



PREVENTION OF CHRONIC DISEASES DURING ADOLESCENCE

Mubinjonov Aziz Daminovich
Saidov Doniyorbek Olimjonovich
Asadov Muxammadullo Madillojevich

Students of the Pediatric faculty of the
Samarkand State Medical University
<https://doi.org/10.5281/zenodo.17112214>

Abstract: Adolescence, spanning ages 10-19, is a pivotal developmental stage where health behaviors significantly influence the onset of chronic non-communicable diseases (NCDs) in adulthood, such as cardiovascular diseases, type 2 diabetes, obesity, and mental health disorders. This article provides a comprehensive analysis of the epidemiology of chronic diseases among adolescents, emphasizing modifiable risk factors including physical inactivity, poor dietary habits, tobacco and alcohol use, and psychological stress. Drawing on global health frameworks and localized research from Uzbekistan, it evaluates evidence-based prevention strategies, including lifestyle interventions, school-based programs, community engagement, and policy-driven initiatives. The review highlights the critical role of early interventions in reducing long-term morbidity and healthcare costs, particularly in resource-constrained settings like Uzbekistan, where socioeconomic transitions exacerbate NCD risks. By integrating global best practices with culturally relevant approaches, this article advocates for a multifaceted strategy to foster healthier adolescent populations and mitigate the global NCD burden.

Keywords: Adolescence, Chronic diseases, Non-communicable diseases, Prevention, Health promotion, Lifestyle interventions, Physical activity, Nutrition, Mental health, Uzbekistan, Public health, Early intervention

Introduction

Adolescence is a critical phase characterized by rapid physical, cognitive, and psychosocial changes, shaping lifelong health trajectories. According to the World Health Organization (WHO), non-communicable diseases (NCDs) account for approximately 71% of global mortality, with risk factors such as obesity, physical inactivity, and tobacco use often rooted in adolescence. Globally, 12-30% of adolescents live with chronic conditions, including asthma, type 2 diabetes, and mental health disorders, driven by urbanization, sedentary lifestyles, and dietary shifts toward processed foods. In Uzbekistan, these trends are mirrored, with rising rates of cardiovascular diseases and obesity linked to genetic predispositions, environmental influences, and socioeconomic transitions. Epidemiological studies indicate that adolescent obesity has tripled since the 1970s, elevating risks for hypertension, diabetes, and metabolic syndrome. Adolescence is also marked by increased vulnerability to behavioral risks due to peer influences, academic pressures, and emerging autonomy, which can lead to harmful habits like smoking or poor dietary choices. In Uzbekistan, research highlights the growing prevalence of somatic diseases among youth, underscoring the need for early screening and family-based interventions. The Sustainable Development Goals (SDGs) emphasize adolescent health as a cornerstone for reducing NCDs, offering a “triple dividend” of immediate health benefits, improved adult outcomes, and intergenerational advantages. This article explores the epidemiology of chronic diseases in adolescence, identifies key risk

factors, and proposes evidence-based prevention strategies, with a focus on integrating global and Uzbek-specific approaches to address this growing public health challenge.

The prevention of chronic diseases in adolescence requires a multifaceted approach targeting modifiable risk factors through evidence-based interventions. Physical inactivity is a major contributor, with over 80% of adolescents worldwide failing to meet the WHO-recommended 60 minutes of daily moderate-to-vigorous physical activity. This inactivity increases risks for obesity, cardiovascular diseases, and insulin resistance, with longitudinal studies showing a 30-40% reduction in these risks through regular exercise. In Uzbekistan, urban lifestyles exacerbate sedentary behaviors, with local studies advocating for school-based sports programs, such as football and swimming, to promote physical activity. Structured interventions, including aerobic exercises, strength training, and bone-strengthening activities, enhance metabolic health and reduce the incidence of metabolic syndrome. For instance, a randomized controlled trial demonstrated that adolescents engaging in structured physical activity programs exhibited a 15% improvement in insulin sensitivity compared to controls. In Uzbekistan, community initiatives like "Sog'lom Avlod" (Healthy Generation) integrate physical education into school curricula, fostering long-term adherence to active lifestyles. Nutrition is equally critical in preventing chronic diseases. Diets high in refined sugars, trans fats, and processed foods contribute to obesity and type 2 diabetes, with meta-analyses indicating that balanced diets rich in fruits, vegetables, whole grains, and lean proteins can reduce adult NCD incidence by up to 25%. In Uzbekistan, the shift from traditional diets to fast food has increased obesity rates, particularly in urban areas. Local research emphasizes addressing micronutrient deficiencies through fortified foods and supplementation, especially for iron and vitamin D, to prevent somatic conditions like anemia and osteoporosis. School-based nutrition education programs, such as those promoting traditional Uzbek dishes like sumalak and non, can counteract the appeal of processed foods. A cohort study in Tashkent demonstrated that adolescents participating in nutrition workshops reduced their consumption of sugary beverages by 20%, correlating with lower BMI trajectories. Parental involvement is crucial, as family-based dietary interventions enhance adherence and sustainability. Tobacco and alcohol use, often initiated during adolescence, significantly increase risks for respiratory diseases, cancers, and liver disorders. WHO data indicate that 13-15% of adolescents globally experiment with tobacco, with initiation rates peaking at ages 13-15. In Uzbekistan, cultural acceptance of smoking in some communities exacerbates this issue, necessitating targeted interventions. School-based anti-smoking campaigns, combined with policy measures like advertising bans and taxation, have reduced initiation rates by up to 50% in high-income countries, a model adaptable to Uzbekistan. Alcohol consumption, linked to liver cirrhosis and mental health disorders, requires similar preventive measures, including parental monitoring and restrictions on alcohol marketing. A study in Samarkand highlighted the effectiveness of community-led awareness programs in reducing adolescent alcohol use by 15%.

Mental health is a cornerstone of chronic disease prevention, as stress and depression impair immunity and promote unhealthy coping mechanisms like overeating or substance use. Adolescents with untreated depression face a 30% higher risk of autoimmune diseases and obesity. In Uzbekistan, studies on adolescent maladaptation underscore the need for psychological support, with cognitive-behavioral therapy (CBT) improving resilience and reducing NCD risk factors. Sleep hygiene, targeting 8-10 hours of quality sleep nightly, is

critical for hormonal regulation and obesity prevention, as sleep deprivation increases ghrelin levels, promoting appetite. Uzbek research advocates for school-based mental health workshops to address stress, particularly in urban settings where academic pressures are high. Systemic interventions are vital for scaling prevention efforts. The U.S. Healthy People 2030 initiative demonstrates the efficacy of routine screenings and vaccinations, reducing NCD prevalence by 20-30% through early detection and immunization against diseases like HPV, linked to cancers. In Uzbekistan, stomatological and oncological prevention programs target adolescents, with dental screenings reducing caries prevalence by 25% and early cancer detection improving outcomes. Adolescent engagement in policy design, as evidenced by Australian models, enhances program relevance and uptake, with youth-led campaigns increasing participation by 40%. In Uzbekistan, integrating adolescent voices into health campaigns can address cultural barriers, such as stigma around mental health or substance use. Policy measures, including restrictions on fast-food advertising and subsidies for healthy foods, further amplify impact. A Tashkent-based study showed that school canteen reforms reducing sugary snacks led to a 10% decrease in adolescent obesity rates.

In conclusion, preventing chronic diseases during adolescence requires a comprehensive, evidence-based approach that includes lifestyle changes, education, community engagement, and policy reform. Early interventions targeting physical activity, nutrition, substance use, and mental health yield significant reductions in NCD incidence, with global studies estimating a 20-40% decrease in long-term morbidity. In Uzbekistan, localized efforts addressing somatic diseases, deviant behaviors, and dietary shifts align with global best practices, demonstrating measurable outcomes in reducing obesity and cardiovascular risks. These strategies not only enhance individual health but also alleviate healthcare system burdens, with cost-effectiveness analyses projecting savings of up to 15% in NCD-related expenditures. Future research should focus on longitudinal studies to assess intervention durability, particularly in diverse populations like Uzbekistan, where cultural and economic factors shape health behaviors. Global collaboration, coupled with youth-inclusive policies, is essential to scale these efforts, ensuring adolescents grow into healthy adults and contributing to the global NCD reduction agenda.

References:

- 1.Mirzaev, A. Prevention of deviant behavior among youth. CyberLeninka, 2021, pp. 15-22.
- 2.Kubayev, A. S. Prevention of dental diseases. Samarkand State Medical University E-library, 2022, pp. 45-60.
- 3.Rakhimov, B. Causes of maladaptation in adolescents and their prevention. CyberLeninka, 2020, pp. 28-35.
- 4.Toshpulatova, D. Cardiovascular diseases and their prevention. Scientific Academy, Vatan Iftikhori, 2023, pp. 12-18.
- 5.Usmanova, S. Causes of oncological diseases in youth and their prevention. Esiconf, MRIATS, 2022, pp. 33-40.
- 6.Karimov, M. The current increase in chronic diseases and their prevention. Universal Journal of Medical and Natural Sciences, Science Research, 2023, pp. 50-58.



7. Abdullaev, R. The current increase in chronic diseases and their prevention. Scientific JL, 2022, pp. 20-27.

8. Mukhamadieva, L. The most common somatic diseases in children. Samarkand State Medical University E-library, 2021, pp. 65-80..

