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EPIDEMIOLOGICAL DYNAMICS AND MAJOR RISK FACTORS OF IRON DEFICIENCY ANEMIA MORBIDITY AMONG SCHOOLCHILDREN IN THE FERGANA VALLEY

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Introduction. Iron deficiency anemia (IDA) is a common diet-related disorder among school-aged children, negatively affecting their physical development, intellectual potential, and academic performance. In recent years, the increasing prevalence of micronutrient deficiency-related conditions in the pediatric population has necessitated strengthened epidemiological monitoring. The high population density, dietary patterns, and socio-economic characteristics of the Fergana Valley make the in-depth study of IDA prevalence particularly relevant.

Keywords: Iron deficiency anemia; epidemiological dynamics; schoolchildren; morbidity rate; risk factors; dietary deficiency; public health.

Study Objective. To determine the long-term epidemiological trends of iron deficiency anemia among schoolchildren in the Fergana Valley, as well as its age- and sex-specific characteristics and major risk factors.

Materials and Methods. The study was conducted using a retrospective-prospective epidemiological approach. Data from preventive medical examinations of schoolchildren in the Fergana, Andijan, and Namangan regions between 2016 and 2025 were analyzed.

Morbidity rates were calculated per 1,000 schoolchildren (incidence and prevalence). Participants were stratified into three age groups: 7–10, 11–14, and 15–17 years. Comparisons were also made by sex.

The following were evaluated as potential risk factors: insufficient dietary intake of iron and protein; low socio-economic status; irregular eating patterns; and the presence of chronic somatic diseases.

Statistical analysis included the χ^2 test, trend analysis, and Odds Ratio (OR, 95% CI). A p-value <0.05 was considered statistically significant.

Results. The analysis demonstrated a steady upward trend in IDA morbidity over the past decade. The highest rates were observed among children aged 11–14 years. The prevalence of IDA was significantly higher in girls compared to boys ($p < 0.05$).

Insufficient intake of iron and protein in the daily diet increased the risk of IDA development by 2–3 times (OR > 2.0). Low socio-economic status was also identified as an independent risk factor. In recent years, a relative increase in severe IDA cases has been observed, suggesting недостаточная effectiveness of early screening systems.



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Discussion. The identified epidemiological indicators confirm that iron deficiency anemia remains a significant public health issue in the Fergana Valley. Age- and sex-related differences may be associated with changes in physiological demands and social factors. In particular, the higher prevalence among adolescent girls can be explained by biological and hormonal factors.

The predominance of dietary factors indicates that IDA is largely nutrition-related. At the same time, the increase in severe cases suggests the possible contribution of genetic predisposition in certain instances.

Conclusion. Iron deficiency anemia among schoolchildren in the Fergana Valley demonstrates a rising trend. The highest rates were recorded in the 11–14 age group and among girls. Insufficient consumption of iron-rich foods and low socio-economic status are major risk factors. These epidemiological findings underscore the need to strengthen early detection and preventive measures for IDA

