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REGIONAL CHARACTERISTICS AND HEALTH IMPACT OF OBESITY AMONG CHILDREN AND ADOLESCENTS IN UZBEKISTAN

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Abstract
Currently, the prevalence of overweight and obesity has acquired epidemic proportions. There are about 250 million people worldwide suffering from obesity, which accounts for 7% of the total adult population. WHO experts predict an almost twofold increase in the number of obese individuals by 2025 compared to the data from 2000, representing 45-50% of the adult population in the USA, 30-40% in Australia and the UK, and over 20% of the population in Brazil. In light of this, obesity has been recognized by WHO as the new non-communicable "epidemic" of our time (1, 2, 3). The obesity epidemic represents one of the most pressing public health problems in the WHO European region. Over the past two decades, obesity prevalence rates have nearly tripled. In WHO's European region countries, half of the adult population and every fifth child are overweight, and a third of them already suffer from obesity, with the number of such individuals rapidly increasing. Approximately 30% of the global population, or over 2 billion people, are overweight, and if current obesity growth rates persist, by 2030 it is expected that 70% of the world's population will be overweight. Each year, diseases related to excess body weight cause more than one million deaths in the region (4,5).

Keywords: Children and adolescents, obesity, overweight, health.

Introduction

According to WHO, approximately 22 million children under the age of 5 and 155 million school-age children are overweight globally. In economically developed countries, up to 25% of adolescents are overweight, and 15% suffer from obesity (6). According to data from the International Obesity Task Force, the annual growth rate of this pathology, which was approximately 0.2% in 1970, increased tenfold by 2000, reaching 2% (7, 8, 9, 10, 11).

It is known that in one-third of adults, obesity begins in childhood or adolescence and is accompanied by more significant weight gain and higher rates of associated diseases than obesity that develops in adulthood. 80% of obese adolescents maintain excess body weight into adulthood.

Adolescence is a transitional period between childhood and sexual maturity. It is during this period that numerous changes occur, leading to the physical, psychological, and

reproductive maturity of the body. Biological changes during puberty are regulated by neurosecretory factors and hormones, which accelerate somatic growth, the development of sex glands, and their endocrine and exocrine functions. Excessive adipose tissue leads to dysfunction of the hypothalamic-pituitary-gonadal system during adolescence, which may disrupt the processes of reproductive function formation (Method.).

Childhood obesity poses a high risk for the development of arterial hypertension, non-insulin-dependent diabetes mellitus, atherosclerosis, and coronary heart disease in adulthood. Around 60% of obese children already have one risk factor for cardiovascular diseases (CVDs) by the age of 10, and 20% of adolescents have two or more (12). Adolescent obesity is associated with hypertension in 70% of cases and with impaired glucose tolerance in 25% (11, 12). Epidemiological studies have shown that overweight patients are prone to musculoskeletal disorders, such as spinal osteochondrosis and degenerative-dystrophic polyarthritis, diseases of the hepatobiliary system, including gallbladder dyskinesia, chronic cholecystitis, and gallstone disease, as well as tumors of certain localizations, such as lung cancer, breast cancer, uterine body cancer, and ovarian cancer (13).

One of the key epidemiological research methods is the assessment of disease distribution among populations in different territories. Spatial assessment of population morbidity in various climatic and geographic regions is one of the most important aspects of professional disease study, as it not only identifies regions with higher disease prevalence but also enables the analysis of disease emergence and spread, i.e., establishing the impact of various medical, social, and environmental factors on population morbidity. The spatial characteristic also considers natural-climatic, ecological, socio-economic, and other factors. One method of spatial assessment presentation is the medical-geographical morbidity map. The need for medical-geographical descriptions arises from practical demands for information about the sanitary condition of different localities, population morbidity, and disease prevalence. Medical-geographical maps serve as a promising method for establishing connections between geographic environmental factors and human health, as well as the emergence and dynamics of various diseases [14, 15]. According to statistical data, in the Republic of Uzbekistan over the past five years, childhood obesity was identified in Tashkent among children aged 10-15 years at rates of 5-9%; 10-12% in Khorezm region; 8-10% in Namangan region, among others. In general, available data in the Republic indicate that obesity is not only a health risk factor but also contributes to the development of many other serious diseases. The widespread prevalence of childhood obesity inevitably leads to complications and is a significant medical and social issue that requires productive cooperation between specialists and patients.

According to the literature, the uneven distribution of obesity has been observed not only across countries but also within individual medical-geographical zones [3]. Prevention of excess weight in childhood, early detection, treatment of obesity, and metabolic disorders are priority areas of modern medicine.

The aim of this work is to analyze the prevalence, incidence, and structure of obesity among children and adolescents living in the Republic of Uzbekistan.

Materials and Methods

The medical-sociological studies included data extraction from medical records (form No. 025/u) and developmental histories (form No. 030/u), followed by in-depth medical examinations of children and adolescents, analysis of data from preventive examinations in educational institutions, dispensary groups registered with endocrinologists for obesity, and data from reporting documentation of healthcare institutions in the Republic of Uzbekistan. The study period spanned 3 years (2021-2023).

When studying the anamnesis data using a questionnaire method, attention was paid to past illnesses, the presence of chronic diseases, and sources of infections. The analysis of morbidity was conducted in accordance with the International Statistical Classification of Diseases and Health-Related Problems.

To study the health of children and adolescents with obesity, it is essential to examine the pathogenesis of this syndrome, its course characteristics, and the functional capabilities of the body, as they are primarily shaped by living conditions, dietary habits, lifestyle, rest, and various emotional states.

According to generally accepted methods of sanitary statistics [6, 7], intensive indicators were calculated. The mean values of morbidity indicators (M) and the standard error (m) were determined. The dynamics of obesity morbidity rates were studied over a 3-year period.

Results:

During 2021–2023, 54,228 cases of obesity were registered for the first time in the republic. High extensive obesity rates were recorded in Tashkent city, Tashkent region, the Namangan Valley, and the Khorezm region. In other regions, high obesity rates among children were not observed. Instead, there was a slow, steady increase with a peak in 2023, which is attributed not only to factors such as diet and physical activity but also to the active efforts of pediatric endocrinologists, hygienists, and dietitians.

An analysis of morbidity among children and adolescents with obesity based on in-depth medical examinations showed that children and adolescents (aged 11–15 years) with obesity more frequently experienced endocrine diseases, eating and metabolic disorders, pathologies of the blood and hematopoietic systems, gastrointestinal tract diseases, surgical pathologies (scoliosis, flat feet), chronic infection foci (chronic tonsillitis, adenoids), and nervous system disorders, including dysfunctions of the autonomic nervous system, astheno-neurotic syndrome, vegetative-vascular dystonia, various neuroses, and cardiovascular diseases.

In the structure of morbidity among children aged 11 to 14 in Tashkent city, leading positions were occupied by endocrine diseases, eating and metabolic disorders (32.6% in children with obesity vs. 19.1% in healthy children), diseases of the digestive system (11.9% vs. 17.2%), blood and hematopoietic organ diseases (7.1% vs. 10.3%), diseases of the nervous system (9.4% vs. 4.3%), mental and behavioral disorders (5.3% vs. 3.2%), diseases

of the genitourinary system (3.0% vs. 2.0%), injuries, poisonings, and other consequences of external causes (2.4% vs. 2.0%), among others.

Thus, the high levels of certain nosological forms are determined by functional states, the body's resistance, living conditions, work and rest routines, and healthy nutrition and lifestyles.

In the structure of morbidity among children and adolescents with obesity aged 11 to 14 in the Tashkent region, leading positions were also occupied by blood diseases, hematopoietic organ pathologies with immune mechanism involvement, endocrine diseases, eating and metabolic disorders (32.6% in children with obesity vs. 19.1% in healthy children), diseases of the digestive system (11.9% vs. 17.2%), blood and hematopoietic system diseases (7.1% vs. 10.3%), nervous system diseases (9.4% vs. 4.3%), mental and behavioral disorders (5.3% vs. 3.2%), diseases of the genitourinary system (3.0% vs. 2.0%), injuries, poisonings, and other consequences of external causes (2.4% vs. 2.0%), among others.

It should be noted that children and adolescents with obesity in the Tashkent region lack skills for leading a healthy lifestyle.

An analysis of the structure of morbidity among children and adolescents with obesity in the Fergana Valley showed that leading positions were occupied by endocrine diseases, eating and metabolic disorders (32.6% in children with obesity vs. 19.1% in healthy children), digestive system diseases (11.9% vs. 17.2%), blood and hematopoietic system diseases (7.1% vs. 10.3%), diseases of the nervous system (9.4% vs. 4.3%), mental and behavioral disorders (5.3% vs. 3.2%), diseases of the genitourinary system (3.0% vs. 2.0%), injuries, poisonings, and other consequences of external causes (2.4% vs. 2.0%), as well as diseases of the skin and subcutaneous tissue, circulatory system diseases, and musculoskeletal system diseases (6% each).

The increase in the aforementioned diseases may be due to a decrease in the protective properties of children’s and adolescents' bodies caused by overeating, improper diet, failure to follow a rational daily routine, among other factors.

When assessing the level of morbidity among children and adolescents with obesity, despite its high prevalence, no severe forms of chronic pathology were registered.

Among the children examined by endocrinologists and diagnosed with "obesity" in outpatient records, only half (percentage of the total) were referred to the endocrinologist by district pediatricians specifically due to excessive body weight. The parents of 5% of children independently sought consultation with an endocrinologist because they were concerned about their child's excess body weight.

It was found that 56.0% of children with obesity did not have a diagnosis of "obesity" in their outpatient documentation, were not consulted by an endocrinologist, and therefore did not receive any preventive or therapeutic recommendations. In 25% of cases, there was a lack of regular anthropometric data for the examined children. Among those diagnosed with "obesity" in form No. 112/u by an endocrinologist during outpatient or hospital visits, no subsequent follow-up or weight monitoring was conducted.

It should be noted that outpatient pediatricians do not consider childhood obesity to be a significant health problem that requires continuous monitoring and attention. Alternatively, they often fail to find common ground with parents of children with obesity.

Conclusion:

The identified regional characteristics of obesity prevalence among children and adolescents will help implement targeted measures to further reduce this pathology in Uzbekistan.

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