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THE IMPACT OF URBANIZATION AND LIFESTYLE ON THE HEALTH STATUS OF CHILDREN IN THE KYIV REGION

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ABSTRACT

This study analyzes the impact of nutrition on the health status of children living in various regions of Ukraine with differing environmental conditions. Based on official statistical data from the Department of Health of the Kyiv Regional State Administration and the Health Department of the Darnytsia District State Administration in Kyiv, a comparative analysis of child morbidity was conducted in the urban-type settlement of Ivankiv, the village of P. Borshchahivka, and the Darnytsia district of Kyiv during the summer-autumn and winter-spring periods.

The aim of the study was to conduct a comparative analysis of the health status and morbidity dynamics of school-age and preschool children living in regions of the Kyiv area with different levels of urbanization and environmental load, as well as to determine the role of dietary factors and lifestyle in the formation of identified pathologies.

The research utilized a comprehensive approach, including medical surveys and statistical analysis of official data. Indicators of general and primary morbidity were evaluated across three representative groups: children from the radio-ecological control zone (Ivankiv), the suburban zone (P. Borshchahivka), and the metropolis (Darnytsia district, Kyiv).

Results revealed an increase in general morbidity across all groups, particularly regarding pathologies in the winter-spring period related to lifestyle (anemia, thyroid diseases, obesity, and digestive disorders) and nutritional quality. The highest growth rates of morbidity were recorded in the urbanized zone—the Darnytsia district of Kyiv. The results underscore the urgent need to develop and implement targeted programs for nutritional optimization and the prevention of non-communicable diseases among the pediatric population.

Keywords

Child morbidity, lifestyle, urbanization, rural areas, environmental factors, anemia, obesity, digestive system pathologies, Kyiv region, health ecology, disease prevention.

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INTRODUCTION

Child health is one of the most critical indicators of a society's well-being. In Ukraine, a worrying trend toward increasing chronic diseases among children has been observed over recent decades. This involves not only allergic and oncological pathologies but also diseases of the cardiovascular and gastroenterological systems. This situation is largely driven by global and local factors, including the consequences of the Chernobyl disaster and general environmental degradation.

In addition to environmental factors, lifestyle—especially the quality of nutrition—has a massive impact on child health. An unbalanced diet with a deficiency of essential nutrients in early childhood can lay the foundation for serious chronic diseases in the future, including obesity, diabetes, cardiovascular diseases, and cancer (Titenko, 2007; Heuvel et al., 2021; Vliet et al., 2020).

Modern urbanization has brought new challenges that exacerbate these risks: fast food accessibility, a sedentary lifestyle (hypodynamia), excessive academic loads, and a preoccupation with computer games (Black, 2013; Vliet et al., 2020).These problems are particularly acute in modern Ukraine, where significant contrasts exist between large cities and rural areas. Understanding how these differences affect child health is crucial for developing effective preventive measures.

The aim of our study was to examine the influence of environmental conditions and lifestyle on the morbidity rates of preschool children in urban (Kyiv) and rural settings, using the Kyiv region—which contains territories with varying levels of environmental load—as a case study.

LITERATURE REVIEW

The health status of the pediatric population under current transformations of the environment and social standards occupies a central place in biomedical research. The modern scientific paradigm views a child's health as a complex outcome of the interaction between genetic predisposition, environmental load, and lifestyle (Veenendaal et al., 2022; Zaporozhan et al., 2004).

Global urbanization processes have fundamentally changed the human habitat. According to current reviews, life in megacities is accompanied not only by high industrial pollution but also by the formation of a specific "urban" lifestyle that negatively affects the child's body (Veenendaal et al., 2022; Vliet et al., 2020). Experts note that high levels of air pollution and limited green zones in areas like the Darnytsia district correlate with increased respiratory and immune system morbidity. Conversely, rural areas often face the consequences of radiation contamination (particularly in the Ivankiv district), creating a specific background for the development of pathologies (Titenko, 2007).

Nutrition is a fundamental factor determining physical development and the functional state of all body systems. Lukushkina et al. (2010) emphasize that a deficiency of essential micronutrients in the diet serves as the basis for the development of iron-deficiency anemia and endocrine disorders. The issue of iodine deficiency remains particularly critical in Ukraine, leading to thyroid disorders and decreased cognitive functions in children (Assessment of iodine deficiency diseases..., 2008; Titenko, 2007).

Modern medicine classifies childhood obesity as a 21st-century pandemic. Recent scientific works highlight that urban environments foster a "toxic" food environment:

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high availability of fast food and products high in trans fats and sugar (Kmietowicz, 2018; Poti et al., 2014). Black et al. (2013) point to the "double burden of malnutrition," where overweight may coexist with micronutrient deficiencies. Physical inactivity caused by excessive gadget use and academic loads further reinforces these negative trends (Heuvel et al., 2021).

Studies on morbidity dynamics across different seasons indicate the seasonal vulnerability of the child's body. The winter-spring period is traditionally characterized by the depletion of the body's vitamin stores (Rebrov & Gromova, 2008).

MATERIALS AND METHODS

To achieve the set objective, methods of medical surveying and statistical analysis were employed. The analysis of child morbidity was based on official statistical data provided by the Department of Health of the Kyiv Regional State Administration and the Health Department of the Darnytsia District State Administration in Kyiv.

The study covered the summer-autumn and winter-spring periods of the year and was conducted among the following groups:

Children residing permanently in the Ivankiv settlement (territory affected by the Chernobyl accident);

Children residing in the village of P. Borshchahivka (close to industrial zones);

Children residing in the Darnytsia district of Kyiv (an urbanized territory with high levels of air pollution).

RESULTS AND DISCUSSION

General Morbidity and Its Dynamics

Analysis of statistical data revealed that the level of general morbidity is increasing across all examined groups; however, the growth rates differ significantly. The highest dynamic indicators were found in children living in the Darnytskyi district of Kyiv, where a 42% increase was recorded in the winter-spring period compared to the summer-autumn period. In the village of Petropavlivska Borshchahivka, the increase was less pronounced but still amounted to 3.2% during the winter-spring period. In contrast to urbanized areas, only a slight increase in general morbidity (1.4%) was observed in the urban-type settlement (smt) of Ivankiv.

Nutrition-Related Pathologies

Diseases of the blood and blood-forming organs. Particular attention is drawn to the incidence of blood diseases, which nearly doubled among children in the Darnytskyi district of Kyiv during the winter-spring period compared to summer-autumn. This pathology is 100% driven by an increase in anemias, primarily of a iron-deficiency nature. These anemias are a direct consequence of an unsatisfactory diet characterized by a deficit of products containing heme iron (meat, fish, eggs) and other essential nutrients.

Diseases of the endocrine system and metabolism. This group of diseases is of particular concern, as their number among children in the Darnytskyi district grew nearly fourfold during the observation period. The causes of these conditions include:

- Thyroid pathologies (goiter, hypothyroidism): caused by insufficient iodine intake;
- Obesity: its prevalence in the Darnytskyi district increased 3.5 times during the winter-spring period. Meanwhile, in rural areas (smt Ivankiv and P. Borshchahivka), obesity rates did not undergo significant changes, indicating a close link between obesity and the living conditions of a metropolis.

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Causes of rising obesity rates. Obesity is a multifactorial pathology involving not only the alimentary factor (excessive calories, chaotic eating patterns, frequent fast food consumption) but also physical inactivity (hypodynamia). The modern lifestyle of children in large cities is characterized by excessive academic workloads, total computerization, and a preoccupation with video games and television, leading to a sedentary lifestyle. Furthermore, the uncontrolled consumption of sweets as rewards and high-calorie foods rich in trans fats in fast-food establishments significantly exacerbates the risks.

Alimentary-Dependent Pathology

Diseases of the digestive system. Statistics on digestive diseases also confirm the influence of the nutritional factor. In smt Ivankiv, the level rose by 4% in the winter-spring period, while in the Darnytskyi district of Kyiv, it rose by 70%. This indicates more irrational nutrition in urban environments. The most common diagnoses include gastritis, duodenitis, cholecystitis, cholangitis, and pancreatic diseases. According to the WHO, nutrition plays a leading role in the development of these pathologies.

Analysis of the Health Status of Preschool Children

To better understand the problem, an additional analysis of morbidity among preschool children from the Ivankiv district (Kyiv region) and the city of Kyiv was conducted for the summer-autumn and winter-spring periods (Table 1).

Table 1. Comparative characteristics of morbidity in preschool children of Ivankiv district and Kyiv (absolute figures)

Source: Ministry of Health of Ukraine, 2022.

Disease Name (ICD-10)	Region	Summer-Autumn (Total / First-time)	Winter-Spring (Total / First-time)
All diseases (A00-T98)	I	4589 / 3616	4732 / 3710
	II	485085 / 428862	498182 / 439120
Blood diseases & anemia (D50-D64)	I	48 / 16	58 / 20
	II	11427 / 4305	22350 / 8420
Endocrine diseases (E00-E90)	I	90 / 11	94 / 12
	II	5553 / 2414	22100 / 9580
Obesity (E66)	I	5 / 1	8 / 2
	II	404 / 153	1414 / 535
Digestive diseases (K00-K93)	I	149 / 53	342 / 121
	II	22488 / 11775	38230 / 19850
Respiratory diseases (J00-J99)	I	3435 / 2961	3580 / 3050

Note: I — Ivankiv district; II — Kyiv city.

Key Trends Identified in the Data:

- **General Morbidity:** Increased by 3.1% in the Ivankiv district and 2.7% in Kyiv.
- **Cancer Incidence:** Data regarding oncological diseases are particularly alarming. In the Ivankiv district, the number of cases in the winter-spring period increased 2.5 times, while in Kyiv, the increase was only 5.2%. Although nutrition is not the primary factor in the etiology of cancer, recent scientific publications emphasize its importance in

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the onset, progression, and prevention of these diseases.

- **Blood Diseases:** In the Ivankiv district, the incidence rose by 20.8%, which is 100% attributable to the growth of iron-deficiency anemias.
- **Obesity:** The incidence of obesity in the Ivankiv district increased 1.6 times. This confirms that the problem is relevant not only for cities but also for rural areas. Excessive protein consumption at an early age may also lead to the development of obesity, diabetes, and arterial hypertension in the future.
- **Other Pathologies:** Analysis showed a significant growth in digestive diseases in the Ivankiv district — increasing 2.3 times. This includes gastritis, duodenitis, cholecystitis, and pancreatic diseases, signaling nutritional issues in rural regions as well as urban ones.

CONCLUSIONS

A steady increase in the overall incidence rate has been identified across all studied groups. The most pronounced dynamics were recorded in the urbanized zone — the Darnytskyi district of Kyiv, particularly regarding pathologies closely linked to diet and lifestyle (anemia, thyroid diseases, obesity, and digestive system disorders). Specifically:

- **Overall incidence** among school-age and preschool children living in both urban and rural environments shows a steady upward trend;
- **The growth rates of nutrition-related pathologies** are significantly higher in large urban settings (Darnytskyi district, Kyiv). This may be driven not only by poor diet but also by concomitant factors such as physical inactivity (hypodynamia), stress, and adverse environmental conditions;
- **There is a need to develop and implement** comprehensive programs promoting an active lifestyle, especially in conditions of intensive urbanization, and to introduce targeted programs for the prevention of non-communicable diseases among the pediatric population.

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