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Epidemiological situation of type 2 diabetes mellitus in Ukraine: challenges and priorities for public health management

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Епідеміологічна ситуація щодо цукрового діабету 2-го типу в Україні: виклики та пріоритети для управління громадським здоров'ям

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Introduction

Diabetes mellitus (DM) is one of the most serious medical and social challenges worldwide and within the European region. According to the International Diabetes Federation (IDF), the prevalence of DM among the adult population in Europe continues to increase steadily and already affects tens of millions of people. In 2024, according to IDF estimates [1], 66 million adults aged 20–70 years were living with DM in Europe, representing 9.8% of the population in this age group; total expenditures on diabetes care amounted to USD 193 billion, while the average annual cost of treatment per patient was USD 2,951. It is projected that by 2050 the number of adults living with diabetes in Europe will increase to 72 million, accounting for 11.0% of the adult population.

Type 2 diabetes mellitus (T2DM) poses a particular threat to public health, as it accounts for the vast majority (over 90%) of all diabetes cases [2; 3]. The main drivers of the T2DM epidemic, both globally and in Europe, are the rapid spread of overweight and obesity due to high-calorie diets and chronic physical inactivity, as well as population ageing [2; 4; 5].

T2DM is characterized by a prolonged asymptomatic course, delayed diagnosis, and a high prevalence of microvascular and macrovascular complications, which lead to increased disability and mortality. In this context, the assessment not only of incidence and prevalence but also of integrated indicators of disease burden – such as years of life lost due to premature death (YLLs), years lived with disability (YLDs), and disability-adjusted life years (DALYs) – is essential for substantiating public health policy priorities [2; 4].

T2DM also represents a serious challenge for public health and the healthcare system in Ukraine. Current socio-economic difficulties, stress related to the state of war, and lifestyle changes among the population create conditions for the progressive spread of metabolic disorders [6; 7; 8]. The growing prevalence of T2DM and its numerous complications – cardiovascular diseases, stroke, diabetic nephropathy, blindness, and limb amputations - require long-term treatment and specialized medical and rehabilitative care, substantially increasing healthcare expenditures [7; 8].

According to the National Health Service of Ukraine, as of November 2025, the electronic health care system (eHealth) recorded 1.32 million patients with diabetes mellitus, of whom 1.26 million (95.0%) had type 2 diabetes. Throughout the year, more than 198,000 patients with type 2 diabetes received electronic prescriptions for insulin under the 'Affordable Medicines' reimbursement program [9].

It should be noted that in Ukraine, despite the availability of official statistics on registered T2DM cases, there is a lack of comprehensive studies analyzing the structure and dynamics of T2DM-attributable DALYs alongside trends in major risk factors. Such analyses are crucial for substantiating and refining national prevention programs.

The development of effective and evidence-based policies for the control of type 2 diabetes mellitus requires the use of scientifically robust and comprehensive data, a key source of which is the Global Burden of Disease (GBD) study [10].

Monitoring T2DM epidemiology using GBD data allows not only the assessment of disease burden and associated risk factors, but also the identification of gaps in prevention and the development of more effective management strategies to reduce the negative impact of the disease on public health and the national economy [2; 4; 5; 11].

The aim of the study to conduct a comprehensive analysis of type 2 diabetes mellitus epidemiology in Ukraine from 1990 to 2023, compared to the WHO

European Region and European Union countries, to substantiate public health priorities for enhancing T2DM control.

Object, materials and research methods

The assessment of the epidemiology of type 2 diabetes mellitus in Ukraine was based on analysis of the statistical database of the international epidemiological study Global Burden of Disease (GBD 2023) [10]. The GBD project is the world's largest systematic initiative to estimate incidence, prevalence, mortality, DALYs, and risk factors for major classes of diseases and injuries in different countries and regions of the world. The study is coordinated by the Institute for Health Metrics and Evaluation (IHME) at the University of Washington (Seattle, USA), with the participation of a broad international network of public health experts. The present analysis used the most recent GBD 2023 estimates, released in October 2025, which integrate national statistics, disease registries, epidemiological studies, population surveys, and predictive modeling.

The study had a retrospective descriptive-analytical design. Analyses were conducted for the period 1990–2023, focusing on the national level (Ukraine) and in comparison, with countries of the WHO European Region (ER) and the European Union (EU).

To assess the burden of T2DM, the following age-standardized indicators (per 100,000 population) were analyzed: incidence, prevalence, mortality, and disability-adjusted life years (DALYs). DALYs were calculated as the sum of years of life lost due to premature death (YLLs) and years lived with disability (YLDs), in accordance with GBD methodology.

Temporal changes were assessed by calculating absolute change and growth rates (GR in %) over the study period. The dynamics of T2DM burden were analyzed both overall and across specific time intervals, enabling the identification of periods of accelerated growth or relative stabilization.

The impact of risk factors was assessed using the GBD comparative risk assessment framework [10]. The contribution of major groups of risk factors to T2DM-related DALYs was analyzed, including metabolic factors (high body mass index), behavioral factors (smoking and low physical activity), and dietary risk factors (diet high in processed and red meat and sugar-sweetened beverages, as well as low intake of fruits, vegetables, whole grains, and dietary fiber). For each risk factor, DALYs per 100,000 population attributable to exposure, percentage contribution to DALYs due T2DM, and absolute and relative changes over time were estimated.

Descriptive statistics, comparative analyses, and graphical methods were applied.

The study was based exclusively on publicly available, anonymized aggregated GBD data and therefore did not require ethical approval.

Research results

Analysis of GBD 2023 data based on age-standardized incidence and prevalence rates demonstrated a steady and substantial increase in the burden of T2DM in Ukraine during 1990–2023 (Table 1, Fig. 1). Over this period, incidence and prevalence increased at nearly identical rates – by 47.7% and 48.8%, respectively. Consequently, by 2023, both the number of newly diagnosed T2DM cases and the number of individuals living with the disease per 100,000 population had increased by almost 1.5-fold compared with 1990. Mortality due to T2DM exhibited a wave-like pattern with an overall upward trend (+8.4% over the entire period), with the most pronounced increases observed during 1990–1995 and 2015–2020.

Comparison of levels and temporal trends between Ukraine and countries of the ER and the EU revealed that throughout the study period, T2DM incidence and prevalence rates in Ukraine were substantially lower than those in ER and EU countries, accounting for 50–68% of European levels, while mortality rates represented only 18.8–32.4% of corresponding European indicators. Growth rates of T2DM incidence and prevalence in Ukraine were comparable to those observed in ER countries and markedly exceeded those in EU countries. In EU countries mortality from T2DM decreased by 28.4% over 33 years, while in ER countries it increased by 3.1%, and in Ukraine by 8.5%.

The burden of T2DM in Ukraine, assessed using DALYs, also increased substantially during the observation period, although its dynamics were uneven (Fig. 1). In the early 1990s, DALYs rose sharply from 230.5 in 1990 to a peak of 294.5 in 1995, followed by fluctuations and a decline to a minimum of 270.9 in 2013. From 2014 onward, DALYs increased again, reaching their highest level in 2023 (317.8). Overall, DALYs increased by 37.9% over the study period (Table 2).

In the structure of DALYs attributable to T2DM, years lived with disability (YLDs) predominated. The increase in total DALYs in Ukraine (+37.9%) was driven primarily by growth in YLDs, which rose by 52.2%.

Throughout the observation period, Ukraine exhibited lower levels of YLLs, YLDs, and DALYs than ER and EU countries; however, this gap gradually narrowed over time.

The dynamics of diabetes burden indicators in Ukraine were characterized by greater variability than those observed in ER and EU countries. YLLs fluctuated markedly, with sharp increases in 1995 (+76.0%) and 2020 (+43.6%), followed by subsequent declines, whereas EU countries demonstrated a stable downward trend in YLLs. In contrast, YLDs in Ukraine showed sustained long-term growth (+52.2% during 1990-2023), comparable to ER countries (+51.5%) and more pronounced than in the EU (+25.4%). Overall DALYs increased by 37.9% in Ukraine, exceeding growth in ER countries (+28.1%) and contrasting with a decline in the EU (–3.4%), indicating less favorable trends and the absence of stabilization observed in EU countries.

Table 1

Dynamics of age-standardized incidence, prevalence, and mortality rates of type 2 diabetes mellitus in Ukraine, the WHO European Region (ER), and the European Union (EU) (per 100,000 population)

Year, Growth Rate	Incidence (rates per 100,000 population)			Prevalence (rates per 100,000 population)			Mortality (rates per 100,000 population)		
	Ukraine	ER	EU	Ukraine	ER	EU	Ukraine	ER	EU
1990	91.7	160.4	183.0	1848.7	3044.0	3391.2	2.6	11.6	13.9
1995	97.3	167.1	189.4	1992.7	3201.7	3547.8	4.3	11.7	13.0
GR (%) 1995/1990	6.1	4.2	3.5	7.8	5.2	4.6	63.5	1.4	-6.4
2000	101.7	175.8	195.2	2108.2	3408.3	3716.0	3.2	11.0	12.0
GR (%) 2000/1995	4.5	5.2	3.1	5.8	6.5	4.7	-23.8	-6.5	-7.6
2005	111.7	184.6	196.8	2314.4	3610.4	3795.0	3.3	10.9	11.8
GR (%) 2005/2000	9.8	5.0	0.8	9.8	5.9	2.1	3.1	-0.5	-1.3
2010	115.8	191.6	196.1	2352.5	3766.1	3834.8	2.7	10.2	10.6
GR (%) 2010/2005	3.7	3.8	-0.3	1.6	4.3	1.0	-18.9	-6.7	-10.3
2015.	118.6	204.4	199.1	2395.7	3990.4	3886.6	2.1	10.7	9.8
GR (%) 2015/2010	2.4	6.7	1.5	1.8	6.0	1.4	-23.2	5.5	-7.4
2020	130.2	217.2	206.7	2620.5	4260.2	4053.4	3.2	12.0	9.8
GR (%) 2020/2015	9.8	6.3	3.8	9.4	6.8	4.3	52.4	11.5	-0.2
2023	135.4	229.2	212.3	2766.5	4528.4	4053.4	2.8	11.9	9.9
GR (%) 2023/2020	4.0	5.5	2.7	5.6	6.3	0.0	-11.0	-0.3	1.2
GR (%) 2023/1990	47.7	42.9	16.0	49.6	48.8	19.5	8.5	3.1	-28.4

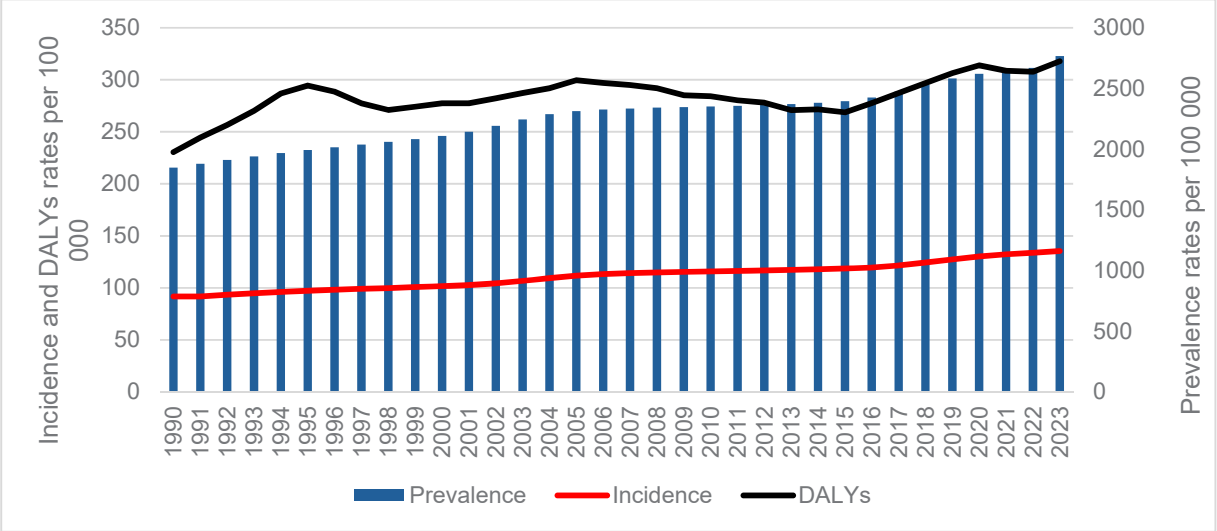

Fig. 1. Age-standardized incidence, prevalence and DALYs rates due to type 2 diabetes mellitus in Ukraine, 1990–2023, (per 100,000 population)

Analysis of T2DM risk factors in Ukraine showed that the largest contributions to DALYs were attributable to overweight and obesity, unhealthy diet, smoking, and low physical activity (Table 3).

The dominant risk factor was high body mass index (BMI), which accounted for nearly two-thirds (63.7%) of total T2DM-related DALYs. In 2023, overweight and obesity contributed 202.7 DALYs per 100,000 population. Between 1991 and 2023, this indicator increased by 58.1 DALYs (40.2%), indicating that despite preventive and informational measures, excess body weight and obesity remain widespread and major public health challenges in Ukraine.

Table 2

Dynamics of age-standardized YLLs, YLDs, and DALYs rates due to type 2 diabetes mellitus in Ukraine, the WHO European Region (ER), and the European Union (EU) (per 100,000 population)

Year, Growth Rate	YLLs (rates per 100,000 population)			YLDs (rates per 100,000 population)			DALYs (rates per 100,000 population)		
	Ukraine	ER	EU	Ukraine	ER	EU	Ukraine	ER	EU
1990	67.7	219.9	254.6	162.8	246.4	264.7	230.5	466.3	519.2
1995	119.1	228.5	234.2	175.4	260.1	278.2	294.5	488.6	512.4
GR (%) 1995/1990	76.0	3.9	-8.0	7.7	5.6	5.1	27.8	4.8	-1.3
2000	92.0	207.9	210.0	185.4	278.0	293.2	277.4	485.9	503.2
GR (%) 2000/1995	-22.8	-9.0	-10.3	5.7	6.9	5.4	-5.8	-0.6	-1.8
2005	95.8	203.4	204.2	203.8	295.2	300.6	299.6	498.6	504.7
GR (%) 2005/2000	4.2	-2.2	-2.8	9.9	6.2	2.5	8.0	2.6	0.3
2010	75.7	188.2	181.3	208.5	308.0	302.3	284.2	496.2	483.6
GR (%) 2010/2005	-21.0	-7.5	-11.2	2.3	4.3	0.6	-5.1	-0.5	-4.2
2015.	55.4	201.1	168.6	213.3	329.4	308.3	268.8	530.5	476.9
GR (%) 2015/2010	-26.8	6.9	-7.0	2.3	6.9	2.0	-5.4	6.9	-1.4
2020	79.6	226.0	168.5	234.3	350.8	320.8	314.0	576.8	489.3
GR (%) 2020/2015	43.6	12.4	0.0	9.8	6.5	4.0	16.8	8.7	2.6
2023	70.1	224.1	169.4	247.7	373.2	331.9	317.8	597.3	501.3
GR (%) 2023/2020	-11.9	-0.8	0.5	5.7	6.4	3.5	1.2	3.6	2.5
GR (%) 2023/1990	3.6	1.9	-33.4	52.2	51.5	25.4	37.9	28.1	-3.4

Table 3

Main risk factors for DALYs due to type 2 diabetes mellitus in Ukraine

Risk factors	DALYs per 100,000 population associated with the risk factor			Absolute change in DALYs (per 100,000) 2023/2000	Growth Rate (%), 2023/1990	% of DALYs attributable to the risk factor, 2023
	1990	2000	2023			
High body-mass index	144.55	170.44	202.66	58.11	40.2	63.74
Dietary risks	52.51	52.29	58.66	6.15	11.7	18.48
Smoking	23.1	29.09	27.85	4.75	20.6	8.76
Low physical activity	9.96	10.68	13.93	3.97	39.9	4.38

Dietary risk factors ranked second, accounting for 18.5% of DALYs attributable to T2DM. During 1991–2023, DALYs related to dietary risks increased by 11.7%. The most harmful components were high consumption of processed meat (6.3% of DALYs; +14%) and low fruit intake (5.7% of DALYs; +12.8%), reflecting the limited protective role of current dietary patterns in Ukraine (Table 4).

During the observation period, all dietary risk factors, except high red meat consumption, demonstrated an increasing negative impact on T2DM-related DALYs.

Overall, nutritional risks in Ukraine are shaped by two concurrent processes: increasing consumption of high-risk foods (processed meat and sugar-sweetened beverages) and insufficient intake of protective dietary components (fruits and whole grains).

Smoking accounted for 8.8% of T2DM-related DALYs and ranked third among risk factors (27.9 DALYs per 100,000 population). Between 1990 and 2023, DALYs attributable to smoking increased by 20.6%.

Low physical activity is a key modifiable risk factor contributing to the burden of T2DM. Physical inactivity is directly associated with insulin resistance, weight gain, and impaired carbohydrate metabolism, thereby increasing the risk of T2DM. Although its current contribution (4.38%) to T2DM-related DALYs is lower than that of high BMI or dietary risks, physical inactivity plays an important indirect role through its impact on obesity and metabolic health.

A particularly important feature of physical inactivity is the rapid increase in its contribution to T2DM burden. In recent decades, DALYs attributable to low physical

Table 4

Main dietary risk factors for DALYs due to type 2 diabetes mellitus in Ukraine

Risk factors	DALYs per 100,000 population associated with the risk factor			Absolute change in DALYs (per 100,000) 2023/2000	Growth Rate (%), 2023/1990	% of DALYs attributable to the risk factor, 2023
	1990	2000	2023			
Dietary risks	52.51	52.29	58.66	6.15	11.7	18.48
Diet high in processed meat	17.67	20.22	20.15	2.48	14.0	6.34
Diet low in fruits	16.09	14.87	18.15	2.06	12.8	5.73
Diet high in red meat	15.41	13.3	14.09	-1.32	-8.6	4.45
Diet low in whole grains	4.44	5.28	5.99	1.55	34.9	1.88
Diet high in sugar-sweetened beverages	4.07	2.9	5.06	0.99	24.3	1.59
Diet low in fiber	0.69	1.31	1.21	0.52	75.4	0.38
Diet low in vegetables	0.27	0.39	0.31	0.04	14.8	0.1

activity increased by 39.9%, representing one of the fastest growth rates among major risk factors. This trend reflects a gradual decline in population-level physical activity associated with urbanization and changes in occupational and leisure patterns.

To establish prevention priorities, it is essential to analyze dietary risks alongside low physical activity, as both factors are closely linked to overweight and obesity.

Currently, the cumulative burden attributable to dietary risks (58.7 DALYs per 100,000 population) substantially exceeds that associated with low physical activity (13.9 DALYs per 100,000 population). At the same time, low physical activity demonstrates the fastest DALY growth – almost 40% – highlighting the need to actively promote physical activity in parallel with dietary interventions.

Overall, GBD 2023 data clearly indicate that the burden of T2DM in Ukraine is primarily driven by overweight and obesity, while its continued growth is sustained by unhealthy diet, smoking, and low physical activity. This underscores the need for a comprehensive public health policy addressing both dietary patterns and physical activity.

Discussion of research results

The results indicate that the epidemiological situation of T2DM in Ukraine is characterized by a persistently unfavorable dynamic. The nearly 1.5-fold increase in incidence and prevalence during 1990–2023 (47.7% and 48.8%, respectively) reflects global and European trends [1; 2], while also exhibiting distinct national characteristics.

Despite substantial growth, T2DM incidence and prevalence in Ukraine remain considerably lower - amounting to 50–68% of levels observed in ER and EU countries.

Lower incidence levels in Ukraine (135.4 versus 212.3 per 100,000 population in the EU in 2023) reflect incomplete early detection rather than better population health or more effective primary prevention. According to the National Health Service of Ukraine, as of November 2025, 1,320,723 patients with DM were registered in the electronic healthcare system [9]. In contrast, IDF estimates for 2024 suggest that approximately 2.1 million adults aged 20–79 years in Ukraine were living with DM, of whom 36.9% were undiagnosed [1]. National data also confirm the substantial prevalence of undiagnosed diabetes, posing an additional challenge for disease control [8].

In EU countries, established active screening systems – particularly using glycated hemoglobin testing – ensure registration of a large proportion of asymptomatic cases [1; 12]. The markedly higher growth rate of incidence in Ukraine (+47.7% versus +16.0% in the EU) likely reflects gradual progress in case detection rather than a true deterioration in population health. A substantial enhancement in the diagnostic of diabetes is expected following the implementation of a national health screening program for individuals over 40. This enhanced detection will likely lead to a rise in reported incidence and prevalence rates, bringing Ukraine's indicators closer to European levels [13].

Substantial disparities in T2DM mortality rates – with Ukraine's levels reaching only 19–32% of European values – may be explained by differences in diagnostic practices and death certification. In Ukraine, T2DM is often recorded as a comorbid condition rather than the underlying cause of death, while cardiovascular events are frequently listed as the primary cause, leading to an underestimation of diabetes-related mortality [8, p. 39]. Similar issues have been documented internationally, as mortality statistics for diabetes are highly sensitive to coding practices [14].

Nevertheless, the observed trends are concerning: while EU countries achieved a 28.4% reduction in T2DM mortality, Ukraine experienced an 8.5% increase, indicating gaps in healthcare system effectiveness.

DALY analysis suggests a gradual shift in the structure of disease burden in Ukraine. Although YLLs exhibited wave-like fluctuations during crisis periods (1995 and 2020), the main driver of increasing burden was YLDs, which rose by 52.2%, reflecting accumulation of patients with complications. Growth rates of YLDs exceeding those in the EU (25.4%) indicate insufficient

effectiveness of secondary prevention and limited access to modern therapies. Expansion of screening and further implementation of the "Affordable Medicines" program may improve secondary prevention outcomes [13; 15].

Overall, the dynamics of T2DM burden indicators in Ukraine – contrasting with the stabilization seen in EU countries -suggest that the peak of the T2DM epidemic has yet to be reached. The sharp increase in DALYs since 2014, reaching a historical high of 317.8 in 2023, necessitates a revision of public health management strategies. Priority must be given not only to early diagnosis and effective treatment but also to strengthening primary prevention, the importance of which is underscored by various European studies [16; 17; 18].

Lifestyle-related factors – overweight, unhealthy diet, and physical inactivity – are the principal drivers of T2DM burden growth, as confirmed by both the present analysis and international evidence [1; 2; 19; 20].

A key determinant of the rising T2DM burden in Ukraine is a high body mass index, which accounts for nearly 64% of all diabetes-related DALYs. The leading role of high BMI – forming almost two-thirds of DALYs resulting from T2DM – aligns with international and domestic research, underscoring the decisive impact of obesity and being overweight on the T2DM epidemic [5; 6; 20; 21]. Furthermore, the high prevalence of overweight and obesity in Ukraine recorded by the STEPS study (which found that in 2019, 59.1% of the population were overweight with a BMI over 25, and obesity with a BMI over 30 affected nearly a quarter of adults, at 24.8%) [22, p. 45] demonstrates a massive potential for reducing the T2DM burden through effective weight management.

At the same time, the significant contribution of dietary risk factors (18.48%) and their steady increase (+11.7%) indicate an unfavorable transformation in the population's eating habits. The combination of excessive consumption of high-risk products and a deficiency of protective dietary components creates a chronic metabolic imbalance that exacerbates the impact of obesity. Particularly alarming is the rapid growth of DALYs associated with high sugar-sweetened beverage consumption and low whole-grain intake. This reflects the globalization of unhealthy dietary patterns [23; 24] and indicates that public health information campaigns have yet to exert a sufficient influence on the consumer behavior of Ukrainians.

Smoking and low physical activity, while contributing less significantly than BMI to the overall T2DM burden, play a vital role in sustaining its negative dynamics. Notably, low physical activity shows one of the highest growth rates in DALYs (+39.9%), pointing to the deepening issue of sedentary lifestyles amidst urbanization and changing habits. Given the close link between physical activity, body mass, and insulin resistance, this factor could become a key driver of further T2D burden growth, as evidenced by several studies [2; 19; 25].

Overall, the study results indicate that Ukraine's T2DM burden structure is gradually converging with European trends; however, it has yet to achieve the positive stabilization of DALY rates characteristic of EU countries. This underscores the necessity of transitioning from fragmented measures to a comprehensive T2DM prevention strategy. Such a strategy should focus on obesity control, the promotion of healthy nutrition, reducing smoking prevalence, and encouraging physical activity at the population level. This aligns with the findings of European and international studies, which consistently emphasize the need for public health policies oriented toward T2DM prevention through the promotion of healthy lifestyles and the elimination of modifiable risk factors [16; 26; 27].

The findings demonstrate that T2DM in Ukraine is not merely a clinical issue but a profound socio-economic challenge with a steadily increasing burden. Modifiable risk factors – most notably overweight and obesity, unhealthy diets, physical inactivity, and smoking – play a dominant role in driving this trend. Consequently, a significant proportion of T2DM cases are potentially preventable, provided that a robust and well-structured prevention system is established.

Improving T2DM prevention and control in Ukraine requires a comprehensive, multisectoral approach that integrates medical, social, educational, and economic strategies. Primarily, the focus must shift from a predominantly curative model toward early prevention, centered on weight management beginning in childhood and adolescence. This necessitates creating environments conducive to healthy eating, reducing the consumption of processed foods and sugar-sweetened beverages, and systematically promoting physical activity as a component of daily life.

In parallel, secondary prevention must be strengthened. This includes enhancing early detection of T2DM and prediabetes within primary healthcare settings through regular screening and the management of modifiable risks, such as nutritional normalization and weight reduction.

Furthermore, continuous epidemiological monitoring, utilizing GBD data, is a vital tool for managing this epidemic. Such monitoring facilitates an objective assessment of disease dynamics, the identification of priority risk factors, and the tracking of intervention effectiveness, ultimately allowing for the rational allocation of healthcare resources.

Prospects for further research

Further research will focus on an in-depth analysis of the contribution of dietary factors to the burden of diabetes in Ukraine, as well as on identifying evidence-based opportunities for its reduction.

Conclusions

Ukraine demonstrates a sustained increase in the T2DM burden: between 1990 and 2023, incidence and prevalence surged by nearly 1.5-fold (47.7% and 48.8%, respectively). T2DM mortality exhibited fluctuating dynamics with

an overall upward trend of 8.5%, sharply contrasting with the 28.4% reduction achieved in EU countries. Total DALYs climbed by 37.9%, reaching a historical peak of 317.8 per 100,000 population in 2023. The primary driver of DALY growth was disability, as evidenced by a 52.2% rise in YLDs, indicating an accumulation of chronic complications and the insufficient efficacy of secondary prevention measures.

While Ukraine is gradually approaching European patterns in T2DM burden structure, it has yet to achieve stabilization, confirming that the epidemic has not yet peaked.

High body mass index remains the dominant risk factor, accounting for 63.7% of DALYs. Significant contributions also arise from unhealthy diets (18.5%), smoking (8.8%), and low physical activity (4.4%), with physical inactivity demonstrating the most rapid growth in impact (+39.9%).

Mitigating the T2DM burden in Ukraine necessitates a shift from a predominantly curative model to a comprehensive public health and disease management strategy. This strategy should focus on long-term lifestyle modification, risk factor reduction, and the integration of prevention and risk management across all policy levels. Without such a transition, the medical and socio-economic consequences of T2DM will continue to escalate.

An essential component of effective T2DM control is continuous epidemiological monitoring using electronic healthcare system data and the Global Burden of Disease framework. This approach enables evidence-based prioritization, objective evaluation of interventions, and the rational allocation of healthcare resources

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Purpose: To conduct a comprehensive analysis of the epidemiology of type 2 diabetes (T2DM) in Ukraine from 1990 to 2023, compared with the WHO European Region and EU countries, in order to inform national public health priorities.

Materials and methods. This retrospective descriptive and analytical study used data from the Global Burden of Disease (GBD 2023) database. Age-standardized rates of incidence, prevalence, mortality, and disability-adjusted life years (DALYs), including years of life lost (YLLs) and years lived with disability (YLDs), were analyzed. The contribution of metabolic (high body mass index), behavioral (smoking and low physical activity), and dietary risk factors to the T2DM burden were assessed.

Results. Between 1990 and 2023, the incidence and prevalence of T2DM in Ukraine increased by 47.7% and 48.8%, respectively. Mortality increased by 8.5%, in marked contrast to the declining trends observed in EU countries. The overall T2DM burden, measured in DALYs, rose by 37.9%, driven primarily by a 52.2% increase in YLDs, indicating suboptimal secondary prevention. High body mass index remained the leading risk factor, accounting for 63.7% of T2DM-related DALYs, followed by dietary factors (18.5%), smoking (8.8%), and low physical activity (4.4%). Notable increases were observed in DALYs attributable to overwait and obesity (+40.2%) and low physical activity (+39.9%), underscoring the limited effectiveness of existing prevention efforts.

Conclusions. The T2DM epidemic in Ukraine has not yet reached its peak and is largely driven by modifiable risk factors. Reducing the future burden of T2DM will require a shift from a predominantly curative approach toward a comprehensive public health and disease management strategy emphasizing primary prevention, obesity control, healthy nutrition, physical activity promotion, and systematic epidemiological surveillance based on GBD data.

Key words: public health, management, type 2 diabetes, morbidity, disability, mortality, mortality, risk factors, prevention.

Цукровий діабет 2-го типу (ЦД2) є актуальним викликом громадського здоров'я України, а науково-обґрунтований контроль над тягарем ЦД2 вимагає здійснення комплексного аналізу його епідеміології із використанням сучасних міжнародних підходів.

Мета: здійснити комплексний аналіз епідеміології цукрового діабету 2-го типу в Україні у 1990–2023 роках, у порівнянні з країнами Європейського регіону ВООЗ (ЄР) та Європейського Союзу (ЄС), для обґрунтування пріоритетів для громадського здоров'я щодо удосконалення контролю над ЦД2.

Матеріали і методи. Дослідження мало ретроспективний описово-аналітичний характер. На підставі бази даних міжнародного епідеміологічного дослідження Global Burden of Disease (GBD-2023) проаналізовано динаміку за 1990–2023 рр. стандартизованих за віком показників захворюваності, поширеності, смертності та DALYs та його складових (YLLs і YLDs), а також здійснено порівняння із аналогічними показниками у країнах ЄР та ЄС. Проаналізовано внесок метаболічних факторів (високий індекс маси тіла); поведінкових факторів (паління, низька фізична активність); дієтичних факторів (надмірне споживання переробленого та червоного м'яса, підсолоджених напоїв, недостатнє споживання фруктів, овочів, цільнозернових продуктів і клітковини) на формування DALYs внаслідок ЦД2 в Україні у 1990–2023 рр. Для кожного фактора ризику оцінювали: рівень DALYs (на 100 000 населення), зумовлений його дією; частку (у %) внеску у загальний тягар ЦД2; абсолютний приріст та темп приросту показників у динаміці.

Результати. В Україні упродовж 1990–2023 років рівні захворюваності та поширеності ЦД2 зросли майже у 1,5 рази (на 47,7% та 48,8%, відповідно). Смертність від ЦД2 мала хвилеподібну динаміку із загальним зростанням на 8,5%, що суттєво

відрізняється від тенденції до зниження смертності у країнах ЄС. Сумарний тягар ЦД2, оцінений за показником DALYs, зріс на 37,9% і досяг у 2023 році максимального рівня за весь період спостереження. Основний внесок у зростання DALYs в Україні зробили роки життя з інвалідністю (YLDs), які збільшилися на 52,2%, що свідчить про накопичення у популяції осіб із ускладненнями ЦД2 та обмежену ефективність вторинної профілактики. Хоча рівні захворюваності, поширеності та DALYs в Україні залишаються нижчими, ніж у країнах ЄР та ЄС (що обумовлено менш повною реєстрацією ЦД2 в Україні та відмінностями у системі статистичного обліку), темпи їх зростання є вищими, а динаміка – менш сприятливою. Аналіз факторів ризику засвідчив, що домінуючим детермінантом тягаря ЦД2 в Україні є високий індекс маси тіла, який формує 63,7% DALYs. Значний внесок також мають дієтичні фактори ризику (18,5%), паління (8,8%) та низька фізична активність (4.4%). Найбільш несприятливі динамічні тенденції відзначені для таких факторів ризику як ожиріння і надмірна маса тіла (+40.2%), низька фізична активність (+39.9%), паління (+20.6%), а також дієтичних факторів: недостатнього споживання цільнозернових продуктів (+34.9%) та продуктів багатих на клітковину (+75.4%) і високого споживання солодких напоїв (+24.3%), що вказує на обмежену ефективність наявних інформаційно-профілактичних заходів.

Висновки. Отримані результати свідчать, що пік епідемії цукрового діабету 2-го типу в Україні ще не пройдено, а зростання тягаря захворювання зумовлене насамперед модифікованими факторами ризику та недостатнім менеджментом їх контролю. Зменшення негативного впливу ЦД2 можливе лише за умови переходу від переважно лікувальної моделі до комплексної стратегії громадського здоров'я та менеджменту захворювання, орієнтованих на первинну та вторинну профілактику, контроль ожиріння, формування здорового харчування, підвищення рівня фізичної активності та системний епідеміологічний моніторинг із використанням даних Global Burden of Disease.

Ключові слова: громадське здоров'я, менеджмент, цукровий діабет 2-го типу, захворюваність, інвалідність, смертність, фактори ризику, профілактика.

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