmental pollution and occupational exposures (Tursunova et al., 2021). Addressing environmental pollution, improving occupational safety standards, and promoting healthy living environments are essential to reduce the incidence of these preventable diseases.

In summary, the incidence trends in Uzbekistan reflect a complex interplay of demographic, socio-economic, environmental, and lifestyle factors influencing the health status of the population. Comprehensive public health strategies targeting both communicable and non-communicable diseases, along with mental health and environmental health initiatives, are crucial to improving the health outcomes and well-being of the Uzbek population.

The study aims to conduct a retrospective analysis of the general morbidity of the population of the Republic of Uzbekistan for the period 2017-2021.

3. Materials and Methods

An analysis of the general morbidity rate of the population was carried out using official statistics from the Ministry of Health and materials from the Statistics Agency under the President of the Republic of Uzbekistan for the period 2017-2021. The general morbidity of the population is studied based on a continuous record of all primary applications for medical care in primary healthcare facilities. Morbidity was ranked according to disease classes according to ICD-10. Intensive morbidity indicators are calculated per 100 thousand population, the dynamics indicators are analyzed based on the growth rate to the base morbidity level, the average annual growth rate, and maximum and minimum values studied. The study has been conducted using mathematical-statistical and sampling methods. Calculations and graphical analysis of data were carried out using the Microsoft program Excel.

4. Results and Discussion

An analysis of the dynamics of morbidity in the population of the Republic of Uzbekistan over a 5-year period (from 2017 to 2021) showed that the overall morbidity rate was characterized by a decrease (Fig. 1).

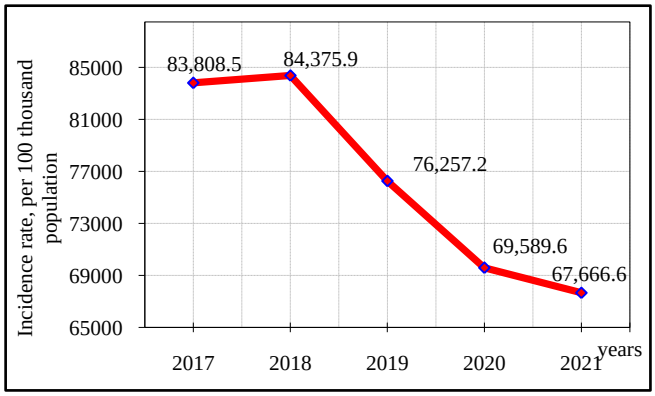

Figure 1. Dynamics of the general morbidity rate of the population of the Republic of Uzbekistan for 2017-2021, per 100 thousand per population

The level of general morbidity in the population from 2017 to 2021 decreased from 83808.5 to 67666.6 cases per 100 thousand population, the average value for the studied 5-year period was 75898.7 cases. At the same time, there was a uniform decrease in the incidence rate over the years and the rate of decline by 2021 was equal to -19.3% (Table 1).

The results presented in Table 1 made it possible to identify the negative dynamics of the leading classes of diseases, among which the highest rate of decline was observed in diseases of the digestive system (by -27.5%).

Table 1. Growth rate of overall population morbidity by leading classes of diseases, per 100 thousand populations

Class of diseases		Years					Decline rate, %
		2017	2018	2019	2020	2021	
X	Organ diseases breathing	19959.4	18642.2	17102.9	15933.2	15233.2	-23.7
III	Blood diseases and hematopoietic organs	13377.5	14090.6	12434.1	10673.7	10083.4	-24.6
XI	Organ diseases digestion	10691.2	10491.9	9590.4	8336.9	7751.2	-27.5
IX	System diseases blood circulation	6668.3	6961.3	6756.8	6398.5	6329.6	-5.1
IV	Endocrine system diseases	5348.8	5325.6	4467.1	4343.3	4541.7	-15.1
On average for the republic		83808.5	84376.0	76257.2	69589.6	67666.6	-19.3

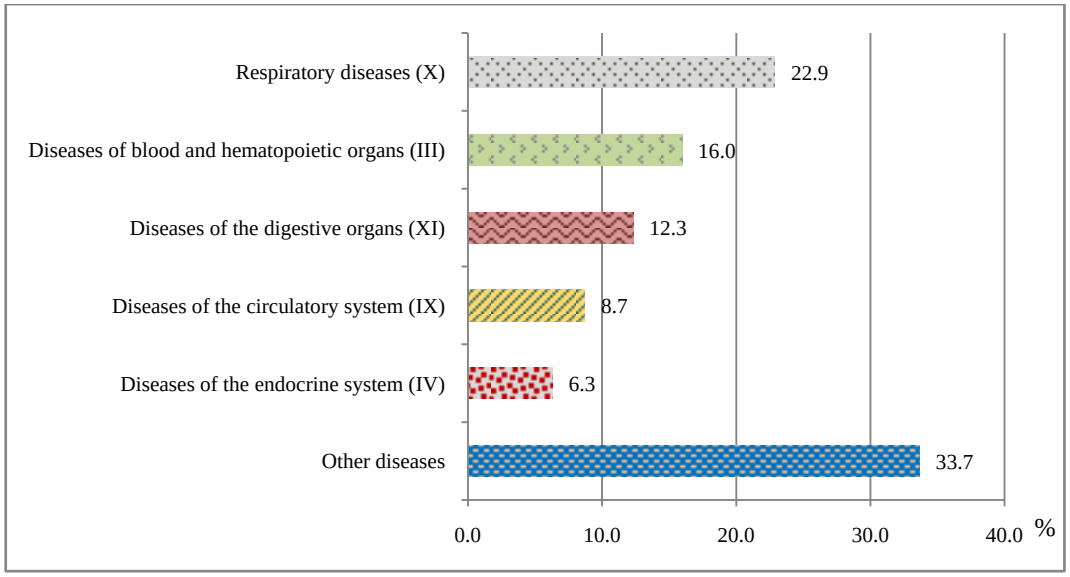

Figure 2. The share of the leading classes of diseases in the structure of the general morbidity rate of the population of the Republic of Uzbekistan for 2017-2021, %

Table 2. Levels of growth and decline in morbidity rates in the population of the republic for the period 2017-2021, %

Class of diseases		M	±m	%	Rank place	Growth/decrease rate, %
VI	Nervous system diseases	962.93	28.45	1.3	15	+321.5
I	Some infectious and parasitic diseases	2082.76	1.14	2.7	eleven	1.3
XVIII	Symptoms, signs and abnormalities not elsewhere classified	79.28	3.20	0.1	19	-70.7
XV	Pregnancy, childbirth, postpartum period	3245.42	13.76	4.3	8	-42.4
V	Mental and behavioral disorders	1237.06	6.15	1.6	14	-37.1
XI	Digestive diseases	9372.35	13.41	12.3	3	-27.5
XII	Diseases of the skin and subcutaneous tissue	2194.88	9.39	2.9	10	-25.2
XVII	Congenital anomalies	214.34	1.99	0.3	18	-25.1
III	Diseases of the blood and blood-forming organs	12131.85	15.60	16.0	2	-24.6
VIII	Diseases of the ear and mastoid process	2020.20	5.87	2.7	12	-24.0
X	Respiratory diseases	17374.20	14.70	22.9	1	-23.7
XVI	Certain conditions arising in the perinatal period	517.21	2.41	0.7	17	-21.2
XIII	Diseases of the musculoskeletal system and tissue connections	1671.20	4.37	2.2	13	-20.8
XIV	Diseases of the genitourinary system	4646.08	7.11	6.1	6	-20.0
IV	Endocrine system diseases	4805.32	7.08	6.3	5	-15.1
VII	Diseases of the eye and its adnexa	2940.05	5.10	3.9	9	-12.6
XIX	Injuries, poisoning	3257.79	5.58	4.3	7	-7.2
IX	Diseases of the circulatory system	6622.91	3.20	8.7	4	-5.1
II	Neoplasms	522.91	1.25	0.7	16	-4.9
Total diseases		75898.73	28.10	100.0		-19.3

Based on the results of ranking the general morbidity indicators by disease class, it was found that the first ranking place was occupied by respiratory diseases (class X) - 17374.2 cases per 100 thousand population, which in the structure of the general morbidity accounted for 22.9% (Fig. 2). There was a uniform decrease in the incidence rate from 2017 to 2021 and the rate of decline was -23.4%.

In second place was class III diseases - diseases of the blood and hematopoietic organs (12131.8 cases per 100 thousand population). This class of diseases is formed mainly due to anemia (96.3%), with a share in the structure of overall morbidity of 16% and a decline rate of -24.6% over 5 years.

The third ranking place was occupied by diseases of the

digestive organs (Class XI), which averaged 9372.4 per 100 thousand population with a share in the structure of overall morbidity of 12.3%. There was a decrease in diseases of this class of diseases over the 5 years studied by 27.5%. The main nosologies forming the XI class of diseases were diseases of the oral cavity, gastritis and duodenitis, diseases of the gallbladder and biliary tract, peptic ulcer of the stomach and duodenum.

The fourth place was occupied by diseases of the circulatory system (class IX), with an average incidence of 6622.9 cases per 100 thousand population. The share of these diseases in the structure of the general morbidity rate of the population was 8.7%. During the observation period, there was a uniform decrease in the incidence rate over the years and the rate of decline by 2021 was -5.1%.

The group of leading classes of diseases was completed by diseases of the endocrine system, nutritional disorders and metabolic disorders (class IV), the average incidence value was 4805.3 cases per 100 thousand population, the proportion of this class of diseases was 6.3%. During the studied period, class IV diseases were characterized by a relatively uniform decrease (by -15.1%).

According to Russian researchers, it was established that from 2018 to 2021 there was an increase in the overall morbidity rate of the population of the Russian Federation with a growth rate of 2.6% [8,9]. The comparative analysis showed that the leading classes of diseases in the structure of general morbidity among the population of Uzbekistan and Russia were diseases of the respiratory system and the circulatory system.

The rate of change in the dynamics of the general morbidity rate of the population of Uzbekistan had a wide range of values, which ranged from -4.9 to -70.7% (Table 2).

It was determined that the highest rates of decline in morbidity were observed in the XVIII (by -70.7%), XV (by -42.4%), and V (by -37.1%) classes of diseases.

Along with a decrease in the incidence of diseases in the population in 17 classes, the incidence in 2 classes of diseases tended to increase. Thus, by 2021, compared to 2017, there was a non-significant growth rate of infectious and parasitic diseases (+1.3%) and a significant growth rate of nervous system diseases (+321.5%).

In our opinion, the reduction in morbidity is the result of reforms carried out in Uzbekistan, both within the framework of State programs for reforming the healthcare system and annually implemented targeted social programs aimed at improving public health and creating a healthy generation.

5. Conclusions

In conclusion, the culmination of our study, which aimed to conduct a retrospective analysis of the general morbidity of the Republic of Uzbekistan's population for the period 2017-2021 showed a decrease in the overall morbidity rate of the population of the republic by 19.3%. The first ranking places out of 19 registered classes of diseases were occupied by diseases of the respiratory system (22.9%), blood and hematopoietic organs (16%), and digestive organs (12.3%), the proportion of which was more than 50%. The highest rates of decline in diseases were observed in the XVIII class of diseases - symptoms, signs and deviations from the norm (-70.7%), XV class - disorders of pregnancy, childbirth, the postpartum period (-42.4%) and V class of diseases - mental disorders and behavioral disorders (-37.1%). The observed rate of decline in morbidity is the result of reforms carried out in the republic's healthcare system.

The observed rates of reduction in morbidity in our opinion, are the result of reforms carried out in the republic's healthcare system and annually implemented targeted social programs aimed at protecting public health.

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