17. IDENTIFICATION OF THE MOST SIGNIFICANT HEALTH PROBLEMS AFFECTING THE POPULATION OF POLAND AND ITS VOIVODSHIPS BASED ON CURRENT RESULTS OF THE GLOBAL BURDEN OF DISEASE (GBD) STUDY

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The challenges faced by the healthcare sector place high and increasingly demanding expectations on those responsible for shaping the system and allocating resources. There is a growing demand for healthcare services, driven by technological advancements that encourage the adoption of new technologies, a relative shortage of resources, and rising medical service costs.

Decision-makers responsible for the effectiveness of health policy at both central and local levels are constantly operating under the pressure of changing conditions within the healthcare environment. At the same time, they are obliged to formulate health policies and establish priorities that support the development of health potential, that is, by reversing the trend of health loss and generating a population-wide increase in healthy life years. With knowledge of the diseases that pose the greatest threat to life and health, policymakers are able to plan actions aimed at more effective prevention aligned with the current health situation, implement measures to control epidemiological threats, reduce risk factors, improve the detection and treatment of chronic diseases, and – in a broader

context – reduce inequalities in access to healthcare for the entire population, regardless of the socio-economic status of specific social groups.

At the core of each of these decisions lie the health problems affecting Polish men and women. The overarching aim of any reform is to enhance the effectiveness and quality of healthcare services, which in turn will build health potential. It is therefore beyond doubt that information on diseases that pose the most serious threat to life, health, and well-being constitutes a fundamental value underpinning decisions regarding the organisation, structure, and allocation of the available, yet limited, healthcare resources.

This chapter is devoted to an extensive overview of the most up-to-date estimates regarding the health status of Poland's population, including the identification of major health problems and risk factors at the voivodship level. The data and analyses presented herein primarily illustrate the scale and causes of health loss by age, sex, and across Poland's 16 regions. Furthermore, the analysis and data presentation allow for the characterisation of health loss through the share of deaths and years lived with disability, as well as the relationship between exposure to risk factors and health loss.

The data presented for various time periods (e.g. 30-year or 10-year spans) enable the analysis of health trends, the identification of areas that have improved, and those requiring intensified efforts to improve population health. It is worth emphasising that the 2020–2021 period was marked by the unprecedented impact of the COVID-19 pandemic on global health, including in Poland. This pandemic significantly disrupted existing epidemiological trends, causing a marked increase in mortality and disease burden, as reflected in the data presented here. Moreover, the impact of COVID-19 has shown regional variation, particularly evident in the considerable differences in incidence and mortality rates between voivodships. These observations introduce a new context to the analysis of health inequalities in Poland, which must be taken into account when interpreting long-term health trends. The analysis of the comprehensive and objective indicator known as disability-adjusted life years (DALY) provides additional value, as it enables comparisons between voivodships in Poland and broadens the scope for international comparisons (not only country-to-country but also region-to-country). Therefore, the GBD study offers a unique opportunity to compare the effectiveness of health policies and create an optimal financial and investment model for the healthcare system.

A comprehensive and exhaustive report on disease burden must be based on a reliable estimation of population health metrics that are epidemiologically significant (i.e. morbidity and mortality). A consistent, comparable, and standardised

tool for describing the health status of the population plays a key role in improving decision-making and operational processes in healthcare. The Global Burden of Disease and Risk Factors Study (GBD), periodically conducted by the Institute for Health Metrics and Evaluation (IHME), is precisely such a coherent source of information on the global burden of disease. It integrates morbidity and mortality data and provides a foundation for comparison.

At the time of preparing this report, the most current version of the study was the GBD 2021 edition, released in 2023, which analysed the health status of the global population from 1990 to 2021.

The GBD study presents an exceptionally broad analytical and comparative scope in the international context. It currently includes data on 459 diseases and risk factors from 204 countries and territories worldwide, enabling the compilation of a database containing over 607 billion values and standardised measurements. On this basis, IHME conducts analyses of the current health situation and explores future health trends. An analysis of the data presented in the 2024 publication cycle[1,2,3,4,5] indicated that between 1950 and 2021, the average global

[1] Murray CJL; GBD 2021 Collaborators. Findings from the Global Burden of Disease Study 2021. Lancet. 2024 May 18;403(10440):2259-2262. doi: 10.1016/S0140-6736(24)00769-4. PMID: 38762327.

[2] GBD 2021 Causes of Death Collaborators. Global burden of 288 causes of death and life expectancy decomposition in 204 countries and territories and 811 subnational locations, 1990-2021: a systematic analysis for the Global Burden of Disease Study 2021. Lancet. 2024 May 18;403(10440):2100-2132. doi: 10.1016/S0140-6736(24)00367-2. Epub 2024 Apr 3. Erratum in: Lancet. 2024 May 18;403(10440):1988. doi: 10.1016/S0140-6736(24)00824-9. PMID: 38582094; PMCID: PMC11126520.

[3] GBD 2021 Diseases and Injuries Collaborators. Global incidence, prevalence, years lived with disability (YLDs), disability-adjusted life-years (DALYs), and healthy life expectancy (HALE) for 371 diseases and injuries in 204 countries and territories and 811 subnational locations, 1990-2021: a systematic analysis for the Global Burden of Disease Study 2021. Lancet. 2024 May 18;403(10440):2133-2161. doi: 10.1016/S0140-6736(24)00757-8. Epub 2024 Apr 17. PMID: 38642570; PMCID: PMC11122111.

[4] GBD 2021 Demographics Collaborators. Global age-sex-specific mortality, life expectancy, and population estimates in 204 countries and territories and 811 subnational locations, 1950-2021, and the impact of the COVID-19 pandemic: a comprehensive demographic analysis for the Global Burden of Disease Study 2021. Lancet. 2024 May 18;403(10440):1989-2056. doi: 10.1016/S0140-6736(24)00476-8. Epub 2024 Mar 11. PMID: 38484753; PMCID: PMC11126395.

[5] GBD 2021 Risk Factors Collaborators. Global burden and strength of evidence for 88 risk factors in 204 countries and 811 subnational locations, 1990-2021: a systematic analysis for the Global Burden of Disease Study 2021. Lancet. 2024 May 18;403(10440):2162-2203. doi: 10.1016/S0140-6736(24)00933-4. Erratum in: Lancet. 2024 Jul 20;404(10449):244. doi: 10.1016/S0140-6736(24)01458-2. PMID: 38762324; PMCID: PMC11120204.

life expectancy increased by nearly 23 years, from 49 to 71.7 years. However, between 2019 and 2021, life expectancy fell by 1.6 years. Life expectancy decreased in more than 84% of the countries studied, including Poland. At the same time, the GBD study, in its long-term analysis of health trends (extending to 2050 or even 2100), forecasts, among other things, that by 2050, 60% of adults and 31% of children will be overweight or obese, the number of people living with dementia will triple globally. By 2100, ischaemic heart disease will remain the leading cause of health loss in the population.

The GBD study provides information that can support policymakers in making informed decisions and shaping health policies grounded in reliable data. It enables monitoring the effectiveness of implemented measures. It facilitates adopting best practices from countries whose solutions yield the most beneficial outcomes, such as gains in healthy life years and reduced health loss due to disease.

Measures of disease burden – the significance of the DALY indicator and its components

The definition of the disability-adjusted life years (DALY) indicator reflects a measure of health loss resulting from a shortened life expectancy as well as reduced quality of life caused by disease or injury.1 Interventions implemented by the healthcare system aim to reduce the DALY indicator, thereby extending the time an individual and the population as a whole live in good health. This indicator is often referred to as the "burden of disease" because it consists of two components: years of life lost (YLL) due to premature mortality, and years lived with disability (YLD). This dual structure allows for an accurate determination of the extent to which a specific health problem negatively affects population health.

An analysis of the main categories of health loss causes for both sexes in Poland in 2021 highlights significant differences in the contribution of the individual components of DALY. In the case of the most critical health issues, such as diseases of the circulatory system (DCS) and neoplasms, premature deaths predominate (DCS: 7,057.0 YLL per 100,000 population; neoplasms: 6,971.0 YLL per 100,000 population), while the health loss due to reduced mobility is comparatively lower (DCS: 668.6 YLD per 100,000 population; neoplasms: 194.5 YLD per 100,000 population). This suggests that these diseases are characterised by high mortality rates, an acute or rapid course, or are diagnosed at late and often

incurable stages, as well as by the absence or failure to apply effective interventions. A similar pattern was observed for diseases of the digestive system in 2021, where the share of premature deaths exceeded 75% (1,361.8 YLL and 420.5 YLD per 100,000 population). For other categories of health issues, such as musculoskeletal disorders, injuries, diabetes and kidney diseases, mental disorders, other non-communicable diseases, and sense organ diseases, the health burden on the population mainly results from decreased functionality and reduced quality of life (high YLD contribution). Detailed data on the DALY rates for specific causes are presented in Figure 17.1.

Information on the dominant component of years of healthy life lost constitutes a key element in identifying unmet health needs of society. In the case of diseases with high mortality rates, the healthcare sector's efforts should focus on intensifying health prevention, eliminating harmful health behaviours, improving the quality and accessibility of diagnostics, and expanding access to advanced and effective treatment methods. Conversely, for conditions where the burden arises primarily from disability, in addition to public health interventions aimed at reducing incidence, systemic actions are essential. These should be centred on the development of reference centres and social care mechanisms that mitigate the long-term consequences of such health problems (e.g. coordinated primary healthcare, outpatient specialist care, pain management medicine, among others).

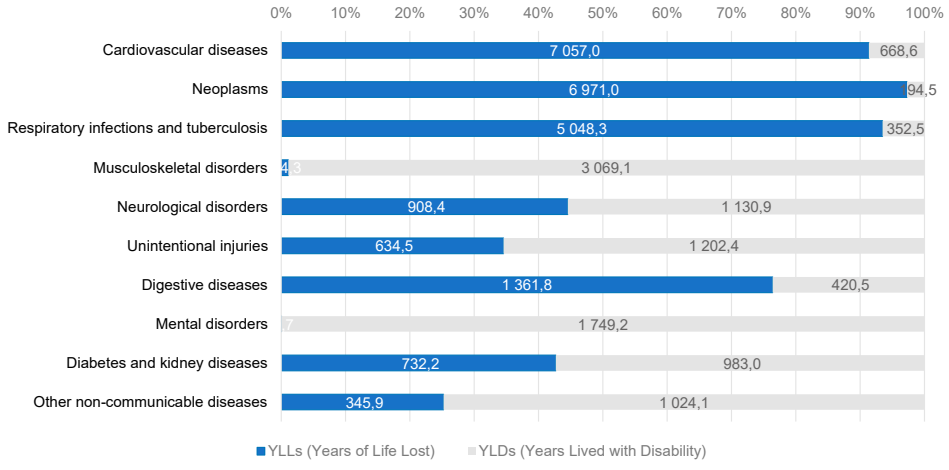

Fig. 17.1. Share of years of life lost due to premature deaths (YLL) and years lived with disability (YLD) expressed as a percentage of DALY for the 10 leading health problems in Poland, both sexes, in 2021.

Leading causes of health loss (DALY) among women and men in Poland and its 16 voivodships

In 2021, the rate of disability-adjusted life years (DALYs) lost due to all causes in the male population of Poland reached 45,307.2 DALYs per 100,000 men. Łódzkie voivodship recorded the highest regional total disease burden at 51,515.7 DALYs per 100,000, while Małopolskie voivodship reported the lowest rate at 39,820.3 DALYs per 100,000. Diseases of the circulatory system were the leading cause of disease burden in the male population in 10 voivodships, with the highest rate observed in Świętokrzyskie voivodship (11,350 DALYs per 100,000, representing 23.7% of the region's total burden). The lowest rate was found in Wielkopolskie voivodship, at 7,713.3 DALYs per 100,000, accounting for 18.3% of the total disease burden in that region. The Polish average for diseases of the circulatory system stood at 8,820.07 DALYs per 100,000 (19.5% of the total burden). When analysing the percentage share of diseases of the circulatory system in the overall disease burden of individual voivodships, particular attention should be paid to Małopolskie and Świętokrzyskie, where these conditions accounted for 22.6% and 23.7% of all years of healthy life lost, respectively. In contrast, in Mazowieckie and Warmińsko-Mazurskie voivodships, this share was lower, fluctuating between 17% and 18%.

In four voivodships – Kujawsko-Pomorskie, Łódzkie, Warmińsko-Mazurskie, and Wielkopolskie – neoplasms were the leading cause of premature mortality and reduced quality of life among men. The Polish average for neoplasm-related DALYs was 8,346.65 per 100,000 (18.4% of the total burden). The highest neoplasm-related DALYs was recorded in Zachodniopomorskie voivodship – 9,533.94 DALYs per 100,000 (20.0% of the regional disease burden), and the lowest in Małopolskie voivodship – 6,849.86 DALYs per 100,000 (17.2% of the burden). Neoplasms contributed the most significantly to the regional disease burden in Kujawsko-Pomorskie, at 20.6% (9,352.28 DALYs per 100,000).

In 2021, the burden classified under respiratory infections and tuberculosis (including COVID-19) was the third largest cause of years of healthy life lost among men, reaching 6,528.99 DALYs per 100,000 (14.4% of the total burden), with COVID-19 accounting for 5,477.96 DALYs per 100,000. The highest rates among men were observed in Łódzkie voivodship (7,594.36 DALYs per 100,000, 14.7% of the regional burden) and Podlaskie voivodship (7,581.75 DALYs per 100,000, 16.4% of the regional burden), and the lowest in Małopolskie (5,013.54 DALYs per 100,000, 12.6% of the regional burden). A significant share of these

values was attributable to the COVID-19 pandemic, which further highlights the regional impact of the health crisis during 2020–2021.

In 2021, unintentional injuries (accidents) ranked as the fourth leading cause of health loss among men in Poland and its regions. The lowest burden from this cause was recorded in Wielkopolskie voivodship (2,281.72 DALYs per 100,000, accounting for 5.4% of the local disease burden). Accidents represented the most significant problem in Podlaskie voivodship (2,974.89 DALYs per 100,000, or 6.4% of the total disease burden) and in Śląskie voivodship (2,928.46 DALYs per 100,000, at 6.2% of the burden). The Polish average for this group of causes was 2,568.20 DALYs per 100,000, representing 5.7% of all years of healthy life lost among Polish men. A substantial contribution of accidents to men's health loss was also observed in Pomorskie (6.0%), Małopolskie (6.1%), and Opolskie (6.0%) voivodships.

Musculoskeletal disorders, diseases of the digestive system, diabetes and kidney diseases, as well as neurological disorders, also had a significant impact on health loss among men in Poland. Table 17.1 presents a detailed list of these and other health problems that contributed most substantially to health loss among men in Poland and its voivodships in 2021.

The total disease burden among women in Poland in 2021 amounted to 36,176.4 DALYs per 100,000, with significant differences observed between voivodships. The lowest DALYs for all causes were recorded in Małopolskie (32,354.0 DALYs/100,000) and Podkarpackie (32,636.2 DALYs/100,000) voivodships. Conversely, the highest burden was reported in Łódzkie voivodship, where DALY reached 41,089.1 per 100,000.

As with the male population, the leading cause of health loss among women was diseases of the circulatory system, with a national rate of 6,699.05 DALYs per 100,000 (accounting for 18.5% of the total disease burden). These conditions ranked as the top cause of premature death or disability in 11 voivodships. The highest DALYs in this category were observed in Świętokrzyskie voivodship (8,476.33 DALYs/100,000) and Lubelskie (8,102.59 DALYs/100,000), where diseases of the circulatory system represented 23.1% and 21.9% of the regional disease burden among women, respectively. Regional variation in cardiac DALYs ranged widely from 16.5% to 23.1%, with cardiac diseases responsible for nearly one-quarter of all health loss among women in Świętokrzyskie.

In the remaining five voivodships – Kujawsko-Pomorskie, Lubuskie, Mazowieckie, Wielkopolskie, and Warmińsko-Mazurskie – neoplasms were the primary cause of disease burden among women. The highest neoplasm-related DALY rate was noted in Lubuskie voivodship, at 6,931.95 per 100,000 (18.7% of the regional burden).

Table 17.1. Disease burden by cause category among men in Poland and its voivodships in 2021, expressed as actual DALYs per 100,000 population and as percentage contribution to the total disease burden. (Ranking of causes 1–15)

Cause	Poland	Dolnośląskie	Kujawsko-pomorskie	Lubelskie	Lubuskie	Łódzkie	Małopolskie	Mazowieckie	Opolskie	Podkarpackie	Podlaskie	Pomorskie	Śląskie	Świętokrzyskie	Warmińsko-mazurskie	Wielkopolskie	Zachodniopomorskie
Total	45 307.2 (100%)	47 137.7 (100%)	45 304.0 (100%)	47 305.6 (100%)	46 724.1 (100%)	51 515.7 (100%)	39 820.3 (100%)	46 052.9 (100%)	44 297.9 (100%)	41 569.2 (100%)	46 221.1 (100%)	41 596.0 (100%)	47 470.3 (100%)	47 831.7 (100%)	45 344.4 (100%)	42 102.9 (100%)	47 783.6 (100%)
W tym:																	
Cardiovascular diseases	8820.07 (19.5%)	10028.80 (21.3%)	7983.22 (17.6%)	9880.11 (20.9%)	9764.53 (20.9%)	9109.63 (17.7%)	9014.50 (22.6%)	7770.72 (16.9%)	9591.06 (21.7%)	7904.57 (19.0%)	7994.54 (17.3%)	7961.21 (19.1%)	9565.50 (20.2%)	11350.45 (23.7%)	8148.40 (18.0%)	7713.26 (18.3%)	9984.63 (20.9%)
Neoplasms	8346.65 (18.4%)	8751.61 (18.6%)	9352.28 (20.6%)	8463.57 (17.9%)	8910.58 (19.1%)	9476.25 (18.4%)	6849.86 (17.2%)	8183.97 (17.8%)	8026.59 (18.1%)	7242.94 (17.4%)	7668.92 (16.6%)	7314.54 (17.6%)	8960.00 (18.9%)	8980.24 (18.8%)	8507.21 (18.8%)	8173.10 (19.4%)	9533.94 (20.0%)
Respiratory infections and tuberculosis	6528.99 (14.4%)	5859.32 (12.4%)	7181.57 (15.9%)	7429.71 (15.7%)	6211.89 (13.3%)	7594.36 (14.7%)	5013.54 (12.6%)	7566.04 (16.4%)	5985.46 (13.5%)	6336.96 (15.2%)	7581.75 (16.4%)	5714.04 (13.7%)	6538.68 (13.8%)	6430.98 (13.4%)	6574.63 (14.5%)	5984.38 (14.2%)	6309.23 (13.2%)
Unintentional injuries	2568.20 (5.7%)	2720.78 (5.8%)	2301.79 (5.1%)	2738.92 (5.8%)	2587.91 (5.5%)	2654.72 (5.2%)	2420.05 (6.1%)	2474.69 (5.4%)	2660.61 (6.0%)	2441.83 (5.9%)	2974.89 (6.4%)	2481.32 (6.0%)	2928.46 (6.2%)	2499.84 (5.2%)	2502.76 (5.5%)	2281.72 (5.4%)	2581.39 (5.4%)
Musculoskeletal disorders	2419.83 (5.3%)	2450.49 (5.2%)	2422.23 (5.3%)	2419.56 (5.1%)	2413.09 (5.2%)	2582.41 (5.0%)	2380.21 (6.0%)	2392.89 (5.2%)	2536.04 (5.7%)	2399.95 (5.8%)	2390.87 (5.2%)	2359.48 (5.7%)	2431.76 (5.1%)	2484.24 (5.2%)	2369.39 (5.2%)	2351.35 (5.6%)	2473.58 (5.2%)
Digestive diseases	2245.18 (5.0%)	2404.17 (5.1%)	2183.91 (4.8%)	1966.68 (4.2%)	2443.18 (5.2%)	3058.09 (5.9%)	1779.78 (4.5%)	2274.80 (4.9%)	2315.74 (5.2%)	1872.06 (4.5%)	2165.60 (4.7%)	2000.06 (4.8%)	2791.74 (5.9%)	1943.72 (4.1%)	2353.75 (5.2%)	1883.36 (4.5%)	2245.34 (4.7%)

Cause	Poland	Dolnośląskie	Kujawsko-pomorskie	Lubelskie	Lubuskie	Łódzkie	Małopolskie	Mazowieckie	Opolskie	Podkarpackie	Podlaskie	Pomorskie	Śląskie	Świętokrzyskie	Warmińsko-mazurskie	Wielkopolskie	Zachodniopomorskie
Diabetes and kidney diseases	1773.81 (3.9%)	1837.00 (3.9%)	1743.81 (3.8%)	1710.05 (3.6%)	1920.28 (4.1%)	1952.24 (3.8%)	1364.09 (3.4%)	1654.11 (3.6%)	1968.95 (4.4%)	1540.82 (3.7%)	1748.00 (3.8%)	1831.89 (4.4%)	2146.95 (4.5%)	1645.95 (3.4%)	1988.93 (4.4%)	1736.28 (4.1%)	1777.15 (3.7%)
Mental disorders	1611.16 (3.6%)	1614.69 (3.4%)	1621.19 (3.6%)	1622.55 (3.4%)	1623.08 (3.5%)	1607.16 (3.1%)	1606.36 (4.0%)	1594.74 (3.5%)	1626.46 (3.7%)	1625.32 (3.9%)	1615.04 (3.5%)	1598.99 (3.8%)	1611.15 (3.4%)	1628.49 (3.4%)	1619.91 (3.6%)	1602.78 (3.8%)	1623.66 (3.4%)
Neurological disorders	1614.68 (3.6%)	1597.01 (3.4%)	1550.90 (3.4%)	1630.97 (3.4%)	1503.15 (3.2%)	1769.47 (3.4%)	1604.91 (4.0%)	1627.85 (3.5%)	1603.78 (3.6%)	1612.12 (3.9%)	1707.32 (3.7%)	1541.70 (3.7%)	1696.35 (3.6%)	1667.85 (3.5%)	1593.91 (3.5%)	1496.07 (3.6%)	1584.32 (3.3%)
Substance use disorders	1496.72 (3.3%)	1635.66 (3.5%)	1558.63 (3.4%)	1218.49 (2.6%)	1485.53 (3.2%)	2088.43 (4.1%)	1160.10 (2.9%)	1368.87 (3.0%)	940.41 (2.1%)	1298.39 (3.1%)	1959.57 (4.2%)	1748.11 (4.2%)	1498.53 (3.2%)	1271.75 (2.7%)	2027.93 (4.5%)	1405.55 (3.3%)	1581.57 (3.3%)
Other COVID-19 pandemic-related outcomes	1456.89 (3.2%)	1519.83 (3.2%)	954.81 (2.1%)	1538.22 (3.3%)	1307.13 (2.8%)	2077.33 (4.0%)	843.46 (2.1%)	2172.89 (4.7%)	1071.96 (2.4%)	1414.88 (3.4%)	1963.33 (4.2%)	1071.75 (2.6%)	1376.79 (2.9%)	1411.62 (3.0%)	1059.07 (2.3%)	1199.28 (2.8%)	1627.23 (3.4%)
Self-harm and interpersonal violence	1307.02 (2.9%)	1324.65 (2.8%)	1390.76 (3.1%)	1399.67 (3.0%)	1496.90 (3.2%)	1721.73 (3.3%)	1023.99 (2.6%)	1547.84 (3.4%)	1092.83 (2.5%)	1122.13 (2.7%)	1270.56 (2.7%)	1109.49 (2.7%)	1202.55 (2.5%)	1228.53 (2.6%)	1538.34 (3.4%)	1065.32 (2.5%)	1468.03 (3.1%)
Chronic respiratory diseases	1147.99 (2.5%)	1267.60 (2.7%)	1086.33 (2.4%)	1034.50 (2.2%)	1125.29 (2.4%)	1365.69 (2.7%)	1195.30 (3.0%)	1305.33 (2.8%)	941.95 (2.1%)	1026.50 (2.5%)	1166.39 (2.5%)	1058.19 (2.5%)	995.87 (2.1%)	1077.05 (2.3%)	1196.38 (2.6%)	1120.06 (2.7%)	1128.61 (2.4%)
Other non-communicable diseases	1080.10 (2.4%)	1178.15 (2.5%)	1036.49 (2.3%)	1040.70 (2.2%)	1096.91 (2.3%)	1164.49 (2.3%)	1005.91 (2.5%)	1066.82 (2.3%)	1064.32 (2.4%)	1028.45 (2.5%)	1042.85 (2.3%)	1076.59 (2.6%)	1021.54 (2.2%)	1017.94 (2.1%)	997.50 (2.2%)	1278.05 (3.0%)	1042.34 (2.2%)
Transport injuries	967.72 (2.1%)	1001.34 (2.1%)	1030.00 (2.3%)	1330.78 (2.8%)	979.95 (2.1%)	1168.84 (2.3%)	675.31 (1.7%)	1114.07 (2.4%)	876.57 (2.0%)	814.49 (2.0%)	1041.80 (2.3%)	789.75 (1.9%)	718.42 (1.5%)	1295.30 (2.7%)	1014.14 (2.2%)	1025.32 (2.4%)	922.45 (1.9%)

Table 17.2. Disease burden by cause category among women in Poland and its voivodships in 2021, expressed as actual DALYs per 100,000 population and as percentage contribution to the total disease burden. (Ranking of causes 1–15)

Cause	Poland	Dolnośląskie	Kujawsko-pomorskie	Lubelskie	Lubuskie	Łódzkie	Małopolskie	Mazowieckie	Opolskie	Podkarpackie	Podlaskie	Pomorskie	Śląskie	Świętokrzyskie	Warmińsko-Mazurskie	Wielkopolskie	Zachodniopomorskie
Total	36 176.4 (100%)	37 223.3 (100%)	36 126.2 (100%)	37 008.5 (100%)	36 985.5 (100%)	41 089.1 (100%)	32 354.0 (100%)	37 014.5 (100%)	36 072.8 (100%)	32 636.2 (100%)	36 143.1 (100%)	33 686.5 (100%)	38 513.4 (100%)	36 627.6 (100%)	35 231.6 (100%)	34 224.4 (100%)	36 921.5 (100%)
W tym:																	
Cardiovascular diseases	6699.05 (18.5%)	7102.01 (19.1%)	6201.93 (17.2%)	8102.59 (21.9%)	6844.10 (18.5%)	7487.02 (18.2%)	6591.00 (20.4%)	6108.02 (16.5%)	7066.70 (19.6%)	5982.38 (18.3%)	6686.28 (18.5%)	5912.23 (17.6%)	7408.56 (19.2%)	8476.33 (23.1%)	5900.83 (16.7%)	5761.08 (16.8%)	6962.64 (18.9%)
Neoplasms	6057.72 (16.7%)	6591.75 (17.7%)	6862.61 (19.0%)	5519.11 (14.9%)	6931.95 (18.7%)	6887.74 (16.8%)	4917.21 (15.2%)	6214.27 (16.8%)	5728.63 (15.9%)	4457.39 (13.7%)	5063.06 (14.0%)	5627.25 (16.7%)	6717.17 (17.4%)	5579.12 (15.2%)	6163.45 (17.5%)	6102.88 (17.8%)	6760.48 (18.3%)
Respiratory infections and tuberculosis	4342.59 (12.0%)	3946.91 (10.6%)	4731.59 (13.1%)	5023.53 (13.6%)	4149.58 (11.2%)	5207.24 (12.7%)	3331.52 (10.3%)	5060.95 (13.7%)	3934.56 (10.9%)	4206.05 (12.9%)	5130.63 (14.2%)	3734.24 (11.1%)	4206.46 (10.9%)	4259.96 (11.6%)	4397.29 (12.5%)	3978.77 (11.6%)	4089.70 (11.1%)
Musculoskeletal disorders	3744.49 (10.4%)	3773.23 (10.1%)	3684.66 (10.2%)	3744.22 (10.1%)	3627.74 (9.8%)	4160.39 (10.1%)	3735.40 (11.5%)	3754.79 (10.1%)	3951.72 (11.0%)	3741.90 (11.5%)	3776.54 (10.4%)	3636.44 (10.8%)	3692.68 (9.6%)	3812.40 (10.4%)	3620.55 (10.3%)	3592.52 (10.5%)	3730.17 (10.1%)
Neurological disorders	2437.64 (6.7%)	2480.20 (6.7%)	2396.46 (6.6%)	2523.71 (6.8%)	2373.11 (6.4%)	2630.68 (6.4%)	2370.98 (7.3%)	2497.55 (6.7%)	2485.30 (6.9%)	2409.49 (7.4%)	2549.07 (7.1%)	2285.45 (6.8%)	2457.57 (6.4%)	2561.25 (7.0%)	2372.34 (6.7%)	2270.62 (6.6%)	2400.90 (6.5%)
Mental disorders	1880.10 (5.2%)	1885.92 (5.1%)	1896.41 (5.2%)	1886.39 (5.1%)	1898.89 (5.1%)	1879.90 (4.6%)	1871.92 (5.8%)	1868.92 (5.0%)	1898.39 (5.3%)	1880.88 (5.8%)	1877.83 (5.2%)	1864.17 (5.5%)	1883.89 (4.9%)	1890.64 (5.2%)	1884.75 (5.3%)	1868.03 (5.5%)	1899.51 (5.1%)
Diabetes and kidney diseases	1660.19 (4.6%)	1645.43 (4.4%)	1629.23 (4.5%)	1545.49 (4.2%)	1925.37 (5.2%)	1785.92 (4.3%)	1280.69 (4.0%)	1537.94 (4.2%)	1911.07 (5.3%)	1360.16 (4.2%)	1650.32 (4.6%)	1688.54 (5.0%)	2087.17 (5.4%)	1501.66 (4.1%)	1936.10 (5.5%)	1688.30 (4.9%)	1571.32 (4.3%)

Cause	Poland	Dolnośląskie	Kujawsko-pomorskie	Lubelskie	Lubuskie	Łódzkie	Małopolskie	Mazowieckie	Opolskie	Podkarpackie	Podlaskie	Pomorskie	Śląskie	Świętokrzyskie	Warmińsko-Mazurskie	Wielkopolskie	Zachodniopomorskie
Other non-communicable diseases	1641.77 (4.5%)	1725.84 (4.6%)	1604.31 (4.4%)	1614.34 (4.4%)	1688.02 (4.6%)	1747.97 (4.3%)	1536.94 (4.8%)	1642.72 (4.4%)	1658.81 (4.6%)	1605.92 (4.9%)	1596.77 (4.4%)	1644.38 (4.9%)	1570.16 (4.1%)	1575.64 (4.3%)	1597.37 (4.5%)	1804.40 (5.3%)	1605.09 (4.3%)
Digestive diseases	1348.18 (3.7%)	1443.91 (3.9%)	1322.28 (3.7%)	1001.20 (2.7%)	1344.68 (3.6%)	1820.48 (4.4%)	1143.37 (3.5%)	1375.86 (3.7%)	1334.91 (3.7%)	1100.78 (3.4%)	1187.32 (3.3%)	1289.36 (3.8%)	1747.52 (4.5%)	995.61 (2.7%)	1369.39 (3.9%)	1155.27 (3.4%)	1360.10 (3.7%)
Sense organ diseases	1197.70 (3.3%)	1237.40 (3.3%)	1186.29 (3.3%)	1237.90 (3.3%)	1168.41 (3.2%)	1297.41 (3.2%)	1155.56 (3.6%)	1187.46 (3.2%)	1254.22 (3.5%)	1163.95 (3.6%)	1223.92 (3.4%)	1123.39 (3.3%)	1235.94 (3.2%)	1284.07 (3.5%)	1147.06 (3.3%)	1123.55 (3.3%)	1207.74 (3.3%)
Injuries	1151.01 (3.2%)	1211.72 (3.3%)	993.00 (2.7%)	1042.55 (2.8%)	1134.04 (3.1%)	1245.26 (3.0%)	1052.70 (3.3%)	1154.56 (3.1%)	1192.75 (3.3%)	964.68 (3.0%)	1127.44 (3.1%)	1127.90 (3.3%)	1426.77 (3.7%)	984.74 (2.7%)	967.91 (2.7%)	1195.89 (3.5%)	1135.09 (3.1%)
Chronic respiratory diseases	956.79 (2.6%)	1058.50 (2.8%)	915.58 (2.5%)	761.43 (2.1%)	922.98 (2.5%)	1073.29 (2.6%)	877.77 (2.7%)	1024.12 (2.8%)	929.20 (2.6%)	904.15 (2.8%)	853.62 (2.4%)	918.01 (2.7%)	1043.10 (2.7%)	834.66 (2.3%)	967.43 (2.7%)	934.46 (2.7%)	968.18 (2.6%)
Other COVID-19 pandemic-related outcomes	942.89 (2.6%)	977.98 (2.6%)	598.12 (1.7%)	1025.48 (2.8%)	833.33 (2.3%)	1372.88 (3.3%)	537.87 (1.7%)	1417.95 (3.8%)	670.88 (1.9%)	903.98 (2.8%)	1303.52 (3.6%)	669.18 (2.0%)	872.46 (2.3%)	921.81 (2.5%)	684.99 (1.9%)	766.52 (2.2%)	1032.44 (2.8%)
Skin and subcutaneous diseases	492.74 (1.4%)	473.57 (1.3%)	466.65 (1.3%)	464.59 (1.3%)	454.43 (1.2%)	570.30 (1.4%)	515.82 (1.6%)	534.07 (1.4%)	507.50 (1.4%)	511.03 (1.6%)	488.30 (1.4%)	502.92 (1.5%)	472.57 (1.2%)	457.32 (1.2%)	448.12 (1.3%)	465.63 (1.4%)	451.50 (1.2%)
Substance use disorders	467.62 (1.3%)	516.31 (1.4%)	460.67 (1.3%)	393.27 (1.1%)	497.57 (1.3%)	568.08 (1.4%)	386.27 (1.2%)	435.53 (1.2%)	397.40 (1.1%)	365.33 (1.1%)	482.50 (1.3%)	527.80 (1.6%)	536.44 (1.4%)	380.07 (1.0%)	554.69 (1.6%)	437.67 (1.3%)	532.12 (1.4%)

Notably, although neoplasms were not the leading cause of health loss in Łódzkie voivodship, one of the highest rates in Poland for this group was recorded there – 6,887.74 DALYs per 100,000 (16.8% of the region's burden). The lowest number of healthy life years lost due to neoplasm was observed in Podkarpackie voivodship – 4,457.39 DALYs per 100,000 (13.7% of the regional burden). For comparison, the Polish average neoplasm burden for women was 6,057.72 DALYs per 100,000, constituting 16.7% of the total disease burden among Polish women.

The third most significant cause of healthy life years lost among women in Poland was respiratory tract infections and tuberculosis (including COVID-19). This health issue accounted for 4,342.59 DALYs per 100,000 (12.0% of the total burden), with COVID-19 alone responsible for 3,755.2 DALYs per 100,000. In terms of regional differences, the highest rates in this category were recorded in Łódzkie voivodship – 5,207.24 DALYs per 100,000 (12.7% of the region's burden) – and Podlaskie voivodship – 5,130.63 DALYs per 100,000 (14.2%). The lowest was observed in Małopolskie voivodship – 3,331.52 DALYs per 100,000 (10.3%).

The fourth most common cause of disease burden among women in Poland was musculoskeletal disorders, contributing to 3,744.49 DALYs per 100,000 nationally (10.4% of the total burden). Comparing voivodships, the highest rate for this category was found in Łódzkie voivodship – 4,160.39 DALYs per 100,000 (10.1% of the region's burden), and the lowest in Wielkopolskie voivodship – 3,592.52 DALYs per 100,000 (10.5%). In relative terms, the highest proportion of disease burden from musculoskeletal disorders was noted in Podkarpackie and Małopolskie voivodships (both 11.5%), while the lowest was in Śląskie voivodship (9.6%).

Subsequent key health issues among women in Poland included neurological disorders, mental health disorders, diabetes and kidney diseases, other non-communicable diseases, and diseases of the digestive system. Detailed data on DALYs per 100,000 women and their percentage contribution to the total disease burden by voivodship are presented in Table 17.2.

Risk factors associated with population health loss in Poland – analysis of burden by sex and voivodship

The disease burden attributable to all causes and assigned to all risk factors among men in Poland reached 13,377.6 DALYs per 100,000 population,

accounting for a total of 41.2% of all DALYs (with the corresponding unstandardised values being 19,745.8 and 43.6%). In Poland, tobacco use was the dominant risk factor, responsible for 11.7% (13.5% unstandardised) of the total burden, equivalent to 3,803.0 DALYs per 100,000. This was followed by alcohol use at 8.9% (also unstandardised), or 2,902.2 DALYs per 100,000, and high systolic blood pressure at 8.4% (9.6% unstandardised), at 2,740.9 DALYs per 100,000.

An analysis of the regional distribution reveals considerable variation in the impact of individual risk factors. Tobacco use had the highest burden in the voivodships of Kujawsko-Pomorskie (13.3%), Dolnośląskie (12.9%), and Zachodniopomorskie (12.6%) and the lowest in Podlaskie (9.9%), Łódzkie (10.5%), and Pomorskie (10.9%). Health burdens related to alcohol use were most pronounced in Łódzkie (13.3%), Śląskie (9.8%), and Warmińsko-Mazurskie (9.7%) voivodships, while the lowest impact of this factor was observed in Małopolskie (7.5%), Opolskie (7.7%), and Podkarpackie (7.9%). High systolic blood pressure had the strongest impact in Świętokrzyskie (10.4%) and Małopolskie (9.7%) voivodships and the weakest in Śląskie and Podlaskie (both 7.2%). Table 17.3 presents complete data on other significant risk factors contributing to the total disease burden among men.

The disease burden among women in Poland in 2021, attributed to all causes and all risk factors, amounted to 7,115.00 DALYs per 100,000 population, representing 32.3% of the total DALYs (with the corresponding unstandardised values being 13,267.8 and 36.7%, respectively). Among the leading contributors to health loss, high body mass index (BMI) was dominant, accounting for 7.2% of the total burden (8.9% unstandardised), which equates to 1,593.7 DALYs per 100,000. Closely following were high systolic blood pressure at 6.2% (9.2% unstandardised), or 1,360.9 DALYs per 100,000, and dietary risks at 6.1% (8.5% unstandardised), corresponding to 1,349.7 DALYs per 100,000.

Significant regional differences were observed in the impact of individual risk factors. An excessively high BMI contributed most significantly to women's health loss in Podlaskie (127.1%) and Podkarpackie (26.2%) voivodships and the least in Łódzkie and Zachodniopomorskie (21.2% and 21.1%, respectively).

High blood pressure had the greatest negative impact on women's health in Lubelskie, Podkarpackie (both at 7.7%), and Świętokrzyskie (7.6%) voivodships. The smallest effects were observed in Podlaskie (5.3%) and Opolskie (5.5%). Table 17.4 details comprehensive data on all significant risk factors contributing to the total disease burden among women.

Table 17.3. Disease burden attributable to major risk factors among men in Poland and its voivodships in 2021, expressed in age-standardised DALYs per 100,000 population, in relation to all diseases/health conditions

Risk factor	Poland	Dolnośląskie	Kujawsko-pomorskie	Łódzkie	Śląskie	Świętokrzyskie	Lubelskie	Lubuskie	Małopolskie	Mazowieckie	Opolskie	Podkarpackie	Podlaskie	Pomorskie	Warmińsko-mazurskie	Wielkopolskie	Zachodniopo-morskie
Total:	13377.6 (41.2%)	14279.2 (43.2%)	13527.5 (41.3%)	14534.3 (40.5%)	13928.4 (43.0%)	13589.1 (41.7%)	13717.7 (40.5%)	14227.5 (42.1%)	12608.6 (42.7%)	12916 (38.6%)	12743.2 (42.1%)	12081.6 (39.4%)	12731.3 (38.4%)	12929.8 (41.8%)	13989.2 (41.5%)	12860.8 (40.8%)	14061.4 (42.1%)
Smoking	3803 (11.7%)	4274.4 (12.9%)	4369.8 (13.3%)	4156.4 (10.5%)	3747.9 (11.1%)	3772.9 (11.2%)	3703.1 (12.3%)	3904.1 (11.1%)	3506.5 (12.5%)	3367.5 (11.7%)	3287.2 (11.6%)	3367 (11.0%)	3611.1 (9.9%)	3662.9 (10.9%)	3927.8 (11.7%)	3705.2 (11.8%)	4223.4 (12.6%)
Alcohol use	2902.2 (8.9%)	3135.4 (9.5%)	2795.7 (8.5%)	2761 (10.7%)	3037.8 (9.8%)	3844.6 (8.1%)	2211.3 (8.1%)	3017.5 (9.0%)	2329.9 (7.5%)	2421.1 (9.0%)	3122.9 (7.7%)	2759.9 (7.9%)	3169.4 (9.4%)	2625.4 (8.9%)	3283.8 (9.7%)	2757.5 (8.7%)	2861.4 (8.6%)
High systolic blood pressure	2740.9 (8.4%)	2915.7 (8.8%)	2551.2 (7.8%)	3030.7 (7.2%)	3130.7 (8.9%)	2577.8 (10.4%)	2856.3 (9.0%)	2433.1 (9.3%)	2870.9 (9.7%)	2587.8 (7.3%)	2370.3 (9.5%)	2628.5 (8.4%)	2895.5 (7.2%)	3376.6 (8.5%)	2658.4 (7.9%)	2577.9 (8.2%)	3040.4 (9.1%)
High body-mass index	2723.1 (8.4%)	2970.9 (9.0%)	2564.9 (7.8%)	3008.1 (7.1%)	3098.5 (8.8%)	2545.5 (9.6%)	2923.4 (8.9%)	2304.2 (9.2%)	2917 (9.9%)	2593 (6.9%)	2463.1 (9.6%)	2731 (8.5%)	2852.1 (7.4%)	3125.2 (8.8%)	2741.6 (8.1%)	2535.8 (8.0%)	2996.7 (9.0%)
High fasting plasma glucose	2068.6 (6.4%)	2140.9 (6.5%)	1971.2 (6.0%)	2059.1 (6.1%)	2284 (7.1%)	2180.8 (6.0%)	1912 (6.1%)	1936.4 (6.8%)	2122.5 (6.5%)	1724.2 (5.8%)	1937.8 (7.0%)	2178.8 (5.6%)	2301.9 (5.8%)	1942 (7.0%)	2322.8 (6.9%)	2062.9 (6.5%)	2097.6 (6.3%)
High LDL cholesterol	1896.8 (5.8%)	1997.1 (6.0%)	1802.5 (5.5%)	2018.2 (5.1%)	2093.5 (6.2%)	1815.1 (6.4%)	1822.6 (5.9%)	1797.6 (6.2%)	1997.2 (6.2%)	1753.9 (5.4%)	1690.3 (6.6%)	1923.2 (5.7%)	2010.7 (5.1%)	2085.8 (6.2%)	1840.9 (5.5%)	1894.7 (6.0%)	1962.4 (5.9%)
Ambient particulate matter pollution	1365.5 (4.2%)	1542.7 (4.7%)	1220.7 (3.7%)	1431.1 (3.7%)	1582 (4.3%)	1309.2 (5.0%)	1605.9 (4.2%)	1150.1 (4.7%)	1468.8 (5.4%)	1230.7 (3.4%)	1112.5 (4.9%)	1385.6 (4.0%)	1398.1 (3.4%)	1614.5 (4.5%)	1327.4 (3.9%)	1220.5 (3.9%)	1599.4 (4.8%)
Diet high in sodium	1362.1 (4.2%)	1372.4 (4.2%)	1159 (3.5%)	1341.9 (4.4%)	1169.9 (5.5%)	1585.1 (4.6%)	1776.9 (4.0%)	1241.2 (3.5%)	1409.5 (6.0%)	1273.4 (3.7%)	1034.2 (4.7%)	934.5 (4.1%)	1783.7 (3.1%)	1509 (3.0%)	1115 (3.3%)	1262.7 (4.0%)	957 (2.9%)
Diet low in whole grains	1017.6 (3.1%)	912.8 (2.8%)	1109.2 (3.4%)	973.3 (2.7%)	981.1 (3.3%)	974.9 (3.3%)	1096.2 (2.9%)	960.6 (2.9%)	947 (3.7%)	984.6 (2.9%)	906.5 (3.1%)	1164.9 (3.2%)	1065.9 (2.7%)	1078.2 (3.8%)	979.7 (2.9%)	1004.5 (3.2%)	1074.9 (3.2%)
Kidney dysfunction	688.3 (2.1%)	718.1 (2.2%)	692.5 (2.1%)	736.4 (1.9%)	754.7 (2.3%)	668.9 (2.4%)	667.7 (2.2%)	586.8 (2.2%)	736.1 (2.3%)	700 (1.8%)	641 (2.4%)	710.9 (2.3%)	740.2 (1.9%)	785.6 (2.3%)	700.3 (2.1%)	633.2 (2.0%)	766.6 (2.3%)

Table 17.4. Disease burden attributable to major risk factors among women in Poland and its voivodships in 2021, expressed in age-standardised DALYs per 100,000 population, in relation to all diseases/health conditions

Risk factor	Poland	Dolnośląskie	Kujawsko-pomorskie	Łódzkie	Śląskie	Świętokrzyskie	Lubelskie	Lubuskie	Małopolskie	Mazowieckie	Opolskie	Podkarpackie	Podlaskie	Pomorskie	Warmińsko-mazurskie	Wielkopolskie	Zachodniopomorskie
Total:	7115 (32.3%)	7382.8 (33.4%)	7278.2 (32.7%)	7444.3 (31.5%)	7829.5 (34.4%)	6838.1 (32.5%)	6894 (31.4%)	7565.1 (33.1%)	6657.7 (32.5%)	6884.9 (30.6%)	6967.7 (32.6%)	6148.1 (29.7%)	6387.9 (29.5%)	7201 (33.1%)	7287.6 (32.8%)	7091.3 (32.4%)	7434 (33.2%)
High BMI	1593.7 (7.2%)	1597.9 (7.2%)	1544.1 (6.9%)	1628.8 (6.6%)	1727.3 (7.6%)	1563.2 (7.7%)	1513.5 (7.4%)	1552.2 (7.6%)	1647.9 (7.4%)	1448.3 (6.9%)	1501.1 (7.7%)	1609 (7.0%)	1733.4 (6.9%)	1619.5 (7.4%)	1592.8 (7.2%)	1625.7 (7.4%)	1566.5 (7.0%)
High systolic blood pressure	1360.9 (6.2%)	1342.8 (6.1%)	1293.6 (5.8%)	1520.8 (5.7%)	1499.4 (6.8%)	1340.1 (7.3%)	1364.5 (7.0%)	1245.2 (6.6%)	1426.7 (6.7%)	1231.6 (5.5%)	1146 (6.7%)	1325.9 (6.0%)	1536 (5.3%)	1540 (6.1%)	1252.7 (5.7%)	1314.4 (6.0%)	1436.6 (6.4%)
Dietary risks	1349.7 (6.1%)	1394.9 (6.3%)	1322.6 (5.9%)	1442.7 (5.5%)	1507.3 (6.7%)	1304.8 (6.8%)	1348.7 (6.6%)	1172.2 (6.6%)	1445.2 (6.6%)	1198 (5.2%)	1202.8 (6.8%)	1409.2 (5.8%)	1521.6 (5.6%)	1435.1 (6.5%)	1337.1 (6.0%)	1317.6 (6.0%)	1408.8 (6.3%)
Fasting plasma glucose	1318.7 (6.0%)	1299.2 (5.9%)	1286.6 (5.8%)	1236.7 (5.6%)	1493.4 (6.8%)	1333.7 (5.7%)	1179.9 (5.6%)	1252.7 (6.5%)	1378 (5.8%)	1050.2 (5.6%)	1228.3 (6.4%)	1415.3 (5.1%)	1549.7 (5.7%)	1197.6 (6.5%)	1494.9 (6.7%)	1376.2 (6.3%)	1269.3 (5.7%)
Tobacco	1298.9 (5.9%)	1509.2 (6.8%)	1528.8 (6.9%)	1077.7 (5.4%)	1269.7 (5.6%)	1282.8 (5.0%)	1148.2 (4.9%)	1411 (5.6%)	1024 (5.6%)	923 (6.3%)	989.8 (4.8%)	1381.2 (4.5%)	1264.3 (4.6%)	1053 (6.3%)	1404.2 (6.3%)	1416.1 (6.5%)	1574.5 (7.0%)
Air pollution	686.3 (3.1%)	668.5 (3.0%)	604.5 (2.7%)	643.8 (3.4%)	593 (4.3%)	794.3 (3.3%)	833.8 (2.9%)	622 (2.6%)	720.9 (4.1%)	603 (2.8%)	506.3 (3.4%)	505.1 (2.9%)	974 (2.3%)	685 (2.3%)	571.6 (2.6%)	653.4 (3.0%)	476 (2.1%)
Maternal and child malnutrition	636.5 (2.9%)	616.8 (2.8%)	720 (3.2%)	663.9 (3.0%)	615.8 (2.9%)	710.1 (3.2%)	593.6 (3.0%)	579.5 (2.7%)	696.5 (2.9%)	658.9 (2.6%)	683.8 (3.3%)	647.7 (3.2%)	658.7 (3.2%)	678.7 (3.0%)	683.2 (3.1%)	570.6 (2.6%)	657.8 (2.9%)
Alcohol use	589.7 (2.7%)	657.1 (2.8%)	568.7 (2.5%)	483.9 (2.6%)	620 (2.9%)	721.5 (3.0%)	458.8 (2.8%)	607.4 (2.8%)	491.3 (3.2%)	427.8 (2.2%)	522.2 (2.9%)	587.8 (2.4%)	737.6 (2.1%)	468.2 (2.9%)	636.5 (2.5%)	565.4 (2.5%)	631.9 (2.8%)
High LDL cholesterol	588.1 (2.7%)	620.4 (3.0%)	564.1 (2.5%)	601.8 (3.1%)	637.1 (3.2%)	613 (2.2%)	661.9 (2.2%)	486.3 (2.7%)	627.6 (2.2%)	501.8 (2.7%)	463.3 (2.3%)	635.1 (2.1%)	663.4 (2.4%)	623.2 (2.7%)	557.9 (2.9%)	548.3 (2.6%)	630.6 (2.8%)
Occupational risks	490 (2.2%)	462.4 (2.1%)	504.4 (2.3%)	506 (2.1%)	510.1 (2.0%)	486.8 (2.5%)	514.1 (2.3%)	478.6 (2.2%)	474.2 (2.5%)	499.6 (2.1%)	500.9 (2.2%)	507.4 (2.4%)	466.1 (2.3%)	524 (2.3%)	490.1 (2.2%)	484.6 (2.2%)	498.6 (2.2%)

Disease burden in 2020–2021 related to the COVID-19 pandemic in Poland and selected European countries

The analysis of disease burden indicators related to COVID-19 reveals significant variation in health impacts both among European countries and across the voivodships of Poland during the 2020–2021 period. In 2020, among the countries analysed, the United Kingdom recorded the highest burden of health consequences due to COVID-19 (2,353.13 DALYs per 100,000), while Greece reported the lowest (839.25 DALYs per 100,000). The situation changed considerably in 2021, when Hungary recorded the highest burden (6,886.6 DALYs per 100,000) and Spain the lowest (1,633.8 DALYs per 100,000).

When data for Polish voivodships were compared with the national average of 2,751.73 DALYs per 100,000 in 2020, the highest values were recorded in the following voivodships: Łódzkie (3,620.62 DALYs), Świętokrzyskie (3,346.33 DALYs), Podkarpackie (3,115.43 DALYs), Śląskie (3,026.62 DALYs), Mazowieckie (2,901.64 DALYs), and Opolskie (2,918.47 DALYs). In 2021, with the national average increasing to 4,589.0 DALYs per 100,000, the most heavily affected voivodships were Lubelskie (5,537.3 DALYs), Podlaskie (5,466.1 DALYs), Mazowieckie (5,253.4 DALYs), Łódzkie (5,216.7 DALYs), Kujawsko-Pomorskie (5,062.0 DALYs), Podkarpackie (4,678.1 DALYs), and Świętokrzyskie (4,658.1 DALYs). It is worth noting that in 2021, an overall increase in DALYs related to COVID-19 was observed in most of the analysed European countries, including Poland. This increase was especially marked in Central Europe, with Hungary showing the steepest rise. In Poland, the highest increase was recorded in Lubelskie voivodship. Figure 17.2 presents data on years of healthy life lost due to COVID-19 and other COVID-19-related diseases for selected European countries and Polish voivodships, along with the national average.

An analysis of the period 1990–2021 revealed a significant decline in the age-standardised DALYs across all examined populations. Among the countries analysed, Slovenia achieved the best result with a reduction of -32%, while Greece recorded the smallest decrease, at just -14%. Poland, with a 25% reduction, ranked high among countries successfully lowering their national disease burden (Figure 17.3). Significantly, some Polish voivodships achieved better results than the average for many countries, such as Pomorskie (-31%), Wielkopolskie (-28%), and Mazowieckie (-27%). At the other end of the spectrum was Świętokrzyskie voivodship, which recorded only an 18% decrease, placing it close to Greece's result.

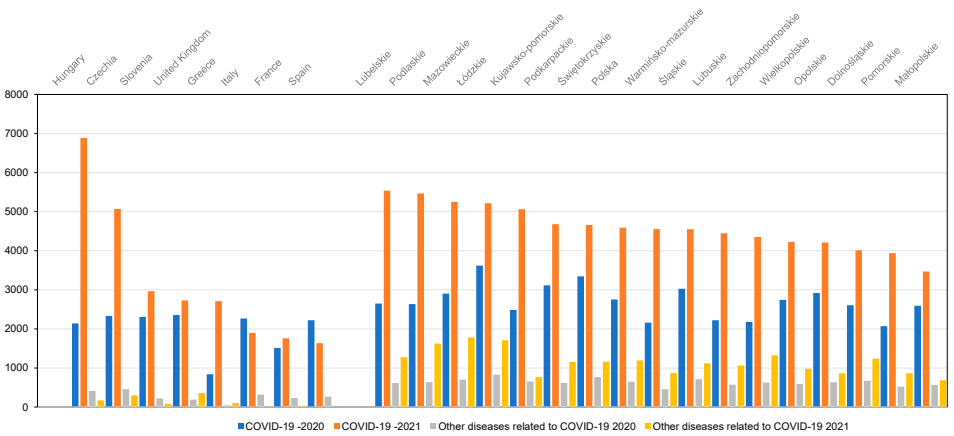

Fig. 17.2. DALYs due to COVID-19 and other COVID-19-related consequences in Poland and its 16 voivodships compared to selected European countries in 2020–2021

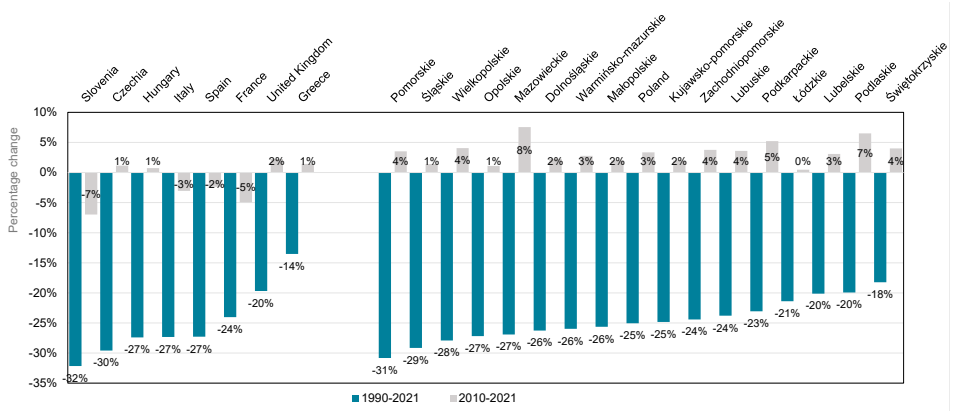

Fig. 17.3. Trends in DALY changes due to all causes in Poland and its 16 voivodships compared to selected European countries (over the last 30 and 10 years)

Trends in disease burden changes between 1990 and 2021 and 2010 and 2021

Looking at a shorter, 10-year comparison period (2010–2021), the situation appears different. Apart from Slovenia (-7%), the most favourable change in disease burden reduction was observed in France (-5%), while slight increases were noted in Greece, the Czech Republic, and Hungary (all at +1%), and a +2% increase

in the United Kingdom. During the same period, Poland experienced an unfavourable upward trend in disease burden, with an increase of +3%. A particularly concerning situation occurred in Mazowieckie, Podlaskie, and Podkarpackie voivodships, where the DALYs increased the most, reaching +8%, +7%, and +5%, respectively (Figure 17.3). The high DALYs recorded in 2020–2021 were linked to the COVID-19 pandemic, which resulted in lower reductions than would have been expected based on the previous trend.

Over the last three decades, Poland has observed a significant reduction in the disease burden associated with diseases of the circulatory system, reaching -59%. The most notable improvement occurred in Mazowieckie voivodship, where the decline reached as much as 66%. In other voivodships, the reduction ranged between 52% and 64%. Only Świętokrzyskie voivodship, which showed the smallest improvement at -44%, recorded a result lower than that of Greece, where the reduction stood at -49%. It is worth noting that both Slovenia and the Czech Republic achieved reductions comparable to that of Mazowieckie voivodship, at -64%, while the United Kingdom saw a decrease of -65%.

When analysing the shorter period of 2010–2021, Łódzkie voivodship recorded the highest reduction in DALYs for diseases of the circulatory system among all regions (-34%), followed by Mazowieckie and Kujawsko-Pomorskie (both -29%). These achievements contributed to Poland's high national average of -24%, positioning the country close to France (-24%) and slightly below Slovenia (-29%) in terms of health progress among European countries with comparable socio-economic levels (Figure 17.4).

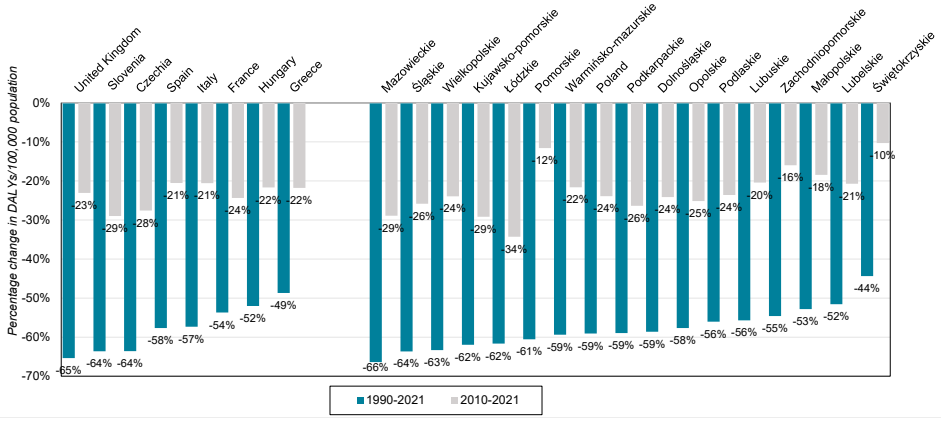

Fig. 17.4. Trends in DALYs change due to diseases of the circulatory system in Poland and its 16 voivodships compared to selected European countries (over the last 30 and 10 years)

In contrast to diseases of the circulatory system, the thirty-year trend in DALYs due to neoplasms shows a significantly smaller decrease, meaning cancer remains a major public health concern and a leading cause of health loss in the populations analysed. The Czech Republic reported the most substantial improvement in DALYs (-38%), while Greece showed the smallest progress (-15%). Unlike the previous indicators, Poland ranked lower in the international comparison, with a 21% reduction since 1990. Among Polish regions, Pomorskie voivodship achieved the best results in reducing the neoplasm-related disease burden. The DALY rate dropped by 37% between 1990 and 2021. Substantial improvements were also recorded in Małopolskie and Warmińsko-Mazurskie voivodships (both -27%). The weakest progress was observed in Świętokrzyskie voivodship, where the DALY rate fell by only 6%, placing the region among those with the least health improvement in the group analysed. In the shorter period of 2010–2021, Greece recorded the smallest improvement in neoplasm burden reduction (-1%), followed by Mazowieckie voivodship (-6%) and the United Kingdom (-12%). The best results were achieved by Slovenia and Hungary (both -18%) and by France and the Czech Republic (both -17%). Among Polish voivodships, Pomorskie again ranked first (-21%), followed by Warmińsko-Mazurskie and Opolskie (both -16%). It is worth noting that the national average reduction in Poland over the 10-year period was -12% (Fig. 17.5).

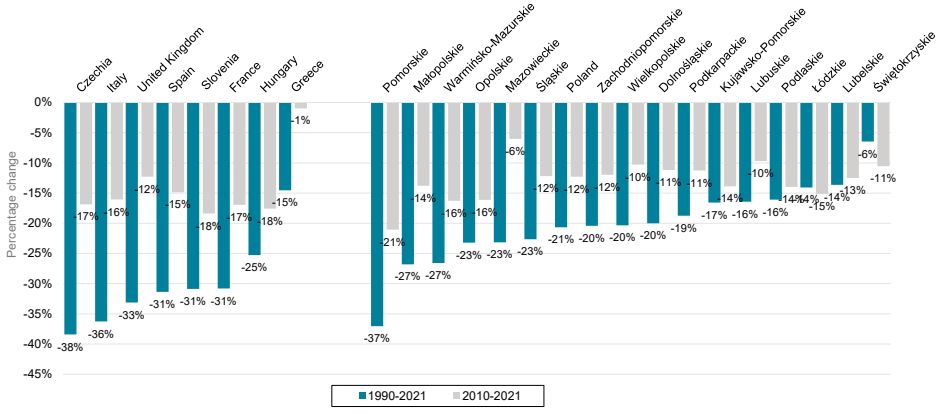

Fig. 17.5. Trends in DALY changes due to neoplasm in Poland and its 16 voivodships compared to selected European countries (over the last 30 and 10 years)