3. LIFE EXPECTANCY AND MORTALITY OF THE POLISH POPULATION

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The pandemic caused by the SARS-CoV-2 virus has caused enormous losses in the health of the population and contributed to a large increase in mortality caused primarily by COVID-19 and, consequently, a shortening of the life expectancy of the Polish population. The state of epidemic threat was introduced in Poland on 16 May 2022. A state of epidemic had previously been in force from 20 March 2020. The World Health Organization (WHO) declared the end of the COVID-19 pandemic on 5 May 2023, and on 1 July 2023, the state of epidemic threat due to SARS-CoV-2 infections was lifted in Poland.[1] This new situation was reflected in a reduction of the overall risk to life among the Polish population and an increase in life expectancy. This chapter analyses these phenomena.

The analysis of mortality among Polish inhabitants is largely based on individual-level data from the register of deaths maintained by Statistics Poland. With certain necessary restrictions, this register is made available to the National Institute of Public Health NIH – National Research Institute to conduct health status analyses of the Polish population per its statutory mandate. Most of the results presented are the authors' own calculations based on data from this register and the WHO Mortality Database.[2] Additionally, indicators published by Statistics Poland and those available in international databases – primarily Eurostat[3] – were also used, with all such cases clearly indicated in the text.

[1] https://www.gov.pl/web/rpp/koniec-stanu-zagrozenia-epidemicznego
[2] https://www.who.int/healthinfo/statistics/mortality_rawdata/en/
[3] http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database

The authors' own life expectancy calculations for Poland, its voivodships, and powiats employed the method used by Statistics Poland.[4] Unlike the classic Chiang method[5] previously employed in earlier Reports, the current approach utilises smoothed death rates instead of raw data. For smoothing death rates for age cohorts 85–99 and extrapolation beyond age 100, the Gamma–Gompertz model was used. Additionally, the tools for projecting age-specific rates using linear splines (TOPALS) were applied to calculate life expectancy at the regional level. This method allows for reliable estimation of life expectancy in small geographic areas, where year-to-year fluctuations in death rates are significant, and where zero death counts may occur for certain age groups. Decomposition of life expectancy by cause of death and age was carried out using Arriaga's method.[6] The time trends in death rates and life expectancy in Poland and EU countries were analysed using joinpoint models (linear model) via the Joinpoint Regression Program (*Version 5.3.0.0, November 2024; National Cancer Institute, USA*). In the analysis of death rate trends, joinpoint regression (logarithmic model and estimation of the relative rate of change in mortality) was applied, which allows for better comparison of the dynamics of changes in Poland and other countries, as well as between sex groups.

Changes over time and variation in life expectancy of the Polish population

According to the latest data from Statistics Poland, in 2023 the average life expectancy for men was 74.65 years, while for women it was 7.34 years longer, amounting to 81.99 years. Thus, life expectancy in 2023 had already surpassed the pre-COVID-19 pandemic level, i.e. that of 2019, with this positive difference being more pronounced among men than women. The reasons for this situation will be discussed later in this chapter. The analysis of long-term life expectancy trends reveals a concerning pattern that emerged in the years before the pandemic (Fig. 3.1).

Between 2014 and 2019, there was a marked slowdown in the increase of male life expectancy, while in the case of women, a slight downward trend was observed between 2016 and 2019.

[4] Potyra M, Góral-Radziszewska K, Waśkiewicz K, Kuczyńska K. Life expentancy tables of Poland 2020 Statistics Poland, Warsaw, 2021.

[5] Chiang C. L. "The Life Table and its Applications", Robert E. Krieger Publishing Company, Inc., Malabar, Florida, 1984

[6] Arriaga E. E. "Measuring and Explaining the Change in Life Expectancies", Demography, Vol. 21, No. 1 (Feb., 1984), pp. 83–96

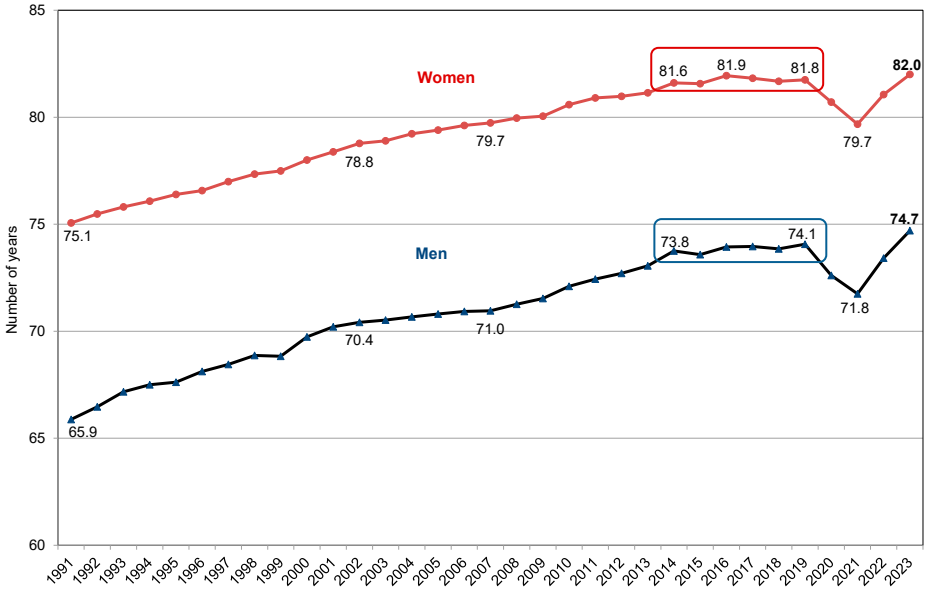

Fig. 3.1. Average life expectancy of men and women at birth in 1991–2023 (Statistics Poland data)

As noted in the previous Report, the pandemic's impact on reducing life expectancy was most significant among older individuals, though it also affected the younger population. To assess changes in life expectancy during and after the pandemic in the younger age group, we calculated the temporary (partial) life expectancy of men and women aged 0–65 (e_{0-65}). The figure represents the average number of years a newborn can expect to live up to age 65, assuming the death rates observed in the year under study remain constant. Theoretically, if there were no premature deaths, i.e. deaths before the age of 65, the partial life expectancy would be 65 years. For persons aged 65, the life expectancy for that age estimated by Statistics Poland (*e65*) was used. Figures 3.2a and 3.2b show the figures for both men and women for 2003–2023. In 2021, life expectancy in the 0–65 age range was 0.4 years shorter for men and 0.2 years shorter for women compared to 2019. Meanwhile, life expectancy at age 65 declined by 1.9 years for men and 1.7 years for women over the same two-year period. By 2023, this reduction in life expectancy had at least levelled out in both the younger and older subpopulations. It should be noted that the slowdown in life expectancy growth, before the pandemic, which we continue to highlight, is occurring in both younger and older age groups.

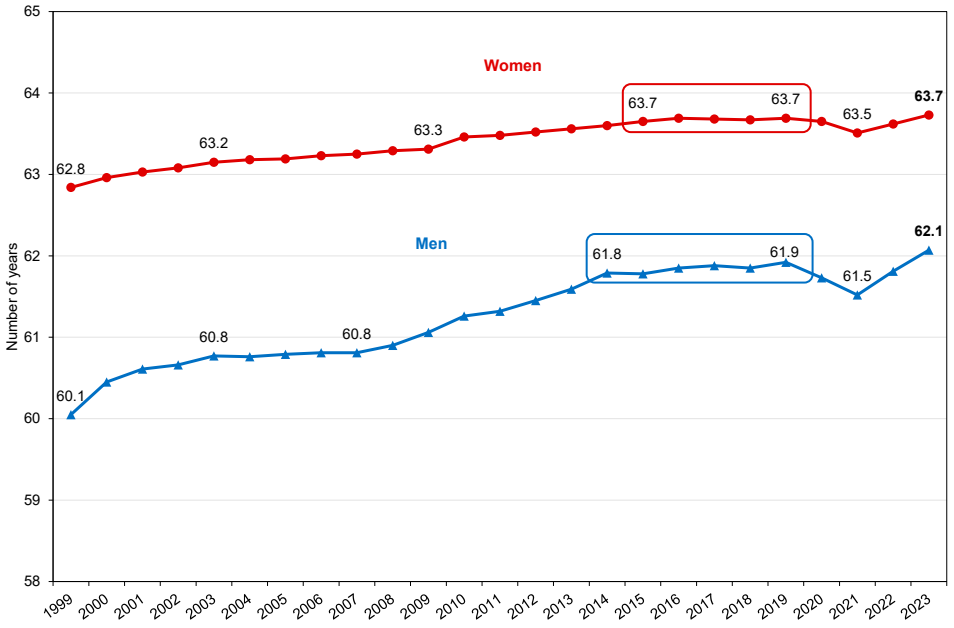

Fig. 3.2a. Average life expectancy of men and women aged 0–65 in 1999–2023 (authors' calculations based on Statistics Poland data)

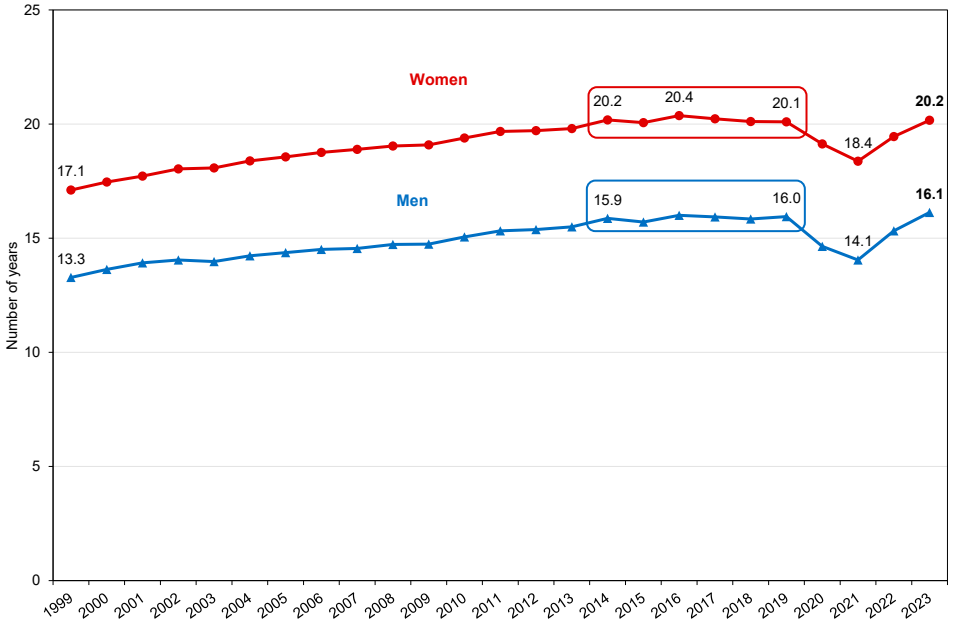

Fig. 3.2b. Average life expectancy of men and women aged 65 in 1999–2023 (Statistics Poland data)

Figures 3.3a and 3.3 b present the impact of increased mortality in individual five-year age groups on the reduction in life expectancy for men and women in Poland in 2021 compared to 2019, as well as the impact of decreased mortality in 2023 compared to 2021 (expressed in months) on the increase in life expectancy. For both men and women, the most significant factor contributing to increased life expectancy after its "pandemic reduction" was the decrease in mortality among persons aged 60–64, followed by men aged 55–59 and 65–69, and women aged 50–54, 55–59 and 65–69. The difference between the increase in life expectancy and the earlier decline was the most significant in these age groups.

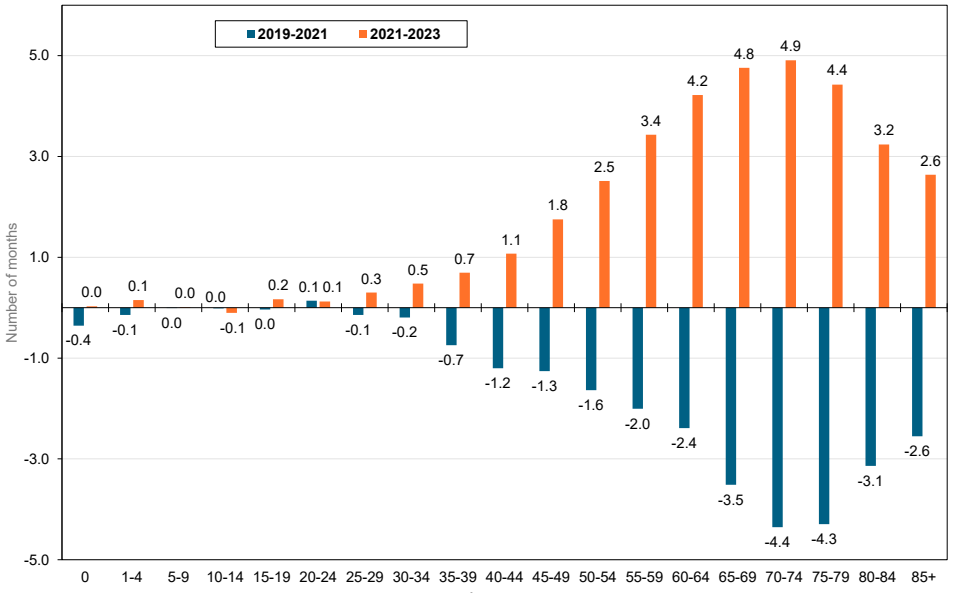

Fig. 3.3a. Number of months of reduction in life expectancy of men in Poland in 2021 compared to 2019 and the increase in 2023 compared to 2021, resulting from increased mortality followed by a decline in individual age groups (authors' calculations using Statistics Poland data)

For many years, Poland has been experiencing an unfavourable trend of high excess mortality among men compared to women, resulting in a significantly shorter life expectancy regardless of age. The situation has not yet returned to the 2019 level in 2023, and this unfavourable trend for men is slightly greater than before the pandemic (Fig. 3.4).

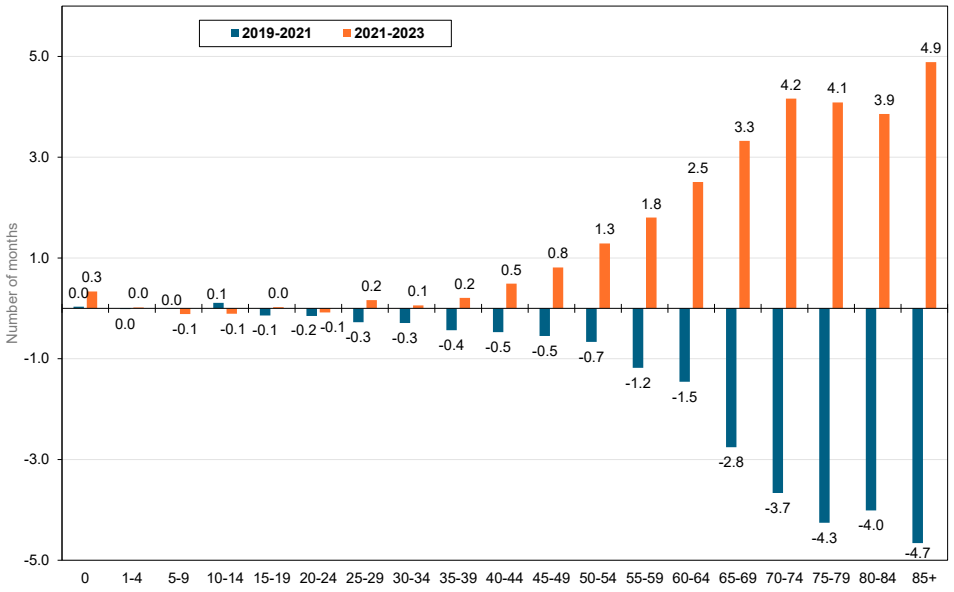

Fig. 3.3b. Number of months of reduction in life expectancy of women in Poland in 2021 compared to 2019 and the increase in 2023 compared to 2021, resulting from increased mortality followed by a decline in individual age groups (authors' calculations based on Statistics Poland data)

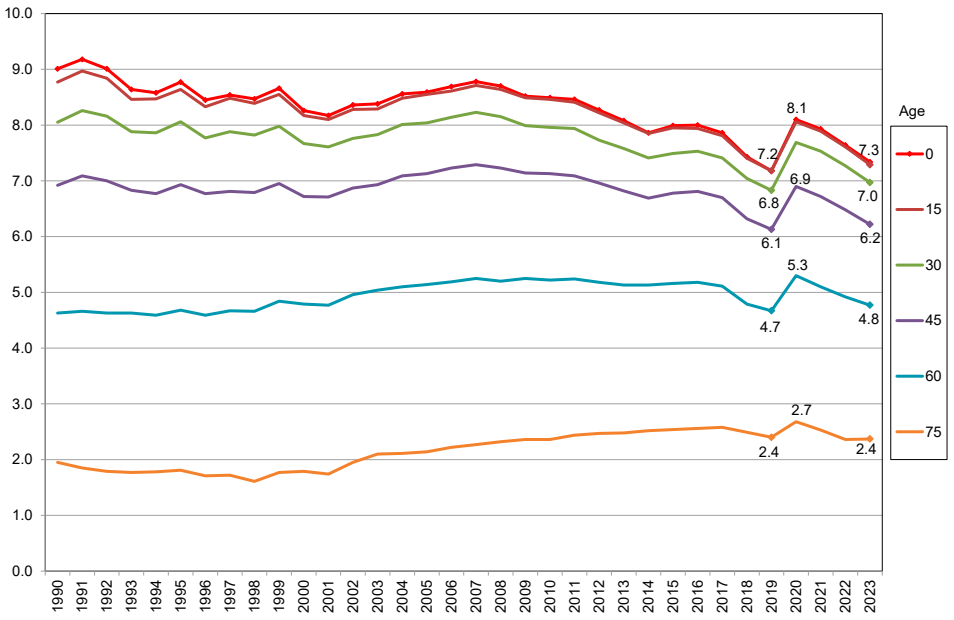

Fig. 3.4. Differences in average life expectancy of women and men by age in 1991–2021 (based on Statistics Poland data)

It is estimated that in 2023, slightly more than half (51.9%) of the difference in life expectancy between men and women was due to higher mortality among men under the age of 65.

The impact of the pandemic on the reduction in life expectancy for men was greater among urban populations than rural populations, while for women it was greater among rural populations. In populations most affected by the pandemic, life expectancy improved more after the pandemic ended, but the largest increase in life expectancy in 2023 compared to 2019 was recorded for men living in rural areas (Fig. 3.5).

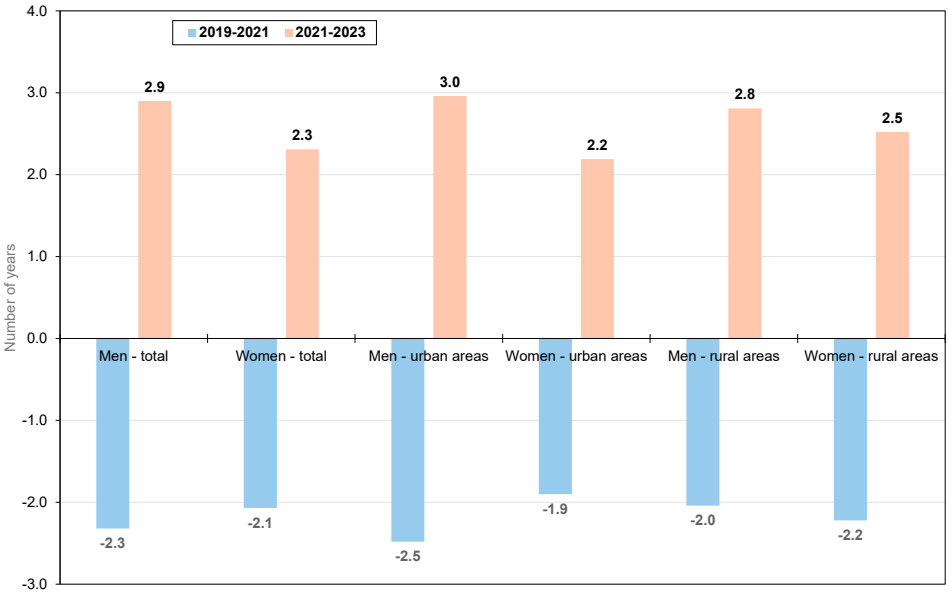

Fig. 3.5. Change in average life expectancy at birth in 2019–2021 and 2021–2023 by sex and place of residence (urban/rural area) (based on Statistics Poland data)

The life expectancy of Polish population varies depending on place of residence (rural areas, towns or cities), and although the differences are not very big, they are quite persistent. **The inhabitants of the smallest towns, with a population of less than 10,000, have the least favourable health situation and the shortest average life expectancy, while the inhabitants of the largest cities, with a population of over 200,000, may expect to live the longest** (Tab. 3.1). The difference in life expectancy related to place of residence is greater for men than for women. It is worth noting that for women, life expectancy in cities with a population of 100,000–200,000 is only slightly higher than in the smallest towns.

The place of residence, i.e. a small town, large city or rural area, did not significantly affect changes in life expectancy related to the pandemic and recovery. While for men, the reduction in life expectancy in 2021 compared to 2019 was lower in towns with fewer than 20,000 inhabitants than in large cities, this association was not as pronounced for women, with the smallest towns and the largest cities seeing the smallest reduction in life expectancy. There was also no clear relationship between the place of residence and increased life expectancy after the pandemic. In all locations, the life expectancy in 2023 was already higher than in 2019.

Table 3.1. Average life expectancy of men and women at birth (Lex) living in rural and urban areas by population in 2017–2023

Place of residence	2017	2018	2019	2020	2021	2022	2023
Men							
Rural area	73.2	73.1	73.3	72.1	71.4	73.0	74.2
Total urban areas	74.2	74.1	74.6	72.7	71.8	73.7	75.0
Towns up to 10,000 inhabitants	72.9	73.1	73.4	71.5	71.0	72.7	74.0
Towns with 10,000 to 20,000 inhabitants	73.6	73.5	73.9	72.1	71.4	73.0	74.3
Towns/cities with 20,000 to 50,000 inhabitants	74.0	73.9	74.3	72.3	71.5	73.5	74.9
Cities with 50,000 to 100,000 inhabitants	73.9	73.7	74.5	72.7	71.4	73.3	74.7
Cities with 100,000 to 200,000 inhabitants	74.3	74.1	74.2	72.5	71.4	73.7	74.9
Cities with 200,000 inhabitants or more	75.1	74.9	75.5	73.8	72.7	74.6	75.8
Women							
Rural area	81.6	81.6	81.7	80.6	79.6	81.1	82.0
Total urban areas	81.5	81.4	81.7	80.6	79.6	81.0	82.1
Towns up to 10,000 inhabitants	81.2	81.2	81.2	80.1	79.2	80.6	81.7
Towns with 10,000 to 20,000 inhabitants	81.4	81.3	81.6	80.4	79.3	80.8	81.8
Towns/cities with 20,000 to 50,000 inhabitants	81.6	81.5	81.6	80.7	79.3	81.1	82.2
Cities with 50,000 to 100,000 inhabitants	81.4	81.3	81.4	80.2	79.3	80.8	81.7
Cities with 100,000 to 200,000 inhabitants	81.2	81.3	81.3	80.2	79.0	80.7	81.5
Cities with 200,000 inhabitants or more	81.9	81.9	82.3	81.1	80.3	81.6	82.4

Source: Authors' calculations based on Statistics Poland data

In all voivodships, life expectancy for men and women in 2023 was already higher than in 2019 (Fig. 3.6a and 3.6b). The differences in life expectancy between voivodships for both men and women before the pandemic in 2019 and after the pandemic in 2023 are very similar. For men, in both years, the shortest life expectancy was recorded in Łódzkie voivodship, while the longest was in Małopolskie and Podkarpackie voivodships, with a similar difference between these two outlying voivodships in both years (2.9–3.0 years). Similarly, both in 2019 and 2023, women in Podkarpackie and Podlaskie voivodships enjoyed the longest life expectancy, while those in Śląskie, Łódzkie and Kujawsko-pomorskie voivodships had the shortest. It is worth noting that the increase in life expectancy in the voivodships in 2021–2023 is quite clearly negatively correlated with its reduction in 2019–2021. Consequently, the ranking of voivodships by life expectancy before and after the pandemic has not changed significantly for men and has remained virtually the same for women.

The variation in life expectancy in powiats and its changes during the pandemic are greater than in the case of voivodships. In general, most powiats where men live the longest are still located in southern and central-western Poland. In contrast, women live the longest in powiats in the south-eastern and eastern parts of Poland, except for powiats in the north-eastern part of Lubelskie voivodship (Fig. 3.7a and 3.7b).

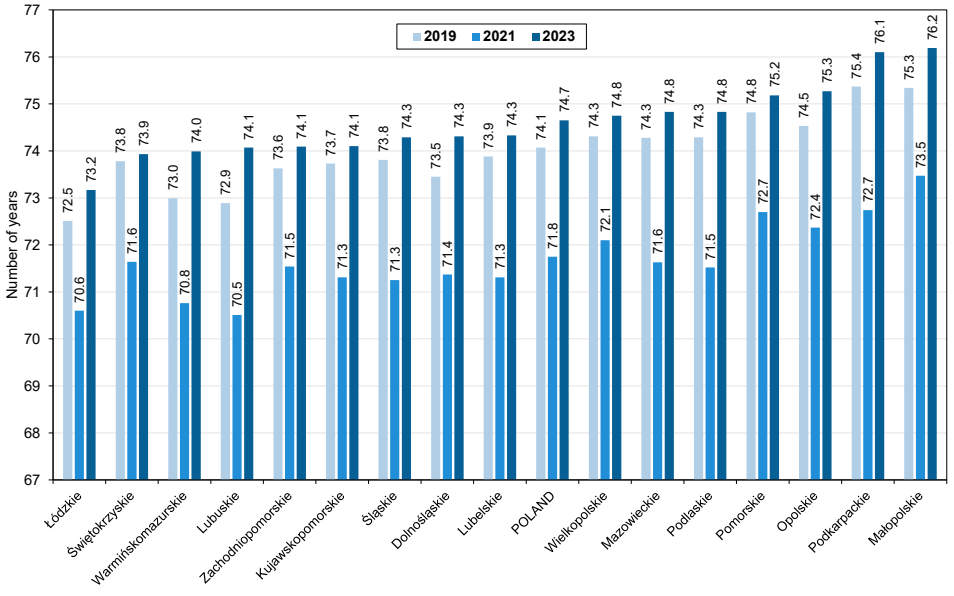

Fig. 3.6a. Life expectancy of men by voivodship in 2019, 2021 and 2023 (Statistics Poland data)

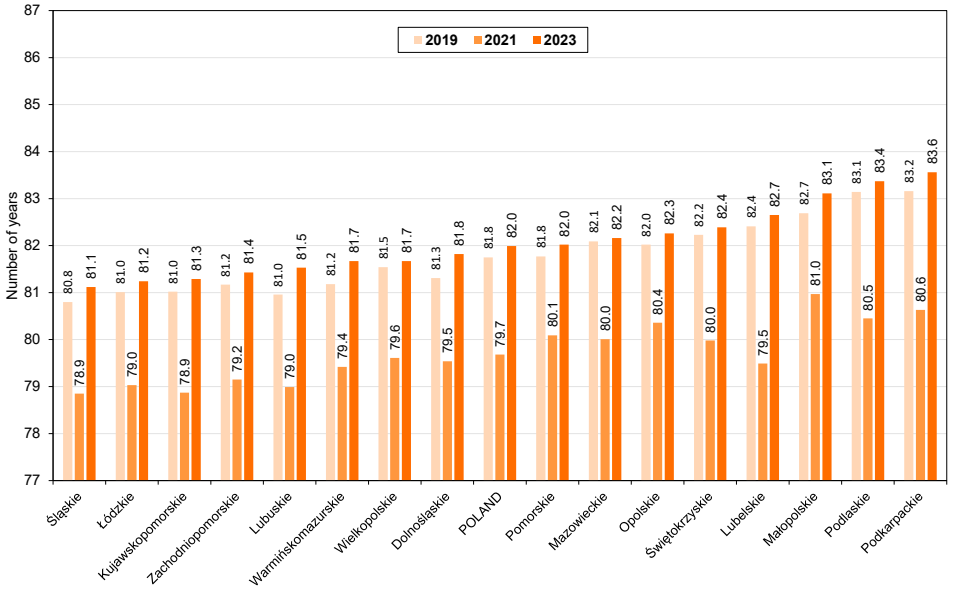

Fig. 3.6b. Life expectancy of women by voivodship in 2019, 2021 and 2023 (Statistics Poland data)

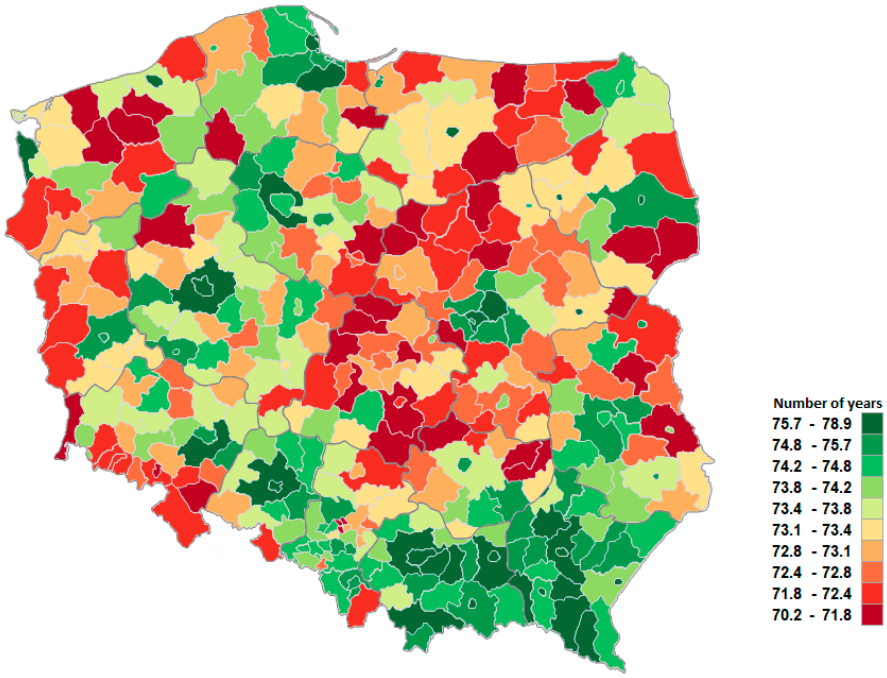

Fig. 3.7a. Life expectancy of men in 2022–2023 by powiat (authors' calculations based on Statistics Poland data)

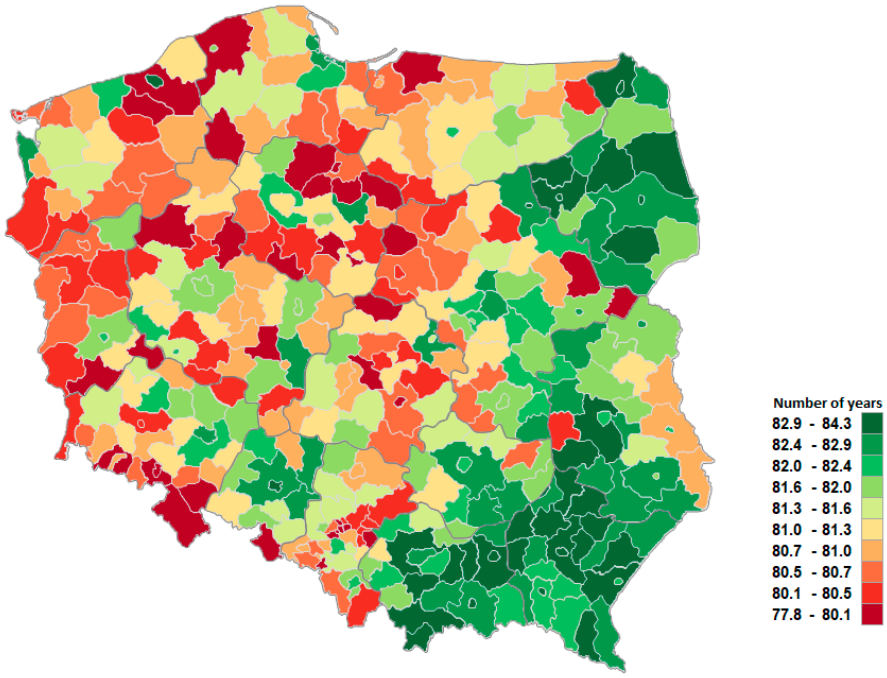

Fig. 3.7b. Life expectancy of women in 2022–2023 by powiat (authors' calculations based on Statistics Poland data)

In the two years (2022–2023) following the pandemic, the longest life expectancy for men was in Sopot (78.9 years), while the shortest was in Olecki powiat (Warmińsko-mazurskie voivodship), 70.2 years. Thus, the difference in life expectancy between these two extremes was approximately 8.7 years (Table 3.2a). This means a greater difference compared to the pre-pandemic period of 2018–2019, when life expectancy for men in Sopot was 7.4 years longer than in Kutnowski powiat. Compared to the pre-pandemic period, life expectancy for men in Sopot increased by 1.1 years, while it decreased by 1.3 years in Olecki powiat.

The difference is slightly smaller for women than for men, with the longest life expectancy in 2022–2023 estimated at 84.3 years for women living in Tatrzański powiat and the shortest at 77.8 years for women living in the city of Chorzów, a difference of approximately 6.5 years (Table 3.2b). Compared to the pre-pandemic period, life expectancy of women in Tatrzański powiat increased by 1.2 years, while it decreased by 0.5 years in Chorzów.

The above differences in life expectancy concern "extreme" powiats, while the difference between the first and tenth deciles, i.e. the average (median) for the

10% of powiats with the shortest life expectancy and the 10% of powiats with the longest life expectancy, is 4.62 years (71.48 vs 76.10) for men and 3.58 years (79.67 vs 83.25) for women. These differences are the same as in 2018–2019, when they stood at 4.63 and 3.59 years, respectively.

Life expectancy varied across powiats in each voivodship but to different degrees. For men, the greatest variation was found in Pomorskie voivodship, where the difference in life expectancy between the extreme powiats was as high as 7.7 years, due to the long life expectancy of men in Sopot. If this powiat is not considered, the gap in Pomorskie voivodship will decrease to 4.8 years. The least variation in male life expectancy is found in the voivodships of Lubuskie, Łódzkie and Podkarpackie, with only 3.2 years (Fig. 3.7c). The variation was smaller for women, ranging from 1.7 years in Podkarpackie voivodship to 4.5 years in Mazowieckie voivodship. There is a sustantial difference in life expectancy of men and women in the voivodships of Pomorskie, Zachodniopomorskie, Podlaskie and Warmińsko-mazurskie.

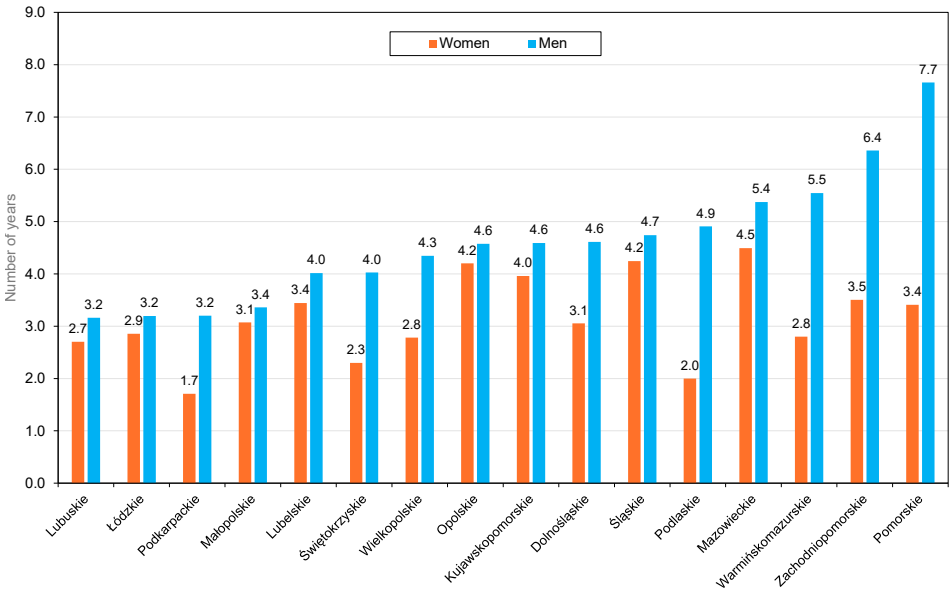

Fig. 3.7c. Difference between the longest and shortest life expectancy for men and women in powiats of a given voivodship in 2022–2023 (authors' calculations based on Statistics Poland data)

Table 3.2a. Thirty powiats with the longest and shortest life expectancy of men in 2022–2023 and the difference in life expectancy in 2022–2023 compared to the pre-pandemic period of 2018–2019

TERYT	Powiats with the longest life expectancy	Life expectancy	Change in life expectancy	TERYT	Powiats with the shortest life expectancy	Life expectancy	Change in life expectancy
2264	city of Sopot	78.9	1.10	2813	Olecki	70.2	-1.28
3211	Policki	77.5	2.14	2462	city of Bytom	70.9	-1.53
1263	city of Tarnów	77.0	0.28	1422	Przasnyski	71.0	-1.35
1863	city of Rzeszów	76.8	-0.53	1427	Sierpecki	71.0	-1.29
1821	Leski	76.7	1.27	1004	Łęczycki	71.1	-0.49
1661	city of Opole	76.7	-0.41	3205	Gryficki	71.2	-1.11
1609	Opolski	76.6	0.52	0265	city of Wałbrzych	71.2	0.17
1206	Krakowski	76.5	1.40	1021	Brzeziński	71.2	0.53
1261	city of Kraków	76.4	-0.12	1437	Żuromiński	71.2	-0.52
1211	Nowotarski	76.4	1.26	0225	Zgorzelecki	71.2	-0.31
2061	city of Białystok	76.4	-0.28	2216	Sztumski	71.2	-4.23
0403	Bydgoski	76.4	1.01	1002	Kutnowski	71.2	0.87
1861	town of Krosno	76.4	-0.94	1012	Radomszczański	71.3	-0.25
1421	Pruszkowski	76.3	1.03	3218	Łobeski	71.3	-1.28
1262	city of Nowy Sącz	76.3	-0.16	1010	Piotrkowski	71.4	-0.26
1465	city of Warsaw	76.2	-0.09	2203	Człuchowski	71.4	-2.24
1817	Sanocki	76.2	-0.12	3201	Białogardzki	71.5	-0.50
1864	city of Tarnobrzeg	76.1	1.02	3216	Świdwiński	71.5	-0.24
2062	city of Łomża	76.1	-0.01	2005	Hajnowski	71.5	0.90
3021	Poznański	76.1	1.04	1438	Żyrardowski	71.5	-0.17
2204	Gdański	76.0	-0.54	0224	Ząbkowicki	71.5	-0.58
2262	city of Gdynia	76.0	-1.29	2606	Opatowski	71.6	0.71
1862	city of Przemyśl	76.0	1.25	0603	Chełmski	71.6	-1.10
3261	city of Koszalin	76.0	-0.56	1410	Łosicki	71.6	-0.25
1216	Tarnowski	75.9	0.34	1424	Pułtuski	71.6	0.08
1802	Brzozowski	75.9	1.13	2607	Ostrowiecki	71.6	-1.54
1219	Wielicki	75.9	0.64	2463	city of Chorzów	71.7	0.79
1464	city of Siedlce	75.9	0.54	2605	Konecki	71.7	-1.64
1806	Kolbuszowski	75.9	0.29	2471	city of Piekary Śląskie	71.7	-2.34
3064	city of Poznań	75.8	-0.16	2817	Szczycieński	71.7	0.11

Source: Authors' calculations based on Statistics Poland data

Table 3.2b. Thirty powiats with the longest and shortest life expectancy of women in 2022–2023 and the difference in life expectancy in 2022–2023 compared to the pre-pandemic period of 2018–2019

TERYT	Powiats with the longest life expectancy	Life expectancy	Change in life expectancy	TERYT	Powiats with the shortest life expectancy	Life expectancy	Change in life expectancy
1217	Tatrzański	84.3	1.22	2463	city of Chorzów	77.8	-0.51
0607	Kraśnicki	83.9	0.87	2462	city of Bytom	78.5	-1.42
1813	Przemyski	83.8	0.14	0417	Wąbrzeski	78.7	-1.94
1461	city of Ostrołęka	83.8	1.56	1602	Głubczycki	78.8	-2.05
2061	city of Białystok	83.7	0.24	2472	city of Ruda Śląska	78.9	-0.74
1812	Niżański	83.7	-0.48	1410	Łosicki	79.3	-2.22
1808	Leżajski	83.6	0.67	2203	Człuchowski	79.3	-1.30
1816	Rzeszowski	83.6	0.36	0221	Wałbrzyski	79.4	-0.13
1202	Brzeski	83.5	0.39	3201	Białogardzki	79.4	-0.70
1863	city of Rzeszów	83.5	-0.20	2802	Braniewski	79.5	-0.68
1864	city of Tarnobrzeg	83.5	0.79	0208	Kłodzki	79.5	-0.62
1821	Leski	83.4	0.34	2474	city of Siemianowice Śląskie	79.5	-0.69
1803	Dębicki	83.4	-0.15	2212	Słupski	79.5	-0.80
1811	Mielecki	83.4	-0.41	0265	city of Wałbrzych	79.5	0.08
1263	city of Tarnów	83.4	0.66	0810	Żagański	79.6	0.10
2008	Moniecki	83.4	-0.20	1008	Pabianicki	79.6	-1.23
2062	city of Łomża	83.3	-0.63	0206	Jeleniogórski	79.6	0.08
2063	city of Suwałki	83.3	0.64	3020	Pleszewski	79.6	-1.95
2003	Bielski	83.3	0.70	0404	Chełmiński	79.7	-1.43
1262	city of Nowy Sącz	83.2	0.79	2468	city of Jaworzno	79.7	-0.77
1211	Nowotarski	83.2	-0.14	0812	Wschowski	79.7	-0.75
1818	Stalowowolski	83.2	-0.10	3209	Koszaliński	79.7	0.12
2011	Sokólski	83.2	1.52	0462	city of Grudziądz	79.7	-0.04
1810	Łańcucki	83.2	-0.41	2476	city of Świętochłowice	79.7	0.86
2012	Suwalski	83.1	-0.36	0224	Ząbkowicki	79.8	-0.63
2006	Kolneński	83.1	0.45	3028	Wągrowiecki	79.8	-0.92
1206	Krakowski	83.1	0.61	0401	Aleksandrowski	79.8	-0.08
1861	city of Krosno	83.1	0.18	1062	city of Piotrków Trybunalski	79.8	0.13
0609	Lubelski	83.1	0.32	1002	Kutnowski	79.8	0.33
1201	Bocheński	83.1	0.06	0409	Mogileński	79.9	-1.89

Source: Authors' calculations based on Statistics Poland data

The difference in life expectancy of men after the pandemic (2022–2023) compared to the period before it (2018–2019) in individual powiats ranged from a decrease of 4.23 years in Sztumski powiat (Pomorskie voivodship) to an increase of 2.77 years in Radzyński powiat (Lubelskie voivodship) (Fig. 3.8a). Differences in the length of life expectancy of men in powiats were observed in every voivodship. In total, life expectancy of men was higher in 222 powiats in 2022–2023 than in 2018–2019, while it was still lower in 158 powiats.

The difference in life expectancy of women after the pandemic (2022–2023) compared to the period before it (2018–2019) in individual powiats ranged from a decrease of 2.28 years in Sokołowski powiat (Mazowieckie voivodship) to an increase of 2.08 years in Strzelecko-Drezdenecki powiat (Lubuskie voivodship) (Fig. 3.8b). Differences in the length of life expectancy of women in powiats before and after pandemic were observed in every voivodship. In total, life expectancy for women was higher in 176 powiats in 2022–2023 than in 2018–2019, while it was still lower in 204 powiats.

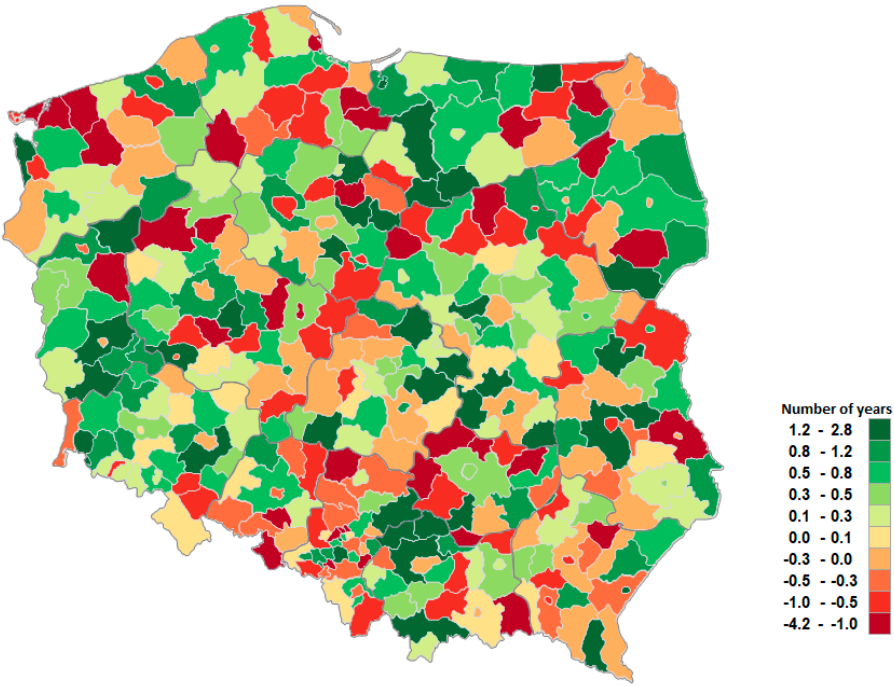

Fig. 3.8a. Difference in life expectancy of men in 2022–2023 compared to 2018–2019 by powiat of residence (authors' calculations based on Statistics Poland data)

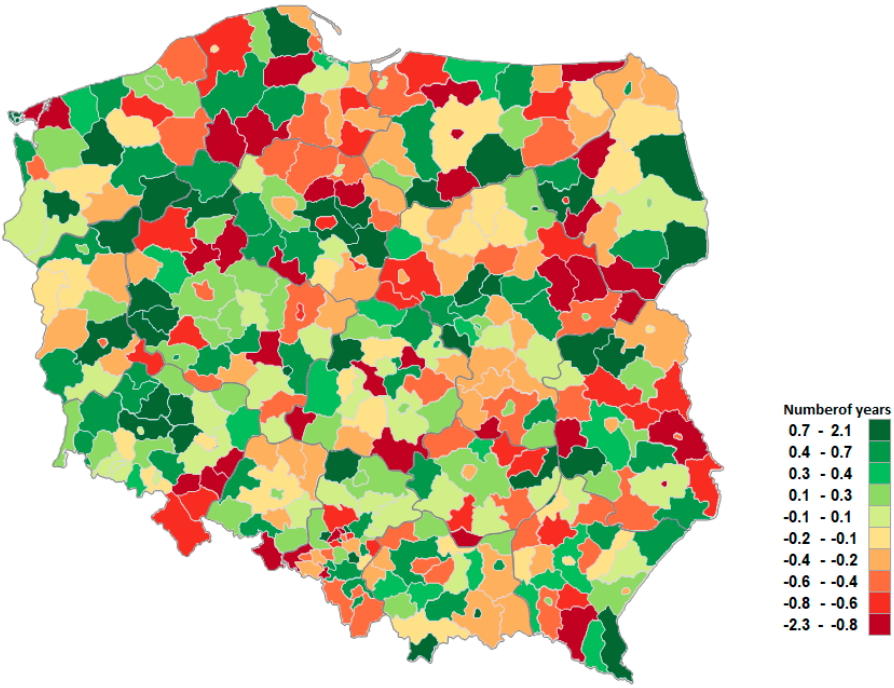

Fig. 3.8b. Difference in life expectancy of women in 2022–2023 compared to 2018–2019 by powiat of residence (authors' calculations based on Statistics Poland data)

An important question is to what extent, if at all, differences in the health status of inhabitants of powiats may result from differences in their socio-economic situation. Figures 3.9a and 3.9b show the relationship between population life expectancy and its changes in recent years, including the pandemic period, and the level of deprivation in the powiats. The relationship between life expectancy and deprivation[7] is more pronounced in men than in women. The average life expectancy of women in powiats depended very little on the deprivation index, but the reduction in life expectancy during the pandemic was most visible in powiats with the highest deprivation index (quintiles 4 and 5). In these powiats, the increase in life expectancy after the pandemic (2021–2023) was also greatest. In contrast, the difference in life expectancy of men is more clearly related to the level of deprivation in powiats than among women, while no such relationship is observed in the case of reduced life expectancy associated with the pandemic. For men, both the decrease in life expectancy in 2021 and its subsequent increase in 2023 were highest in the powiats with the lowest deprivation index (first quintile).

[7] The deprivation index was described in our 2018 Report.

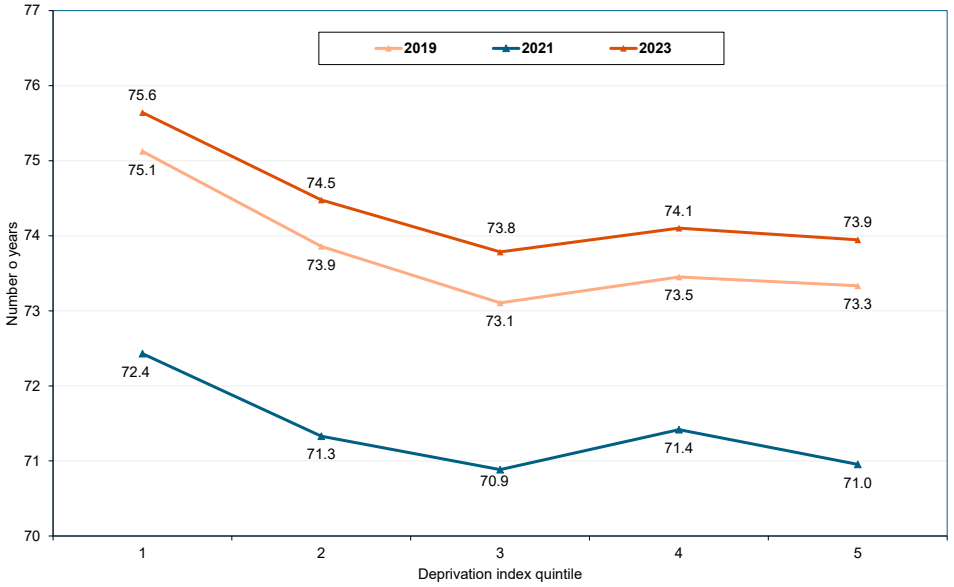

Fig. 3.9a. Life expectancy for men in 2019, 2021 and 2023, depending on the deprivation index quintile (2019) in the powiat (authors' calculations based on Statistics Poland data)

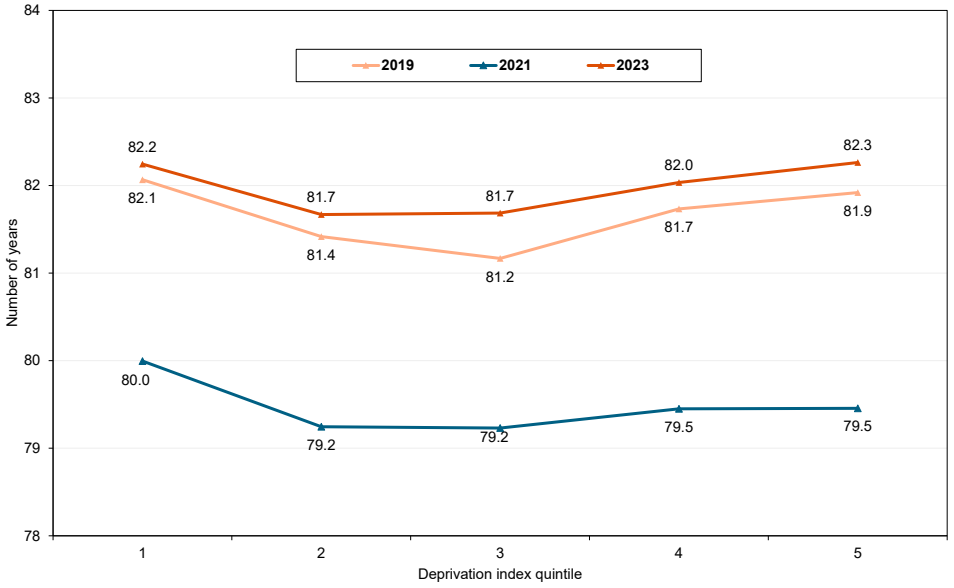

Fig. 3.9b. Life expectancy for women in 2019, 2021 and 2023, depending on the deprivation index quintile (2019) in the powiat (authors' calculations based on Statistics Poland data)

When assessing social inequalities in health of the Polish population, it is crucial to estimate the differences in health status of people with different levels of education. The results of the National Population and Housing Census 2021 (NSP 2021) provided reliable data on the education of the whole Polish population. Combined with mortality data by sex, age and education, this allowed us to estimate life expectancy and mortality from major causes of death for subpopulations with different levels of education. To reduce the impact of random variation, these estimates were made for the three-year period 2020-2022.[8]

A pronounced social gradient observed in mortality from all causes of death, which will be presented later in this chapter, results in **significantly shorter life expectancy among individuals with lower levels of education compared to those with tertiary education.** According to our most recent estimates, this difference amounted to nearly 13 years for men aged 30 during the three-year period of 2020–2022, and nearly 9 years for women (Fig. 3.10).

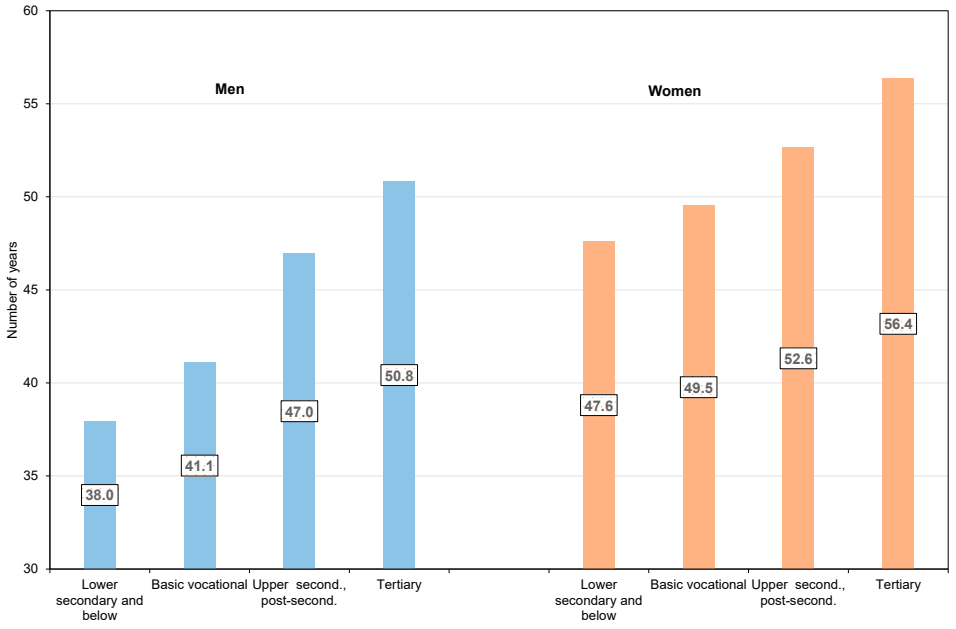

Fig. 3.10. Life expectancy for men and women aged 30 by level of education in 2020–2022 (authors' calculations based on Statistics Poland data)

[8] This part of the analysis was carried out as part of the research task ZC-3/2024, conducted by the Department of Population Health Monitoring and Analysis at the National Institute of Public Health NIH – National Research Institute.

Life expectancy is one of the basic and most commonly used simple synthetic measures for assessing a population's overall health. However, its limitations are evident, as it does not reflect people's health throughout their lives. For this reason, a composite measure known as **health expectancy** or healthy life years (HLY) is also used. This measure divides the entire lifespan into years in good health and years in poor health. Various measures can be used to define poor health, but it is generally accepted that it refers to the long-term health-related limitations, the presence of specific chronic diseases and self-perceived poor health. Eurostat provides estimates of healthy life years for European Union countries based on the Global Activity Limitation Indicator (GALI). The question about limited functional capacity is asked as part of the European Union statistics on income and living conditions (EU-SILC) survey, which Statistics Poland has conducted in Poland since 2005 on a random population sample. However, it should be emphasised that the wording of the question has undergone certain modifications, making it impossible to evaluate the change in the indicator over all these years. Since 2009, the question has been worded: "For at least the last 6 months, have you been limited because of a health problem in activities people usually do?" The current wording is: "Are you limited because of a health problem in activities people usually do?" This is followed by "Have you been limited for at least the past 6 months?"

Statistics Poland annually estimates and publishes the health expectancy indicator (HLY) for the Polish population. However, it should be noted that the estimation method used by Statistics Poland differs slightly (it is more sophisticated) from that used by Eurostat, resulting in some differences in the data presented for Poland later in this chapter (according to Statistics Poland) and in international comparisons (according to Eurostat). When analysing temporal and spatial differences in HLY, it should be kept in mind that it is based on subjective measurements, and it is not advisable to pay attention to minor differences in values.

Not all voivodships had higher healthy life years for men and women in 2023 than in 2019, but the difference was small in three voivodships for men and two for women (Fig. 3.11a and 3.11b). The overall increase in healthy life years in 2023 compared to 2019 was greater than that for total life expectancy. Healthy life years differences in voivodships for both men and women after the pandemic in 2023 are greater than before in 2019. In 2021 and 2023, the HLY indicators for both men and women were highest in Wielkopolskie voivodship, followed by Zachodniopomorskie and Lubuskie voivodships. On the other hand, the lowest indicators were recorded in Lubelskie and Podlaskie voivodships. It is worth noting that the healthy life years of voivodship inhabitants in 2023 are weakly

correlated with overall life expectancy, and in the case of women, this correlation is even negative.

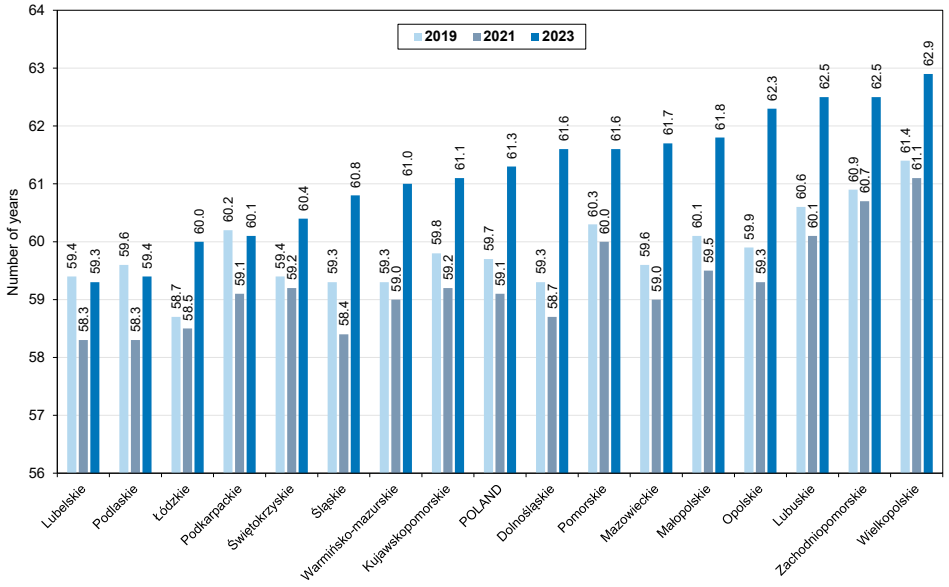

Fig. 3.11a. Healthy life years for men by voivodship in 2019, 2021 and 2023 (Statistics Poland data)

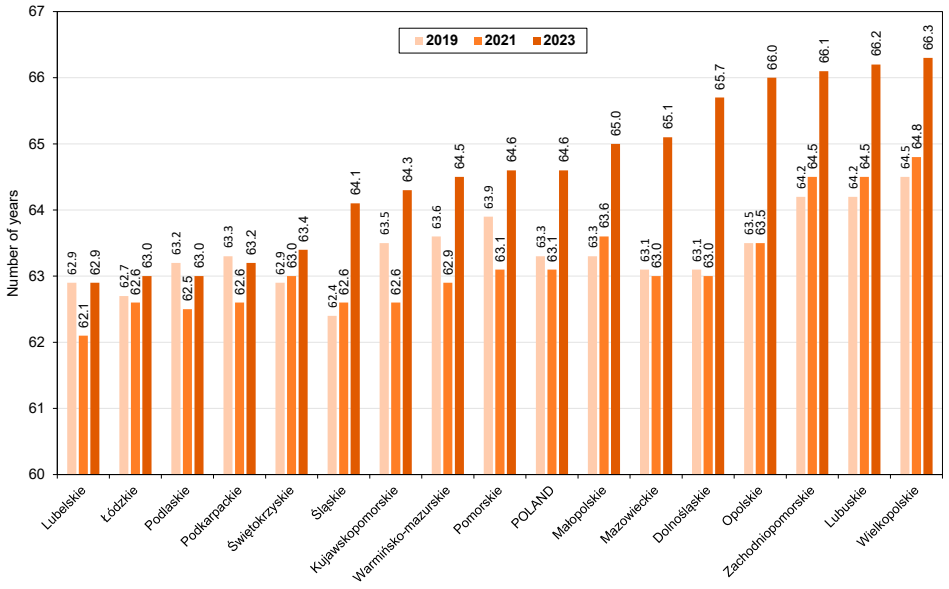

Fig. 3.11b. Healthy life years for women by voivodship in 2019 and 2021 and 2023 (Statistics Poland data)

Life expectancy of the Polish population compared to other EU countries[9]

According to preliminary Eurostat estimates, life expectancy for men in Poland in 2023 is approximately 4.1 years shorter than the average life expectancy in the EU (in 2019, the difference was 4.4 years), with a difference of 7.1 years compared to the longest-living EU citizens in Sweden (Fig. 3.12a). On average, Latvians have the shortest life expectancy in the EU, and the difference in life expectancy between men and women in the EU is as high as 11.2 years (70.5 vs 81.7). Men aged 65 in Poland currently live approximately 2.1 years less than the EU average for this age group, with a difference of 3.7 years compared to the longest-living EU citizens in Luxembourg (Fig. 3.12b). In most countries, life expectancy in 2023 was already higher than in 2019, with exceptions including Germany, Finland, the Netherlands, Austria, and, for women only, Italy and France.

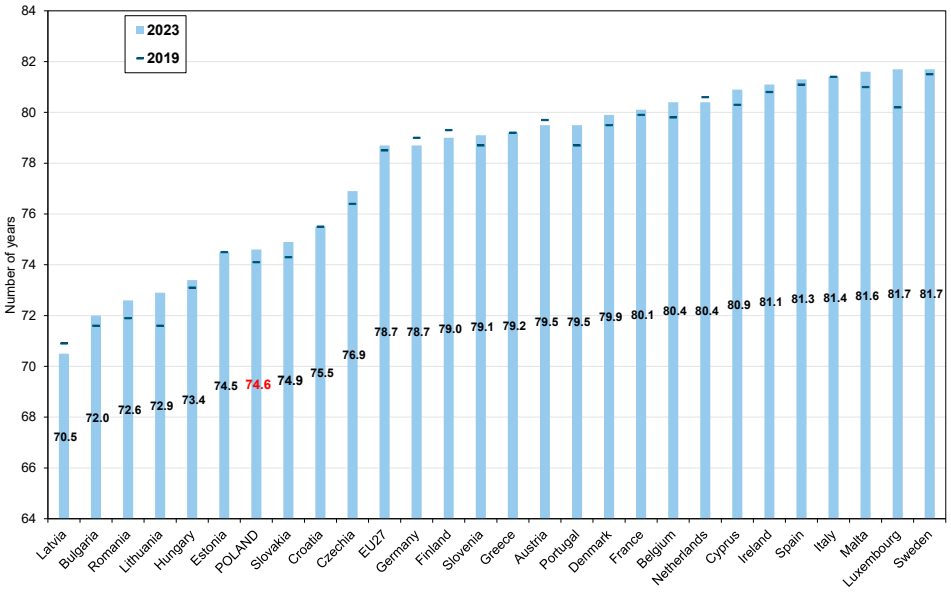

Fig. 3.12a. Life expectancy for MEN in Poland and other EU-27 countries in 2019 and 2023 (Eurostat database, preliminary estimates for Poland and EU-27)

[9] It should be noted that Eurostat's method for calculating life expectancy is slightly different from that used by Statistics Poland, which means that the estimates for Poland provided by these institutions may differ slightly. Any differences are usually between 0.1 and 0.2 years.

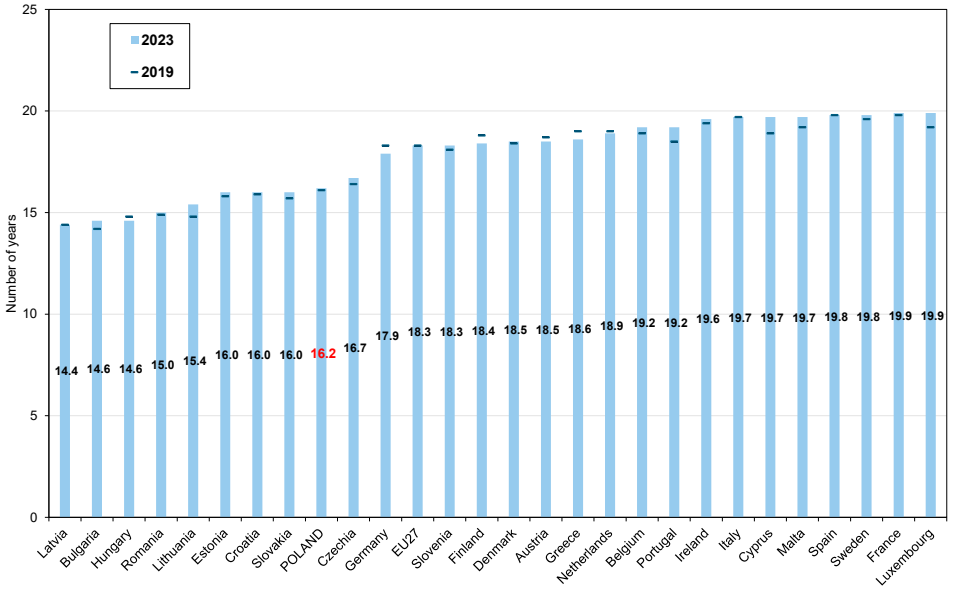

Fig. 3.12b. Life expectancy of MEN aged 65 in Poland and other EU-27 countries in 2019 and 2023 (Eurostat database, preliminary estimates for Poland and EU-27)

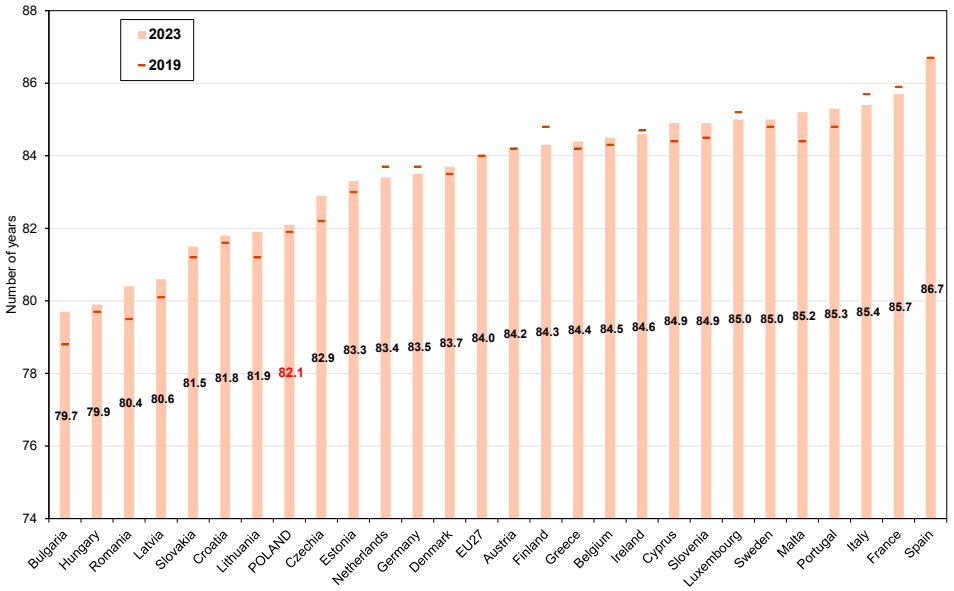

Fig. 3.13a. Life expectancy for WOMEN in Poland and other EU-27 countries in 2019 and 2023 (Eurostat database, preliminary estimates for Poland and EU-27)

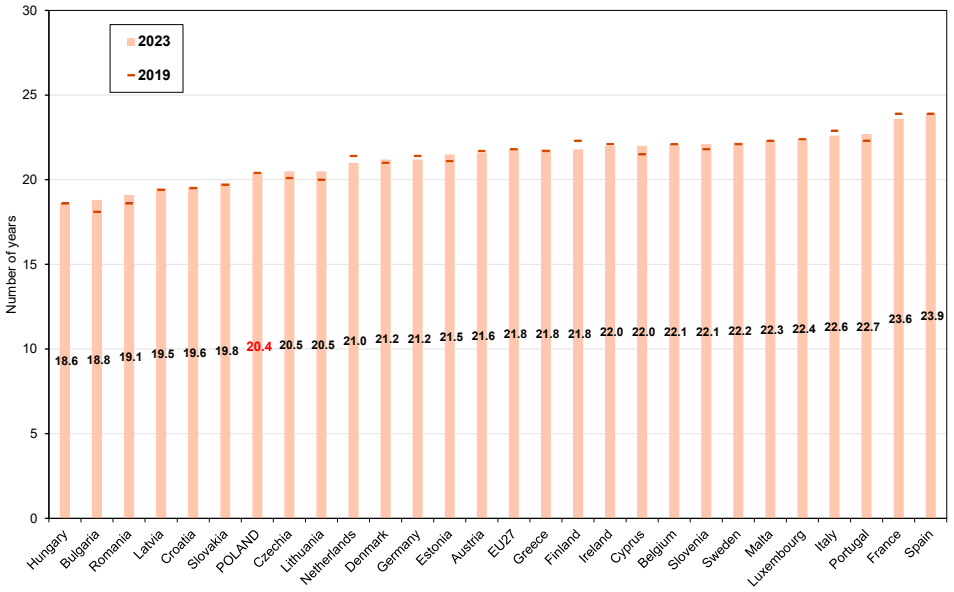

Fig. 3.13b. Life expectancy of WOMEN aged 65 in Poland and other EU-27 countries in 2019 and 2023 (Eurostat database, preliminary estimates for Poland and EU-27)

The differences are less pronounced for women, with **Polish women currently (2023) living on average approximately 1.9 years less than the average life expectancy for all EU women** and approximately 4.6 years less than women in Spain, who live the longest (Fig. 3.13a). On average, women in Bulgaria (79.7 years) and Hungary (79.9 years) have the shortest life expectancy in the EU. Women aged 65 currently live approximately 1.4 years less than EU women of the same age, with a difference of 3.5 years compared to the longest-living women in Europe, who live in Spain (Fig. 3.13b). In most countries, female life expectancy in 2023 was already higher than in 2019, with the exceptions of Germany, Finland, the Netherlands, Austria and, as in the case of men, Italy and France.

It is reasonable to ask to what extent the higher mortality of younger and older people contributes to the shorter life expectancy of Poles compared to the inhabitants of other countries. The decomposition of differences in life expectancy by differences in mortality risk in individual 5-year age groups in Poland and selected Western European countries and the Czech Republic leads to the following conclusions. **The shorter life expectancy of Polish men is still largely due to their higher death rate during working age, i.e. between 25 and 64 years, compared to other countries** (Fig. 3.14a). In contrast, the situation is different for Polish women. The fact that they live shorter lives than women in other European countries is

primarily due to higher death rates in women aged 65 and over (Fig. 3.14b). Nevertheless, in most cases, the higher death rate among Polish women aged 25–64 is still contributes to their shorter average life expectancy compared to women in Western European countries. More effective measures to combat mortality among people of working age, primarily men but also women, will not only bring direct economic benefits but also contribute significantly to reducing the unfavourable difference in life expectancy between Polish citizens and those of other countries.

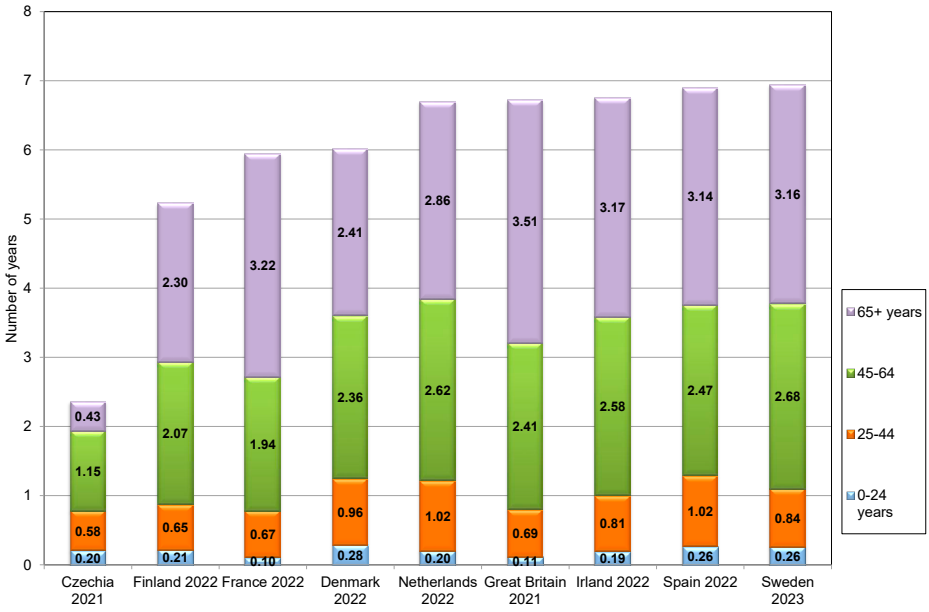

Fig. 3.14a. Number of years of shorter life expectancy of men in Poland compared to men in other countries, resulting from higher death rates among Polish men in specific age groups (authors' calculations based on the WHO Mortality Database)

The overall health situation of the Polish population is slightly less unfavourable than that of the European Union as a whole, if life expectancy is calculated considering that only part of it is spent in good health. According to the latest Eurostat estimates for 2022, the healthy life years (HLY) of Polish women in 2022, at 64.1 years (79.0% of total expected life years), was 1.3 years longer than the EU average, but 6.2 years shorter than that of women in Malta (Fig. 3.15a). In contrast, Polish men could expect to live in good health for an average of 60.8 years (82.8% of total life expectancy), which is 1.6 years less than the EU average and as much as 9.3 years less than the men of Malta. The difference in healthy life years

between women and men in Poland, 3.3 years, is one of the highest in the EU (4.4 years in Bulgaria, 4.1 years in Lithuania, and 3.5 years in Slovenia).

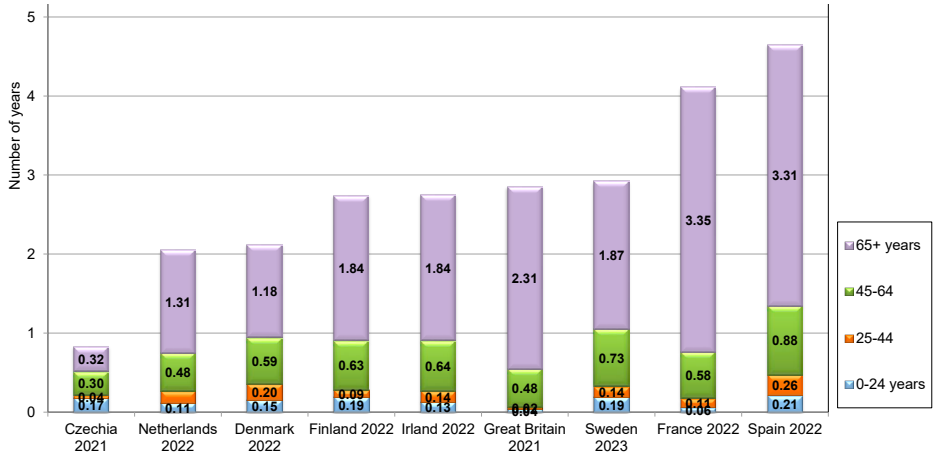

Fig. 3.14b. Number of years of shorter life expectancy of women in Poland compared to women in other countries, resulting from higher death rates among Polish women in specific age groups (authors' calculations based on the WHO Mortality Database)

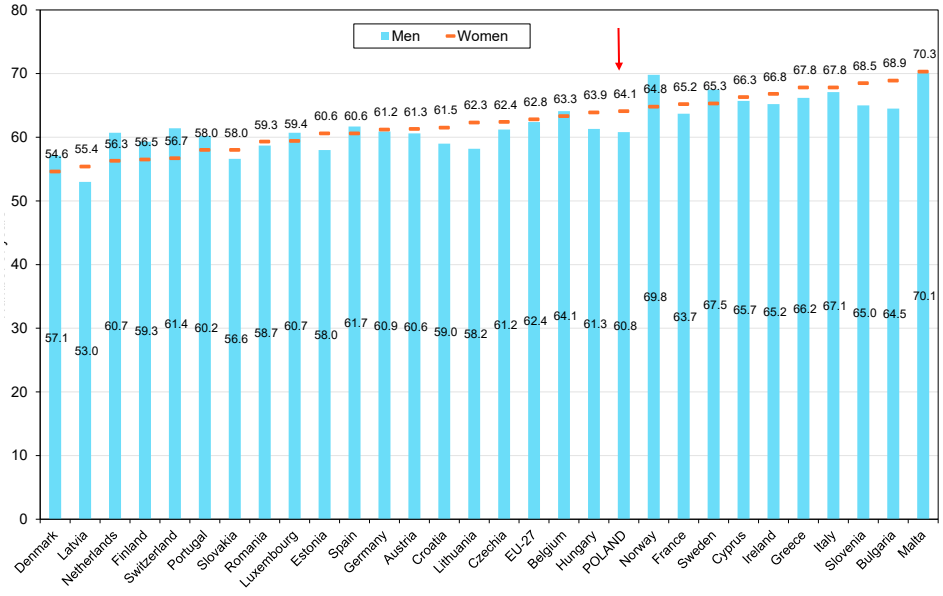

Fig. 3.15a. Average healthy life years (disability-free life expectancy) for men and women at birth in Poland and other EU-27 countries and Norway in 2022 (Eurostat data)

Healthy life years of older people aged 65 (HLY65), for men and women, expressed both in absolute terms (7.8 and 8.6 years, respectively) and as a percentage of total life expectancy (50.4% and 43.7%, respectively), is shorter in Poland than the EU average (8.9 and 9.2 years, respectively, and 50.5% and 43.8%, respectively) (Fig. 3.15b and Eurostat database[10]).

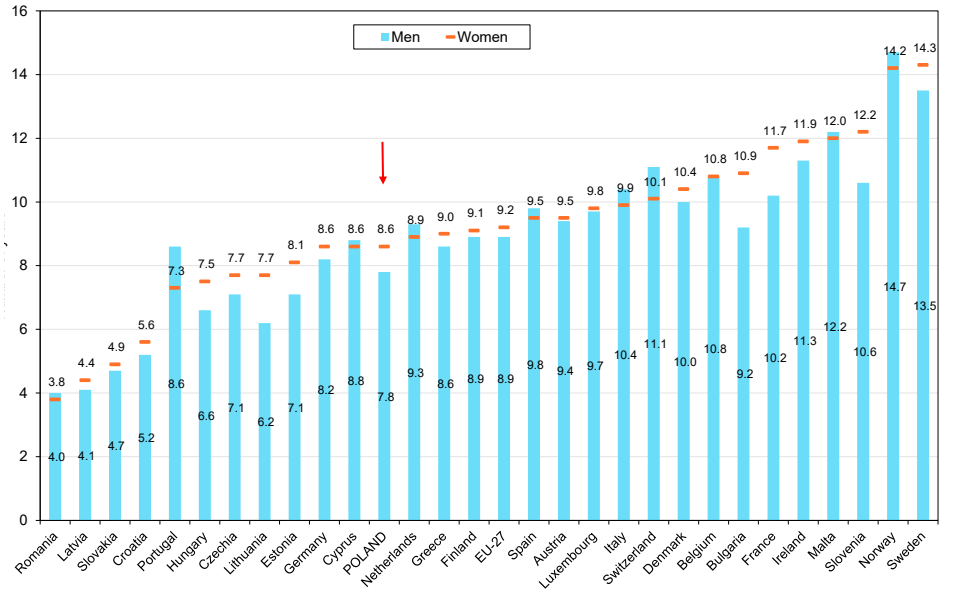

Fig. 3.15b. Average healthy life years (disability-free life expectancy) for men and women aged 65 in Poland and other EU-27 countries and Norway in 2022 (Eurostat data)

All-cause mortality

As mentioned earlier, mortality analysis in Poland was conducted using Statistics Poland database of individual death records, while the WHO Mortality Database was used to compare mortality trends in Poland and selected EU countries. The direct method was used to prepare age-standardised death rates. The European age structure, uniform for men and women, developed and used by Eurostat, has been applied as the standard age structure.[11]

[10] https://ec.europa.eu/eurostat/databrowser/view/hlth_hlye__custom_16206889/default/table?lang=en
[11] Eurostat. Revision of the European Standard Population - Report of Eurostat's task force. 2013 11/07/2013. Report No.: 1977-0375. European Union 2013

The decline in the overall mortality rate in Poland after 1991 slowed significantly in 2014–2019, and the pandemic years of 2020–2021 caused it to rise sharply by approximately a quarter. However, currently (2023), the death rate is already below that of the pre-pandemic year 2019 (Fig. 3.16a).

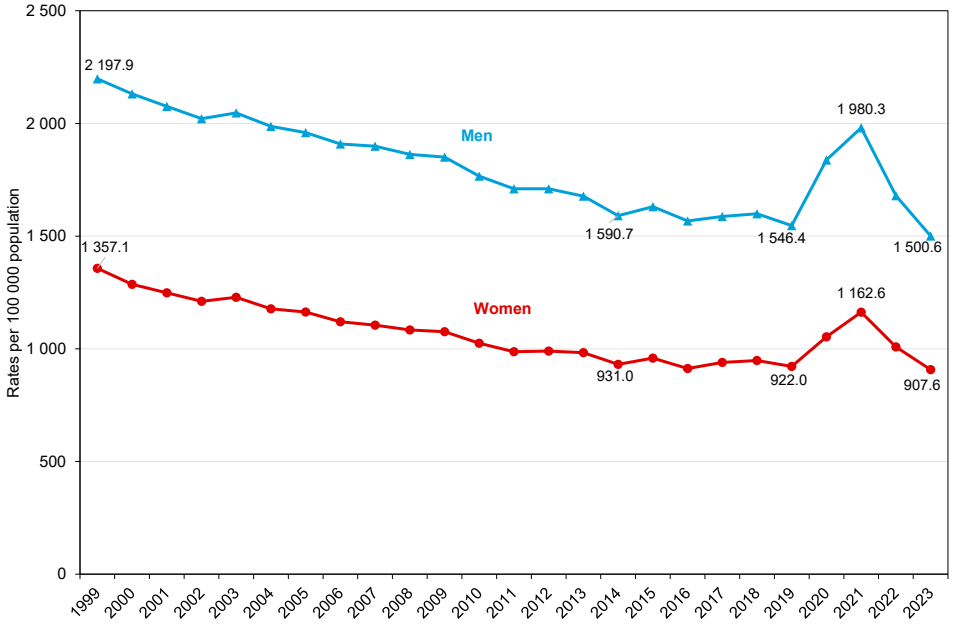

Fig. 3.16a. Age-standardised death rates due to all causes for men and women in Poland, 1999–2023 (own calculations based on Statistics Poland databases)

The mortality trends for older people aged 65 and over are similar to those for the total population, and the current mortality rate is also below that of the pre-pandemic year 2019 (Fig. 3.16b). It should be emphasised that **in the years preceding the pandemic, between 2014 and 2019, there was a complete standstill in the decline in mortality among older people.**

Monthly excess deaths (percentage difference between the number of deaths in a given month and the average number in that month in 2016–2019) during the pandemic in Poland were higher than in most EU countries and significantly deviated from the average for these countries, but after the pandemic, the difference in mortality in Poland compared to the baseline period is lower than in the EU-27 (Fig. 3.17).

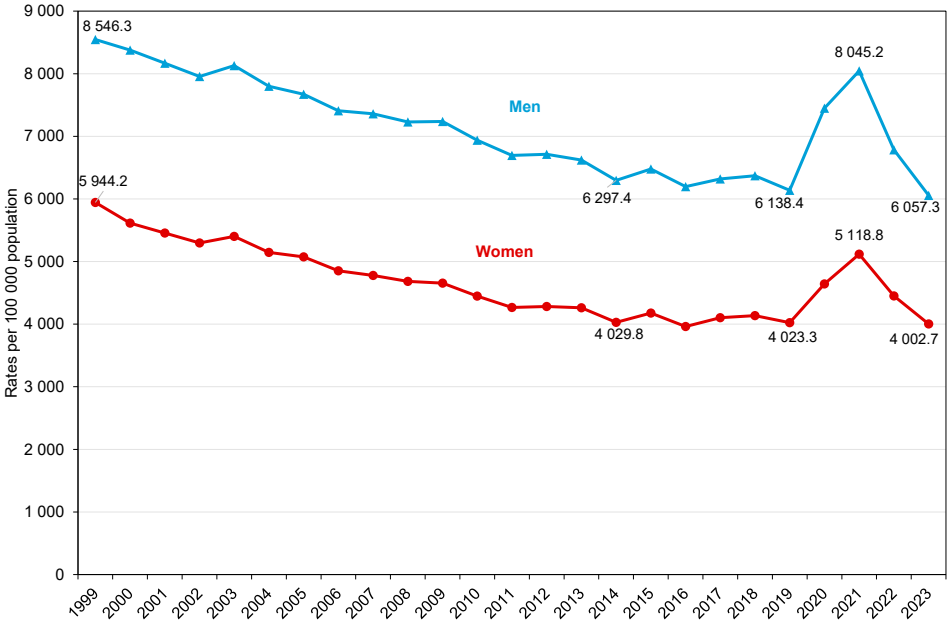

Fig. 3.16b. Age-standardised death rates due to all causes for men and women in Poland aged 65 and over, 1999–2023 (own calculations based on Statistics Poland databases)

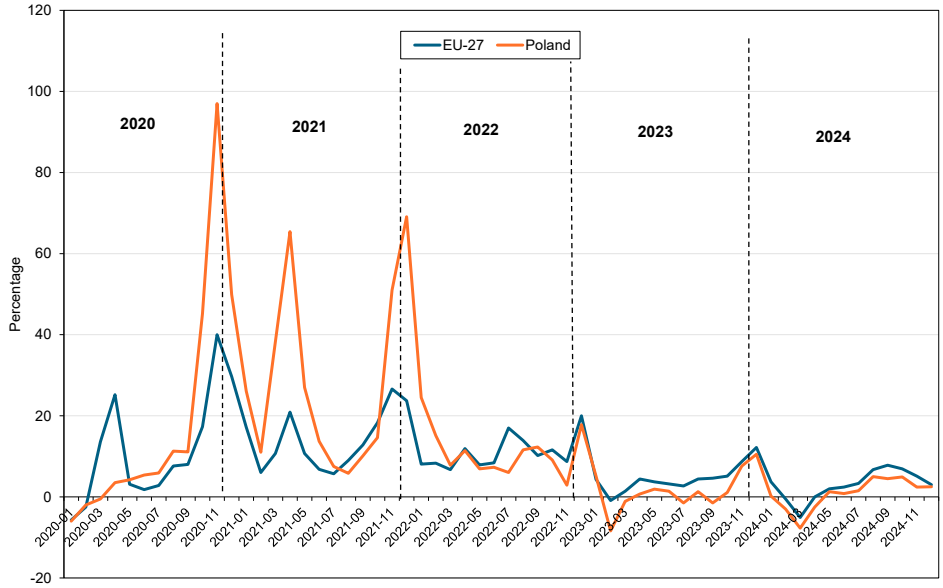

Fig. 3.17. Percentage of additional monthly deaths between January 2020 and December 2024 compared to the average monthly number of deaths in 2016–2019 in Poland and the EU-27 as a whole (Eurostat data)

Mortality by cause

When examining mortality by cause of death, it is essential to consider that the COVID-19 pandemic introduced a degree of disruption in the certification of causes of death. This may have affected, on the one hand, the frequency of deaths certified as due to COVID-19 itself, and on the other, deaths attributed to other causes. It is necessary to remember the WHO guidelines on coding causes of death during this period. According to the WHO guidelines,[12] "A death due to COVID-19 is defined for surveillance purposes as a death resulting from a clinically compatible illness, in a probable or confirmed COVID-19 case, unless there is a clear alternative cause of death that cannot be related to COVID disease (e.g. trauma). There should be no period of complete recovery from COVID-19 between illness and death.

A death due to COVID-19 may not be attributed to another disease (e.g. cancer) and should be counted independently of preexisting conditions that are suspected of triggering a severe course of COVID-19....

Note: Persons with COVID-19 may die due to other conditions such as myocardial infarction. Such cases are not deaths due to COVID-19 and should not be certified as such."

Undoubtedly, this situation could have reduced the mortality rate from certain chronic diseases, such as cancer, mentioned above. On the other hand, comorbidity with the undiagnosed COVID-19 may have contributed to an increase in the number of deaths attributed to a given chronic disease. This may have been one of the reasons for the significant increase in mortality attributable to diabetes in 2020. For these reasons, interpreting changes in cause-specific mortality rates during the 2020 and 2021 pandemic period requires great caution.[13] It can be assumed that the situation has normalised in this respect with the decline in SARS-CoV-2 infections in 2022 and especially in 2023.

A new indicator relating to mortality in Poland, presented for the first time in this chapter of our Report, is the average age of people who died in 2023 due to

[12] INTERNATIONAL GUIDELINES FOR CERTIFICATION AND CLASSIFICATION (CODING) OF COVID-19 AS CAUSE OF DEATH Based on ICD International Statistical Classification of Diseases (20 April 2020) WHO/HQ/DDI/DNA/CAT https://www.who.int/docs/default-source/classification/icd/covid-19/guidelines-cause-of-death-covid-19-20200420-en.pdf?sfvrsn=35fdd864_2 (Accessed on 8 August 2022)

[13] Wojtyniak B, Stokwiszewski J, Rabchenko D, et.al. "Długość życia i umieralność ludności Polski" in Wojtyniak B, Goryński P. Sytuacja zdrowotna ludności Polski i jej uwarunkowania 2022, NIZP PZH – PIB, Warsaw 2022

the analysed cause of death by sex and voivodship, and for the main categories of causes of death also by place of residence (urban/rural). The actual and age-standardised rates are shown to eliminate the impact of differences in the age structures of the compared subpopulations. This directly affects the age of the decedents, and we do not want to include this impact in the analysis (we want to adjust for it). The standard age structure adopted is that of the total population of Poland, which is the same for all subpopulations analysed. The average age at death provides an important analytical complement to the age-standardised death rate, which reflects differences in overall mortality rates between the subpopulations being compared, whereas the average age at death may reveal disparities in mortality within younger and older segments of the population. This distinction can serve as a point of departure for more detailed public health analyses.

For years, the most common cause of death among Polish citizens has been diseases of the circulatory system, more commonly referred to in clinical nomenclature as cardiovascular disease (CVD), and these two terms will be used interchangeably (Fig. 3.18). In 2023, they accounted for 36.9% of all deaths, which is 2.2 percentage points less than in 2019. The proportion of malignant neoplasms is currently at the same level as in 2019. These two groups of diseases were responsible for 60.3% of all deaths in Poland in 2023.

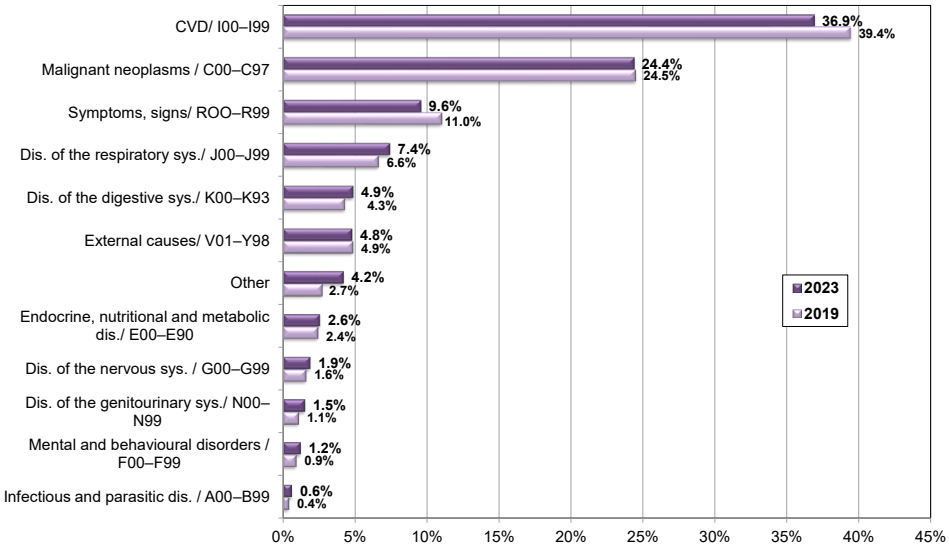

Fig. 3.18. Percentage of the leading causes of death in the total number of deaths in Poland in 2019 and 2023. (based on Statistics Poland data)

To identify the most common causes of death among the Polish population, including more detailed causes, we used a list prepared by the WHO and employed, among others, in England, Wales and Australia.[14] The list includes one modification related to voivodship differences in determining cardiovascular causes of death. A category "heart disease" has been created, which is also used in the English classification. Indeed, **heart disease was the most common cause of death overall in Poland in 2023, as well as among individuals over the age of 45** (Tab. 3.3). The second leading cause of death in Poland in 2023 was cerebrovascular diseases, which were the most common cause of death among the oldest population and the second most common cause of death among persons aged 65–74. Sadly, **suicide is the leading cause of death among young Poles aged 15–24 and 25–44**. Malignant neoplasm of the trachea, bronchus and lung, which is a cause of death that is largely preventable, continues to rank very high, second among people aged 45–74. However, our death statistics paint a very bleak picture, with more than one in ten deaths of people aged 25–64 listed as having an unspecified cause of death.

Table 3.3. Top ten causes of death in Poland by age in 2023

Rang	Total	1-14	15-24	25-44	45-64	65-74	75 y.o.
1	Heart disease (I00-I09, I11, I13, I20-I51) N=100966 (25%)	Congenital malformations, deformations and chromosomal abnormalities (Q00-Q99) N=90 (14%)	Intentional self-harm [suicide] (X60-X84) N=341 (20%)	Intentional self-harm [suicide] (X60-X84) N=1666 (12%)	Heart disease (I00-I09, I11, I13, I20-I51) N=10209 (15%)	Heart disease (I00-I09, I11, I13, I20-I51) N=20598 (20%)	Heart disease (I00-I09, I11, I13, I20-I51) N=69053 (31%)
2	Cerebrovascular diseases (I60-I69) N=30517 (7%)	Influenza and pneumonia (J10-J18) N=62 (9%)	Land transport accidents (V01-V89) N=298 (18%)	Cirrhosis and other diseases of liver (K70-K76) N=1270 (9%)	Malignant neoplasm of trachea, bronchus and lung (C33, C34) N=4638 (7%)	Malignant neoplasm of trachea, bronchus and lung (C33, C34) N=10438 (10%)	Cerebrovascular diseases (I60-I69) N=19685 (9%)
3	Malignant neoplasm of trachea, bronchus and lung (C33, C34) N=22168 (5%)	Malignant neoplasm of brain (C71) N=51 (8%)	Event of undetermined intent (Y10-Y34) N=78 (5%)	Heart disease (I00-I09, I11, I13, I20-I51) N=1036 (7%)	Cirrhosis and other diseases of liver (K70-K76) N=4075 (6%)	Cerebrovascular diseases (I60-I69) N=6707 (7%)	Influenza and pneumonia (J10-J18) N=13448 (6%)

[14] Becker R, Silvi J, Ma Fat D, L'Hours A & Laurenti R 2006. A method for deriving leading causes of death. Bulletin of the World Health Organization 84:297–304

Rang	Total	1-14	15-24	25-44	45-64	65-74	75 y.o.
4	Influenza and pneumonia (J10-J18) N=20407 (5%)	Land transport accidents (V01--V89) N=50 (8%)	Accidental poisoning by and exposure to noxious substances (X40-X49) N=76 (5%)	Land transport accidents (V01--V89) N=630 (4%)	Cerebrovascular diseases (I60--I69) N=3600 (5%)	Influenza and pneumonia (J10-J18) N=4232 (4%)	Atherosclerosis (I70) N=11190 (5%)
5	Atherosclerosis (I70) N=13844 (3%)	Malignant neoplasms, stated or presumed to be primary, of lymphoid, haematopoietic and related tissue (C81-C96) N=29 (4%)	Influenza and pneumonia (J10-J18) N=54 (3%)	Cerebrovascular diseases (I60--I69) N=496 (3%)	Malignant neoplasm of colon, rectosigmoid junction, rectum, anus and anal canal (C18-C21) N=2320 (4%)	Malignant neoplasm of colon, rectosigmoid junction, rectum, anus and anal canal (C18-C21) N=4144 (4%)	Malignant neoplasm of trachea, bronchus and lung (C33, C34) N=6971 (3%)
6	Malignant neoplasm of colon, rectosigmoid junction, rectum, anus and anal canal (C18-C21) N=12187 (3%)	Heart disease (I00-I09, I11, I13, I20-I51) N=22 (3%)	Heart disease (I00-I09, I11, I13, I20-I51) N=46 (3%)	Influenza and pneumonia (J10-J18) N=494 (3%)	Influenza and pneumonia (J10-J18) N=2082 (3%)	In situ neoplasms, benign and neoplasms of uncertain or unknown behaviour(D00--D48) N=2915 (3%)	Diabetes mellitus (E10-E14) N=5812 (3%)
7	Diabetes mellitus (E10-E14) N=9698 (2%)	Event of undetermined intent (Y10-Y34) N=20 (3%)	Malignant neoplasms, stated or presumed to be primary, of lymphoid, haematopoietic and related tissue (C81-C96) N=40 (2%)	Accidental poisoning by and exposure to noxious substances (X40--X49) N=456 (3%)	Malignant neoplasm of breast (female) (C50) N=1690 (3%)	Diabetes mellitus (E10-E14) N=2454 (2%)	Malignant neoplasm of colon, rectosigmoid junction, rectum, anus and anal canal (C18-C21) N=5550 (2%)
8	In situ neoplasms, benign and neoplasms of uncertain or unknown behaviour(D00--D48) N=9550 (2%)	Epilepsy and status epilepticus (G40, G41) N=20 (3%)	Congenital malformations, deformations and chromosomal abnormalities (Q00-Q99) N=35 (2%)	Mental and behavioural disorders due to psychoactive substance use (F10-F19) N=432 (3%)	Intentional self-harm [suicide] (X60-X84) N=1658 (3%)	Cirrhosis and other diseases of liver (K70--K76) N=2361 (2%)	In situ neoplasms, benign and neoplasms of uncertain or unknown behaviour(D00--D48) N=5284 (2%)
9	Cirrhosis and other diseases of liver (K70--K76) N=8593 (2%)	Intentional self-harm [suicide] (X60-X84) N=20 (3%)	Falls (W00--W19) N=33 (2%)	Event of undetermined intent (Y10-Y34) N=348 (2%)	Mental and behavioural disorders due to psychoactive substance use (F10-F19) N=1393 (2%)	Atherosclerosis (I70) N=2169 (2%)	Diseases of urinary system (N00-N39) N=4207 (2%)

Rang	Total	1-14	15-24	25-44	45-64	65-74	75 y.o.
10	Malignant neoplasm of breast (female) (C50) N=6827 (2%)	Accidental drowning and submersion (W65-W74) N=13 (2%)	Malignant neoplasm of brain (C71) N=30 (2%)	Malignant neoplasm of breast (female) (C50) N=322 (2%)	Diabetes mellitus (E10-E14) N=1260 (2%)	Chronic lower respiratory diseases(J40--J47) N=2049 (2%)	Dementia and Alzheimer's disease (F01, F03, G30) N=4089 (2%)
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (R00-R99)	N=39187 (10%)	N=34 (5%)	N=182 (11%)	N=2232 (16%)	N=7804 (12%)	N=7912 (8%)	N=20983 (9%)

Source: Own study based on Statistics Poland data

Figures 3.19a and 3.19 b present the importance of individual broad disease chapters as causes of death in specific age groups in 2023. The lives of younger people, men aged 10–49 and women aged 10–29, were most at risk from external causes such as accidents (transport accidents, falls, poisoning, drowning), suicide and the effects of crime. In subsequent age groups, men aged 50 to 74 were most at risk of cancer and, to a lesser extent, circulatory diseases, which were the leading cause of death among men aged 75 and over. Compared to the situation before the pandemic, cancer has expanded the age range in which it is the most common cause of death among men to include the group aged 70–74. In contrast, the lives of women aged 30–74 in 2023 were most at risk from malignant neoplasms in general, which only gave way to diseases of the circulatory system at the oldest age.

If death before the age of 75 is considered premature,[15] then it results in potential years of life lost (PYLL) calculated as the difference between the age of death and the age of 75. Therefore, deaths at a younger age are more significant than those at an older age. Taking this into account, the extent to which individual causes of death contribute to the potential years of life lost by Polish citizens can be calculated. The PYLL indicator is one of the basic measures of the burden of premature mortality. As shown by OECD data (the latest and most comprehensive data are from 2020), Poland ranks among developed countries with a significant problem of premature mortality.[16]

[15] The adopted age threshold is a matter of choice; the US and the UK use the same threshold, for example, while the OECD and Eurostat use 70 years.

[16] https://data.oecd.org/healthstat/potential-years-of-life-lost.htm; OECD (2022), Potential years of life lost (indicator). doi: 10.1787/193a2829-en (Accessed on 21 September 2022)

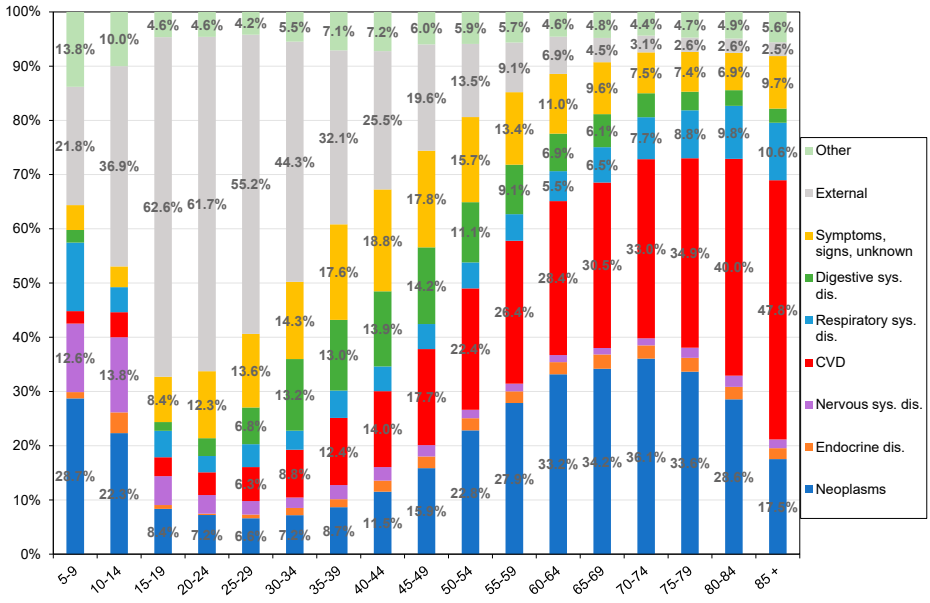

Fig. 3.19a. Percentage of the main causes of death in male mortality in individual five-year age groups in 2023 (own calculations based on Statistics Poland data)

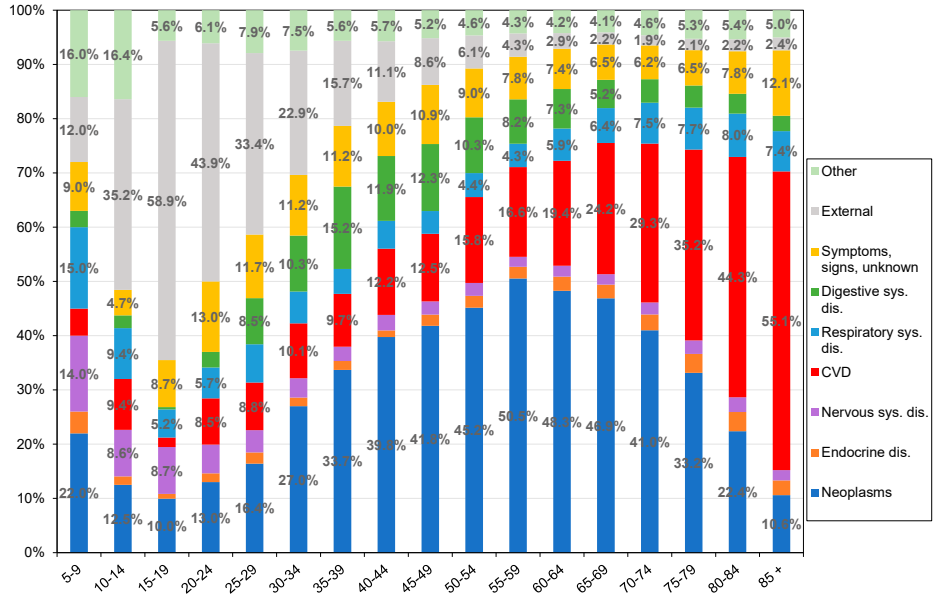

Fig. 3.19 b. Percentage of the main causes of death in female mortality in individual five-year age groups in 2023 (own calculations based on Statistics Poland data)

In 2023, because of deaths before the age of 75, Polish men recorded 1,715,553 (9,957.2 per 100,000) potential years of life lost, and women recorded over half that amount, 748,926 (4,250.9 per 100,000). Figures 3.20a and 3.20b show the percentage of deaths caused by individual diseases or groups of diseases and external causes in the total pool of potential years of life lost for men and women in 2019 and 2023.

For men, diseases of the circulatory system account for almost the same proportion of premature deaths (20.8%) as malignant neoplasms (20.6%), which is a change compared to before the pandemic, when diseases of the circulatory system represented a greater burden (Fig. 3.20a). In the case of DCS, the decrease in PYLL in 2023 compared to 2019 was due to the decline in the share of heart disease and, in the case of cancer, lung cancer. It should be emphasised that in 2023, **suicides were responsible for more potential years of life lost among men than lung cancer, cerebrovascular disease, myocardial infarction, diseases of the respiratory system and chronic liver disease**.

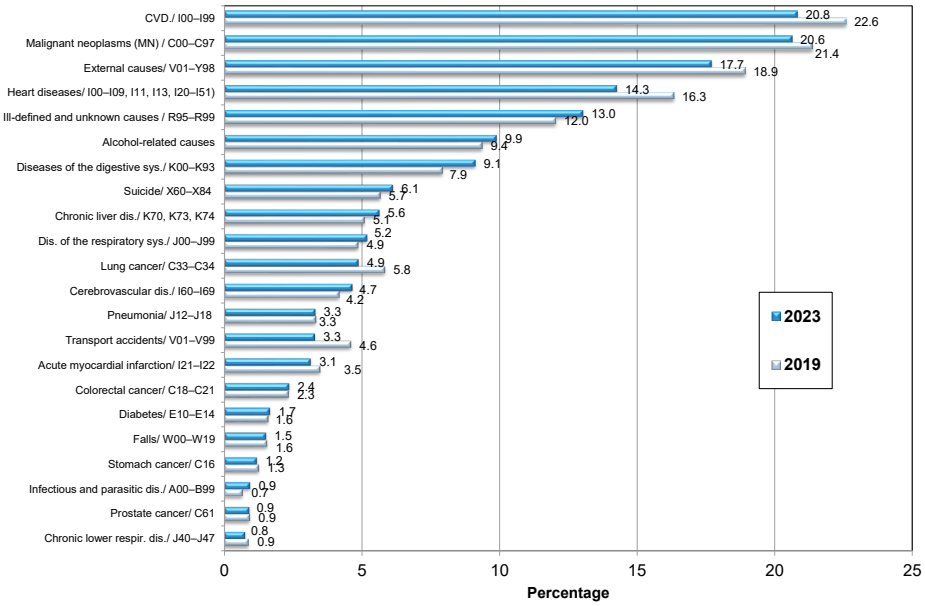

Fig. 3.20a. Share of leading causes of death in potential years of life lost among men in 2019 and 2023 (own calculations based on Statistics Poland data)

For women, the leading cause of potential years of life lost is malignant neoplasms, which accounted for approximately 38% of PYLL75 in 2023, almost the

same as in 2019. The most significant contributors to premature mortality among women in 2023 were malignant neoplasms of the trachea, bronchus and lung, which, it should be emphasised, clearly surpassed malignant neoplasms of the breast, as in 2019, both causes were responsible for the same number of potential years of life lost among women. It is worth noting again that cirrhosis and chronic liver disease now account for more potential years of life lost than cerebrovascular disease, and that malignant neoplasm of the colon, sigmoid, rectum and anus cause more potential years of life lost among women than malignant neoplasm of the cervix uteri.

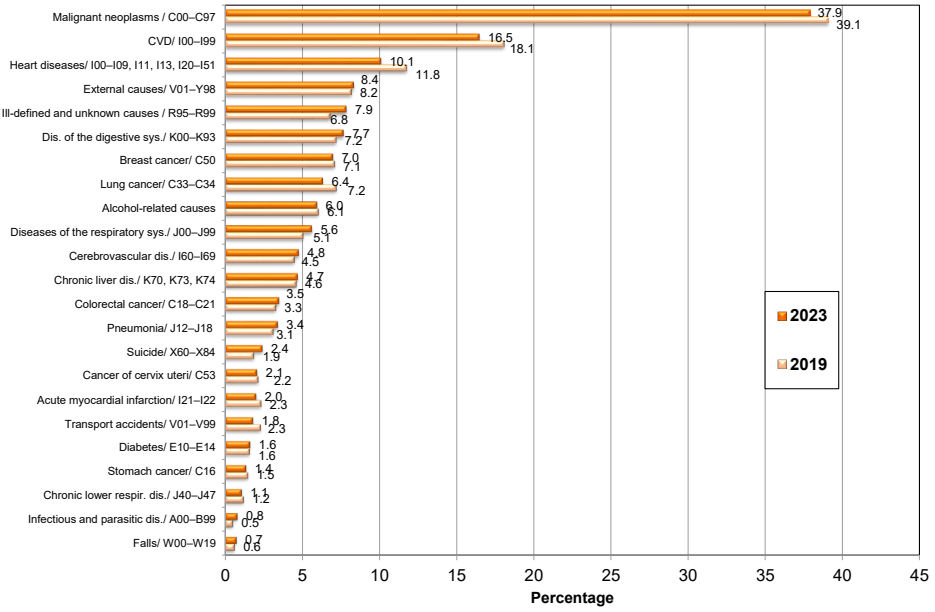

Fig. 3.20b. Share of leading causes of death in potential years of life lost among women in 2019 and 2023 (own calculations based on Statistics Poland data)

After eliminating the effect of age structure differences in subsequent years and between men and women (the European age structure was used as a standard), it can be concluded that the burden of premature mortality for men is currently almost two and a half times higher than for women (Table 3.4). The overall PYLL for men and women after the increase during the pandemic is currently (2023) lower than in 2019. When evaluating the change in potential years of life lost due to specific causes of death in 2023 compared with 2019, attention should be drawn to the currently lower rates observed for the majority of diseases and

health-related events, including avoidable mortality, as well as deaths attributable to all causes directly linked to alcohol consumption.[17] However, it is important to note the increase in potential years of life lost due to infectious and parasitic diseases and female suicides compared to pre-pandemic rates.

Table 3.4. Age-standardised potential years of life lost (PYLL75) for men and women by leading causes of death in 2019, 2021, 2023 (per 100,000 population)

Cause of death (ICD-10)	Men			Women		
	2019	2021	2023	2019	2021	2023
Total	10281.2	12135.8	9567.8	4162.4	4973.2	3934.1
including:						
Certain infectious and parasitic diseases (A00–B99)	68.3	81.5	88.4	20.8	25.3	32.3
Malignant neoplasms (C00–C97)	2231.0	2002.9	1989.2	1600.5	1456.9	1447.8
Malignant neoplasm of stomach (C16)	131.5	116.3	113.7	61.9	47.5	52.6
Malignant neoplasms of colon, sigmoid, rectum and anus (C18–C21)	247.0	224.6	227.5	133.0	131.3	132.3
Malignant neoplasms of trachea, bronchus and lung (C33–C34)	611.1	507.7	473.2	286.1	242.9	232.9
Malignant neoplasm of breast (C50)	-	-	-	297.8	266.6	270.9
Malignant neoplasm of cervix uteri (C53)	-	-	-	90.1	82.1	81.2
Malignant neoplasm of prostate (C61)	99.1	88.5	88.1	-	-	-
Diabetes mellitus (E10–E14)	167.1	182.6	158.2	64.1	74.6	61.1
Diseases of the circulatory system (I00–I99)	2363.2	2444.9	1995.6	726.6	751.7	613.9
Heart diseases (I00–I09, I11, I13, I20–I51)	1710.1	1743.2	1368.8	472.4	479.6	374.3
Acute myocardial infarction (I21–I22)	363.5	436.5	300.8	95.1	95.5	75.5
Cerebrovascular diseases (I60–I69)	435.8	458.9	444.8	182.6	197.0	181.1
Diseases of the respiratory system (J00–J99)	504.2	510.1	495.9	210.1	203.7	217.8
Pneumonia (J12–J18)	344.8	337.4	317.0	131.8	129.4	134.4
Chronic lower respiratory diseases (J40–J47)	94.3	77.2	73.2	46.6	38.5	39.1
Diseases of the digestive system (K00–K93)	806.0	954.5	850.3	299.2	357.6	298.3
Chronic liver disease (K70, K73, K74)	518.1	606.4	524.6	192.7	218.6	184.7
Symptoms, signs and ill-defined conditions (R00–R99)	1234.7	1351.5	1251.0	284.5	328.9	320.8
COVID-19	0.0	1615.8	39.2	0.0	781.9	22.8

[17] OECD, EUROSTAT, Avoidable mortality: OECD/Eurostat lists of preventable and treatable causes of death (November 2019 version), November 2019 http://www.oecd.org/health/health-systems/Avoidable-mortality-2019-Joint-OECD-Eurostat-List-preventable-treatable-causes-of-death.pdf

Cause of death (ICD-10)	Men			Women		
	2019	2021	2023	2019	2021	2023
External causes of death (V01–Y98)	1881.3	1811.5	1668.0	361.2	353.5	352.1
Transport accidents (V01–V99)	461.5	334.7	318.1	104.8	91.2	79.0
Falls (W00–W19)	157.6	170.0	142.8	26.3	25.9	29.9
Intentional self-harm [suicide] (X60–X84)	559.1	572.7	575.9	82.4	89.1	103.6
Alcohol-related	948.8	1094.2	919.0	253.7	286.5	234.5
Avoidable	6943.1	7168.1	6413.7	2766.4	2722.4	2544.7
Preventable	4811.4	4835.1	4342.2	1450.4	1416.4	1315.7
Treatable	2131.7	2333.0	2071.6	1316.0	1306.1	1229.0

Source: Own calculations based on Statistics Poland data

The mortality rates for leading causes of death in Poland are discussed in more detail below, showing differences between men and women, urban and rural areas, and voivodships. Age-standardised death rates were used to facilitate a better comparison across different years and populations, e.g. men and women, urban and rural areas, voivodships and countries.

The years of the COVID-19 pandemic brought significant changes in mortality from various groups of diseases in some voivodeships due to various factors, not necessarily representing the actual reason for an increase or decrease in the risk of death due to a specific group of diseases. A good example is the increase in mortality due to CVDs in 2021 in the voivodships of Dolnośląskie, Kujawsko-pomorskie, Lubelskie, Lubuskie and Mazowieckie. In all these situations, the increase in death rates due to CVDs may be partly an artefact related to differences in the reporting of causes of death and a significant reduction in mortality classified under Ill-defined and unknown causes (ICD-10 R00–R99), including, in particular, "senility" (R54). This peculiar shift in Lubuskie voivodship likely caused the incidence of deaths due to atherosclerosis to increase tenfold (from 37/100,000 to 370/100,000).[18] Therefore, it appears reasonable to focus primarily on comparing the mortality rate of the Polish population in 2023 with that in 2019, i.e. before and after the pandemic.

As mentioned earlier, the results of the National Population and Housing Census 2021, which provided reliable data on the educational attainment of the entire Polish population, enabled us to estimate mortality rates for the leading causes of death in

[18] Wojtyniak B, Stokwiszewski J, Rabchenko D, et.al. "Długość życia i umieralność ludności Polski" in Wojtyniak B, Goryński P. Sytuacja zdrowotna ludności Polski i jej uwarunkowania 2022, NIZP PZH – PIB, Warsaw 2022

subpopulations defined by the level of education. Age-standardised rates were calculated due to differences in the age structure of people with different levels of education. The results of this analysis enabled us to present, for the first time in the Report on the health status of the Polish population, the differences in mortality rates in Polish society related to one of the most important determinants of social status.

Mortality due to diseases of the circulatory system

The mortality rate from diseases of the circulatory system (DCS) and their share in the total number of deaths gradually decreased until 2019, but the pandemic years brought an increase in death rates. However, with the emergence of COVID-19, the share of DSC in total deaths decreased and is now also lower than before the pandemic (Tables 3.5a and 3.5b). The mortality rate due to CVDs is already lower than in 2019 (Fig. 3.21). These diseases continue to pose the greatest threat to the lives of Poles. In 2023, 150,957 people in Poland died from them, i.e. 400.4 per 100,000 population.

Table 3.5a. Mortality rate for MEN by leading causes in 2014–2023

Cause of death (ICD-10)	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Age-standardised death rates per 100,000 men										
Malignant neoplasms (C00–C97)	405.1	426.5	414.3	400.6	398.8	382.6	382.4	355.0	360.9	364.5
Dis. of the circulatory sys. (I00–I99)	703.1	723.9	656.3	636.4	624.1	593.7	643.6	660.0	582.6	538.2
Dis. of the respiratory sys. (J00–J99)	106.4	119.9	111.6	122.1	125.3	120.4	129.1	121.5	126.4	124.1
Dis. of the digestive sys. (K00–K93)	60.6	57.3	61.6	62.4	64.2	64.1	68.9	75.1	74.6	71.9
Symptoms, signs (R00–R99)	118.2	105.1	117.8	150.4	163.2	165.1	182.6	142.2	157.0	143.2
COVID-19 (U07)	0.0	0.0	0.0	0.0	0.0	0.0	184.8	365.4	118.0	18.5
External causes (V01–Y98)	96.2	87.5	84.6	83.9	87.6	85.3	87.2	92.4	87.0	83.3
Percentage share in total deaths among men										
Malignant neoplasms (C00–C97)	26.9	27.2	27.3	26.3	25.9	25.7	21.8	18.8	22.5	25.5
Dis. of the circulatory sys. (I00–I99)	40.3	40.7	38.2	36.5	35.9	35.7	32.6	30.8	32.3	33.2
Dis. of the respiratory sys. (J00–J99)	5.9	6.5	6.4	6.9	7.1	7.1	6.5	5.7	7.1	7.6
Dis. of the digestive sys. (K00–K93)	4.5	4.2	4.6	4.6	4.7	4.9	4.5	4.5	5.3	5.5
Symptoms, signs (R00–R99)	7.6	7.0	8.2	10.1	10.5	10.5	10.1	7.7	9.7	9.9
COVID-19 (U07)	0.0	0.0	0.0	0.0	0.0	0.0	9.6	18.0	6.3	1.1
External causes (V01–Y98)	8.3	7.2	7.1	6.9	7.0	7.0	6.0	5.7	6.3	6.7

Source: Authors' calculations based on Statistics Poland data

Table 3.5b. Mortality rate for WOMEN by leading causes in 2014–2023

Cause of death (ICD-10)	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Age-standardised death rates per 100,000 women										
Malignant neoplasms (C00–C97)	220.9	227.5	223.1	221.3	222.5	219.3	215.8	203.3	207.4	213.9
Dis. of the circulatory sys. (I00–I99)	468.9	487.3	441.6	434.1	425.9	395.6	424.0	446.7	396.1	365.1
Dis. of the respiratory sys. (J00–J99)	45.2	54.9	49.0	57.6	58.4	56.5	58.0	58.9	63.5	65.1
Dis. of the digestive sys. (K00–K93)	34.1	31.2	33.0	34.4	34.3	34.2	35.9	40.6	39.7	38.8
Symptoms, signs (R00–R99)	67.0	58.1	62.7	80.6	93.8	103.1	110.5	73.5	91.7	82.9
COVID-19 (U07)	0.0	0.0	0.0	0.0	0.0	0.0	82.0	195.4	66.5	9.5
External causes (V01–Y98)	26.4	25.0	24.1	24.1	24.6	24.5	25.2	29.9	27.6	26.8
Percentage share in total deaths among women										
Malignant neoplasms (C00–C97)	23.7	23.6	24.1	23.1	22.9	23.2	20.0	17.2	20.3	23.2
Dis. of the circulatory sys. (I00–I99)	50.3	51.0	48.8	46.7	45.5	43.4	40.9	39.1	39.8	40.8
Dis. of the respiratory sys. (J00–J99)	4.8	5.7	5.4	6.1	6.2	6.1	5.5	5.1	6.3	7.2
Dis. of the digestive sys. (K00–K93)	3.7	3.3	3.6	3.6	3.6	3.7	3.4	3.4	3.9	4.2
Symptoms, signs (R00–R99)	7.2	6.1	7.0	8.7	10.1	11.5	10.7	6.4	9.2	9.2
COVID-19 (U07)	0.0	0.0	0.0	0.0	0.0	0.0	7.7	16.7	6.6	1.1
External causes (V01–Y98)	2.9	2.6	2.6	2.5	2.5	2.6	2.3	2.5	2.7	2.8

Źródło: obliczenia własne autorów na podstawie danych GUS

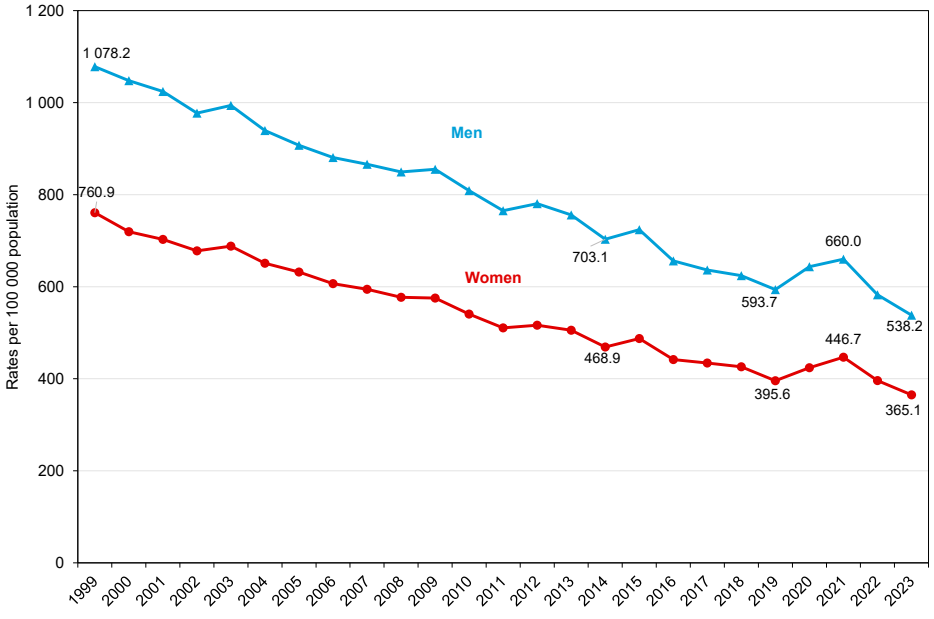

Fig. 3.21. Age-standardised death rates due to all diseases of the circulatory system for men and women in Poland, 1999–2023 (own calculations based on Statistics Poland databases)

Although women die more often than men due to DCS, this is because of their higher average age. After eliminating age differences between the two sexes, it turns out that these diseases pose a much greater threat to men, as the standardised death rate in 2023 for men was 47.4% higher than for women (Tables 3.6a and 3.6b).

Table 3.6a. Crude death rates by sex and cause in 2019, 2022 and 2023 (per 100,000 population)

Causes of death (ICD-10)	Men			Women		
	2019	2022	2023	2019	2022	2023
Total	1138.5	1256.7	1150.1	1000.6	1118.9	1024.2
including:						
Certain infectious and parasitic diseases (A00–B99)	5.0	7.3	7.5	3.8	6.1	6.1
Tuberculosis (A15–A19)	1.9	2.1	2.0	0.5	0.4	0.5
Malignant neoplasms (C00–C97)	292.8	283.1	292.7	231.9	226.6	237.9
Malignant neoplasm of stomach (C16)	16.8	15.3	16.2	8.7	7.9	8.5
Malignant neoplasms of colon, sigmoid, rectum and anus (C18–C21)	37.9	38.0	37.6	27.0	26.7	27.4
Malignant neoplasm of trachea, bronchus and lung (C33–C34)	80.4	71.3	74.4	41.5	40.6	44.2
Malignant neoplasm of breast (C50)	0.4	0.6	0.4	35.1	33.8	34.7
Malignant neoplasm of cervix uteri (C53)	-	-	-	7.9	7.0	7.2
Malignant neoplasm of prostate (C61)	30.3	30.8	32.2	-	-	-
Malignant neoplasm of bladder (C67)	16.9	16.3	16.5	5.1	4.8	5.1
Diabetes mellitus (E10–E14)	22.6	27.2	24.0	25.7	30.3	27.3
Mental and behavioural disorders (F00–F99)	16.2	21.2	17.6	4.1	10.6	9.3
Diseases of the nervous system (G00–G99)	16.1	18.6	18.7	18.2	23.4	22.4
Diseases of the circulatory system (I00–I99)	406.4	406.2	381.8	434.6	444.9	417.8
Heart diseases (I00–I09, I11, I13, I20–I51)	265.7	282.9	259.6	247.7	294.7	275.5
Acute myocardial infarction (I21–I22)	40.7	40.6	37.2	25.5	23.1	23.5
Cerebrovascular diseases (I60–I69)	69.9	78.0	76.2	80.2	90.8	85.4
Diseases of the respiratory system (J00–J99)	81.1	88.9	87.9	61.3	70.6	73.7
Pneumonia (J12–J18)	52.8	56.9	56.5	42.6	47.6	49.7
Chronic lower respiratory diseases (J40–J47)	21.0	19.5	18.3	13.5	13.6	13.5
Diseases of the digestive system (K00–K93)	55.6	66.1	63.5	36.7	43.2	43.0
Chronic liver disease (K70, K73, K74)	28.6	33.4	30.4	11.8	13.2	12.0
Diseases of the genitourinary system (N00–N99)	10.5	16.0	15.5	13.0	18.6	17.5
Symptoms, signs and ill-defined conditions (R00–R99)	120.1	121.5	114.1	115.6	103.2	94.5
COVID (U07, U10)	-	82.9	12.9	-	76.9	11.5
External causes of death (V01–Y98)	79.6	79.2	76.7	26.0	29.7	29.2

Causes of death (ICD-10)	Men			Women		
	2019	2022	2023	2019	2022	2023
Transport accidents (V01–V99)	15.8	10.2	10.5	4.3	2.7	2.8
Falls (W00–W19)	13.5	15.7	14.2	11.0	12.4	12.5
Intentional self-harm [suicide] (X60–X84)	21.3	20.5	21.4	3.1	3.4	3.4
Alcohol-related	50.3	58.8	51.7	14.5	16.5	14.3
Avoidable*	472.6	496.6	471.7	228.8	238.4	234.4
Preventable*	315.4	319.6	305.9	121.2	124.6	121.9
Treatable*	157.2	177.0	165.7	107.6	113.8	112.5

*Refers to the population aged 0–74
Source: Authors' calculations based on Statistics Poland data

Table 3.6b. Age-standardised death rates by sex and cause in 2019, 2022 and 2023 (per 100,000 population)

Causes of death (ICD-10)	Men			Women		
	2019	2022	2023	2019	2022	2023
Total	1546.4	1679.6	1500.6	922.0	1008.2	907.6
including:						
Certain infectious and parasitic diseases (A00–B99)	6.1	9.4	9.3	3.5	5.6	5.4
Tuberculosis (A15–A19)	2.0	2.2	2.1	0.4	0.4	0.4
Malignant neoplasms (C00–C97)	382.6	360.9	364.5	219.3	207.4	213.9
Malignant neoplasm of stomach (C16)	21.7	19.0	20.0	8.2	7.3	7.6
Malignant neoplasm of colon, sigmoid, rectum and anus (C18–C21)	51.9	49.9	48.1	25.5	24.4	24.6
Malignant neoplasm of trachea, bronchus and lung (C33–C34)	99.7	86.0	87.9	38.9	36.8	39.1
Malignant neoplasm of breast (C50)	0.7	0.7	0.5	33.3	31.2	31.5
Malignant neoplasm of cervix uteri (C53)	-	-	-	7.5	6.5	6.6
Malignant neoplasm of prostate (C61)	46.4	46.1	46.7	-	-	-
Malignant neoplasm of bladder (C67)	24.2	22.6	22.1	4.8	4.4	4.5
Diabetes mellitus (E10–E14)	30.9	36.5	31.4	23.8	27.3	24.2
Mental and behavioural disorders (F00–F99)	16.6	23.5	19.2	3.8	9.6	8.3
Diseases of the nervous system (G00–G99)	21.9	25.3	24.8	17.1	21.3	20.1
Diseases of the circulatory system (I00–I99)	593.7	582.6	538.2	395.6	396.1	365.1
Heart diseases (I00–I09, I11, I13, I20–I51)	378.6	405.0	366.7	226.4	261.9	240.2
Acute myocardial infarction (I21–I22)	52.7	49.9	46.0	23.7	20.9	20.8
Cerebrovascular diseases (I60–I69)	99.8	109.1	103.9	73.8	81.5	75.3
Diseases of the respiratory system (J00–J99)	120.4	126.4	124.1	56.5	63.5	65.1

Causes of death (ICD-10)	Men			Women		
	2019	2022	2023	2019	2022	2023
Pneumonia (J12–J18)	79.6	82.5	81.8	38.9	42.7	43.8
Chronic lower respiratory diseases (J40–J47)	30.7	27.3	25.0	12.7	12.2	12.0
Diseases of the digestive system (K00–K93)	64.1	74.6	71.9	34.2	39.7	38.8
Chronic liver disease (K70, K73, K74)	29.2	33.4	30.4	11.2	12.4	11.2
Diseases of the genitourinary system (N00–N99)	16.1	23.7	22.6	11.9	16.8	15.5
Symptoms, signs and ill-defined conditions (R00–R99)	165.1	157.0	143.2	103.1	91.7	82.9
COVID (U07, U10)	-	122.5	19.6	-	69.2	10.1
External causes of death (V01–Y98)	85.3	87.0	83.3	24.5	27.6	26.8
Transport accidents (V01–V99)	16.1	10.5	10.7	4.2	2.7	2.8
Falls (W00–W19)	18.1	20.9	18.9	9.9	11.1	11.0
Intentional self-harm [suicide] (X60–X84)	21.6	20.7	21.4	3.0	3.4	3.4
Alcohol-related	50.5	58.3	51.1	13.8	15.5	13.4
Avoidable*	502.8	507.7	476.8	213.9	210.7	204.4
Preventable*	332.9	325.6	308.3	112.9	110.1	106.3
Treatable*	169.9	182.1	168.5	101.0	100.6	98.2

*Refers to the population aged 0–74
Source: Authors' calculations based on Statistics Poland data

Tabela 3.7a. Rzeczywiste współczynniki zgonów według płci, miejsca zamieszkania oraz przyczyn w 2023 r. (na 100 tysięcy ludności)

Causes of death (ICD-10)	Total		Men		Women	
	Urban area	Rural area	Urban area	Rural area	Urban area	Rural area
Total	1138.4	1006.5	1198.1	1083.1	1084.9	930.2
including:						
Certain infectious and parasitic diseases (A00–B99)	7.7	5.4	8.5	6.0	6.9	4.8
Tuberculosis (A15–A19)	1.4	1.1	2.3	1.7	0.5	0.4
Malignant neoplasms (C00–C97)	287.7	230.2	311.1	267.1	266.6	193.5
Malignant neoplasm of stomach (C16)	13.2	10.7	17.5	14.3	9.4	7.0
Malignant neoplasms of colon, sigmoid, rectum and anus (C18–C21)	34.9	28.6	40.0	34.3	30.3	23.0
Malignant neoplasms of trachea, bronchus and lung (C33–C34)	63.4	52.0	76.5	71.5	51.7	32.6
Malignant neoplasm of breast (C50)	20.8	14.1	0.4	0.4	39.2	27.7
Malignant neoplasm of cervix uteri (C53)	4.3	2.9	-	-	8.1	5.8
Malignant neoplasm of prostate (C61)	16.6	14.1	35.0	28.2	-	-
Malignant neoplasm of bladder (C67)	11.8	8.9	18.1	14.2	6.1	3.6

Causes of death (ICD-10)	Total		Men		Women	
	Urban area	Rural area	Urban area	Rural area	Urban area	Rural area
Diabetes mellitus (E10–E14)	26.6	24.4	25.9	21.4	27.3	27.3
Mental and behavioural disorders (F00–F99)	12.9	13.9	16.3	19.5	9.9	8.3
Diseases of the nervous system (G00–G99)	23.1	16.9	20.6	15.9	25.3	17.9
Diseases of the circulatory system (I00–I99)	407.6	389.8	392.1	367.5	421.6	412.0
Heart diseases (I00–I09, I11, I13, I20–I51)	271.2	262.9	267.0	249.3	275.0	276.3
Acute myocardial infarction (I21–I22)	32.6	26.5	40.4	32.7	25.5	20.3
Cerebrovascular diseases (I60–I69)	84.4	75.9	78.6	72.8	89.6	79.0
Diseases of the respiratory system (J00–J99)	88.1	69.5	95.6	77.3	81.5	61.7
Pneumonia (J12–J18)	59.4	43.6	64.0	46.0	55.2	41.3
Chronic lower respiratory diseases (J40–J47)	15.8	15.8	17.2	19.8	14.6	11.7
Diseases of the digestive system (K00–K93)	57.5	46.1	67.9	57.4	48.3	34.9
Chronic liver disease (K70, K73, K74)	22.7	18.1	32.4	27.6	14.0	8.7
Diseases of the genitourinary system (N00–N99)	18.2	14.0	16.8	13.7	19.5	14.4
Symptoms, signs and ill-defined conditions (R00–R99)	107.6	98.6	118.1	108.5	98.1	88.8
COVID (U07, U10)	14.2	9.2	15.4	9.4	13.1	9.0
External causes of death (V01–Y98)	50.0	55.2	71.4	84.1	30.8	26.6
Transport accidents (V01–V99)	5.4	8.1	8.5	13.3	2.7	3.0
Falls (W00–W19)	13.9	12.5	14.4	13.9	13.4	11.2
Intentional self-harm [suicide] (X60–X84)	10.8	14.0	18.9	24.9	3.5	3.1
Alcohol-related	33.5	30.8	52.3	51.0	16.8	10.6
Avoidable*	363.3	335.1	474.5	467.8	258.7	197.6
Preventable*	217.0	207.0	303.5	309.2	135.7	101.1
Treatable*	146.3	128.1	171.0	158.5	123.0	96.5

*Refers to the population aged 0–74
Source: Authors' calculations based on Statistics Poland data

Tabela 3.7b. Standaryzowane współczynniki zgonów według płci, miejsca zamieszkania oraz wybranych przyczyn w 2023 r. (na 100 tysięcy ludności)

Causes of death (ICD-10)	Total		Men		Women	
	Urban area	Rural area	Urban area	Rural area	Urban area	Rural area
Total	1124.4	1214.5	1456.1	1582.0	896.2	930.5
including:						
Certain infectious and parasitic diseases (A00–B99)	7.6	6.4	10.0	8.1	5.8	4.9
Tuberculosis (A15–A19)	1.3	1.1	2.3	2.0	0.5	0.4

Causes of death (ICD-10)	Total		Men		Women	
	Urban area	Rural area	Urban area	Rural area	Urban area	Rural area
Malignant neoplasms (C00–C97)	274.9	264.6	363.3	365.1	222.8	196.9
Malignant neoplasm of stomach (C16)	12.7	12.2	20.4	19.4	7.9	7.2
Malignant neoplasm of colon, sigmoid, rectum and anus (C18–C21)	33.6	33.5	47.7	48.6	25.2	23.5
Malignant neoplasms of trachea, bronchus and lung (C33–C34)	58.8	58.1	85.0	92.6	42.2	33.0
Malignant neoplasm of breast (C50)	20.2	16.3	0.5	0.6	33.3	28.2
Malignant neoplasm of cervix uteri (C53)	4.1	3.2	-	-	7.1	5.9
Malignant neoplasm of prostate (C61)	16.3	17.4	46.2	47.5	-	-
Malignant neoplasm of bladder (C67)	11.3	10.6	22.4	21.6	5.0	3.7
Diabetes mellitus (E10–E14)	26.4	30.2	31.4	31.5	22.4	27.7
Mental and behavioural disorders (F00–F99)	12.6	15.2	17.3	22.3	8.3	8.2
Diseases of the nervous system (G00–G99)	23.2	20.4	26.0	22.6	21.0	18.2
Diseases of the circulatory system (I00–I99)	410.2	493.0	505.8	599.3	342.5	407.9
Heart diseases (I00–I09, I11, I13, I20–I51)	272.8	332.9	344.6	409.0	223.0	272.9
Acute myocardial infarction (I21–I22)	31.6	31.2	46.9	44.7	21.0	20.5
Cerebrovascular diseases (I60–I69)	84.6	94.6	99.1	112.3	73.4	79.1
Diseases of the respiratory system (J00–J99)	87.8	86.0	123.8	125.0	66.8	61.9
Pneumonia (J12–J18)	59.7	54.7	84.9	76.3	45.2	41.3
Chronic lower respiratory diseases (J40–J47)	15.3	19.3	21.2	32.0	12.0	11.9
Diseases of the digestive system (K00–K93)	55.6	51.6	73.6	69.3	41.0	35.1
Chronic liver disease (K70, K73, K74)	21.4	18.3	32.0	28.1	12.7	8.7
Diseases of the genitourinary system (N00–N99)	18.4	17.8	22.4	23.2	16.0	14.5
Symptoms, signs and ill-defined conditions (R00–R99)	106.8	118.5	138.4	153.1	80.7	87.4
COVID (U07, U10)	14.3	11.7	21.3	16.2	10.7	9.0
External causes of death (V01–Y98)	49.4	59.3	75.8	94.8	27.1	26.5
Transport accidents (V01–V99)	5.4	8.3	8.6	13.7	2.6	3.0
Falls (W00–W19)	14.1	15.3	18.0	20.3	11.1	11.1
Intentional self-harm [suicide] (X60–X84)	10.6	14.0	18.6	25.7	3.5	3.1
Alcohol-related	31.5	30.7	50.9	51.4	15.2	10.5
Avoidable*	323.6	343.5	463.0	498.3	210.4	194.6
Preventable*	194.1	211.2	296.0	326.9	110.4	99.2
Treatable*	129.6	132.3	167.0	171.4	100.0	95.4

*Refers to the population aged 0–74
Source: Authors' calculations based on Statistics Poland data

In most voivodships, the mortality rate due to CVDs in 2023 was lower than in 2019. Only in the voivodships of Dolnośląskie, Lubelskie, Lubuskie and

Podkarpackie was the death rate in 2023 still higher than in 2019, both for the total population and for people aged 65 and over (Fig. 3.22a and 3.22b).

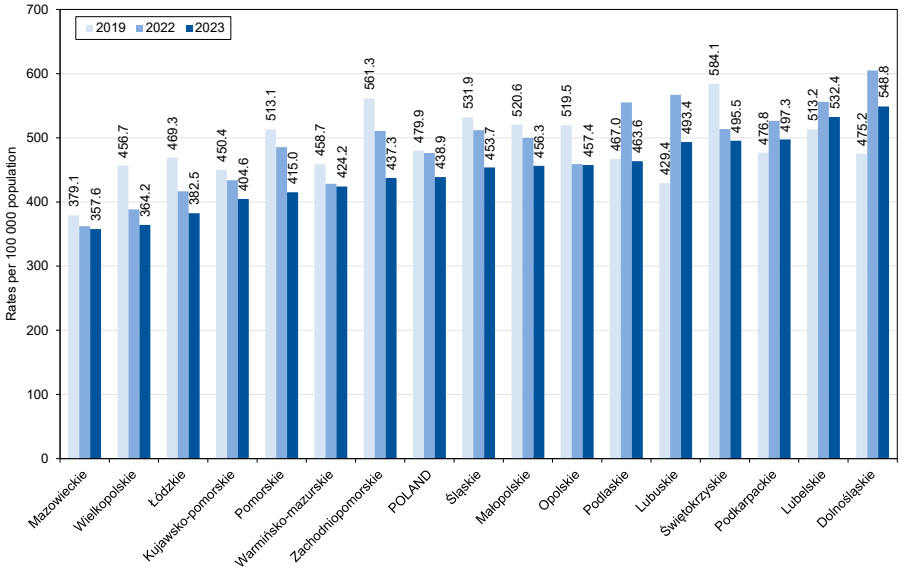

Fig. 3.22a Age-standardised death rates due to diseases of the circulatory system for the total population by voivodship in 2019, 2022 and 2023 (own calculations based on Statistics Poland data)

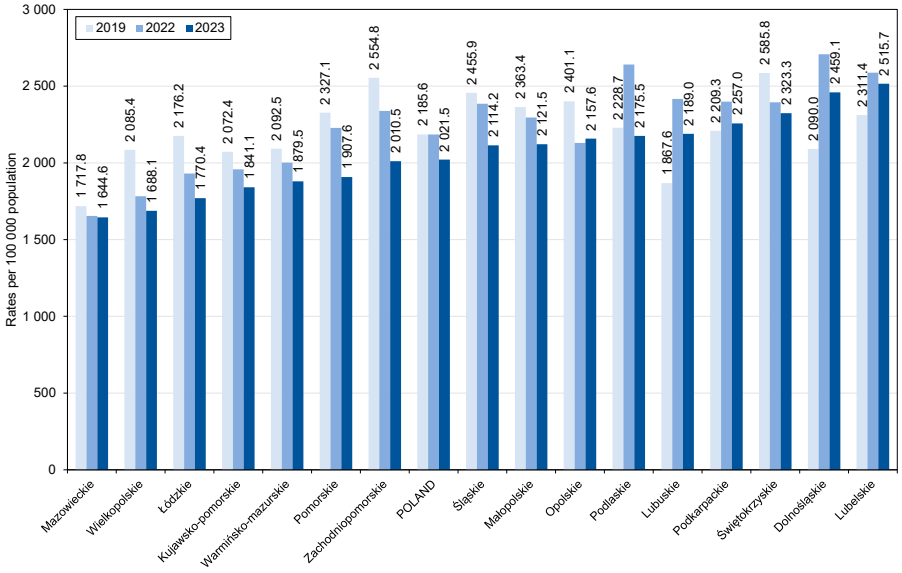

Fig. 3.22b Age-standardised death rates due to diseases of the circulatory system for persons aged 65 and over by voivodship in 2019, 2022 and 2023 (own calculations based on Statistics Poland data)

Table 3.8 presents the percentage differences in the observed standardized death rates due to all CVDs for individual provinces in relation to their expected values based on previous 10-year trends for men and women in 2022 and 2023. In the Łódzkie, Świętokrzyskie, Wielkopolskie and Zachodniopomorskie voivodships, the mortality rate in both 2022 and 2023 was significantly lower than expected, while the previously mentioned excess mortality in the Dolnośląskie, Lubelski, Lubuskie and Podkarpackie voivodships occurs for both men and women.

Table 3.8. Relative (%) difference in observed standardized death rates due to all cardiovascular diseases in men and women compared to their expected values based on previous 10-year trends by province in 2022 and 2023

Voivodship	2022		2023	
	Men	Women	Men	Women
Dolnośląskie	33.5	78.3	22.1	59.3
Kujawsko-pomorskie	2.3	1.5	-1.5	-9.8
Lubelskie	9.6	14.8	3.8	9.4
Lubuskie	43.3	48.7	20.1	32.5
Łódzkie	-2.5	-7.9	-7.1	-17.4
Małopolskie	-4.4	0.6	-13.1	-8.8
Mazowieckie	23.7	5.7	25.8	3.3
Opolskie	-12.7	0.7	-15.5	2.2
Podkarpackie	20.4	15.3	9.4	11.3
Podlaskie	11.3	19.8	-3.6	-5.1
Pomorskie	-4.8	-3.3	-18.5	-18.9
Śląskie	0.4	1.8	-12.8	-10.2
Świętokrzyskie	-4.7	-7.1	-8.1	-11.9
Warmińsko-mazurskie	-6.3	2.1	-8.4	-1.4
Wielkopolskie	-13.9	-13.0	-19.7	-19.2
Zachodniopomorskie	-5.4	-10.5	-20.4	-23.2
Poland	4.7	8.5	-4.2	-1.1

Source: Authors' calculations based on Statistics Poland data

The average age at death due to CVDs in 2023 was 74.8 years for men and 83.6 years for women (Tab. 3.9a). Even after eliminating age differences in both sexes, women die from these diseases on average 4.7 years later than men (Tab. 3.9b). On average, men and women in Lubuskie voivodship die at the youngest

age, while inhabitants of Lubelskie voivodship die at the oldest age. People living in urban areas die on average one year younger than those living in rural areas; however, in Lubuskie and Zachodniopomorskie voivdoships, men living in urban areas die on average 2.5 years younger than those living in rural areas.

Table 3.9a. Average age at death due to CVDs by voivodship, sex and place of residence (urban/rural) in 2023 – actual values

Voivodship	Men			Women		
	Total	Urban area	Rural area	Total	Urban area	Rural area
Dolnośląskie	73.1	73.4	72.1	83.1	83.1	83.3
Kujawsko-pomorskie	73.7	74.3	72.9	82.7	82.4	83.2
Lubelskie	76.7	76.8	76.7	85.1	84.2	85.7
Lubuskie	72.0	72.1	71.7	81.6	81.7	81.4
Łódzkie	74.8	74.7	74.9	83.2	82.8	83.9
Małopolskie	75.9	76.5	75.2	84.2	84.2	84.2
Mazowieckie	75.4	76.2	73.9	83.9	84.0	83.8
Opolskie	76.0	76.1	75.9	83.8	83.4	84.2
Podkarpackie	74.5	75.1	74.1	84.4	83.7	84.8
Podlaskie	76.3	75.8	76.8	85.1	84.0	86.3
Pomorskie	74.5	75.7	72.1	83.2	83.4	82.7
Śląskie	75.3	75.2	75.7	83.0	82.8	83.7
Świętokrzyskie	76.2	76.3	76.2	84.7	83.9	85.4
Warmińsko-mazurskie	72.0	73.2	70.4	82.8	82.5	83.2
Wielkopolskie	74.6	75.1	73.8	82.7	82.7	82.7
Zachodniopomorskie	74.1	74.4	73.5	82.9	82.9	82.9
Poland	74.8	75.1	74.4	83.6	83.3	84.1

Source: Authors' calculations based on Statistics Poland data

Tabela 3.9b. Average age at death due to CVDs by voivodship, sex and place of residence (urban/rural) in 2023 – age-standardised values

Voivodship	Men			Women		
	Total	Urban area	Rural area	Total	Urban area	Rural area
Dolnośląskie	76.3	75.7	77.9	81.6	81.4	82.2
Kujawsko-pomorskie	77.0	76.7	77.4	81.6	81.2	82.4
Lubelskie	79.5	79.2	79.7	83.8	83.3	84.2
Lubuskie	76.0	75.3	77.7	80.8	80.8	80.7

Voivodship	Men			Women		
	Total	Urban area	Rural area	Total	Urban area	Rural area
Łódzkie	77.7	77.2	78.8	82.0	81.6	82.7
Małopolskie	78.2	78.0	78.5	82.8	82.6	83.0
Mazowieckie	77.3	77.4	77.3	82.2	82.1	82.3
Opolskie	78.4	78.4	78.4	82.7	82.4	83.0
Podkarpackie	77.4	77.5	77.3	83.0	82.7	83.1
Podlaskie	78.6	78.4	79.7	83.3	82.7	83.9
Pomorskie	77.4	77.5	77.4	82.1	81.9	82.4
Śląskie	77.8	77.4	79.4	82.4	82.2	83.2
Świętokrzyskie	78.7	78.3	79.2	83.3	82.9	83.6
Warmińsko-mazurskie	76.4	76.7	76.5	81.7	81.2	82.3
Wielkopolskie	77.9	77.7	78.2	82.1	81.8	82.5
Zachodniopomorskie	77.6	77.0	79.5	81.9	81.7	82.3
Poland	77.6	77.2	78.2	82.3	82.0	82.9

Source: Authors' calculations based on Statistics Poland data

The mortality rate of the Polish population due to diseases of the circulatory system is clearly related to the level of education (Fig. 3.23). **The lives of people with up to lower secondary education are more than two and a half times more at risk from these diseases than those with tertiary education**. The lives of people with upper secondary education are twice as vulnerable as those with tertiary education.

When analysing mortality in Poland due to diseases of the circulatory system, it is important to remember, as we unfortunately stress in every Report, that there are significant limitations in comparing mortality rates in Poland with more detailed CVDs subgroups, both at the regional and international level. On the one hand, for many specific cardiovascular diseases, there are significant differences between voivodships in determining and coding causes of death, and on the other hand, diagnoses/codes defined by WHO experts as garbage codes,[19],[20] are assigned

[19] https://stat.gov.pl/obszary-tematyczne/ludnosc/statystyka-przyczyn-zgonow/zgony-wedlug-przyczyn-okreslanych-jako-garbage-codes,3,2.html

[20] *WHO methods and data sources for country-level causes of death 2000-2012*, Global Health Estimates Technical Paper WHO/HIS/HSI/GHE/2014.7, WHO, Geneva, May 2014
Na co umarł pacjent – czyli, co jest wpisywane na kartach zgonów http://stat.gov.pl/obszary-tematyczne/ludnosc/statystyka-przyczyn-zgonow/na-co-umarl-pacjent-czyli-co-jest-wpisywane-na-kartach-zgonow-,1,1.html

as causes of death in Poland. Unfortunately, differences between voivodships remain striking, as the percentage of deaths with such codes in the total number of deaths due to CVDs in 2023 ranged from about 5% in Kujawsko-pomorskie and Pomorskie voivodships to about 50% in the Świętokrzyskie and Małopolskie voivodships (Fig. 3.24). Because of such codes, the analysis presented below includes total heart diseases (ICD-10 I00–I09, I11, I13, I20–I51), myocardial infarction (I21–I22) and cerebrovascular diseases (I60–I69) among CVDs.

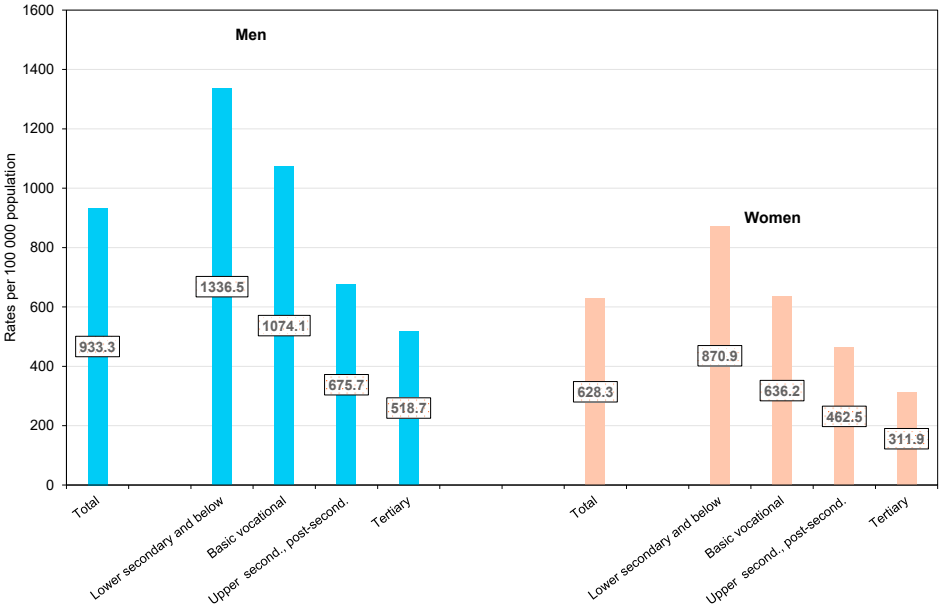

Fig. 3.23. Standardised death rates due to DCS for men and women aged 30 and over by level of education in the three-year period 2020–2022 (own calculations based on Statistics Poland data)

Heart disease is by far the most common cause of death among diseases of the circulatory system (101,000 deaths in 2023, including 11,300 myocardial infarctions, accounting for 66.9% and 7.5% of all deaths from cardiovascular diseases, respectively), followed by **cerebrovascular diseases** (31,500 deaths, 20.2% of the total group). Age-standardised death rates due to heart disease for women and cerebrovascular disease for both sexes in 2023 were still higher than in 2019 (Table 3.6b).

Diseases of the circulatory system pose a greater threat to rural than urban populations, which is clearly evident after age standardisation (the urban

population is, on average, older than the rural population) (Tables 3.7a and 3.7b). Myocardial infarction is an exception, as it is more common among urban than rural populations.

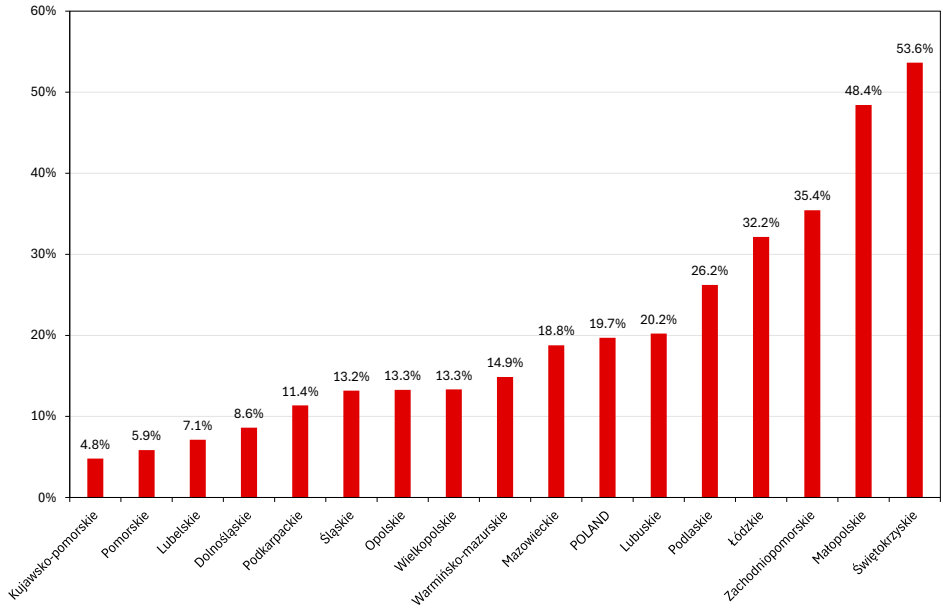

Fig. 3.24. Percentage of garbage-coded deaths in the total number of deaths due to diseases of the circulatory system by voivodship in 2023 (based on Statistics Poland data)

Diseases of the circulatory system pose a greater threat to life in rural areas than in urban areas in all voivodships. Figure 3.25 shows the excess mortality of these subpopulations in each voivodship in relation to the observed mortality for Poland in 2021. The highest excess mortality rate in relation to the national average for both urban and rural areas was in Dolnośląskie voivodship. High excess mortality among urban populations was observed in the voivodships of Lubelskie and Lubuskie, while mortality among rural populations exceeded the national average only slightly.

Mortality due to myocardial infarction is surprisingly high in Lubuskie voivodship (Fig. 3.26). The death rate due to this cause in 2022 and 2023 is twice as high as in 2019. This is undoubtedly an artefact related to determining and coding causes of death in this voivodship. In addition, in almost all voivodships, the death rate in 2023 was lower than in 2019.

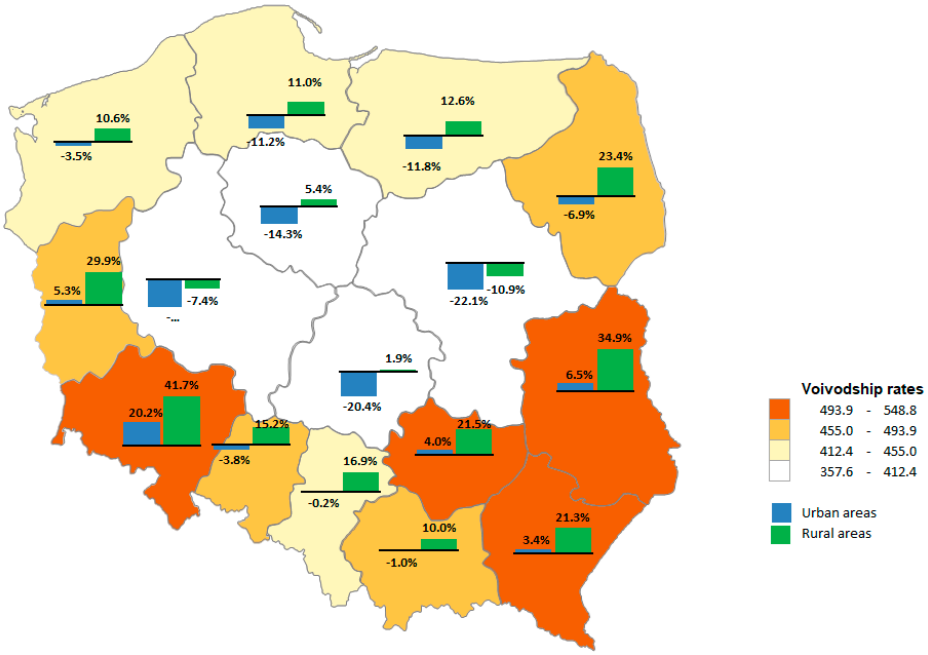

Fig. 3.25. Relative difference (%) in age-standardised death rates due to total diseases of the circulatory system (I00–I99) among urban and rural populations in relation to the national rate by voivodship in 2023

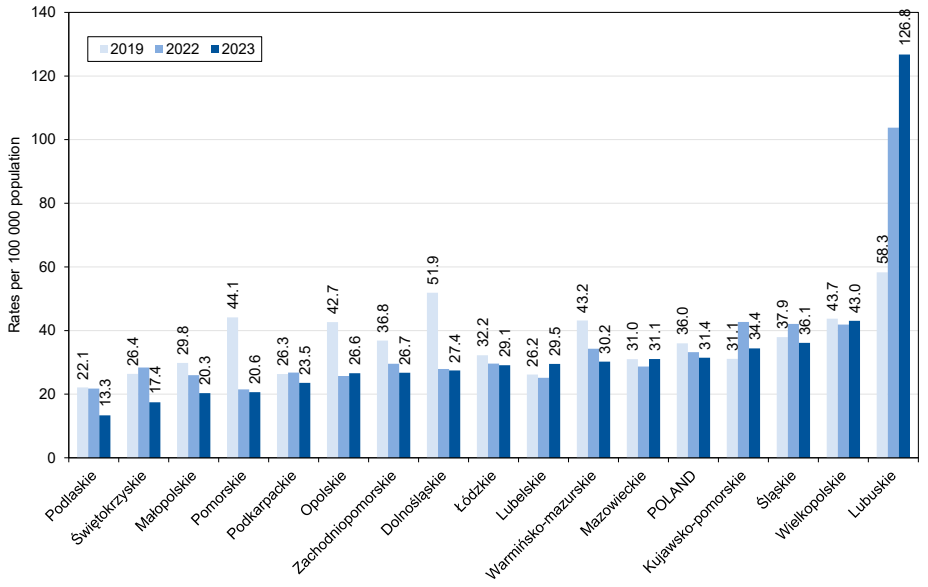

Fig. 3.26. Age-standardised death rates due to myocardial infarction for the total population by voivodship in 2019, 2022 and 2023 (own calculations based on Statistics Poland data)

The average age at death due to myocardial infarction in 2023 was 69.7 years for men and 78.4 years for women (Tab. 3.10). Even after eliminating age differences in both sexes, women die from this condition on average 4.9 years later than men. On average, men die at the oldest age in Świętokrzyskie voivodship and women in Małopolskie voivodship. In contrast, men die at the youngest age in Kujawsko-Pomorskie voivodship (on average, as much as 7 years earlier than in Świętokrzyskie voivodship) and women in Opolskie and Mazowieckie voivodships.

Table 3.10. Average age at death due to myocardial infarction by voivodship and sex in 2023 – actual and age-standardised values

Voivodship	Actual age		Standardised age	
	Men	Women	Men	Women
Dolnośląskie	69.7	78.9	72.1	77.4
Kujawsko-pomorskie	65.8	77.7	68.2	76.6
Lubelskie	71.9	78.8	74.2	76.8
Lubuskie	67.2	78.1	70.6	77.1
Łódzkie	71.4	78.3	73.6	76.7
Małopolskie	70.3	81.4	72.3	79.7
Mazowieckie	69.2	77.4	71.1	75.5
Opolskie	72.2	77.0	74.5	75.4
Podkarpackie	70.3	79.6	72.5	78.1
Podlaskie	70.7	78.3	72.7	75.8
Pomorskie	69.3	79.0	71.4	77.8
Śląskie	70.2	77.6	72.0	76.6
Świętokrzyskie	72.7	78.2	75.4	76.7
Warmińsko-mazurskie	71.3	80.3	75.1	79.3
Wielkopolskie	69.6	78.6	72.8	77.8
Zachodniopomorskie	70.2	77.7	73.0	76.7
Poland	69.7	78.4	72.0	76.9

Source: Own calculations based on Statistics Poland data

Mortality due to cerebrovascular diseases in 2023 was lower than in 2019 in half of the voivodships. Of note is the 40% decrease in mortality in Podlaskie voivodship and, on the other hand, the progressive increase in mortality in Lubelskie voivodship – in 2023, the mortality rate was 40% higher than in 2019 (Fig. 3.27).

The average age at death due to cerebrovascular disease in 2023 was 73.4 years for men and 81.7 years for women (Tab. 3.11). Even after eliminating differences in

age structure in both sexes, women die from this condition on average 4.4 years later than men. On average, men and women die at the oldest age in Lubelskie voivodship, while the youngest deaths occur in Podkarpackie voivodship (on average 7.6 years earlier for men and 5.5 years earlier for women than in Lubelskie voivodship).

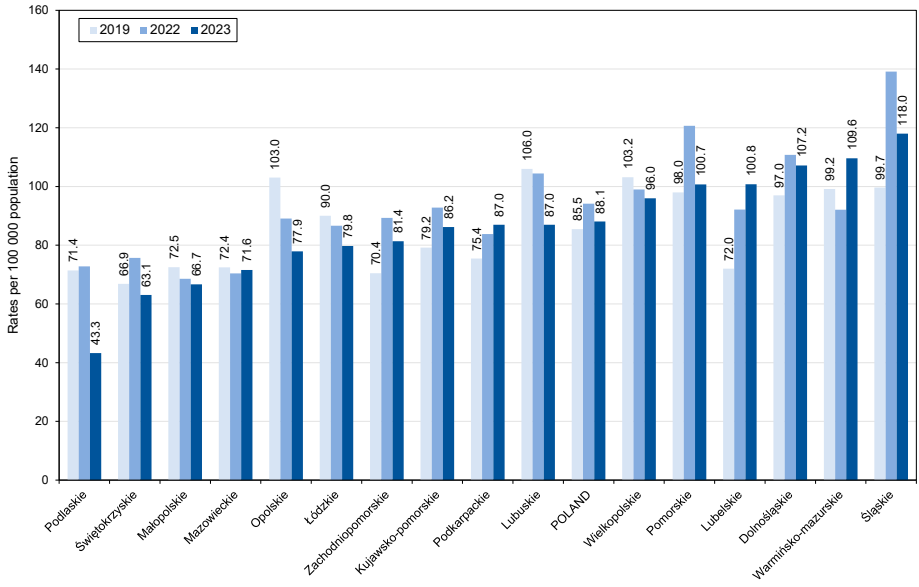

Fig. 3.27. Age-standardised death rates due to cerebrovascular disease for the total population by voivodship in 2019, 2022 and 2023 (own calculations based on Statistics Poland data)

Table 3.11. Average age at death due to cerebrovascular disease by voivodship and sex in 2023 – actual and age-standardised values

Voivodship	Actual age		Standardised age	
	Men	Women	Men	Women
Dolnośląskie	72.9	81.7	75.7	80.3
Kujawsko-pomorskie	73.1	80.8	76.1	79.7
Lubelskie	75.6	84.7	78.3	83.2
Lubuskie	71.5	78.8	75.0	77.9
Łódzkie	72.9	81.4	75.3	80.0
Małopolskie	73.5	81.2	75.8	79.6
Mazowieckie	73.2	81.3	75.1	79.5
Opolskie	74.2	81.2	76.8	79.9
Podkarpackie	67.9	79.7	70.7	77.8
Podlaskie	73.6	82.1	76.1	80.0

Voivodship	Actual age		Standardised age	
	Men	Women	Men	Women
Pomorskie	75.6	82.6	78.1	81.5
Śląskie	75.2	82.3	77.6	81.6
Świętokrzyskie	72.9	82.0	75.0	80.2
Warmińsko-mazurskie	70.1	79.9	74.1	78.7
Wielkopolskie	74.4	81.5	77.3	80.8
Zachodniopomorskie	73.5	81.0	76.6	80.1
Poland	73.4	81.7	75.9	80.3

Source: Own calculations based on Statistics Poland data

Cerebrovascular diseases pose a greater threat to life in rural areas than in urban areas in all voivodships. Figure 3.28 shows the excess mortality of these subpopulations in each voivodship in relation to the observed mortality for Poland in 2023. The greatest differences in excess mortality between rural and urban populations (to the detriment of rural areas) were found in the voivodships of Lubelskie and Warmińsko-mazurskie. Both urban and rural areas in Śląskie voivodship have the highest excess mortality rates.

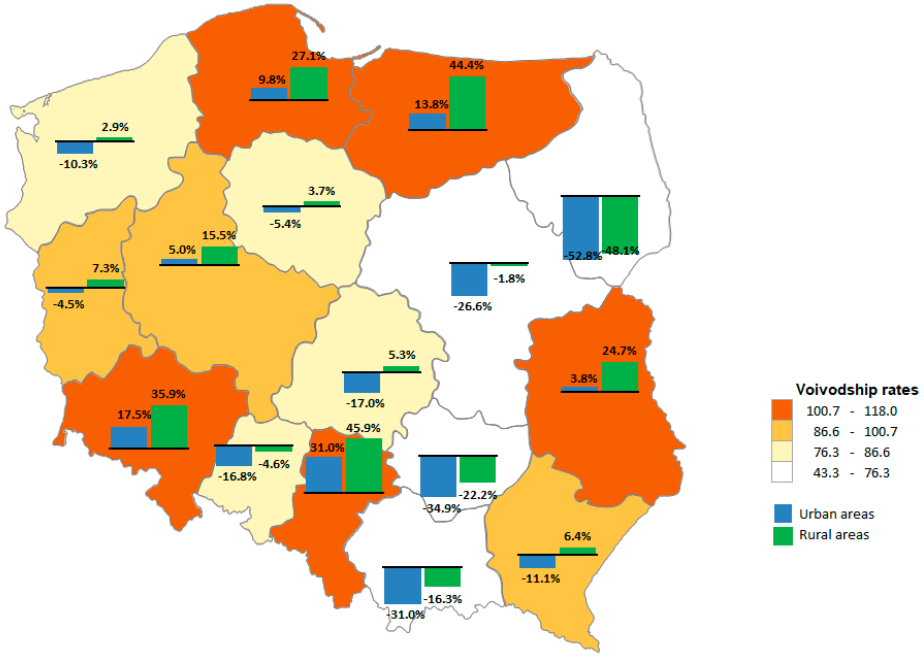

Fig. 3.28. Relative difference (%) in standardised death rates due to cerebrovascular diseases (I60–I69) among urban and rural populations in relation to the national rate by voivodship in 2023.

Mortality due to malignant neoplasms

Malignant neoplasms are the second most common cause of death in the Polish population. In 2023, they caused 99,676 deaths in Poland (53,322 men and 46,354 women), i.e. 264.4 per 100,000 inhabitants.

Malignant neoplasms are a much greater threat to life for men than for women; in 2023, the standardised death rate for men was 70.4% higher than that for women (Tables 3.6a and 3.6b). Thus, **the excess mortality of men relative to women is significantly higher for malignant neoplasms than for cardiovascular diseases.**

Mortality due to malignant neoplasms is slowly declining, with a more pronounced trend among men than women (Fig. 3.29).

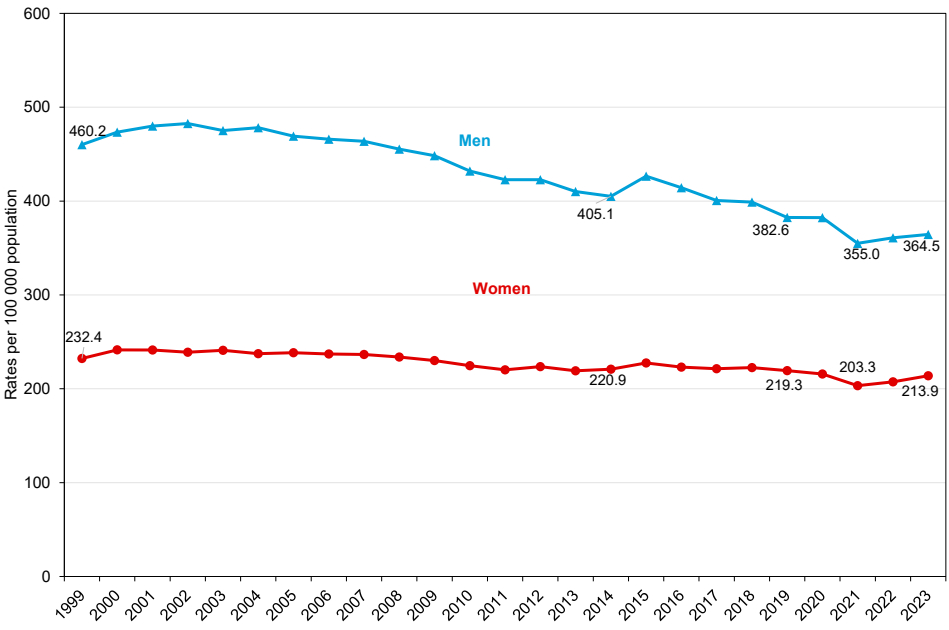

Fig. 3.29. Age-standardised death rates due to all malignant neoplasms for men and women in Poland, 1999–2023 (own calculations based on Statistics Poland databases)

In most voivodships, except for Lubelskie, Małopolskie, Śląskie and Świętokrzyskie, and in the population aged 65 and over also in Mazowieckie and Opolskie, the mortality rate in 2023 was lower than in 2019 (Fig. 3.30a and 3.30b). This favourable difference was highest (over 10%) in Warmińsko-mazurskie and Lubuskie voivodships. In 2019–2023, the lowest risk of death due to malignant neoplasms overall was in Podkarpackie voivodship.

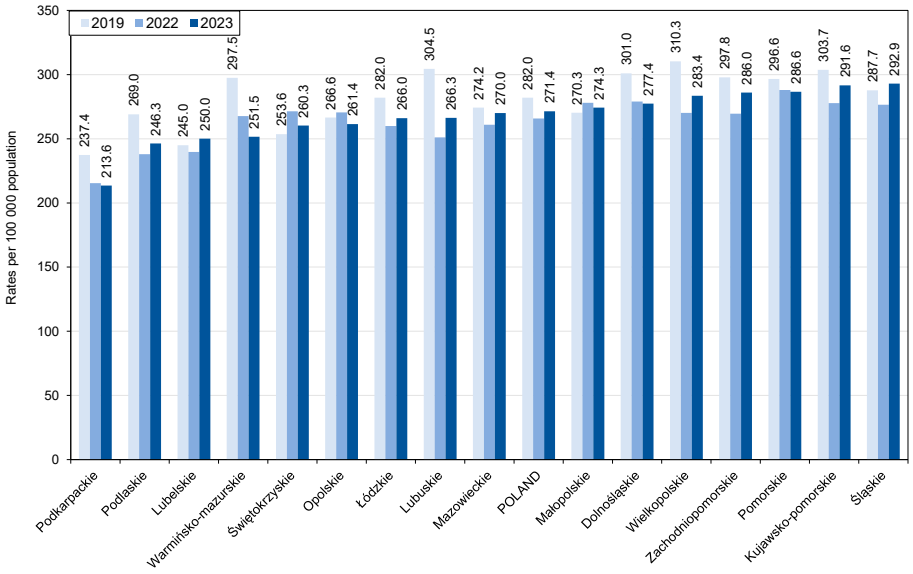

Fig. 3.30a. Age-standardised death rates due to malignant neoplasms (C00–C97) for the total population by voivodship in 2019, 2022 and 2023 (own calculations based on Statistics Poland data)

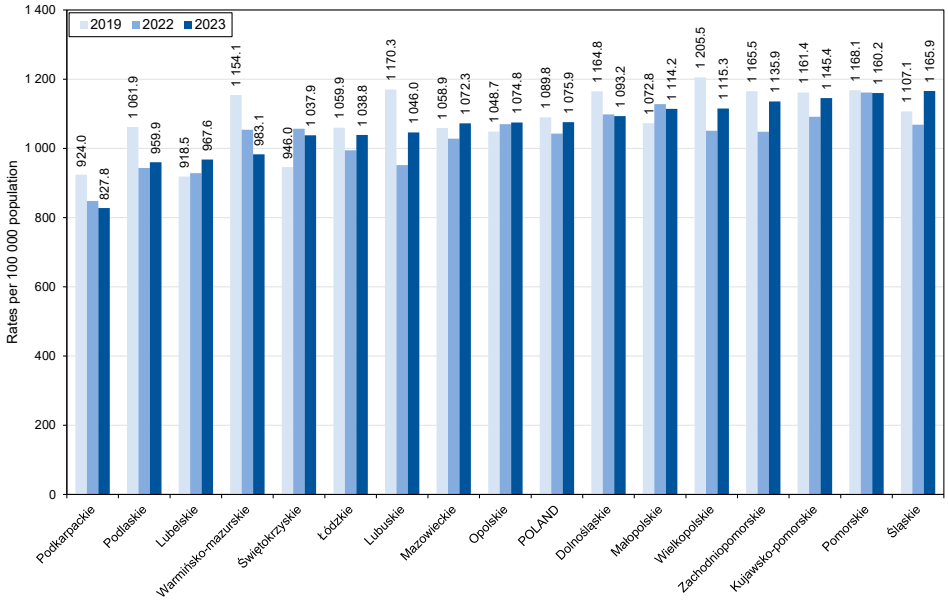

Fig. 3.30b. Age-standardised death rates due to malignant neoplasms (C00–C97) in persons aged 65 and over by voivodship in 2019, 2022 and 2023 (own calculations based on Statistics Poland data)

Table 3.12 presents the percentage differences in the observed standardized death rates due to all malignant neoplasms in men and women in 2022 and 2023 for individual provinces in relation to their expected values based on previous 10-year trends. In the Warmińsko-mazurskie, Wielkopolskie, Podkarpackie, Lubuskie, and Podlaskie voivodships, the mortality rates in both 2022 and 2023 were significantly lower than expected for both men and women, while in the Świętokrzyskie voivodship there is an excess of mortality, especially in women, and in the Pomeranian voivodship in men.

Table 3.12. Relative (%) difference in observed standardized death rates due to malignant neoplasms in men and women compared to their expected values based on previous 10-year trends by province in 2022 and 2023

Voivodship	2022		2023	
	Men	Women	Men	Women
Dolnośląskie	-1.8	-6.3	-4.4	-7.9
Kujawsko-pomorskie	-11.7	-7.0	-7.8	-3.7
Lubelskie	-2.0	-3.4	-0.5	1.4
Lubuskie	-21.9	-12.1	-15.9	-8.9
Łódzkie	-3.6	-7.0	0.3	-7.6
Małopolskie	4.8	2.7	0.7	2.1
Mazowieckie	-3.1	-3.9	-3.8	2.6
Opolskie	10.5	-2.4	2.6	-2.6
Podkarpackie	-12.6	-5.7	-11.5	-10.7
Podlaskie	-12.3	-11.7	-11.1	-6.1
Pomorskie	5.9	-5.0	5.6	-5.5
Śląskie	0.2	-2.1	5.9	3.6
Świętokrzyskie	6.7	11.9	-0.2	8.0
Warmińsko-mazurskie	-4.4	-6.9	-9.7	-15.5
Wielkopolskie	-14.6	-13.1	-11.7	-7.6
Zachodniopomorskie	3.5	-12.7	7.4	-5.3
Poland	-3.7	-4.3	-3.4	-2.0

Źródło: obliczenia własne autorów

The average age at death due to malignant neoplasms in 2023 was 70.8 years for men and 72.3 years for women (Tab. 3.13a). After eliminating differences in age structure in both sex groups, women die from these diseases on average 1.8 years earlier than men (Tab. 3.13b). The average age at death in individual voivodships

is similar, and differences between voivodships do not exceed two years. On average, rural inhabitants die only approximately six months earlier than urban inhabitants; in the case of men in Podkarpackie and Podlaskie voivodships, they die 1.9 and 1.7 years earlier than their urban counterparts, respectively.

Table 3.13a. Average age at death due to malignant neoplasms by voivodship, sex and place of residence (urban/rural) in 2023 – actual values

Voivodship	Men			Women		
	Total	Urban area	Rural area	Total	Urban area	Rural area
Dolnośląskie	70.5	71.2	68.9	72.4	73.0	70.4
Kujawsko-pomorskie	70.5	71.2	69.3	71.5	72.3	70.0
Lubelskie	70.5	71.1	69.9	72.0	72.0	71.9
Lubuskie	70.2	71.0	68.7	71.5	72.0	70.4
Łódzkie	70.8	71.4	69.8	72.1	72.5	71.2
Małopolskie	71.8	72.8	70.7	73.4	73.9	72.7
Mazowieckie	71.1	72.0	69.5	72.7	73.3	71.3
Opolskie	71.7	72.2	71.0	72.9	73.1	72.6
Podkarpackie	70.2	71.7	69.3	71.7	71.8	71.7
Podlaskie	71.0	71.4	70.5	72.8	72.2	73.9
Pomorskie	71.3	72.3	69.1	72.7	73.6	70.4
Śląskie	71.0	71.3	70.1	72.2	72.3	71.7
Świętokrzyskie	71.4	72.4	70.6	72.6	72.0	73.2
Warmińsko-mazurskie	69.7	70.8	68.1	71.3	71.7	70.4
Wielkopolskie	70.3	71.3	69.1	71.2	71.8	70.3
Zachodniopomorskie	70.1	70.8	68.5	71.8	72.1	70.7
Poland	70.8	71.6	69.6	72.3	72.7	71.4

Source: Own calculations based on Statistics Poland data

Table 3.13b. Average age at death due to malignant neoplasms by voivodship, sex and place of residence (urban/rural) in 2023 – age-standardised values

Voivodship	Men			Women		
	Total	Urban area	Rural area	Total	Urban area	Rural area
Dolnośląskie	72.5	72.5	72.7	71.0	71.2	70.5
Kujawsko-pomorskie	72.6	72.7	72.6	70.6	70.9	70.0
Lubelskie	72.2	72.4	72.0	70.2	70.4	70.0

Voivodship	Men			Women		
	Total	Urban area	Rural area	Total	Urban area	Rural area
Lubuskie	72.7	72.9	72.2	70.8	71.0	70.4
Łódzkie	72.5	72.8	72.0	70.3	70.6	69.7
Małopolskie	73.4	73.6	73.2	71.8	71.8	71.7
Mazowieckie	72.6	73.0	72.0	71.1	71.4	70.3
Opolskie	73.3	73.5	73.1	71.5	71.5	71.4
Podkarpackie	72.2	73.4	71.5	70.4	70.3	70.4
Podlaskie	73.0	73.7	71.9	70.6	70.5	70.8
Pomorskie	73.4	73.5	73.1	71.7	71.8	71.2
Śląskie	72.6	72.6	72.5	71.0	71.0	71.0
Świętokrzyskie	72.9	73.4	72.5	70.6	70.0	71.2
Warmińsko-mazurskie	72.4	72.9	71.6	70.5	70.5	70.4
Wielkopolskie	72.6	72.9	72.2	70.5	70.5	70.5
Zachodniopomorskie	72.2	72.3	72.2	70.8	70.8	70.9
Poland	72.7	72.9	72.3	70.9	71.0	70.6

Source: Own calculations based on Statistics Poland data

The mortality rate of the Polish population due to cancer is related to the level of education, but to a lesser extent than in the case of CVDs (Fig. 3.31). There is no significant difference in the risk of death for persons with up to lower secondary and upper secondary education. This risk is over 85% higher for men and approximately 55% higher for women than for individuals with tertiary education. The lives of people with post-secondary non-tertiary education are approximately one quarter more at risk than those with tertiary education.

Fig. 3.32 shows the excess/"deficit" mortality due to malignant neoplasms for the total population of urban and rural areas in each voivodship in relation to the observed mortality for Poland in 2023. The differences between the rates for urban and rural residents in individual voivodships are minor, as are the deviations from the national rate. The most significant difference is observed in Pomorskie voivodship, where the observed death rate in urban areas was only 3.6% higher than expected for Poland, while the death rate in rural areas was 9.6% higher, which is the largest excess mortality of the rural population in relation to the national rate.

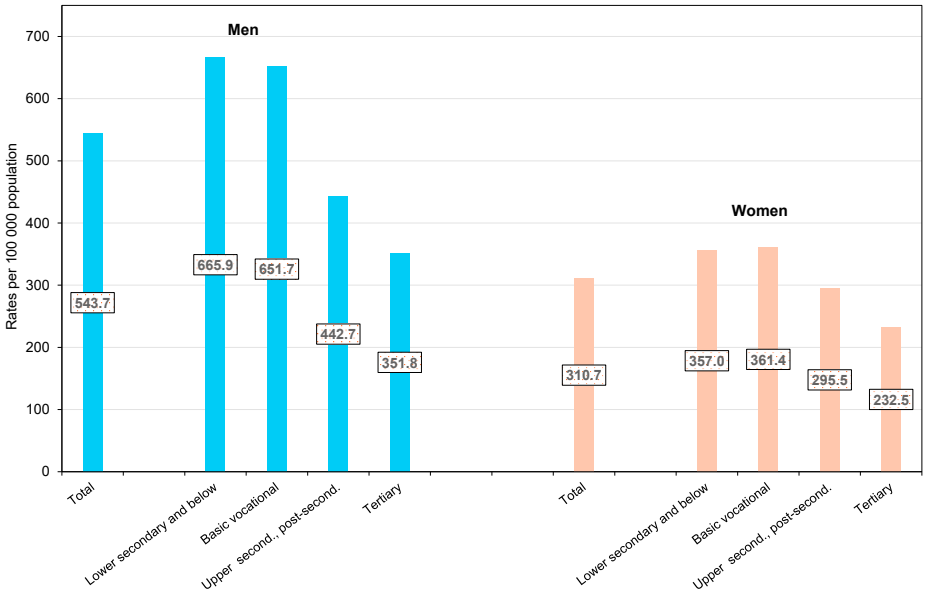

Fig. 3.31. Standardised death rates due to malignant neoplasms for men and women aged 30 and over by level of education in the three-year period 2020–2022 (own calculations based on Statistics Poland data)

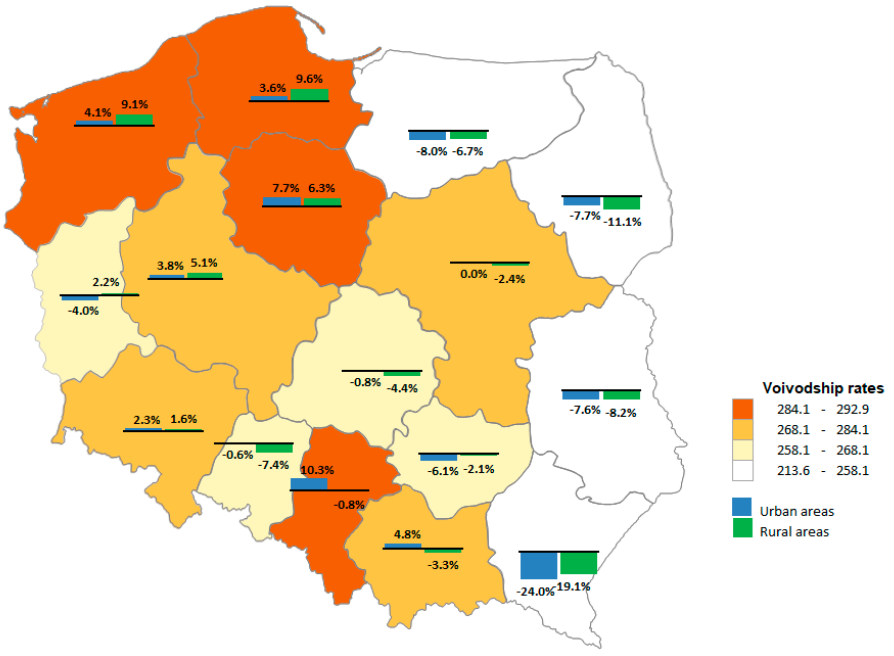

Fig. 3.32. Relative difference (%) in age-standardised death rates due to malignant neoplasms for the total population of urban and rural areas in relation to the observed national rate by voivodship in 2023

For many years, malignant neoplasms of the trachea, bronchus and lung (C33–C34) have posed the greatest threat to the life of Polish citizens, causing 22,168 deaths in 2023 (22.2% of all deaths due to malignant neoplasms). Malignancies affecting other sites are significantly less common. In 2023, there were 12,187 deaths due to malignant neoplasms of colon, sigmoid, rectum and anus (ICD10 C18–C21) (12.2% of cancer-related deaths), 4,591 deaths due to malignant neoplasms of stomach (C16) (4.6%), 6,757 women (and 70 men) died due to malignant neoplasm of breast (C50) (6.8% of all cancer-related deaths and 14.6% of female cancer-related deaths), malignant neoplasm of cervix uteri (C53) caused 1,401 deaths among women (1.4% of all cancer-related deaths and 3.0% of female cancer-related deaths), and 5,859 male deaths due malignant neoplasm of prostate (5.9% of all cancer-related deaths and 11.0% of male cancer-related deaths). Standardised death rates for all analysed cancer groups in 2023, except lung in women and prostate in men, were lower than in 2019 (Table 3.6b).

Malignant neoplasms in general pose a slightly greater threat to men living in rural areas than in urban areas, but due to differences in age structure, the actual death rate is higher in urban areas. This relatively low excess mortality for rural men in 2023 did not apply to malignant neoplasms of the stomach and prostate (Table 3.7b). For women, the mortality rate in rural areas is lower than in urban areas for both malignant neoplasms in general and in selected sites.

In 2023, mortality due to malignant neoplasms of the trachea, bronchus and lung was lower in all voivodships, except Opolskie and Lubelskie, than in 2019. Of note is the 23% decrease in mortality in Podlaskie voivodship and approximately 15% in Lubuskie and Dolnośląskie voivodships (Fig. 3.33). In 2023, mortality in Zachodniopomorskie voivodship was as much as 72% higher than in Podkarpackie voivodship, which has had the lowest mortality rate due to this cancer for years.

The average age at death due to malignant neoplasms of the trachea, bronchus and lung in 2023 was 70.4 years for men and 71.4 years for women (Tab. 3.13). After eliminating differences in age structure in both sexes, women die from this condition on average a year earlier than men. The average age at death in individual voivodships is similar, with differences between voivodships of less than two years for men and less than three years for women.

For lung cancer, the difference between voivodships in urban and rural mortality rates is greater than for all neoplasms (Fig. 3.34). In five voivodships, mortality is higher in urban areas, while it is higher in rural areas in 11 voivodships. The greatest difference to the detriment of rural areas is in the three voivodships of northern Poland: Warmińsko-mazurskie, Pomorskie and Zachodniopomorskie.

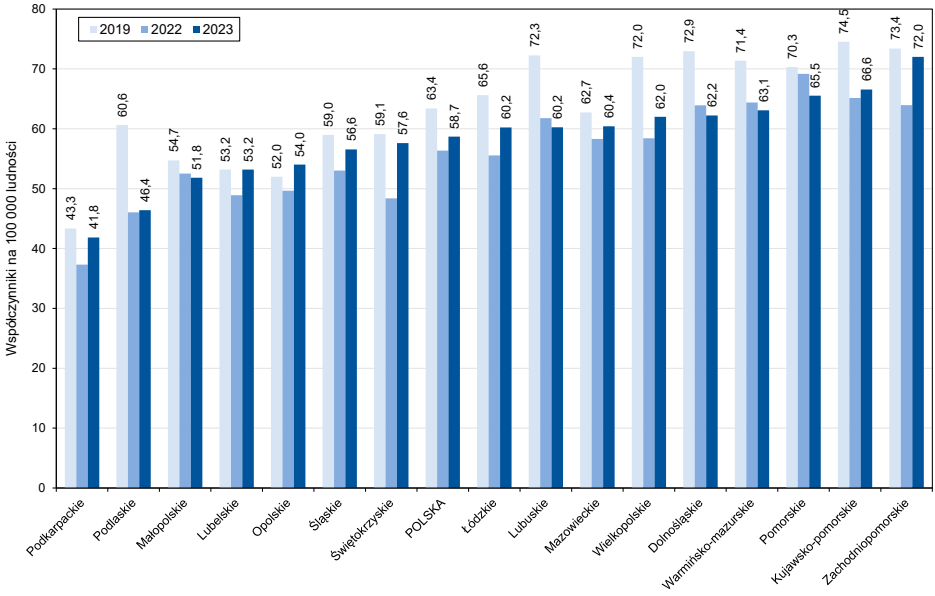

Fig. 3.33. Age-standardised death rates due to lung cancer (C33–C34) for the total population by voivodship in 2019, 2022 and 2023 (own calculations based on Statistics Poland data)

Table 3.14. Average age at death due to lung cancer by voivodship and sex in 2023 – actual and age-standardised values

Voivodship	Actual age		Standardised age	
	Men	Women	Men	Women
Dolnośląskie	70.4	71.7	71.8	70.9
Kujawsko-pomorskie	69.9	71.0	71.3	70.4
Lubelskie	70.4	70.9	71.4	70.0
Lubuskie	69.9	70.4	71.5	70.0
Łódzkie	70.6	71.5	71.6	70.5
Małopolskie	71.4	71.8	72.4	70.9
Mazowieckie	70.6	72.4	71.5	71.3
Opolskie	70.5	70.6	71.7	69.8
Podkarpackie	71.0	71.5	72.3	70.7
Podlaskie	69.6	71.6	70.8	70.6
Pomorskie	71.1	72.6	72.4	72.0
Śląskie	70.4	70.6	71.3	69.9
Świętokrzyskie	70.7	71.2	71.6	70.2

Voivodship	Actual age		Standardised age	
	Men	Women	Men	Women
Warmińsko-mazurskie	69.3	69.7	71.1	69.4
Wielkopolskie	70.1	70.9	71.6	70.4
Zachodniopomorskie	70.1	71.0	71.6	70.6
Poland	70.4	71.4	71.6	70.6

Source: Own calculations based on Statistics Poland data

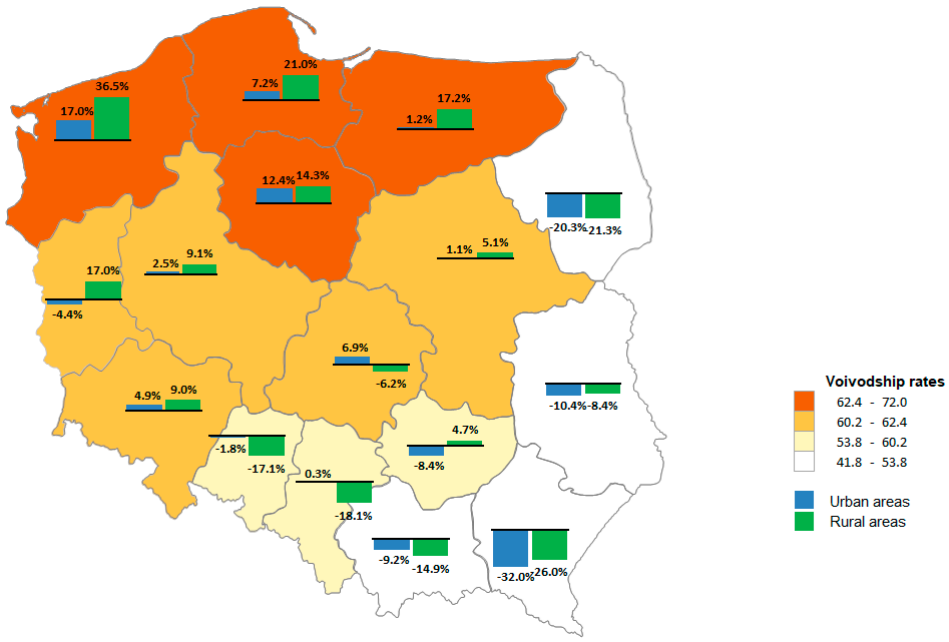

Fig. 3.34. Relative difference (%) of age-standardised death rates due to lung cancer of urban and rural populations in relation to the observed national rate by voivodship in 2023

Female mortality due to the breast cancer in 2023 was lower than in 2019 in most voivodships (Fig. 3.35). Of note is the 35% decrease in mortality in Warmińsko-Mazurskie voivodship and approximately 15% in Dolnośląskie and Kujawsko-pomorskie voivodships. In 2023, mortality in Wielkopolskie voivodship was 62% higher than in Warmińsko-mazurskie voivodship, where mortality has recently decreased significantly, and in Podkarpackie voivodship, which has had low mortality rates due to this cancer for years.

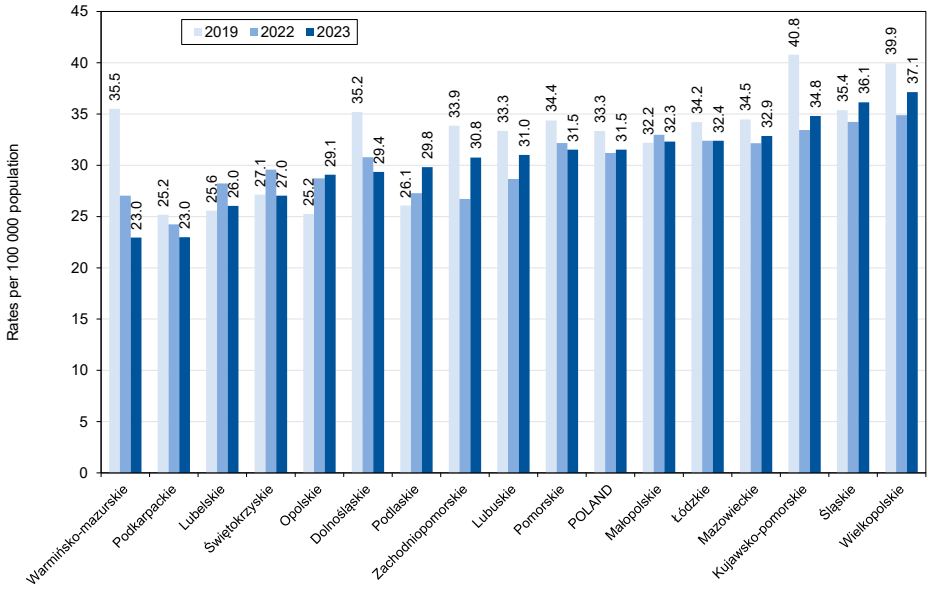

Fig. 3.35. Age-standardised death rates for women due to breast cancer (C50) by voivodship in 2019, 2022 and 2023 (own calculations based on Statistics Poland data)

The average female age at death due to breast cancer and cancer of cervix uteri in 2023 was 70.8 years and 65.8 years, respectively, and thus women who died from the latter were on average 5 years younger (Tab. 3.15). However, there are significant differences between voivodships; for example, in Dolnośląskie, women who died from the cancer of cervix uteri were 8.4 years younger than those who died from the breast cancer, while in Podkarpackie, the age difference was only one and a half years. Women in Dolnośląskie voivodship who died of cervix uteri cancer were more than six years younger than women in Podkarpackie voivodship.

Table 3.15. Average female age at death due to breast cancer and cancer of cervix uteri by voivodship in 2023 – actual and age-standardised values

Voivodship	Actual age		Standardised age	
	Breast cancer	Cervical cancer	Breast cancer	Cervical cancer
Dolnośląskie	71.1	62.7	69.5	61.4
Kujawsko-pomorskie	69.0	66.8	67.7	65.9
Lubelskie	70.2	65.9	67.9	63.5
Lubuskie	71.4	67.0	70.3	65.8
Łódzkie	69.8	67.6	67.5	65.0

Małopolskie	71.9	66.2	70.0	65.0
Mazowieckie	71.0	65.5	69.1	64.2
Opolskie	71.9	67.8	70.4	65.8
Podkarpackie	70.4	68.9	68.6	67.8
Podlaskie	71.2	67.9	68.6	66.4
Pomorskie	69.7	64.8	68.4	64.0
Śląskie	71.9	66.0	70.3	64.4
Świętokrzyskie	70.6	66.5	68.2	64.4
Warmińsko-mazurskie	71.4	64.4	70.1	63.4
Wielkopolskie	70.1	66.0	69.2	65.1
Zachodniopomorskie	70.3	63.0	68.9	61.7
Poland	70.8	65.8	69.1	64.4

Source: Own calculations based on Statistics Poland data

Male mortality due to malignant neoplasms of the prostate in 2023 was higher than in 2019 in most voivodships (Fig. 3.36). On the one hand, there is a noticeable increase in mortality in the Opolskie and Lubelskie voivodships, with a slightly slower increase in Małopolskie, and on the other hand, a decrease in Podkarpackie.

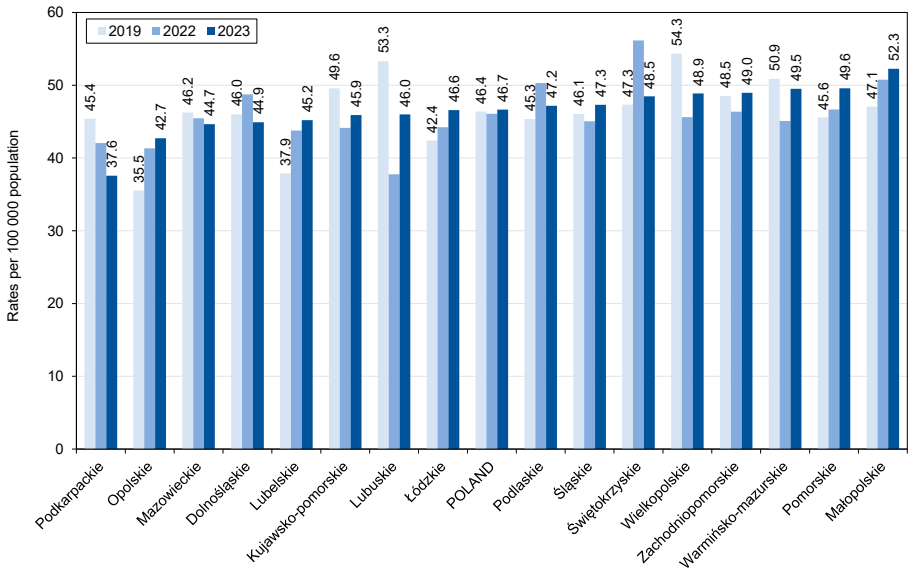

Fig. 3.36. Age-standardised death rates for men due to prostate cancer (C61) by voivodship in 2019, 2022 and 2023 (own calculations based on Statistics Poland data)

The differences between voivodships in prostate cancer mortality are not very large – although mortality in Małopolskie voivodship in 2023 was 39% higher than in Podkarpackie voivodship yet the difference between Pomorskie and Opolskie voivodships was 16% only.

The average age of men who died from prostate cancer was 77.2 years and differed by only 1.5 years between the voivodships with the highest (Kujawsko-pomorskie and Zachodniopomorskie, 79.7 years) and lowest (Podlaskie, 78.2 years) rates.

Mortality due to diseases of the respiratory system

The mortality rate from diseases of the respiratory system after 2014 shows an upward trend, which is more pronounced in women (Fig. 3.37). In 2023, these diseases caused 30,382 deaths (16,019 men and 14,363 women), i.e. 81 deaths per 100,000 population (88 for men and 74 for women, Table 3.6a).

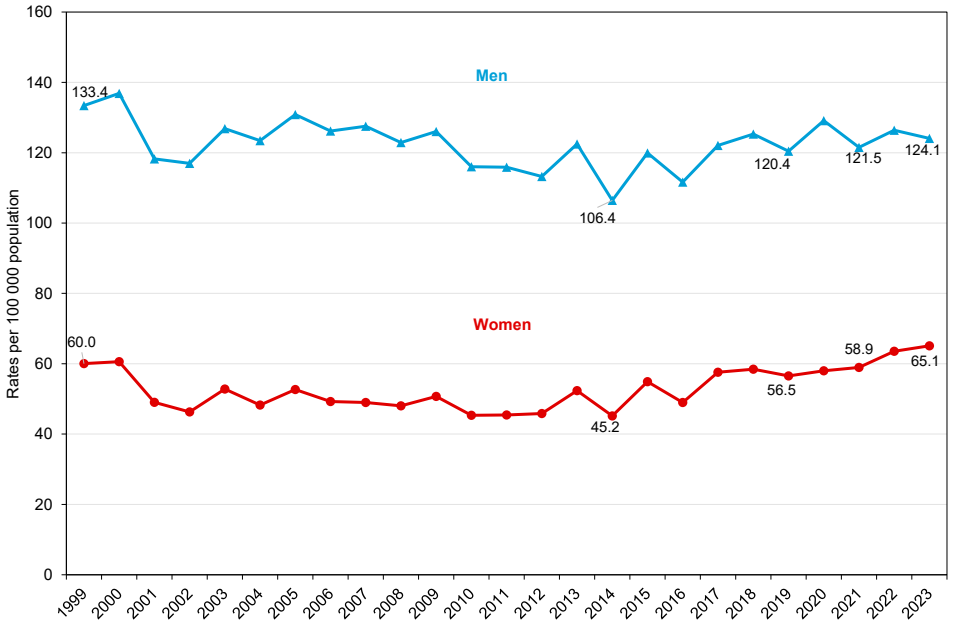

Fig. 3.37. Age-standardised death rates due to diseases of the respiratory system for men and women in Poland, 1999–2023 (own calculations based on Statistics Poland databases)

Diseases of the respiratory system pose a much greater threat to men than women; after eliminating differences in age structure, the mortality rate from these diseases in 2023 was 91% higher for men than for women (Table 3.6b).

In most voivodships, the mortality rate in 2023 was higher than in 2019, with the most significant difference in both the total population and the oldest population in Lubelskie (36% and 42%) and Świętokrzyskie (30% and 31%) voivodships (Fig. 3.38a and 3.38b). These voivodships have the lowest mortality rates due to diseases of the respiratory system. The greatest reduction in mortality was recorded in Podlaskie voivodship (by 17% and 24%). In the last two years, 2022–2023, the greatest threat to life due to diseases of the respiratory system was observed in Łódzkie and Dolnośląskie voivodships.

Table 3.16 presents the percentage differences in the observed standardized mortality rates for all respiratory diseases in men and women in 2022 and 2023 compared to their expected values based on previous 10-year trends for individual provinces. It is worth noting the very high excess mortality in both years in the Świętokrzyskie, Lubelskie and Śląskie voivodships, both among men and women, and among men in the Opolskie voivodship.

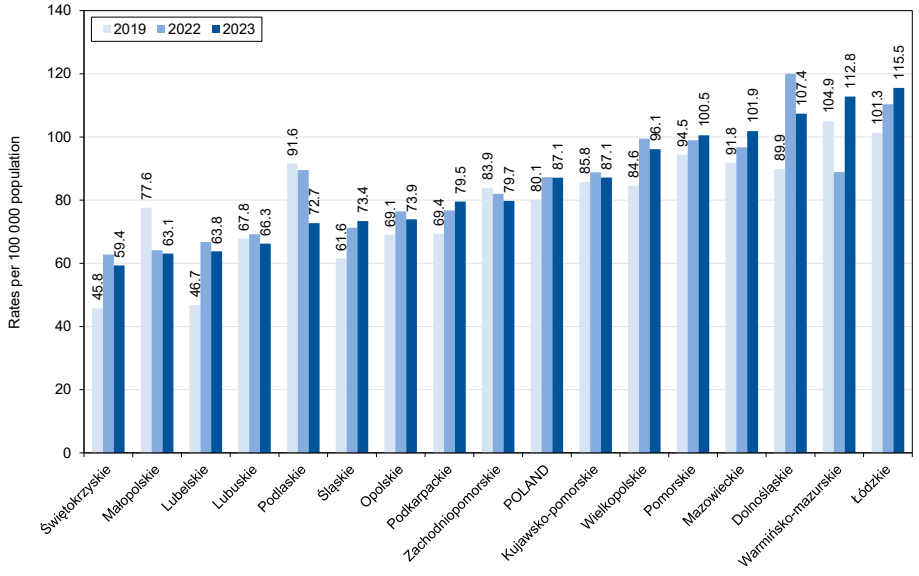

Fig. 3.38a. Age-standardised death rates due to diseases of the respiratory system for the total population by voivodship in 2019, 2020 and 2021 (own calculations based on Statistics Poland data)

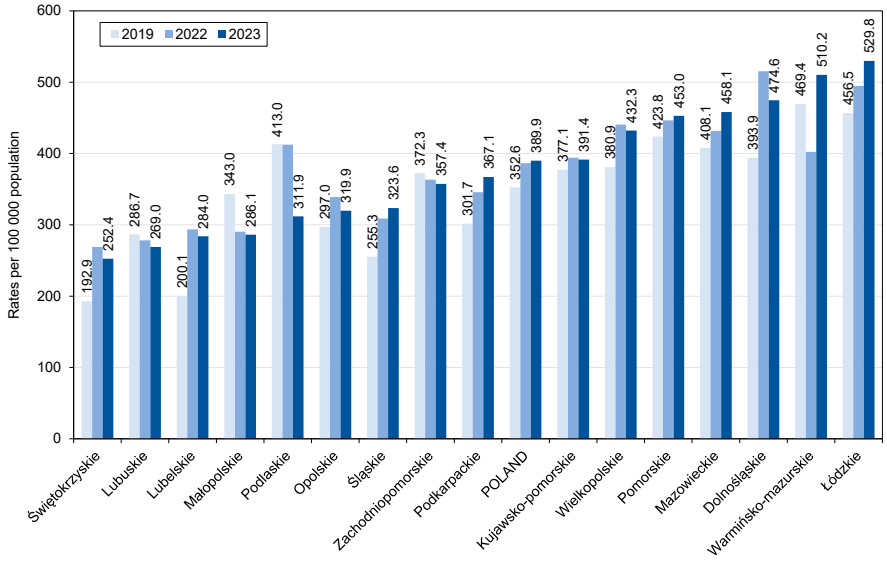

Fig. 3.38b. Age-standardised death rates due to diseases of the respiratory system for persons aged 65 and over by voivodship in 2019, 2022 and 2023 (own calculations based on Statistics Poland data)

Table 3.16. Relative (%) difference in observed standardized death rates due to the respiratory system diseases in men and women compared to their expected values based on previous 10-year trends by province in 2022 and 2023

Voivodship	2022		2023	
	Men	Women	Men	Women
Dolnośląskie	33.0	27.5	9.8	11.9
Kujawsko-pomorskie	2.2	13.3	-5.9	7.7
Lubelskie	60.8	51.1	41.3	35.3
Lubuskie	7.1	-2.6	-4.4	-5.1
Łódzkie	2.5	18.4	0.0	16.9
Małopolskie	-16.8	-5.7	-23.1	-11.4
Mazowieckie	8.5	9.7	7.3	10.5
Opolskie	4.9	71.3	-4.5	54.3
Podkarpackie	13.7	10.3	8.7	19.3
Podlaskie	5.8	6.7	-20.4	-20.2
Pomorskie	-0.9	1.3	-6.1	-1.8
Śląskie	27.8	35.3	29.1	31.7
Świętokrzyskie	60.6	52.3	45.5	39.6
Warmińsko-mazurskie	-14.9	-6.7	5.4	18.8

Voivodship	2022		2023	
	Men	Women	Men	Women
Wielkopolskie	16.3	38.9	4.5	31.3
Zachodniopomorskie	-5.4	-10.4	-16.7	-8.2
Poland	17.0	15.7	9.6	12.0

Źródło: obliczenia własne autorów

The average age at death due to diseases of the respiratory system in 2023 was 74.3 years for men and 80.0 years for women (Tab. 3.17a). After eliminating differences in age structure in both sexes, women die from these diseases on average 1.3 years later than men (Tab. 3.17b). On average, men and women in Lubuskie voivodship die at the youngest age, while inhabitants of Podkarpackie voivodship die at the oldest age. The difference in age at death between these voivodships is pronounced, exceeding 6 years for men and almost 8 years for women. Overall, urban and rural inhabitants die at a similar age, but there are some minor differences between voivodships. For example, in Zachodniopomorskie voivodship, rural inhabitants die on average 1.8 years younger than urban inhabitants, while in Małopolskie voivodship, they die 1.7 years older.

Table 3.17a. Average age at death due to diseases of the respiratory system by voivodship, sex and place of residence (urban/rural) in 2023 – actual values

Voivodship	Men			Women		
	Total	Urban area	Rural area	Total	Urban area	Rural area
Dolnośląskie	73.7	74.4	72.0	80.1	80.6	78.4
Kujawsko-pomorskie	73.5	73.3	73.9	78.8	79.4	77.6
Lubelskie	74.2	74.2	74.1	81.9	81.7	82.2
Lubuskie	69.0	69.2	68.6	73.8	75.0	71.0
Łódzkie	75.3	75.5	74.9	80.9	80.7	81.5
Małopolskie	75.7	76.7	74.7	81.2	80.7	81.7
Mazowieckie	74.9	75.7	73.4	80.8	80.7	80.8
Opolskie	73.6	74.3	72.8	80.0	79.2	81.0
Podkarpackie	76.6	76.8	76.5	81.9	81.1	82.5
Podlaskie	72.7	72.7	72.7	80.1	79.0	81.9
Pomorskie	73.9	74.8	71.8	79.8	80.2	78.9
Śląskie	74.2	74.4	73.4	78.5	78.3	79.6
Świętokrzyskie	71.9	72.0	71.8	80.3	79.3	81.4
Warmińsko-mazurskie	73.7	74.6	72.4	78.8	79.3	77.8

Voivodship	Men			Women		
	Total	Urban area	Rural area	Total	Urban area	Rural area
Wielkopolskie	74.1	75.0	72.7	79.2	79.6	78.5
Zachodniopomorskie	74.4	75.4	72.0	79.3	80.1	76.9
Poland	74.3	74.8	73.4	80.0	80.0	80.0

Source: Own calculations based on Statistics Poland data

Table 3.17b. Average age at death due to diseases of the respiratory system by voivodship, sex and place of residence (urban/rural) in 2023 – age-standardised values

Voivodship	Men			Women		
	Total	Urban area	Rural area	Total	Urban area	Rural area
Dolnośląskie	77.0	76.8	77.5	78.3	78.5	77.7
Kujawsko-pomorskie	76.6	75.7	77.8	77.5	78.0	76.9
Lubelskie	77.0	76.8	77.3	80.0	80.0	79.9
Lubuskie	73.0	72.2	74.9	72.6	73.3	70.9
Łódzkie	78.0	77.9	78.4	79.1	78.8	79.8
Małopolskie	78.2	78.2	78.2	79.5	78.7	80.4
Mazowieckie	77.0	77.0	76.9	78.8	78.7	79.2
Opolskie	76.1	76.4	76.0	78.3	77.1	79.5
Podkarpackie	79.3	79.2	79.4	80.4	79.8	80.8
Podlaskie	75.3	75.7	74.9	77.7	77.3	78.8
Pomorskie	76.7	76.6	77.1	78.7	78.5	79.1
Śląskie	76.6	76.4	77.0	77.3	76.9	78.6
Świętokrzyskie	74.3	73.8	74.8	78.3	77.6	79.0
Warmińsko-mazurskie	78.1	78.1	77.9	77.5	77.6	77.1
Wielkopolskie	77.5	77.7	77.1	78.4	78.3	78.4
Zachodniopomorskie	77.8	77.9	78.2	77.9	78.3	76.6
Poland	77.1	77.0	77.3	78.4	78.3	78.6

Source: Own calculations based on Statistics Poland data

The mortality rate of the Polish population due to diseases of the respiratory system is strongly related to the level of education (Fig. 3.39). The lives of people with up to lower secondary education are approximately two and a half times more at risk from these diseases than those with tertiary education. The mortality rate among people with upper secondary education is approximately 90% higher than among people with tertiary education.

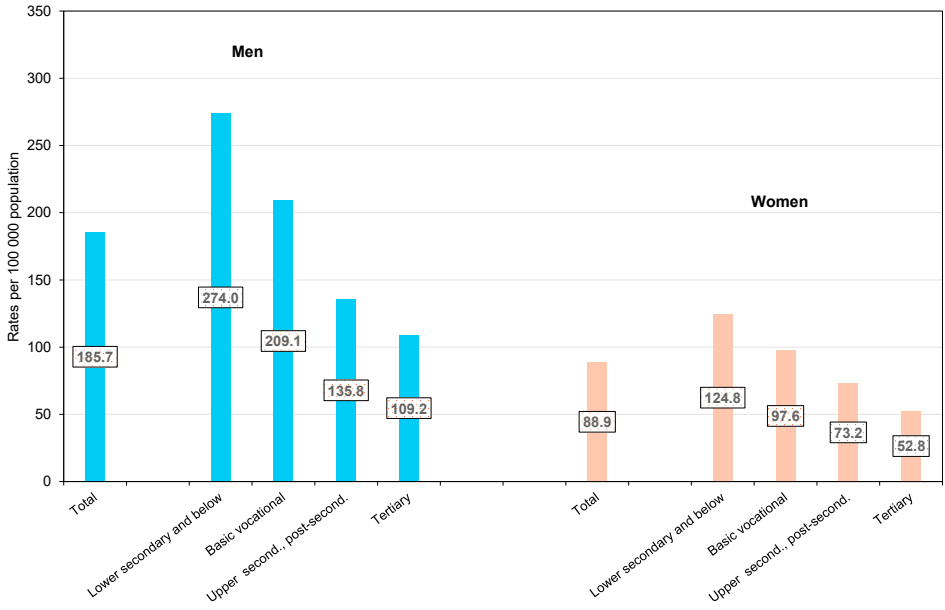

Fig. 3.39. Standardised death rates due to diseases of the respiratory system for men and women aged 30 and over by level of education in the three-year period 2020–2022 (own calculations based on Statistics Poland data)

The leading cause of death among diseases of the respiratory system is pneumonia, which killed 19,976 people (10,292 men and 9,684 women) in 2023 and chronic lower respiratory diseases, which caused 5,961 deaths (3,336 men and 2,625 women).

Diseases of the respiratory system overall pose a similar threat to life; after eliminating differences in age structure and men living in rural and urban areas, the mortality rate among women living in urban areas is 7.9% higher than among women living in rural areas (Tables 3.7a and 3.7b). Mortality due to pneumonia is slightly higher in urban areas than in rural areas, both among men and women, while chronic lower respiratory diseases pose a much greater threat to the lives of men living in rural areas than in urban areas – the excess mortality rate for men in rural areas is as high as 51%. Female mortality rates in urban and rural areas are now virtually the same.

Figure 3.40 shows excess mortality due to diseases of the respiratory system for urban and rural populations in each voivodship in relation to the observed mortality for Poland in 2023. The most unfavourable difference for rural areas was observed in Warmińsko-mazurskie voivodship, where the excess mortality rate in rural areas was 26.9 ppt higher than the national average, and in

Wielkopolskie voivodeship, where the mortality rate in rural areas was higher than the national average, while it was lower in urban areas. In contrast, Łódzkie voivodship was the only region where excess mortality in urban areas was higher than in rural areas (its excess mortality in urban areas is the highest in Poland).

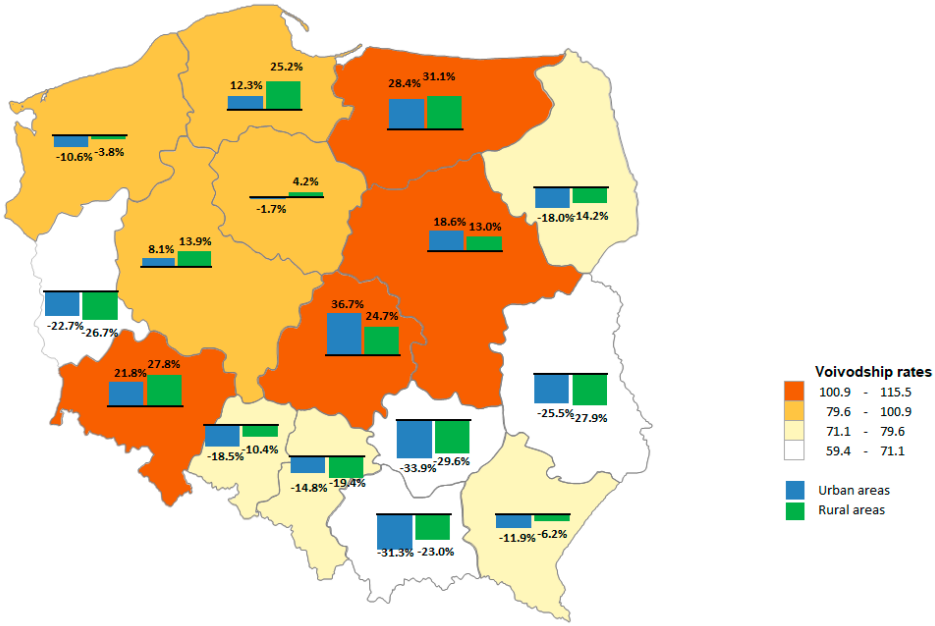

Fig. 3.40. Relative difference (%) in standardised death rates due to diseases of the respiratory system for the total population of urban and rural areas in relation to the observed national rate by voivodship in 2023

There are significant differences in mortality rates due to **pneumonia** between voivodships, and there were also significant differences in mortality rates between 2019 and 2023 in individual voivodships (Fig. 3.41). Of note is the steady increase in mortality in the Łódzkie, Lubelskie and Mazowieckie voivodships, and its gradual, significant decline in Podlaskie and Opolskie. In 2023, the death rate in Łódzkie voivodship was three times higher than in Świętokrzyskie voivodship.

The average age at death due to pneumonia in 2023 was 74.9 years for men and 81.2 years for women (Tab. 3.18). Even after eliminating differences in age structure in both sexes, women die from this condition on average 1.7 years later than men. On average, men die at the oldest age in Podkarpackie voivodship and women in Małopolskie, Opolskie and Łódzkie; on the other hand, the youngest age at death is in Lubuskie voivodship – on average 7.7 years earlier for men and

10.0 years earlier for women than in the aforementioned voivodships, where residents died from this disease at the oldest age.

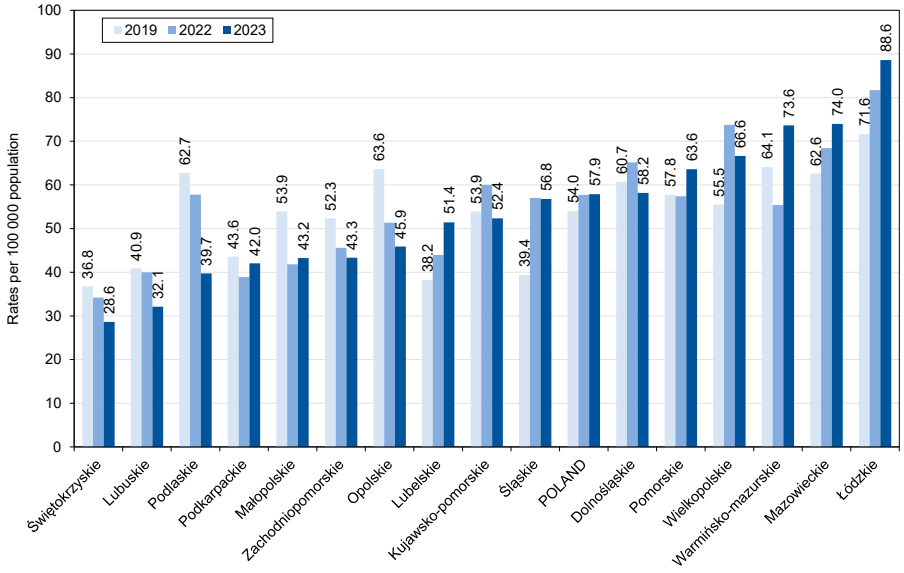

Fig. 3.41. Age-standardised death rates due to pneumonia (J12–J18) for the total population by voivodship in 2019, 2022 and 2023 (own calculations based on Statistics Poland data)

Table 3.18. Average age at death due to pneumonia by voivodship and sex in 2023 – actual and age-standardised values

Voivodship	Actual age		Standardised age	
	Men	Women	Men	Women
Dolnośląskie	75.2	81.3	78.8	79.4
Kujawsko-pomorskie	73.5	80.3	77.0	78.9
Lubelskie	74.7	82.4	77.5	80.6
Lubuskie	67.7	72.8	72.5	71.0
Łódzkie	76.0	82.5	78.8	80.9
Małopolskie	76.2	82.5	78.8	81.0
Mazowieckie	75.3	81.9	77.6	80.0
Opolskie	74.6	82.4	77.4	81.0
Podkarpackie	77.4	82.2	80.2	80.4
Podlaskie	75.1	82.7	77.4	80.6
Pomorskie	73.8	81.5	77.1	80.3
Śląskie	74.4	79.2	76.9	77.9

Voivodship	Actual age		Standardised age	
	Men	Women	Men	Women
Świętokrzyskie	74.3	81.7	76.8	79.9
Warmińsko-mazurskie	73.8	79.8	78.4	78.4
Wielkopolskie	74.9	80.1	78.5	79.2
Zachodniopomorskie	75.2	81.3	78.7	80.0
Poland	74.9	81.2	77.9	79.6

Source: Own calculations based on Statistics Poland data

Mortality of the general population of Poland due to **chronic lower respiratory diseases**, as in the case of pneumonia, varies greatly between voivodships (Fig. 3.42). The death rates in most voivodships decreased and in 2023 were lower than in 2019. The downward trend was most pronounced in the voivodships of Śląskie, Małopolskie and Lubuskie, where mortality rates in 2023 were lower than in 2019 by 44%, 34% and 33%, respectively. A clear upward trend in the death rate can be observed in Podkarpackie voivodship, with an exceptionally sharp increase in mortality between 2019 and 2022 in Opolskie and Świętokrzyskie. The surprisingly low mortality rate in Opolskie voivodship in 2019 and also in 2020 was undoubtedly an artefact related to a probable distortion in the coding of causes of death.

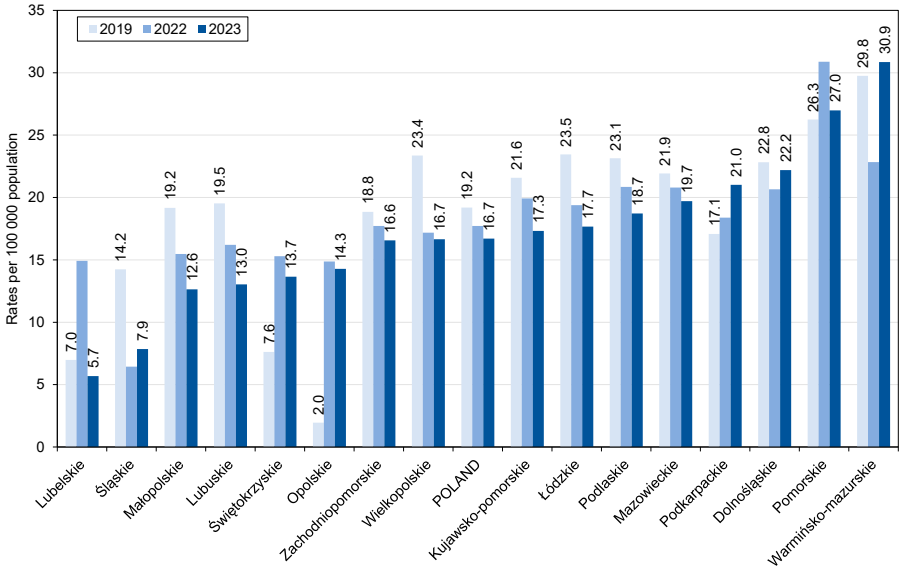

Fig. 3.42. Age-standardised annual death rates due to chronic lower respiratory diseases (J40–J47) for the total population by voivodship in 2019, 2022 and 2023 (own calculations based on Statistics Poland data)

The average age at death due to chronic lower respiratory diseases in 2023 was 74.9 years for men and 76.8 years for women (Tab. 3.19). Even after eliminating differences in age structure in both sexes, women die from this condition on average 1.1 years earlier than men. On average, men and women die at the oldest age in Podkarpackie voivodship, while the youngest age at death is recorded among inhabitants of Opolskie voivodship and women in Lubuskie and Śląskie voivodships. The age difference between these two extreme voivodships stands at almost 4 years for men and almost 5 years for women.

Table 3.19. Average age at death due to chronic lower respiratory diseases by voivodship and sex in 2023 – actual and age-standardised values

Voivodship	Actual age		Standardised age	
	Men	Women	Men	Women
Dolnośląskie	73.9	76.8	76.2	75.8
Kujawsko-pomorskie	75.4	76.2	77.8	75.5
Lubelskie	76.2	78.3	78.0	75.8
Lubuskie	75.3	74.3	77.6	74.1
Łódzkie	74.4	76.4	76.3	75.2
Małopolskie	77.2	79.1	78.6	77.5
Mazowieckie	74.7	76.7	76.1	75.3
Opolskie	73.1	75.1	74.9	74.2
Podkarpackie	77.1	79.8	78.8	79.0
Podlaskie	76.2	76.9	77.9	75.1
Pomorskie	74.6	76.4	76.2	75.6
Śląskie	75.1	75.1	76.6	74.2
Świętokrzyskie	74.0	78.6	75.8	77.3
Warmińsko-mazurskie	74.7	77.7	78.0	76.9
Wielkopolskie	73.9	76.8	76.1	76.2
Zachodniopomorskie	73.3	75.1	75.6	74.5
Poland	74.9	76.8	76.8	75.7

Source: Own calculations based on Statistics Poland data

Mortality due to diseases of the digestive system

The mortality rate of the general population of Poland due to diseases of the digestive system increased in 2015–2018, with the pandemic years of 2020–2021 bringing a further increase in the death rate, while it has decreased in the last two

years (Fig. 3.43). In 2023, diseases of the digestive system caused 19,943 deaths (11,561 men and 8,382 women), i.e. 53 deaths per 100,000 population (63 for men and 43 for women, Table 3.6a).

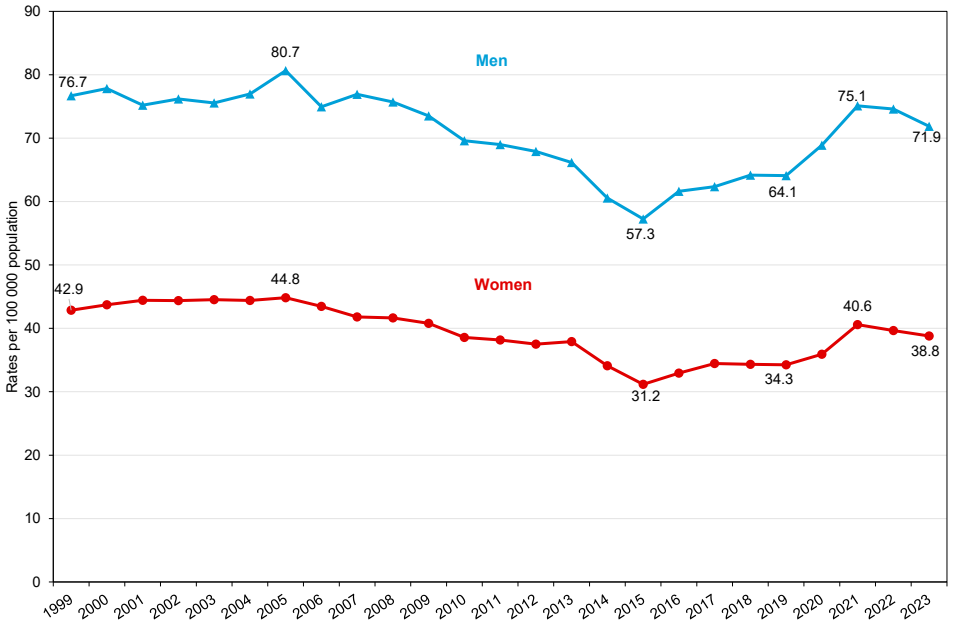

Fig. 3.43. Age-standardised death rates due to diseases of the digestive system for men and women in Poland, 1999–2023 (own calculations based on Statistics Poland databases)

Although the overall mortality rate due to diseases of the digestive system is lower than that due to diseases of the respiratory system, diseases of the digestive system are the most common cause of death among Poles aged 25–64 (Fig. 3.19a and 3.19b).

Diseases of the digestive system pose a much greater threat to men than women; after eliminating differences in age structure, the mortality rate among men is 85% higher than among women (Table 3.6b, Fig. 3.43).

The threat to life from **diseases of the digestive system among the total** population in 2019–2023 was highest in Dolnośląskie (only in the last two years), Śląskie and Łódzkie voivodships (Fig. 3.44). In Świętokrzyskie, Lubelskie and Dolnośląskie voivodships, mortality in 2022 and 2023 was significantly higher than before the pandemic. In contrast, mortality rates declined quite significantly in Podlaskie and Opolskie voivodships.

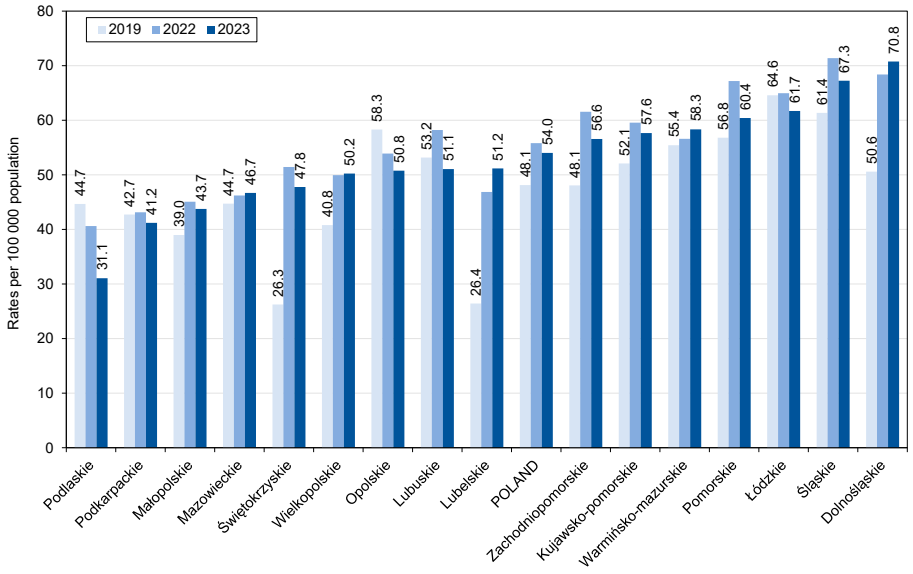

Fig. 3.44. Age-standardised annual death rates due to diseases of the digestive system (K00–K93) for the total population by voivodship in 2019, 2022 and 2023 (own calculations based on Statistics Poland data)

Table 3.20 presents the percentage differences in the observed standardized death rates due to all digestive system diseases in men and women in 2022 and 2023 for each voivodship compared to their expected values based on previous 10-year trends. The very high excess mortality in both years in the Lubelskie and Świętokrzyskie voivodships is noteworthy, particularly high in women. Such a high excess value in these provinces was caused, on the one hand, by a large increase in mortality due to these causes in 2021 and, on the other hand, by a strong downward trend in death rates in previous years, which is taken into account when estimating the expected death rate.

Table 3.20. Relative (%) difference in observed standardized death rates due to the digestive system diseases in men and women compared to their expected values based on previous 10-year trends by province in 2022 and 2023

Voivodship	2022		2023	
	Men	Women	Men	Women
Dolnośląskie	53.6	26.9	42.2	48.5
Kujawsko-pomorskie	9.8	13.5	0.9	13.6
Lubelskie	54.1	141.2	74.1	158.5
Lubuskie	0.9	19.3	-3.3	-9.8
Łódzkie	3.2	1.5	-0.4	-4.7
Małopolskie	20.0	6.5	15.8	5.5

Voivodship	2022		2023	
	Men	Women	Men	Women
Mazowieckie	0.5	8.6	1.1	7.9
Opolskie	-21.6	2.3	-27.3	-4.4
Podkarpackie	-6.4	14.4	-7.6	2.2
Podlaskie	-3.6	-18.9	-25.8	-41.6
Pomorskie	21.6	12.9	2.2	10.8
Śląskie	18.9	12.9	13.0	3.3
Świętokrzyskie	75.3	168.2	71.4	130.2
Warmińsko-mazurskie	4.0	-4.0	-0.9	8.9
Wielkopolskie	30.6	32.4	33.4	28.3
Zachodniopomorskie	20.2	28.1	13.2	16.4
Poland	15.0	18.9	10.0	15.5

Source: Own calculations based on Statistics Poland data

The average age at death due to diseases of the digestive system in 2023 was 63.2 years for men and 73.4 years for women (Tab. 3.21a). After eliminating differences in age structure in both sexes, women die from these diseases on average 5.7 years later than men (Tab. 3.21b). On average, men die youngest in Podlaskie voivodship and women in Lubuskie, while men die oldest in Kujawsko-Pomorskie, Opolskie and Wielkopolskie and women in Lubelskie. The difference in age at death between these two extreme voivodships is pronounced, standing at 4.7 years for men and 4.5 years for women. Urban and rural populations generally die at a similar age, but there are differences between voivodships. For example, in Świętokrzyskie voivodship, men living in urban areas die on average 3.1 years younger than men living in rural areas, and women living in urban areas die as much as 7.1 years earlier than women living in rural areas. In Opolskie voivodship, women living in urban areas die more than six years earlier than women living in rural areas.

Table 3.21a. Average age at death due to diseases of the digestive system by voivodship, sex and place of residence (urban/rural) in 2023 – actual values

Voivodship	Men			Women		
	Total	Urban area	Rural area	Total	Urban area	Rural area
Dolnośląskie	63.2	63.7	62.0	72.3	72.1	73.2
Kujawsko-Pomorskie	63.6	64.3	62.6	74.8	75.3	73.6
Lubelskie	63.3	64.3	62.4	76.7	76.2	77.3
Lubuskie	63.1	63.6	62.3	71.0	70.1	72.7

Voivodship	Men			Women		
	Total	Urban area	Rural area	Total	Urban area	Rural area
Łódzkie	63.4	64.2	62.0	74.1	73.9	74.6
Małopolskie	63.9	64.6	63.2	74.5	73.7	75.7
Mazowieckie	62.8	63.0	62.5	74.2	73.8	74.9
Opolskie	64.6	65.7	63.5	73.8	71.4	76.8
Podkarpackie	61.4	63.5	59.8	74.4	73.3	75.4
Podlaskie	60.0	61.5	58.4	73.3	72.0	75.5
Pomorskie	63.9	64.5	62.9	73.5	74.0	72.2
Śląskie	63.1	63.2	62.9	72.3	72.3	72.2
Świętokrzyskie	63.1	62.6	63.7	73.6	70.4	76.8
Warmińsko-Mazurskie	61.7	62.1	61.2	72.9	72.7	73.1
Wielkopolskie	63.5	64.8	61.9	72.3	73.4	70.1
Zachodniopomorskie	63.8	64.0	63.3	72.3	72.5	71.7
Poland	63.2	63.7	62.2	73.4	73.2	74.0

Source: Own calculations based on Statistics Poland data

Table 3.21b. Average age at death due to diseases of the digestive system by voivodship, sex and place of residence (urban/rural) in 2023 – standardised values

Voivodship	Men			Women		
	Total	Urban area	Rural area	Total	Urban area	Rural area
Dolnośląskie	65.8	65.6	66.1	70.2	69.2	72.7
Kujawsko-pomorskie	66.7	66.3	67.6	73.2	73.0	73.2
Lubelskie	66.1	66.8	65.5	74.2	74.1	74.4
Lubuskie	65.2	65.2	65.5	69.8	68.5	72.3
Łódzkie	65.9	66.5	64.7	71.2	70.5	72.6
Małopolskie	66.5	66.2	66.8	72.3	70.8	74.1
Mazowieckie	65.3	65.0	66.1	71.7	70.9	73.1
Opolskie	66.7	67.1	66.5	71.8	69.1	75.3
Podkarpackie	64.1	66.0	62.5	72.2	71.2	73.2
Podlaskie	62.0	63.6	60.0	70.1	69.0	71.8
Pomorskie	66.4	65.9	67.5	72.2	71.7	72.9
Śląskie	65.1	64.8	65.9	70.4	70.2	71.2
Świętokrzyskie	64.6	63.1	66.2	70.5	66.8	74.0
Warmińsko-mazurskie	65.3	64.8	66.3	71.6	70.8	72.7
Wielkopolskie	66.7	67.0	66.3	71.2	71.4	70.5
Zachodniopomorskie	66.4	65.8	68.1	70.5	69.9	71.7
Poland	65.7	65.6	65.8	71.4	70.6	72.7

Source: Own calculations based on Statistics Poland data

The mortality rate of the Polish population due to diseases of the digestive system is strongly related to the level of education (Fig. 3.45). The lives of people with up to lower secondary education are approximately three and a half times more at risk from these diseases than those with tertiary education. The mortality rate among people with upper secondary education is more than two times higher than among people with tertiary education.

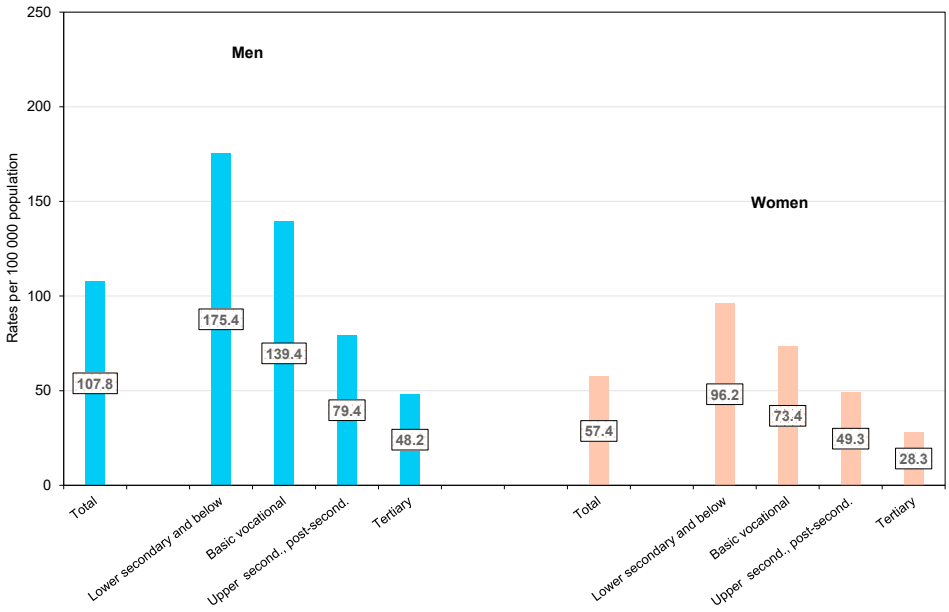

Fig. 3.45. Age-standardised death rates due to diseases of the digestive system for men and women aged 30 and over by level of education in the three-year period 2020–2022 (own calculations based on Statistics Poland data)

Diseases of the digestive system in general pose a greater threat to the lives of urban populations than rural populations, both for men and women (Tables 3.7a and 3.7b). An even greater difference to the detriment of urban populations can be seen in chronic liver disease, particularly among women. Their mortality rate among women in urban areas is 44% higher than in rural areas.

Figure 3.46 shows excess mortality due to diseases of the digestive system for urban and rural populations in each voivodship in relation to the observed mortality for Poland in 2023. The most unfavourable difference for rural areas compared to urban areas was in Warmińsko-mazurskie, Podlaskie and Pomorskie voivodships. In contrast, the most significant difference in excess mortality to the detriment of urban populations was observed in the voivodships of Śląskie and Łódzkie.

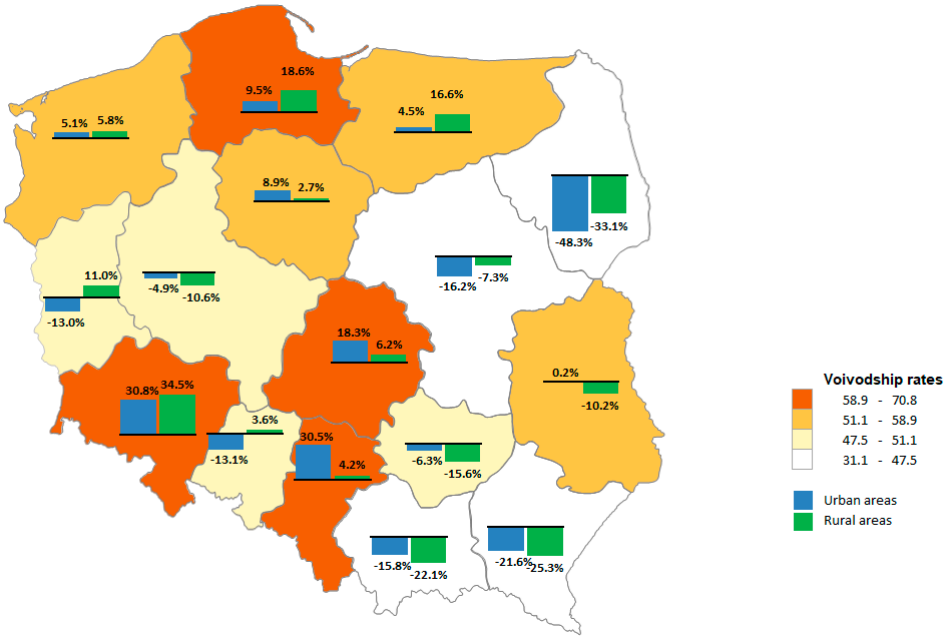

Fig. 3.46. Relative difference (%) in standardised death rates due to diseases of the digestive system for the total population of urban and rural areas in relation to the observed national rate by voivodship in 2023

Chronic liver disease (K70, K73 and K74) (mainly cirrhosis and alcoholic liver disease) is the most important subgroup of diseases of the digestive system in terms of causes of death, with 7,866 deaths (5,537 men and 2,329 women) (39% of all deaths due to diseases of the digestive system) in 2023.

Mortality due to **chronic liver disease** varies greatly between voivodships. This disease poses the greatest threat to life in the voivodships of Dolnośląskie and Śląskie – in 2023, it was 59% and 41% higher than the national average, respectively (Fig. 3.47). In 2023, death rates in almost half of the voivodships were higher than in 2019, with the largest increases observed in Dolnośląskie, Wielkopolskie and Pomorskie voivodships. A marked decrease in mortality rates occurred in the voivodships of Lubuskie, Opolskie and Podlaskie.

The average age at death due to chronic liver disease in 2023 was 57.8 years for men and 60.9 years for women (Tab. 3.21). After eliminating differences in age structure in both sex groups, men die from this condition only slightly earlier than women, on average by 0.8 years. Of note is the situation in Podkarpackie voivodship, where men die on average 7 years younger than women. On average, men die at the oldest age in Lubuskie and Pomorskie voivodships, and women in

Podkarpackie voivodeship, while men die at the youngest age in Podkarpackie and women in Łódzkie. The age difference between these two extreme voivodships is substantial, at 5.8 years for men and 6.7 years for women.

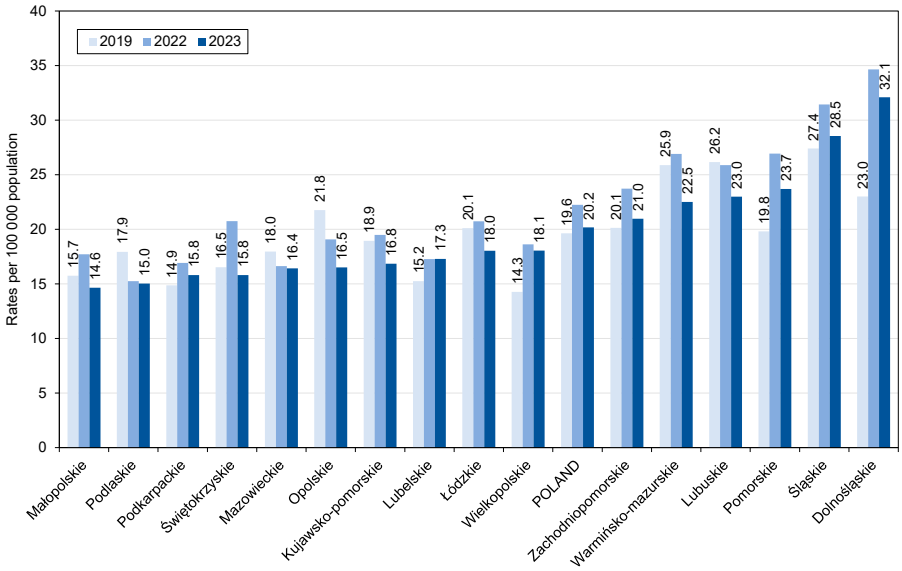

Fig. 3.47. Age-standardised annual death rates due to chronic liver disease and cirrhosis (K70, K73–K74) for the total population by voivodship in 2019, 2022 and 2023 (own calculations based on Statistics Poland data)

Table 3.22. Average age at death due to chronic liver disease by voivodship and sex in 2023 – actual and age-standardised values

Voivodship	Actual age		Standardised age	
	Men	Women	Men	Women
Dolnośląskie	59.1	61.3	60.0	60.1
Kujawsko-pomorskie	56.8	62.3	57.6	61.0
Lubelskie	56.0	61.7	56.8	60.2
Lubuskie	60.9	62.6	61.8	61.7
Łódzkie	56.4	58.4	56.9	56.4
Małopolskie	57.5	59.7	58.7	59.3
Mazowieckie	57.6	60.2	59.1	59.1
Opolskie	58.3	63.4	59.1	62.1
Podkarpackie	55.2	64.2	56.1	63.2
Podlaskie	57.1	58.8	58.2	58.1

Voivodship	Actual age		Standardised age	
	Men	Women	Men	Women
Pomorskie	60.1	63.3	61.5	62.5
Śląskie	58.2	60.0	59.1	58.7
Świętokrzyskie	57.6	58.9	57.6	57.2
Warmińsko-mazurskie	56.3	61.4	57.4	60.7
Wielkopolskie	57.5	60.4	59.0	59.6
Zachodniopomorskie	58.5	59.9	59.5	58.7
Poland	57.8	60.9	58.9	59.7

Źródło: obliczenia własne na podstawie danych GUS

The mortality rate due to chronic liver disease and cirrhosis is higher among urban populations than rural populations in most voivodships, except for Pomorskie, Lubuskie, Podlaskie and Opolskie. The largest relative difference in mortality rates between urban and rural areas is in Świętokrzyskie (the lowest rural mortality rate in Poland) and Śląskie (the second highest urban mortality rate in Poland after Dolnośląskie) voivodships (Fig. 3.48).

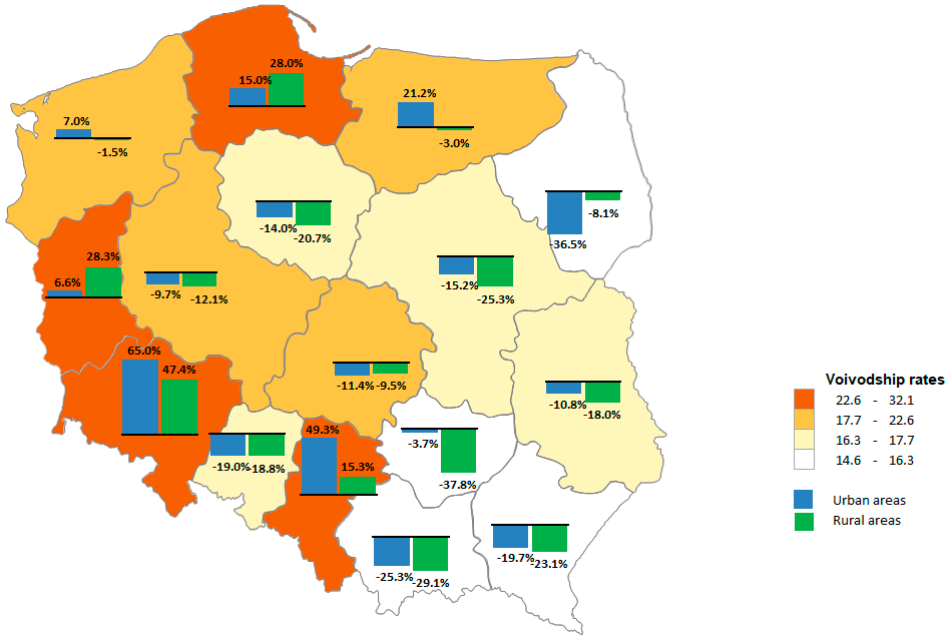

Fig. 3.48. Relative difference (%) in standardised death rates due to chronic liver disease and cirrhosis (K70, K73–K74) among urban and rural populations in relation to the national rate by voivodship in 2023

Mortality due to external causes of death

The significance of this group of health-related events as a cause of death among men and women decreased until 2017, while in subsequent years the death rates slowly increased, especially in 2021, but in the last two years they decreased again (Tables 3.5a and 3.5b, Fig. 3.49). External causes of death are the biggest threat to the lives of males aged 10–49 and females aged 10–29 (Fig. 3.19a and 3.19b). In 2023, there were 19,645 deaths (13,965 men and 5,680 women) due to these causes, i.e. 52.1 per 100,000 population (76.7 for men and 29.2 for women, Table 3.6a).

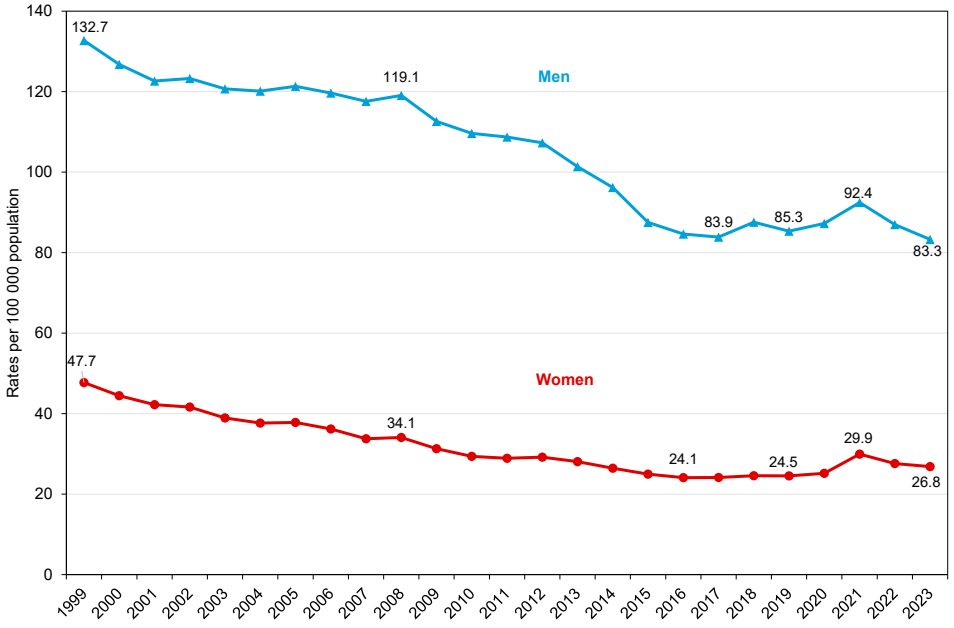

Fig. 3.49. Age-standardised death rates due to external causes for men and women in Poland, 1999–2023 (own calculations based on Statistics Poland databases)

External causes of death pose a much greater threat to life of men than women. In 2023, the standardised death rate for men was 3.1 times higher than that for women (Table 3.6b, Fig. 3.49). Mortality level of men is higher in rural than in urban areas (by 25%), while mortality of women living in rural and urban areas is currently the same (Table 3.7b).

There is considerable variation between voivodships in the death rates due to **external causes of death**. Mortality level is highest in Pomorskie and Łódzkie voivodships – in 2023, death rates were higher than the national average by 59%

and 41% respectively, and more than twice as high as in Małopolskie (Fig. 3.50). In 2023, death rates in half of the voivodships were lower than in 2019, with the largest decreases in mortality observed in Małopolskie, Dolnośląskie and Podlaskie. A marked increase in mortality was recorded in the north of Poland in Pomorskie and Zachodniopomorskie voivodships.

Table 3.23 presents the percentage differences in the observed standardized death rates due to all external causes for men and women in 2022 and 2023 compared to their expected values based on the previous 10-year trends for individual voivodships. The higher excess mortality in women than in men is noteworthy, particularly high in both years in the Lubelskie and Świętokrzyskie voivodships, and also clearly marked in the Mazowieckie province.

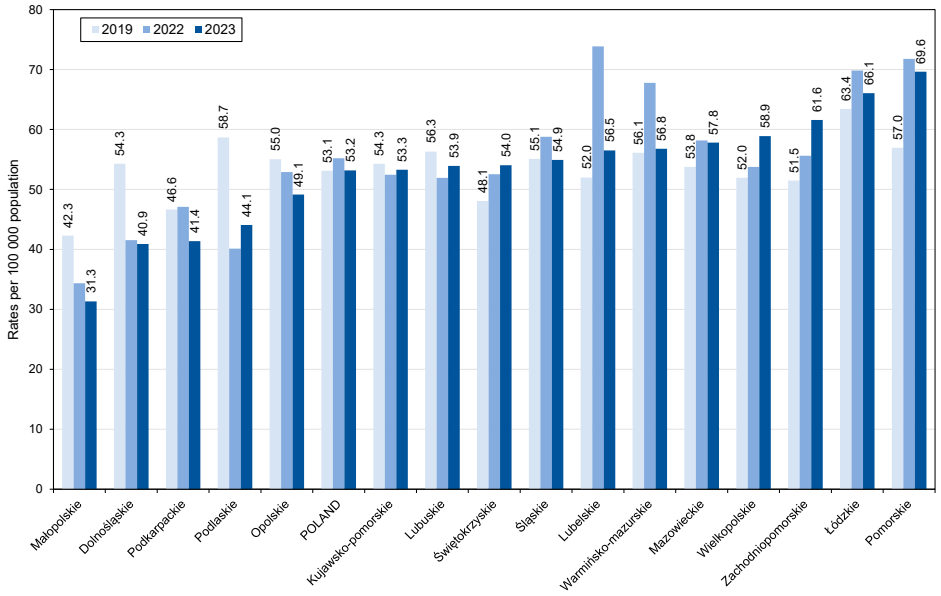

Fig. 3.50. Age-standardised annual death rates due to external causes (V00–Y98) for the total population by voivodship in 2019, 2022 and 2023 (own calculations based on Statistics Poland databases)

Table 3.23. Relative (%) difference in observed standardized death rates due to the external causes of deaths in men and women compared to their expected values based on previous 10-year trends by province in 2022 and 2023

Voivodship	2022		2023	
	Men	Women	Men	Women
Dolnośląskie	-24.1	-20.2	-29.9	-17.2
Kujawsko-pomorskie	-7.8	26.5	-7.7	23.4
Lubelskie	29.1	130.2	0.5	67.4

Voivodship	2022		2023	
	Men	Women	Men	Women
Lubuskie	-12.6	13.8	-9.4	4.4
Łódzkie	1.4	28.4	-0.1	12.3
Małopolskie	-9.8	-20.2	-18.4	-26.0
Mazowieckie	10.2	44.0	8.4	42.2
Opolskie	-4.5	6.1	-17.9	17.6
Podkarpackie	-0.8	17.8	-13.1	-8.2
Podlaskie	-34.3	-22.8	-25.1	-23.4
Pomorskie	26.6	22.7	14.7	25.0
Śląskie	24.2	0.6	13.6	-4.8
Świętokrzyskie	10.8	53.3	15.9	55.4
Warmińsko-mazurskie	16.2	37.4	-2.2	5.7
Wielkopolskie	-6.0	5.2	-4.6	23.5
Zachodniopomorskie	13.3	13.4	18.0	32.9
Polska	6.7	13.1	1.1	8.5

Source: Own calculations based on Statistics Poland data

The average age at death due to external causes of death in 2023 was 54.6 years for men and 70.4 years for women (Tab. 3.24a). After eliminating differences in age structure in both sex groups, women die from these diseases on average 9.2 years later than men (Tab. 3.24b).

Table 3.24a. Average age at death due to external causes of death by voivodship, sex and place of residence (urban/rural) in 2023 – actual values

Voivodship	Men			Women		
	Total	Urban area	Rural area	Total	Urban area	Rural area
Dolnośląskie	53.0	53.6	51.9	69.3	71.0	64.8
Kujawsko-pomorskie	53.2	54.8	51.4	68.9	69.3	68.1
Lubelskie	56.2	55.9	56.4	73.4	72.9	73.8
Lubuskie	53.1	53.6	52.3	68.3	68.9	66.2
Łódzkie	56.7	57.3	55.9	72.1	72.8	70.9
Małopolskie	53.8	53.4	54.1	70.8	69.9	71.6
Mazowieckie	54.6	55.3	53.7	70.5	69.8	71.7
Opolskie	56.2	58.3	54.0	72.7	74.7	70.4
Podkarpackie	54.4	53.5	54.9	70.2	70.5	70.0
Podlaskie	53.4	53.1	53.6	71.0	70.4	71.8

Voivodship	Men			Women		
	Total	Urban area	Rural area	Total	Urban area	Rural area
Pomorskie	54.4	56.3	51.6	69.2	70.9	65.4
Śląskie	56.5	56.9	55.4	71.8	71.5	72.8
Świętokrzyskie	56.5	56.7	56.4	67.3	65.8	68.5
Warmińsko-mazurskie	52.3	51.6	53.1	66.7	69.1	62.2
Wielkopolskie	53.0	54.4	51.6	69.1	70.8	66.9
Zachodniopomorskie	54.8	55.9	53.0	70.5	71.6	67.0
Poland	54.6	55.4	53.8	70.4	70.8	69.5

Source: Own calculations based on Statistics Poland data

On average, men die youngest in Warmińsko-Mazurskie and women in Świętokrzyskie voivodships, while men die oldest in Łódzkie and Lubelskie and women in Lubelskie. The difference in age at death between these two extreme voivodships is particularly pronounced in the case of women, at 7.4 years, while for men it is 4.0 years. Urban and rural populations generally die at a similar age, but there are differences between voivodships. For example, in Warmińsko-mazurskie voivodship, men living in urban areas die on average 4.7 years younger than men living in rural areas, and women living in urban areas of Świętokrzyskie die as much as 4.5 years earlier than women living in rural areas.

Table 3.24b. Average age at death due to external causes of death by voivodship, sex and place of residence (urban/rural) in 2023 – age-standardised values

Voivodship	Men			Women		
	Total	Urban area	Rural area	Total	Urban area	Rural area
Dolnośląskie	55.9	55.8	56.0	65.3	65.9	63.7
Kujawsko-pomorskie	56.0	56.6	55.7	65.9	64.5	67.8
Lubelskie	59.2	58.4	59.9	69.3	68.3	70.1
Lubuskie	56.3	56.1	56.9	65.7	65.0	65.9
Łódzkie	59.4	59.6	59.0	67.3	67.4	67.5
Małopolskie	57.5	55.9	58.8	67.8	65.8	69.8
Mazowieckie	58.0	58.3	57.8	66.6	65.0	69.3
Opolskie	58.3	59.9	56.6	68.8	70.6	67.2
Podkarpackie	57.3	55.9	58.3	67.2	66.5	67.5
Podlaskie	56.3	56.3	55.9	66.1	66.0	66.0
Pomorskie	58.2	58.6	57.7	67.4	67.6	67.7

Voivodship	Men			Women		
	Total	Urban area	Rural area	Total	Urban area	Rural area
Śląskie	59.1	59.2	58.9	68.7	67.9	71.5
Świętokrzyskie	58.2	57.4	58.8	61.9	59.3	63.7
Warmińsko-mazurskie	55.4	53.6	58.3	63.9	64.7	62.1
Wielkopolskie	57.3	57.3	57.8	67.4	67.5	67.9
Zachodniopomorskie	58.1	58.2	58.4	67.4	67.3	66.7
Poland	57.8	57.8	58.0	67.0	66.4	67.7

Source: Own calculations based on Statistics Poland data

Mortality of the Polish population due to external causes of death is very strongly related to the level of education (Fig. 3.51). The lives of men with up to lower secondary education are approximately four times more at risk due to these causes than the lives of men with tertiary education, while this difference for women is two and a half times. The mortality rate for those with upper secondary education is three times higher for men and twice as high for women as for those with tertiary education.

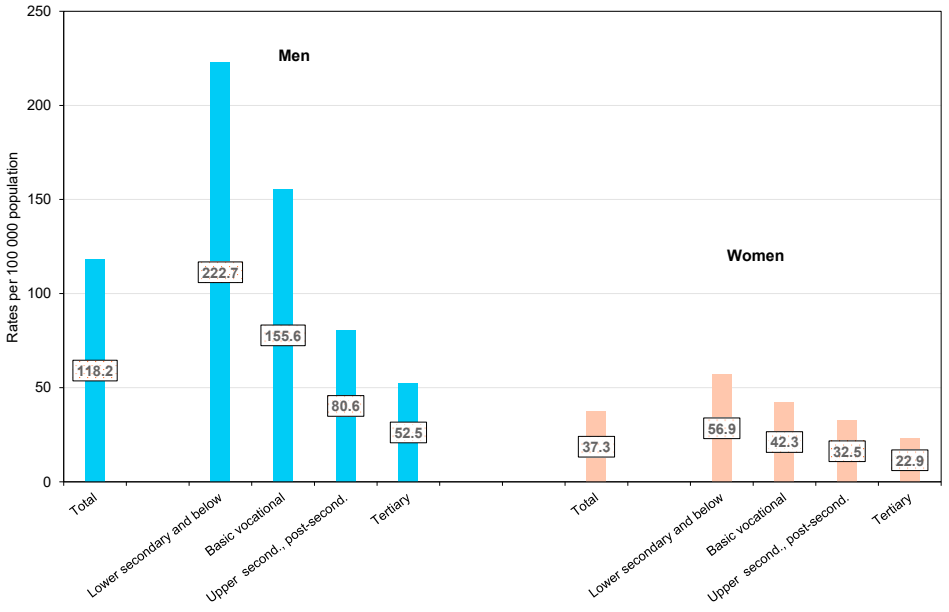

Fig. 3.51. Age-standardised death rates due to external causes for men and women aged 30 and over by level of education in the three-year period 2020–2022 (own calculations based on Statistics Poland data)

Among external causes of death, **falls** were the most common cause for the total population of Poland and for women in 2023, accounting for 5,027 deaths, or 26% of all deaths from external causes (2,582 men and 2,445 women). Of note is that among women, only 7% of deaths from this cause are among those under the age of 65, while among men, the figure is as high as 35%. Falls pose a similar threat to the lives of urban and rural populations.

The second leading cause of death among external causes is **suicide**, which is the leading cause of death among men, resulting in 4,553 deaths in 2023 (as many as 3,895 men and 658 women). Suicides pose a significantly greater threat to the lives of men living in rural areas than in urban areas (38% greater in 2023), and in the last year this cause posed a greater threat (by 13%) to the lives of women living in urban areas than in rural areas (the greater threat to women's lives in urban areas has only been observed since 2021).

The third leading external cause of death among Poles is **transport accidents**, which claimed the lives of 2,458 people (1,908 men and 550 women) in 2023. Mortality level in rural areas is higher than in urban areas – in 2023, excess of 59% among men and 15% among women (Table 3.7b).

The nationwide age-standardised death rate due to **suicide** remained stable in 2019, 2022 and 2023. In contrast, a number of voivodships saw significant changes in this rate (Fig. 3.52). We drew attention to the problems associated with the comparative analysis of suicide death rates in our 2020 Report.[21] Currently, high suicide mortality rates in Kujawsko-pomorskie voivodship in 2022 (the number of deaths increased from 172 in 2019 to 277 in 2021, 267 in 2022 and 247 in 2023) may be partly due to significant decrease in the number of deaths from events of undetermined intent (ICD-10 Y10–Y34) (from 237 in 2019 to 13 and 31 in 2022 and 2023, respectively), which may indicate changes in certification. The opposite trend can be observed in Opolskie voivodship, where the death rate has fallen dramatically. While in 2019, there were 120 deaths due to suicide and 10 due to events of undetermined intent, in 2022 and 2023, the corresponding figures were 41 and 105, and 28 and 101. However, such changes cannot explain all sudden increases and decreases in death rates, for example, changes in mortality in Świętokrzyskie voivodship.

The average age at death due to suicide in 2023 was very similar for men and women, at 48.4 and 48.0 years, respectively (Tab. 3.25). Even after eliminating differences in age structure in both sexes, women die from this cause on average 3.4 years earlier than men. However, in Łódzkie voivodship, women died almost

[21] Wojtyniak B, Stokwiszewski J, Rabchenko D, et.al. "Długość życia i umieralność ludności Polski" in Wojtyniak B, Goryński P. Sytuacja zdrowotna ludności Polski i jej uwarunkowania 2020, NIZP PZH PIB, Warsaw 2020

10 years earlier than men and by almost eight years in Podlaskie voivodship. On average, men died at the oldest age in Świętokrzyskie voivodship and women in Lubuskie and Dolnośląskie, while men died at the youngest age in Pomorskie and women in Łódzkie. The age difference between these two extreme voivodships is significant, at 5.7 years for men and 10 years for women.

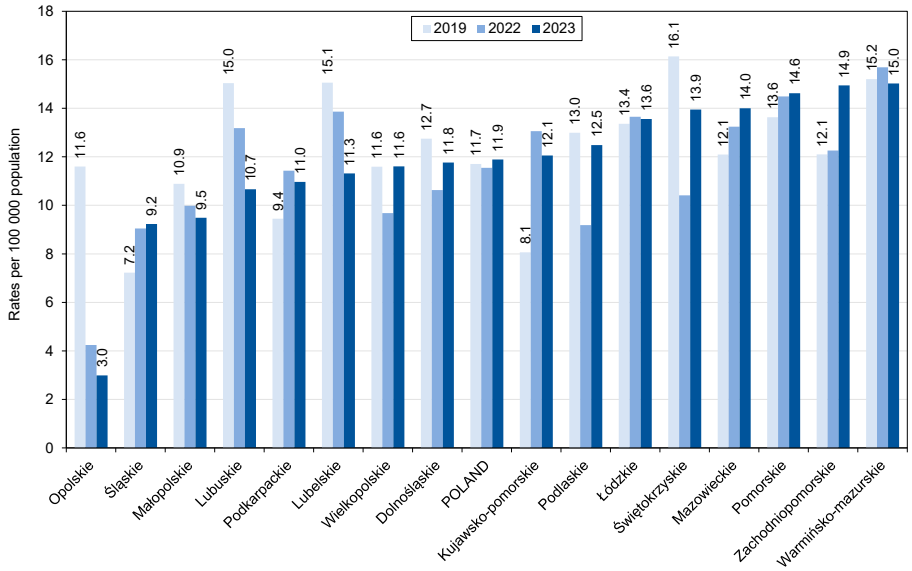

Fig. 3.52. Age-standardised annual death rates due to suicide (X60–X84) for the total population by voivodship in 2019, 2022 and 2023 (own calculations based on Statistics Poland data)

Table 3.25. Average age at death due to suicide by voivodship and sex in 2023 – actual and age-standardised values

Voivodship	Actual age		Standardised age	
	Men	Women	Men	Women
Dolnośląskie	47.9	54.0	49.4	51.6
Kujawsko-pomorskie	47.2	49.0	48.6	47.7
Lubelskie	48.6	49.3	50.5	47.5
Lubuskie	46.4	53.4	47.3	51.7
Łódzkie	50.3	44.2	51.3	41.7
Małopolskie	48.5	47.6	50.7	47.2
Mazowieckie	49.0	46.2	51.0	45.5
Opolskie	46.8	46.0	47.6	45.7
Podkarpackie	48.2	44.7	49.4	44.4

Voivodship	Actual age		Standardised age	
	Men	Women	Men	Women
Podlaskie	48.0	43.4	49.9	42.2
Pomorskie	44.2	48.0	46.2	47.4
Śląskie	48.8	50.6	49.7	48.8
Świętokrzyskie	51.2	46.5	51.9	45.1
Warmińsko-mazurskie	48.0	44.0	50.2	42.6
Wielkopolskie	49.1	50.4	51.0	50.1
Zachodniopomorskie	49.0	50.2	50.8	48.0
Poland	48.4	48.0	50.0	46.6

Source: Own calculations based on Statistics Poland data

In all voivodeships, the mortality rate due to suicide is higher in rural areas than among the residents of urban areas. The largest relative difference in mortality rates between rural and urban areas is in Warmińsko-mazurskie and Mazowieckie voivodships (Fig. 3.53). The highest risk of suicide among rural residents is currently found in Warmińsko-mazurskie, Podlaskie, Zachodniopomorskie and Mazowieckie voivodships, and in urban areas in Pomorskie and Zachodniopomorskie voivodships.

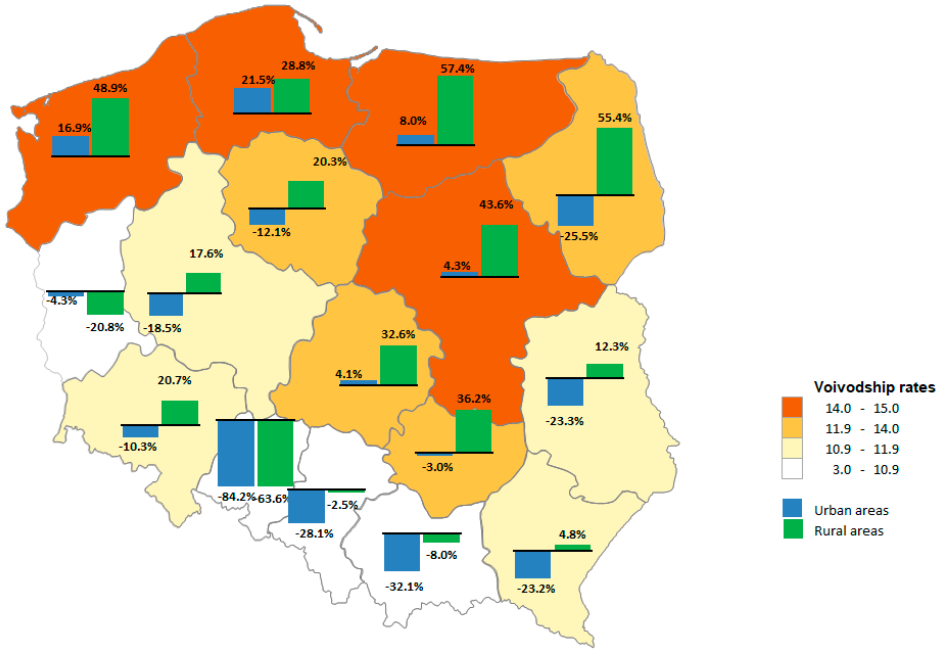

Fig. 3.53. Relative difference (%) in standardised death rates due to suicide (X60–X84) among urban and rural populations in relation to the national rate by voivodship in 2023 (own calculations based on Statistics Poland data)

Mortality due to **transport accidents** in Poland in 2023 was lower than in 2019 in all voivodships (Fig. 3.54). However, of note are Świętokrzyskie, Lubelskie, Dolnośląskie and Podlaskie voivodships, which recorded an exceptional reduction in mortality rates. This is probably an artefact related to the change in coding of the cause of death. The situation in the last two years indicates that Małopolskie voivodship is the region with the lowest risk of death from transport accidents, while Mazowieckie, Wielkopolskie and Łódzkie voivodships have the highest risk of such incidents.

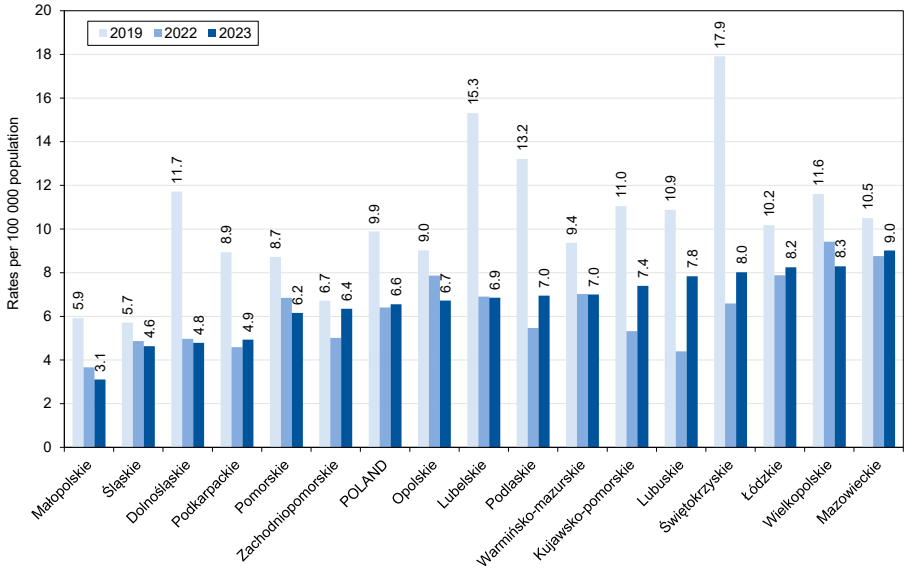

Fig. 3.54. Age-standardised annual death rates due to transport accidents (V00–Y99) for the total population by voivodship in 2019, 2022 and 2023 (own calculations based on Statistics Poland data)

The average age at death due to transport accidents in 2023 was very similar for men and women, at 45.8 and 51.8 years, respectively (Tab. 3.26). After eliminating differences in age structure in both sexes, men die from this cause on average 1.6 years earlier than women. However, in Pomorskie voivodship, men died almost 14 years earlier than women, and in Małopolskie voivodship, 9 years earlier. On the other hand, in Warmińsko-mazurskie and Opolskie voivodships, women died in transport accidents at an average age 6 years younger than men. The age difference between the voivodships with the highest and lowest average age at death is substantial, standing at 9.5 years for men and 20.7 years for women.

Table 3.26. Average age at death due to transport accidents by voivodship and sex in 2023 – actual and age-standardised values

Voivodship	Actual age		Standardised age	
	Men	Women	Men	Women
Dolnośląskie	44.4	46.2	45.8	43.6
Kujawsko-pomorskie	47.2	49.6	48.7	47.7
Lubelskie	46.9	59.2	49.2	55.8
Lubuskie	45.4	51.0	47.7	49.3
Łódzkie	46.8	55.4	48.1	49.8
Małopolskie	46.7	60.7	49.0	58.0
Mazowieckie	46.1	53.1	49.0	50.6
Opolskie	43.8	39.2	44.0	37.3
Podkarpackie	49.2	54.2	51.9	53.3
Podlaskie	45.3	56.7	47.1	54.0
Pomorskie	40.3	57.3	42.4	56.2
Śląskie	46.8	56.3	47.6	52.6
Świętokrzyskie	46.9	49.9	47.4	46.0
Warmińsko-mazurskie	44.5	43.4	48.1	41.8
Wielkopolskie	45.4	47.1	48.3	46.5
Zachodniopomorskie	45.3	52.4	46.3	49.6
Poland	45.8	51.8	47.8	49.4

Source: Own calculations based on Statistics Poland data

In all voivodships, the mortality rate due to transport accidents in rural areas is significantly higher than in urban areas (Fig. 3.55). The largest relative difference in mortality rates between rural and urban areas is found in Zachodniopomorskie, Łódzkie and Świętokrzyskie voivodships. The mortality level in rural areas in Mazowieckie voivodship is currently the highest in Poland, while the mortality in urban areas is highest in Lubuskie voivodship.

Mortality due to ill-defined causes

When discussing mortality caused by specific causes of death, attention should be paid to the ill-defined causes, i.e. where the cause of death described symptoms, was ill-defined or unknown (ICD-10 R00–R99). In 2023, the ill-defined cause was reported in 39,187 cases (20,781 men and 18,406 women) (104 per 100,000

population). These causes are not limited to the oldest age groups but are found in all ages (Fig. 3.19a and 3.19b). They are significantly more common among men than women and among rural than urban populations (Tables 3.6a, 3.6b, 3.7a, 3.7b).

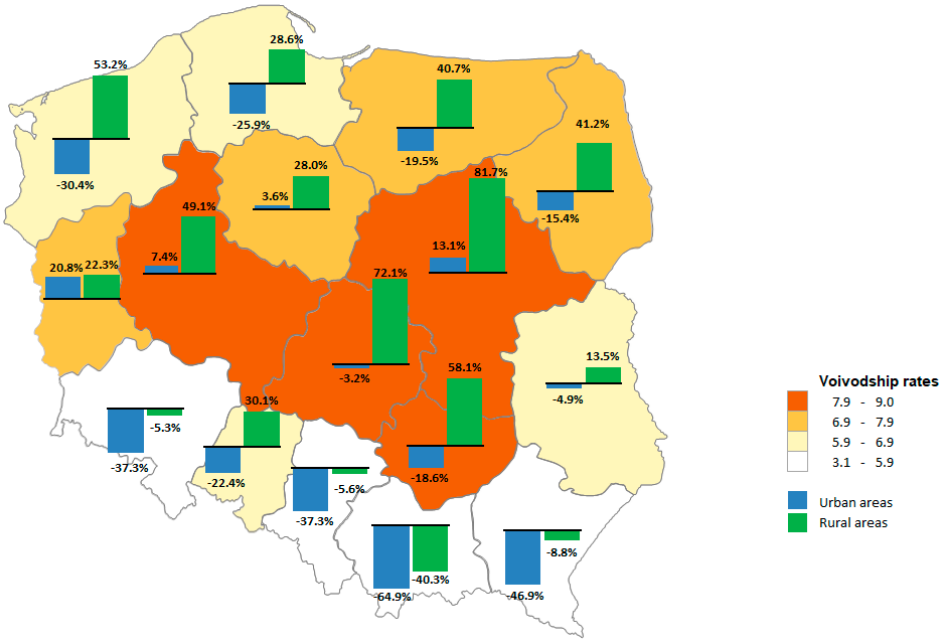

Fig. 3.55. Relative difference (%) of standardised death rates due to transport accidents (V00–V99) among urban and rural populations in relation to the national rate by voivodship in 2023 (own calculations based on Statistics Poland data)

For years, we have been drawing attention to the disappointing situation regarding voivodship and temporal disparities in deaths where the causes are ill-defined or unknown. As shown in Figure 3.56, both mortality rates and changes in mortality rates in recent years show considerable differences between voivodships. Firstly, the differences in rates between the extreme voivodships are very large – recently around twentyfold (in 2019, the difference was almost 70-fold). Secondly, the rates fluctuated significantly over time, which is difficult to understand. As noted earlier in this chapter, these shifts must have affected the changes and magnitude of death rates due to other causes. Only the situation in Pomorskie voivodship and, more recently, in Dolnośląskie and Podkarpackie is commendable.

The mortality of the Polish population due to ill-defined causes is very strongly related to the level of education held (Fig. 3.57).

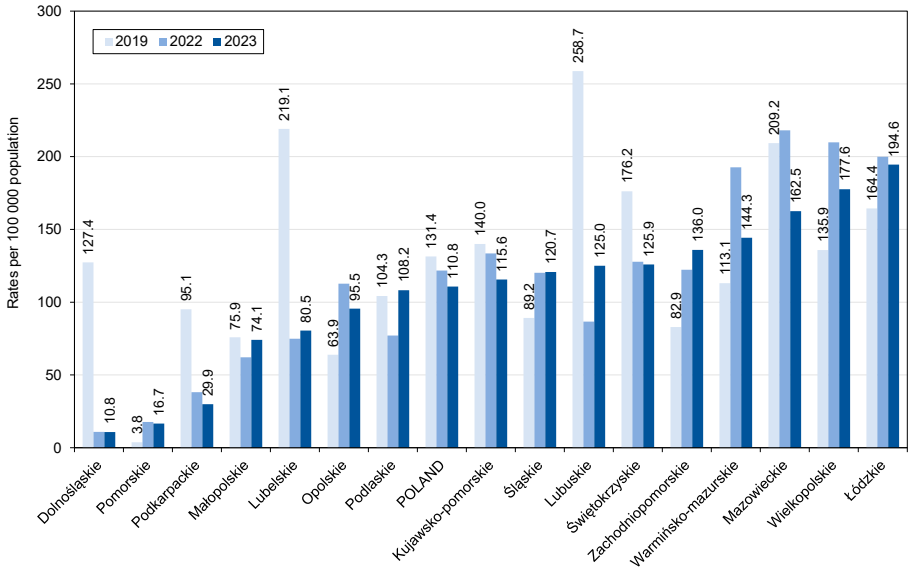

Fig. 3.56. Age-standardised annual death rates due to ill-defined causes (R00–R99) for the total population by voivodship in 2019, 2022 and 2023 (own calculations based on Statistics Poland data)

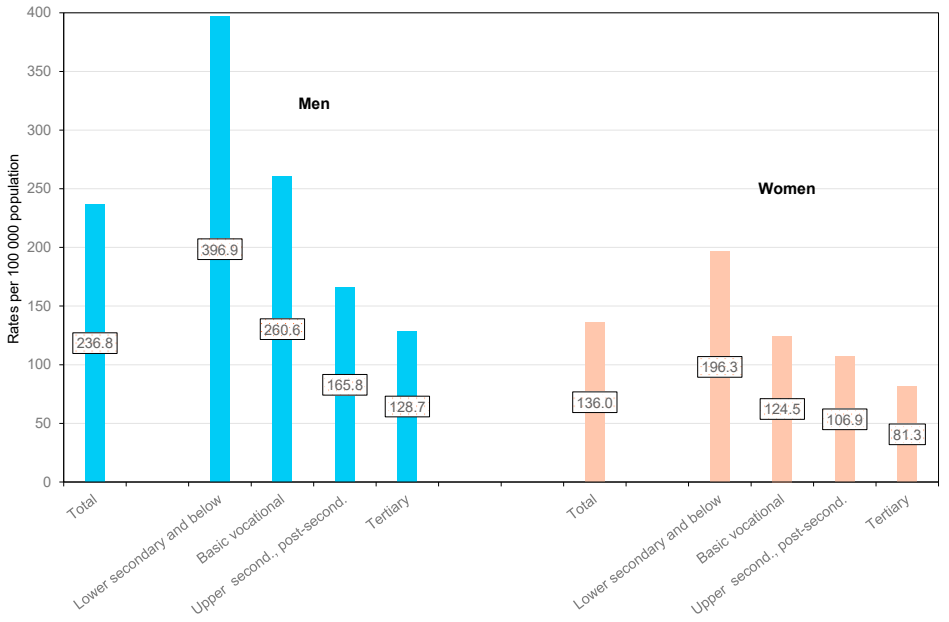

Fig. 3.57. Age-standardised death rates due to ill-defined causes for men and women aged 30 and over by level of education in the three-year period 2020–2022 (own calculations based on Statistics Poland data)

Deaths of men with up to lower secondary education are approximately three times more likely to be attributed to ill-defined causes than deaths of men with tertiary education, while this difference is almost two and a half times higher for women. The mortality rate of persons with such a vague diagnosis and upper secondary education is twice as high for men and 50% higher for women than for persons with tertiary education.

Mortality due to preventable and treatable causes

The concept of avoidable mortality is based on the idea that premature deaths due to certain health problems/events should be rare, and ideally should not occur at all, if timely and effective medical or public health interventions are available. Mortality due to these causes includes preventable causes of death and treatable causes of death. We will now discuss the problem of mortality in the Polish population due to these two groups of causes. Although avoidable mortality is not a precise, unambiguous measure of the performance of a healthcare system, they are considered to be population health indicators that provide a good starting point for assessing the performance of that system and for comparisons in the functioning of public health and medical care, which should lead to a reduction in premature deaths due to preventable or treatable causes.

A preventable cause of death, in the light of the understanding of the determinants of health at the time the death occurred, means that all or most of that cause (subject to age restrictions where appropriate) that could have been avoided by public health interventions in the broadest sense. Conversely, **a treatable cause of death** is one that, based on medical knowledge and available technology at the time of death, could have been avoided by good quality healthcare in all or most cases. The highlighted disease groups were created using the list[22] developed by Eurostat and the OECD, which was published in November 2019 and updated in 2022.[23] Unlike in previous versions, the 2019 list sets a uniform age threshold of 75 years for all selected causes of death. The established guiding

[22] OECD, EUROSTAT, Avoidable mortality: OECD/Eurostat lists of preventable and treatable causes of death (November 2019 version), November 2019. Retrieved 24 April 2020 from http://www.oecd.org/health/health-systems/Avoidable-mortality-2019-Joint-OECD-Eurostat-List-preventable-treatable-causes-of-death.pdf

[23] Avoidable mortality: OECD/Eurostat lists of preventable and treatable causes of death (January 2022 version)

principles include the following three critical points outlined by the authors: "For those causes of death that can be both largely prevented and also treated once they have occurred, these causes of death were attributed to the preventable category on the rationale that if these diseases are prevented, there would be no need for treatment. Causes of death should generally not be fractioned as being partly preventable and treatable given the lack of evidence to do this accurately and systematically, except when there is no strong evidence of predominance, in which case a 50%-50% allocation was used. Any double counting of the same causes of death between the two lists was avoided, so that the two lists can be used together to provide a broad assessment of the relative importance of prevention and health care interventions in reducing avoidable deaths." A 50-50 allocation was applied to cervical cancer, diabetes and most of the selected diseases of the circulatory system (DCS) that can be avoided, including hypertension, ischaemic heart disease and cerebrovascular disease. All these principles mean that the new lists differ slightly from the previous ones.

As the authors emphasis, the lists of causes of death and age limits reflect current health expectations, medical technology and knowledge and health policy development, and are therefore subject to future revision. The latest 2022 version now takes into account COVID-19 and the potential to prevent deaths from it through vaccination. In our analyses of avoidable mortality, due to uncertainties in attributing SARS-CoV-2 infection as the cause of death, these deaths were not considered.

In 2023, there were 122,561 deaths (81,266 men and 41,295 women) due to **avoidable causes** (352 per 100,000 population). The causes included in this category pose a much greater threat to men than women; after eliminating differences in age structure, the mortality rate among men is 2.3 times higher than among women (Table 3.6b). Deaths in this group account for 30.0% of all deaths, 38.8% of men and 20.7% of women, while deaths under the age of 75 account for 65.7%, 66.3% and 64.6%, respectively.

Death rates due to all avoidable causes show **a slowdown in the previous downward trend after 2014,** an increase in mortality during the pandemic, which was more pronounced for treatable causes than for preventable causes, and a decline in mortality below pre-pandemic rates in the last two years (Fig. 3.58).

In six voivodships, the death rates due to avoidable causes in 2023 were higher than in 2019, with the most considerable difference in Lubelskie voivodship (+13.5%), while mortality in Małopolskie decreased by nearly a quarter (Fig. 3.59). The highest mortality rate in the last two years has been in the voivodships of Dolnośląskie, Pomorskie and Lubuskie, which in 2023 was approximately 15% higher than the national average.

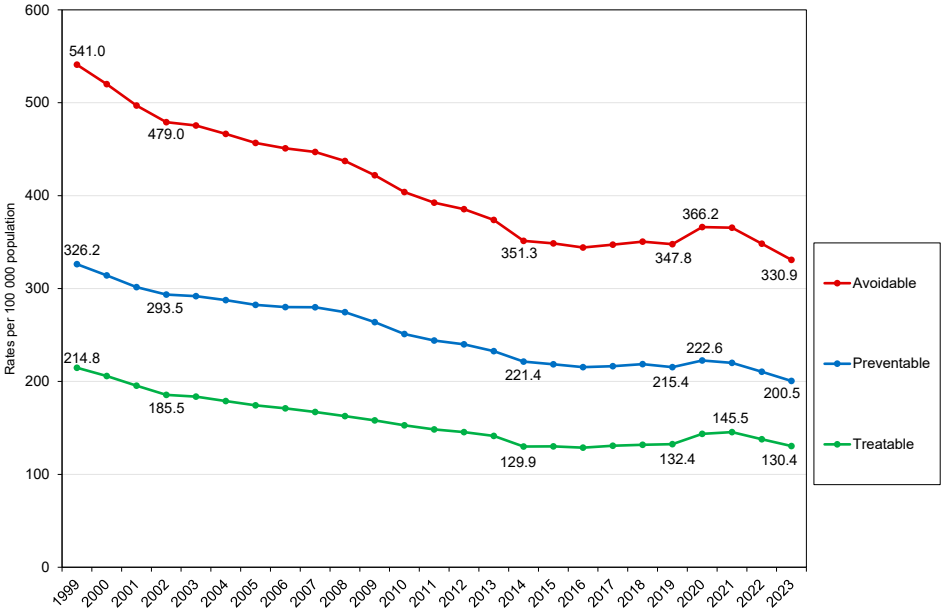

Fig. 3.58. Age-standardised death rates for persons under 75 due to avoidable, preventable and treatable causes in 1999–2023 (authors' calculations based on Statistics Poland data)

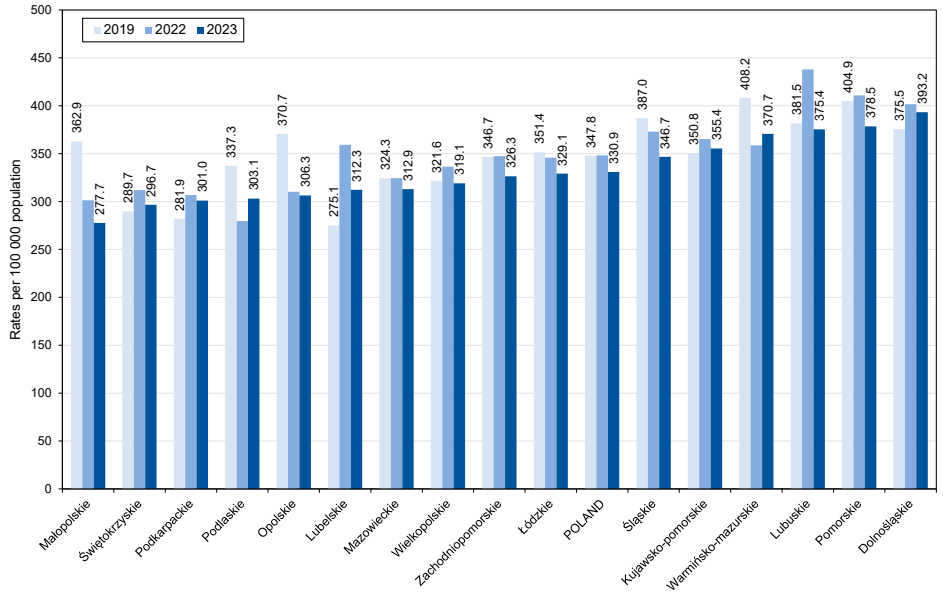

Fig. 3.59. Age-standardised death rates due to avoidable causes for the total population aged under 75 by voivodship in 2019, 2022 and 2023 (authors' calculations based on Statistics Poland data)

The mortality rate of the Polish population due to avoidable causes is strongly correlated with the level of education in both sex groups (Fig. 3.60). The lives of men with up to lower secondary education are approximately four times more at risk due to these causes than the lives of men with tertiary education, while this difference for women is threefold. The mortality rate for those with upper secondary education is three times higher for men and two and a half times as high for women as for those with tertiary education.

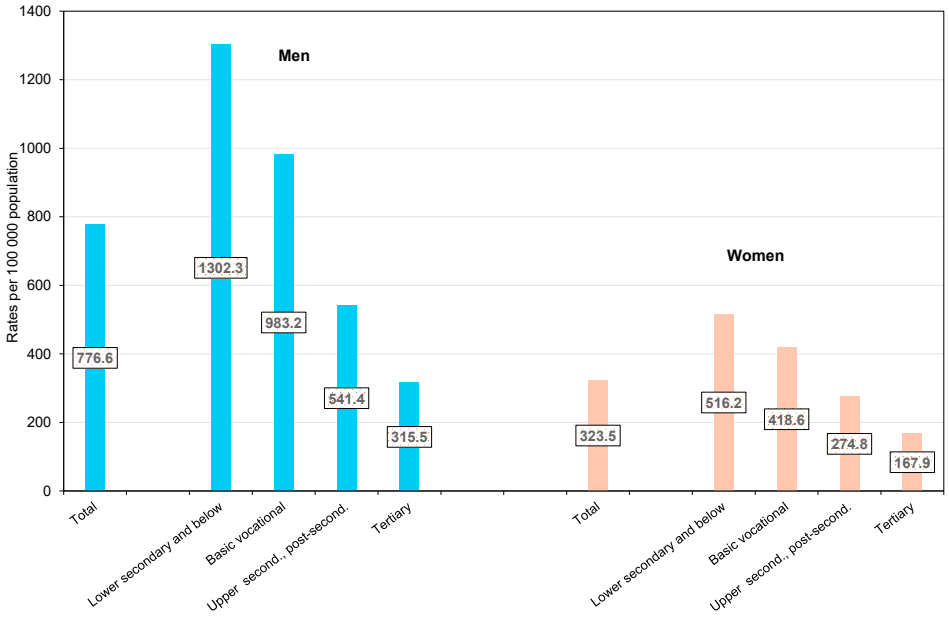

Fig. 3.60. Age-standardised death rates due to avoidable causes for men and women aged 30–74 by level of education in the three-year period 2020–2022 (authors' calculations based on Statistics Poland data)

The most important specific categories of **preventable mortality** include those caused by diseases for which vaccinations are available, HIV/AIDS, malignant neoplasm of the lung, hypertension, half of cases of ischaemic heart disease and cerebrovascular disease, chronic obstructive pulmonary disease, alcohol and substance use disorders, as well as accidental injuries and suicides.

In 2023, there were 74,189 deaths (52,713 men and 21,746 women) due to **preventable causes** (213 per 100,000 population). The causes included in this category pose a much greater threat to men than women; after eliminating differences in age structure, the mortality rate among men is 2.3 times higher than among

women (Table 3.6b). Deaths in this group account for 18.1% of all deaths, 25.2% of male deaths and 10.8% of female deaths.

Age-standardised death rates due to preventable causes for men are 10.4% higher for those living in rural areas than in urban areas; for women, these are 11.3% higher for those living in urban areas (Table 3.7b).

Figures 3.61a and 3.61b show important information on changes in standardised preventable mortality due to diseases of the circulatory system, neoplasms and alcohol-related causes between 1999 and 2023. The following facts are noteworthy. Preventable mortality due to neoplasms was in decline before the pandemic. It decreased even more sharply during the pandemic, which may have been due to the concomitant COVID-19 and the associated assignment of cause of death, as noted at the beginning of this chapter. In 2022 and 2023, death rates stabilised. At the same time, mortality due to CVD slowed down significantly in 2014–2016 and halted completely in 2016–2019. During the pandemic years of 2020 and 2021, mortality from CVD increased, but in 2022 and 2023, the death rate declined and was back to the 2019 rate by 2023. For mortality due to alcohol-related causes, the death rates for men and women increased between 2014 and 2022, reaching higher levels for men during the pandemic, but decreasing significantly for both sexes in 2023.

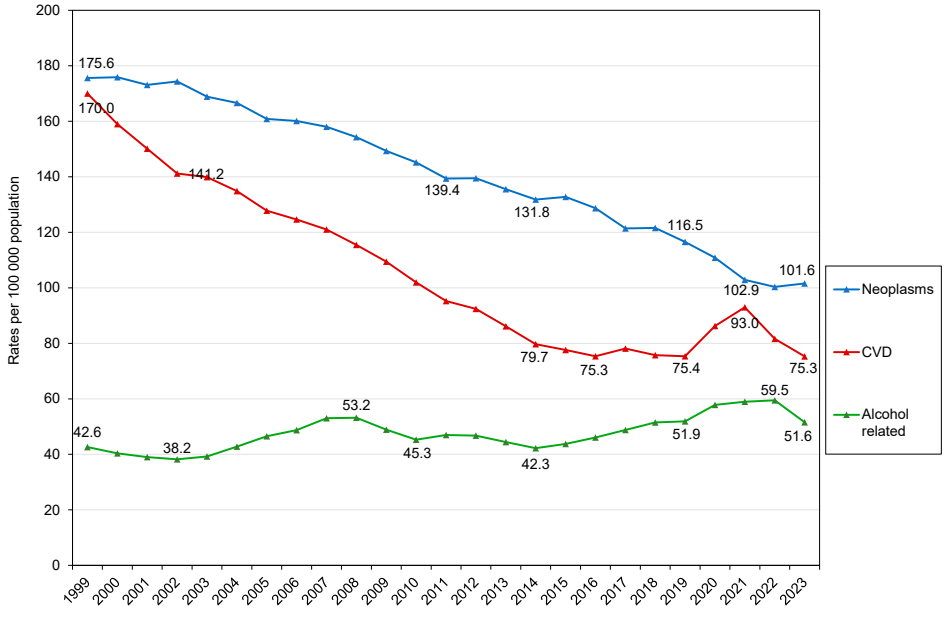

Fig. 3.61a. Age-standardised death rates for MEN under 75 due to preventable DCS, cancer and alcohol-related causes, in 1999–2023 (authors' calculations based on Statistics Poland data)

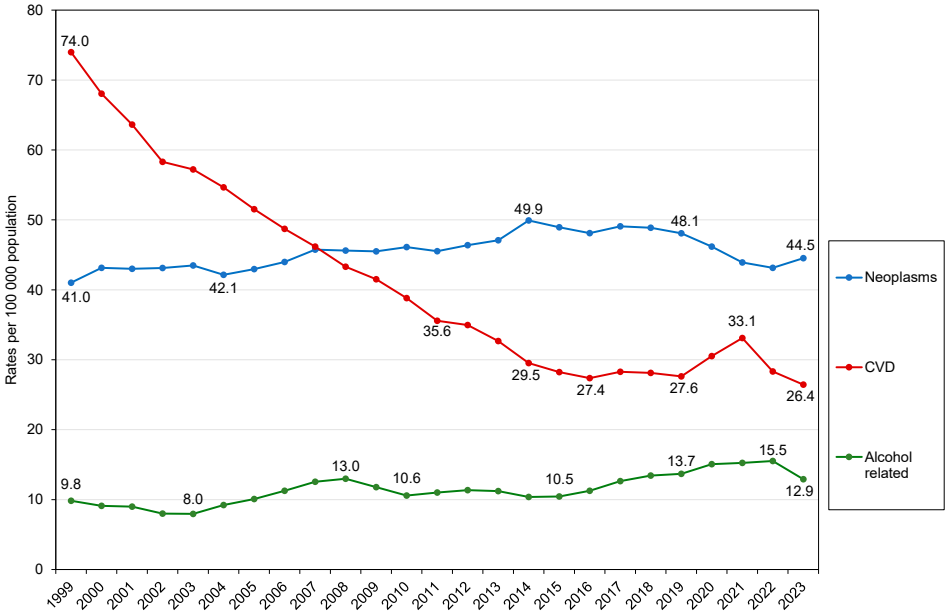

Fig. 3.61b. Age-standardised death rates for WOMEN under 75 due to preventable DCS, cancer and alcohol-related causes, in 1999–2023 (authors' calculations based on Statistics Poland data)

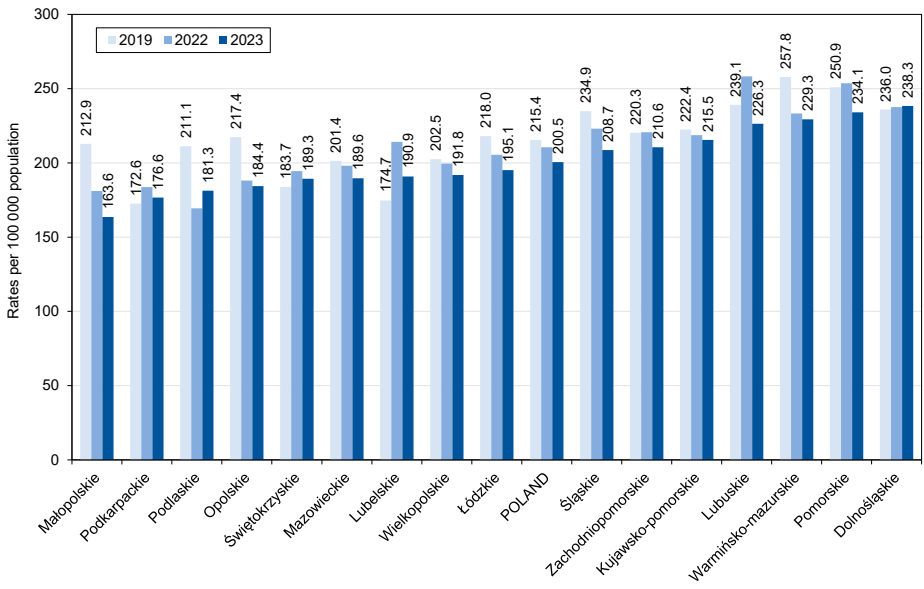

Fig. 3.62. Age-standardised death rates due to preventable causes for the total population aged under 75 by voivodship in 2019, 2022 and 2023 (authors' calculations based on Statistics Poland data)

In four voivodships, the death rates due to preventable causes in 2023 were generally slightly higher than in 2019, while in the remaining voivodships, mortality was lower, in six voivodships by more than 10% and in Małopolskie by as much as 23% (Fig. 3.62). The highest mortality rate in the last two years has been recorded in Dolnośląskie, Pomorskie, Warmińsko-mazurskie and Lubuskie voivodships; it is approximately 35% higher than in the voivodships of Małopolskie, Podkarpackie and Podlaskie.

Specific categories of **treatable (amenable)** causes of death include breast cancer, colorectal cancer, Hodgkin's disease, non-malignant neoplasms, acute and chronic rheumatic heart disease, half of cases of ischaemic heart disease and cerebrovascular disease, pneumonia and acute lower respiratory infections, asthma, stomach and duodenal ulcers, appendicitis, and hernias.

In 2023, there were 48,372 deaths (28,554 men and 19,818 women) (139 per 100,000 population) due to treatable causes. The causes included in this category pose a greater threat to men than women; after eliminating differences in age structure, the mortality rate among men is 71.6% higher than among women (Table 3.6b). Deaths in this group account for 11.8% of all deaths, 13.6% of all male deaths and 9.9% of all female deaths, while in mortality under the age of 75 they account for 22.3%, 20.1% and 26.6% of deaths, respectively.

Age-standardised death rates due to treatable causes are similar for urban and rural populations – mortality is 2.6% higher in rural areas for men and 4.8% higher in urban areas for women (Table 3.7b).

In four voivodships: Lubelskie, Podkarpackie, Dolnośląskie and Kujawsko-pomorskie, death rates due to treatable causes in 2023 were significantly higher than in 2019, while in Małopolskie and Opolskie voivodships, the mortality rate in 2023 was more than 20% lower than in 2019 (Fig. 3.63). The highest mortality rate in the last two years has been recorded in Dolnośląskie and Lubuskie voivodships, approximately 40% higher than in Świętokrzyskie and Małopolskie voivodships.

Figure 3.64 shows changes in standardised death rates due to treatable circulatory system diseases and cancer between 1999 and 2023. Apart from changes related to the pandemic, the most important observation concerns previous years. In the case of CVD, this was between 2014 and 2019, when the decline in mortality initially slowed down and then came to a complete halt between 2016 and 2019. In the case of cancer, practically the entire period from 1999 to 2019 was marked by a very slight decrease in mortality rates.

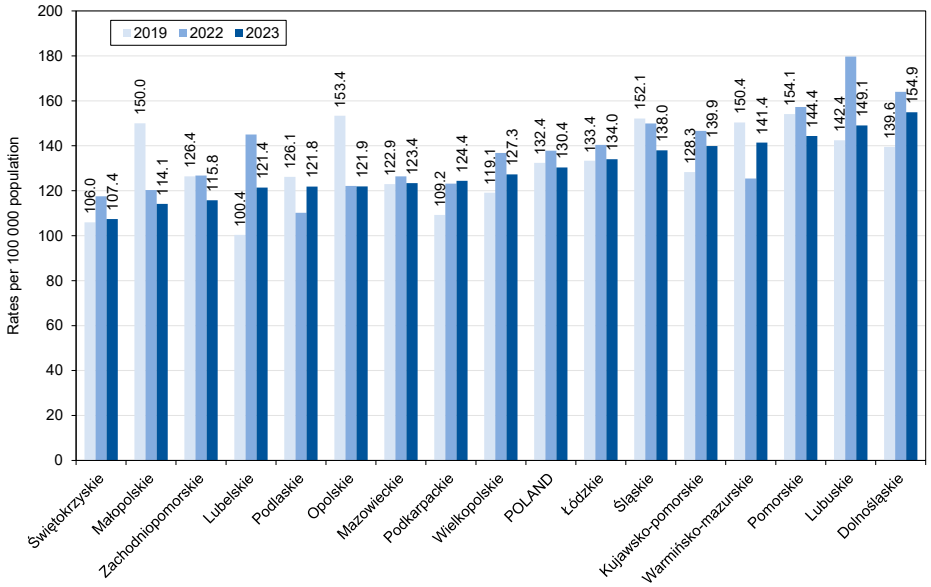

Fig. 3.63. Age-standardised death rates due to treatable causes for the total population aged under 75 by voivodship in 2019, 2022 and 2023 (authors' calculations based on Statistics Poland data)

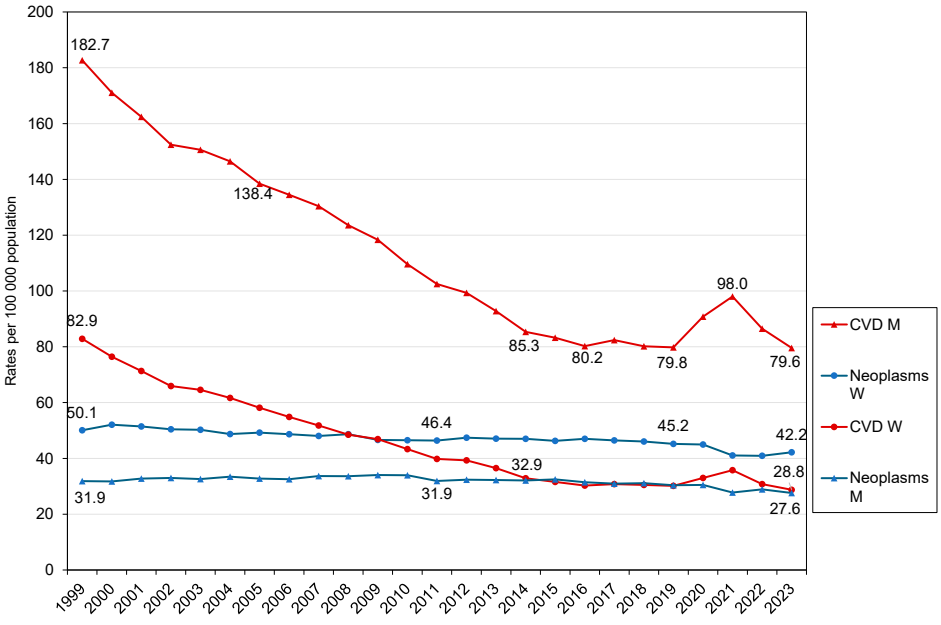

Fig. 3.64. Age-standardised death rates for men (M) and women (W) under 75 due to treatable CVD and neoplasms, 1999–2023 (authors' calculations based on Statistics Poland data)

Infant mortality

Infant mortality, i.e. the death of children under 1 year of age, declined in Poland until 2020, when the downward trend stopped. In 2023, there were 1,051 deaths of children under 1 year of age in Poland, i.e. 3.9 per 1,000 live births (Table 3.27).[24] Half of all infant deaths occur before the end of the first week of life. Compared to 2020, when the death rate was 3.6/1,000 live births, the post-neonatal mortality increased, i.e. among infants over four weeks of age with low birth weight, i.e. less than 2,500 g, and who were born slightly more frequently in 2023 than in 2020 (Tab. 3.28). Low birth weight is one of the main risk factors for infant mortality. In 2023 the mortality rate for infants born weighing less than 2,500 g was 36 times higher than for infants who weighed more.

Table 3.27. Infant deaths by age in 2013–2023

Years	Total	Age in full days				
		0-27				28-365
		Total	0-6		7-27	
			Total	0		
	Number	Percentage				
2013	1,684	69.1	50.2	30.8	18.9	30.9
2014	1,583	68.5	49.3	29.9	19.1	31.5
2015	1,476	72.3	51.6	29.1	20.7	27.7
2016	1,522	71.9	52.2	28.3	19.7	28.1
2017	1,604	70.8	53.4	31.0	17.5	29.2
2018	1,494	71.5	53.7	32.7	17.8	28.5
2019	1,412	72.5	53.4	31.6	19.1	27.5
2020	1,270	71.6	52.4	30.3	19.2	28.4
2021	1,306	73.9	52.6	32.7	21.3	26.1
2022	1,171	68.1	50.3	29.5	17.8	31.9
2023	1,051	66.5	50.1	29.9	16.4	33.5
	Per 1,000 live births					
2013	4.6	3.1	2.3	1.4	0.9	1.4
2014	4.2	2.9	2.1	1.3	0.8	1.3

[24] According to Statistics Poland's Statistical Bulletin No 2/2025, this rate was 3.6/1,000 live births in 2024

Years	Total	Age in full days				
		0-27				28-365
		Total	0-6		7-27	
			Total	0		
	Number	Percentage				
2015	4.0	2.9	2.1	1.2	0.8	1.1
2016	4.0	2.9	2.1	1.1	0.8	1.1
2017	4.0	2.8	2.1	1.2	0.7	1.2
2018	3.8	2.8	2.1	1.3	0.7	1.1
2019	3.8	2.7	2.0	1.2	0.7	1.0
2020	3.6	2.6	1.9	1.1	0.7	1.0
2021	3.9	2.9	2.1	1.3	0.8	1.0
2022	3.8	2.6	1.9	1.1	0.7	1.2
2023	3.9	2.6	1.9	1.2	0.6	1.3

Source: Based on Statistics Poland data

Table 3.28. Infant deaths by birth weight in 2013–2023

Years /	Under 2,500 g		2,500 g and more	
	Percentage of deaths[1]/	Deaths per 1,000 live births /	Percentage of deaths[1]/	Deaths per 1,000 live births /
2013	66.4	50.8	33.4	1.6
2014	66.7	47.5	33.2	1.5
2015	68.8	47.6	31.2	1.3
2016	68.4	46.6	31.6	1.3
2017	67.0	46.6	33.0	1.4
2018	70.8	49.2	29.2	1.2
2019	69.8	46.3	30.2	1.2
2020	66.5	44.2	33.5	1.3
2021	68.1	47.4	31.9	1.3
2022	68.3	46.1	31.1	1.3
2023	69.0	47.3	30.9	1.3

Source: Based on Statistics Poland data

Almost half (49.0%) of infant deaths in 2023 were caused by conditions originating in the perinatal period, primarily disorders related to short gestation and

low birth weight, which account for more than half (54%) of deaths in this group (Table 3.29). Compared to 2019, in 2022 and 2023, respiratory and cardiovascular disorders and bacterial sepsis of newborns became more significant causes of perinatal infant deaths. In the second most common group of causes of death, i.e. congenital malformations, responsible for 38% of all infant deaths, the significance of deaths due to malformations of the circulatory system decreased, while malformations of the nervous system gained slightly in importance. Unfortunately, in 2022 and 2023, the proportion of deaths due to ill-defined and unknown causes increased. The decreasing share of deaths due to external causes in infant mortality should be considered favourable.

Table 3.29. Infant deaths due to selected causes in 2019, 2022 and 2023

Causes of death (ICD-10)	2019			2022			2023		
	Number	Percentage	Per 1,000 live births	Number	Percentage	Per 1,000 live births	Number	Percentage	Per 1,000 live births
Total	1,412	100	3.8	1,171	100	3.8	1,051	100	3.9
including:									
Certain infectious and parasitic diseases (A00–B99)	4	0.3	0.0	4	0.3	0.0	9	0.9	0.0
Septicaemia (A40–A41)	0	-	-	0	-	-	1	0.1	0.0
Pneumonia (J12–J18)	43	3.0	0.1	29	2.5	0.1	35	3.3	0.1
Certain conditions originating in the perinatal period (P00–P96)	749	53.0	2.0	589	50.3	1.9	515	49.0	1.9
Disorders related to short gestation and low birth weight, not elsewhere classified (P07)	474	33.6	1.3	331	28.3	1.1	277	26.4	1.0
Birth trauma (P10–P15)	6	0.4	0.0	0	-	-	1	0.1	0.0
Respiratory and cardiovascular disorders specific to the perinatal period (P20–P29)	60	4.2	0.2	88	7.5	0.3	72	6.9	0.3
Bacterial sepsis of newborn (P36)	21	1.5	0.1	22	1.9	0.1	25	2.4	0.1

Causes of death (ICD-10)	2019			2022			2023		
	Number	Percentage	Per 1,000 live births	Number	Percentage	Per 1,000 live births	Number	Percentage	Per 1,000 live births
Congenital malformations, deformations and chromosomal abnormalities (Q00–Q99)	511	36.2	1.4	449	38.3	1.5	399	38.0	1.5
Congenital malformations of the nervous system (Q00–Q07)	37	2.6	0.1	40	3.4	0.1	39	3.7	0.1
Congenital malformations of the circulatory system (Q20–Q28)	227	16.1	0.6	173	14.8	0.6	138	13.1	0.5
Sudden infant death syndrome (R95)	22	1.6	0.1	19	1.6	0.1	18	1.7	0.1
Ill-defined and unknown causes of mortality (R96–R99)	7	0.5	0.0	19	1.6	0.1	21	2.0	0.1
External causes of death (V01–Y98)	40	2.8	0.1	19	1.6	0.1	13	1.2	0.0

Source: Own calculations based on Statistics Poland data

Infant mortality rates vary significantly between voivodships and fluctuate from year to year (Fig. 3.65). In 2023, the infant mortality rate ranged from 20 deaths per 10,000 live births in Lubuskie voivodship, where 2023 brought a significant decrease in mortality, to 55 in Kujawsko-pomorskie voivodship, where high infant mortality persists. Despite significant annual fluctuations in infant mortality rates in individual voivodships, it is possible to identify the voivodships where the mortality rate in recent years has remained above the national average and those where it is lower than in Poland as a whole. The first group in 2019–2023 included the following voivodships: Kujawsko-pomorskie, Warmińsko-mazurskie, Śląskie, Podkarpackie, and in the last four years (2020–2023) Pomorskie, and Lubelskie in 2019–2022 (significant decrease in mortality in 2023). In contrast, the rates in Mazowieckie, Lubuskie and Małopolskie voivodships remained below the national average throughout the five-year period.

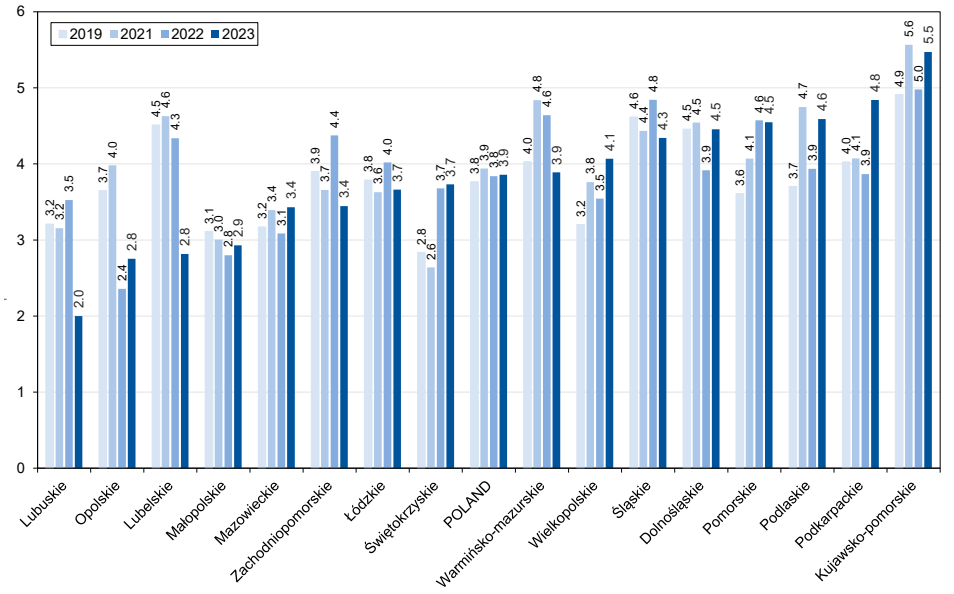

Fig. 3.65. Infant death rates by voivodship in 2019, 2021–2023 (based on Statistics Poland data)

Mortality in Poland compared to other European Union countries

This subsection presents the mortality rate of the Polish population in comparison with that of the EU-27 as a whole and its individual countries in terms of infant mortality and mortality due to avoidable causes, with particular emphasis on alcohol-related deaths.

Although infant mortality rates in Poland have been steadily declining for years, and the rate of decline until 2015 was higher than the EU average, the decline slowed down after that year. In 2023, the infant mortality rate in Poland (3.9/1,000 live births) was higher than the EU average (3.3/1,000) by the same amount as in 2014 (Fig. 3.66). Of note is that infant mortality in Poland has been at the same level as in France since 2017, despite being significantly higher in 2010. Infant mortality rates are declining more slowly in most EU countries, but this trend occurs at different levels, and there is undoubtedly room for improvement in Poland in this area.

Of note is the higher early neonatal mortality, i.e. in the first week of life, in Poland than in most EU-27 countries (Fig. 3.67). On the other hand, this rate is similar to that in the UK, the Netherlands or Germany.

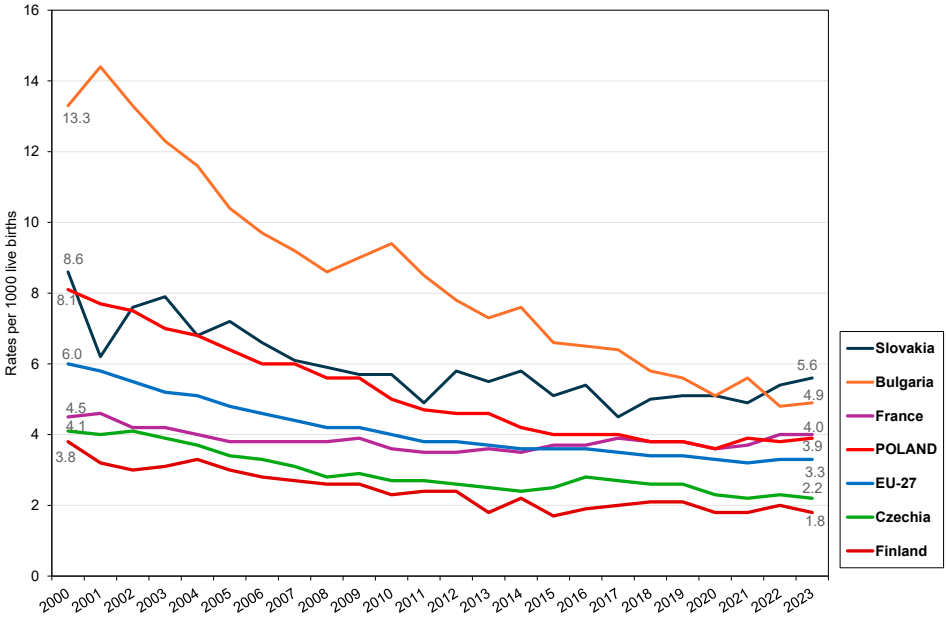

Fig. 3.66. Infant mortality rates in Poland, EU-27 average and selected EU countries in 2000–2023 (based on Eurostat data)

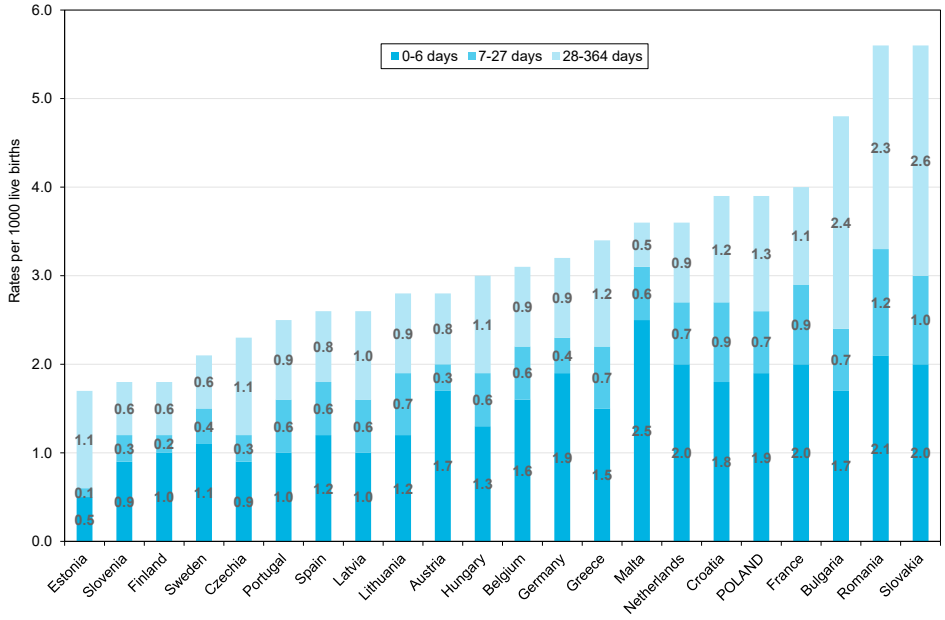

Fig. 3.67. Infant mortality by age in Poland and EU countries in 2023 (based on Eurostat data)

A comparison of the mortality rate and its dynamics in Poland with selected EU countries due to avoidable causes is not very favourable for Poland. Figure 3.68 shows the current (latest available in 2022) mortality rate in EU-27 countries for people under 75 due to preventable and treatable causes. In all countries, mortality due to preventable causes is higher than mortality due to treatable causes, by an average of 87% for the EU-27, ranging from 39% in Malta and Slovakia to 196% in Slovenia. In 2022, mortality due to preventable causes in Poland was 45% higher than the EU-27 average, mortality due to treatable causes was 56% higher, and avoidable mortality was 49% higher.

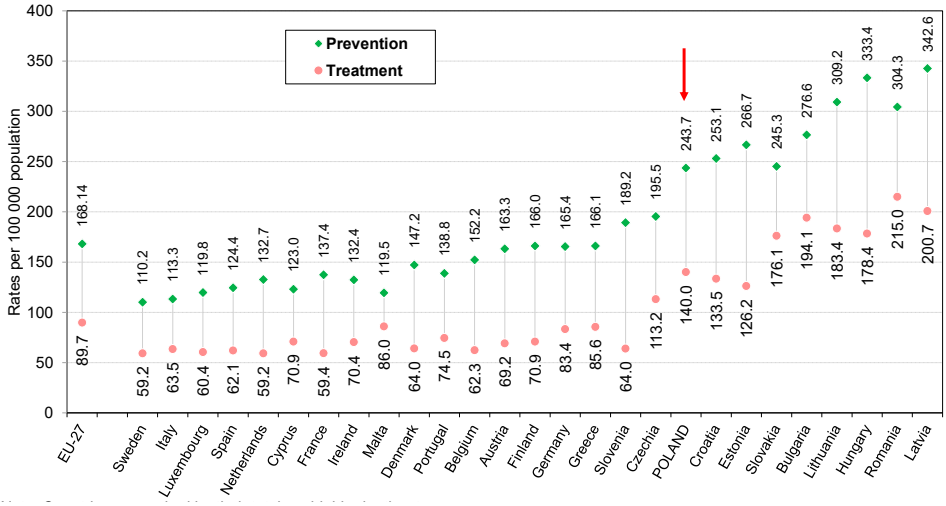

Fig. 3.68. Age-standardised death rates for persons under 75 due to preventable and treatable causes in the EU-27 in 2022 (based on Eurostat data)

As shown in Figures 3.69a and 3.69b, the dynamics in mortality rates for these two groups of causes of death in individual countries have been fairly similar in recent years, which means that the differences between countries tend to remain stable. Of note is the widespread increase in mortality in 2022 due to preventable causes, which may indicate the effect of changes in health behaviour during the pandemic and a weakening of public health measures more broadly, as these were focused on preventing the effects of COVID-19. In the second group of causes of death, i.e. treatable causes, attention is drawn to the deteriorating situation in Poland after 2016, which is particularly evident when compared to the Czech Republic.

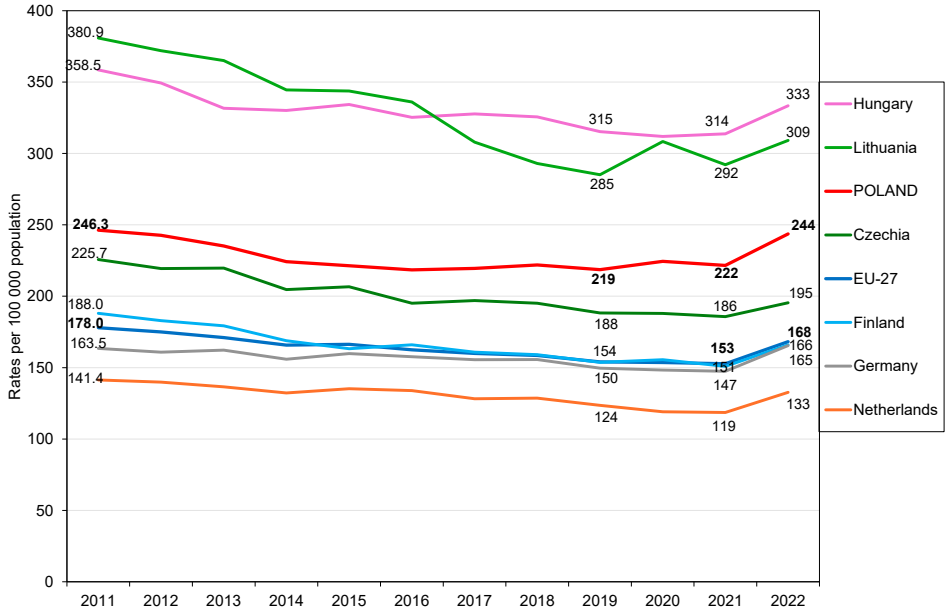

Fig. 3.69a. Age-standardised death rates for people under 75 due to preventable causes in Poland and selected EU countries in 2011–2022 (Eurostat data)

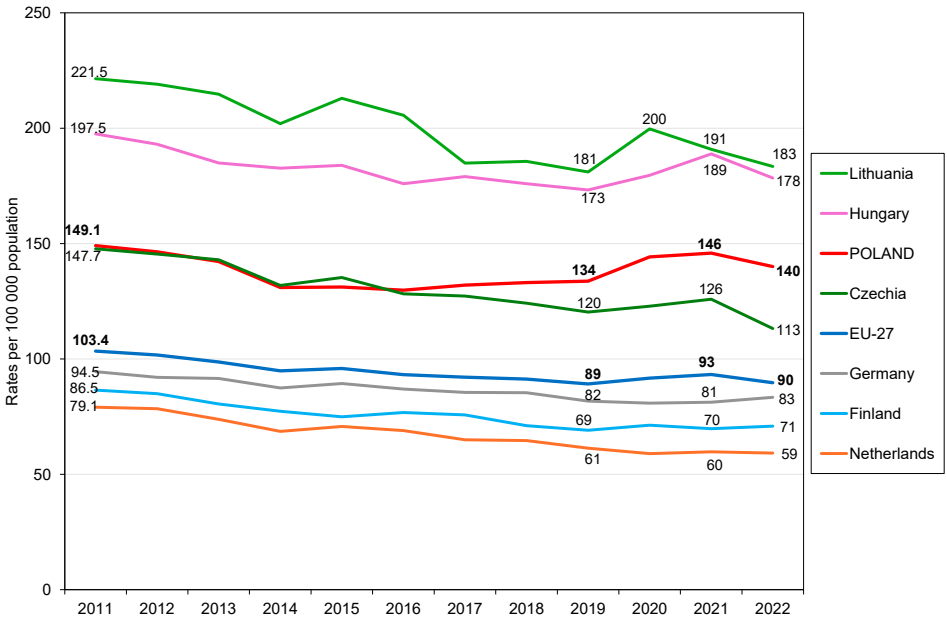

Fig. 3.69b. Standardised death rates for people under 75 due to treatable causes in Poland and selected EU countries in 2011–2022 (Eurostat data)

Figures 3.70a and 3.70b present mortality rates due to preventable, and treatable diseases of the circulatory system and cancer in Poland and the EU-27 as a whole, as well as in selected countries. In the case of preventable diseases, neoplasms pose a greater problem, with mortality rates across the EU 67% higher than those for CVDs in 2022. In contrast, for treatable conditions, diseases of the circulatory system are a greater concern, accounting for 34% more deaths across the EU in 2022 than neoplasms. It should be noted that, for both preventable and treatable diseases, the situation in Poland is more unfavourable than in the EU-27 for diseases of the circulatory system than for cancer.

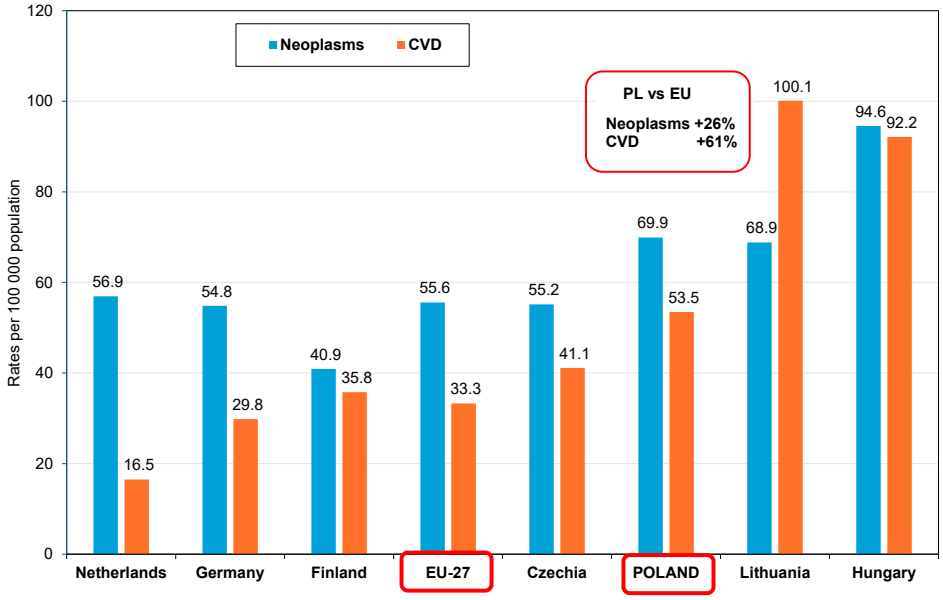

Fig. 3.70a. Age-standardised death rates for persons under 75 due to preventable diseases of the circulatory system (CVDs) and neoplasms in Poland and selected EU-27 countries, 2022 (based on Eurostat data)

Finally, we would like to draw attention to mortality due to preventable alcohol-related health problems, which are also listed in the OECD and Eurostat report mentioned above. The mortality rate for men in Poland in 2022 was more than twice (114%) higher than the average mortality rate in the EU-27 countries (Fig. 3.71a), while the mortality rate for women was 89% higher (Fig. 3.71b).

Figure 3.72 presents changes in male mortality rates from alcohol-related causes in 2011–2022 in Poland, the EU-27 as a whole and selected countries. As mentioned earlier, the mortality rate in Poland has seen a steady increase since 2014, while the mortality rate in the EU as a whole remained stable.

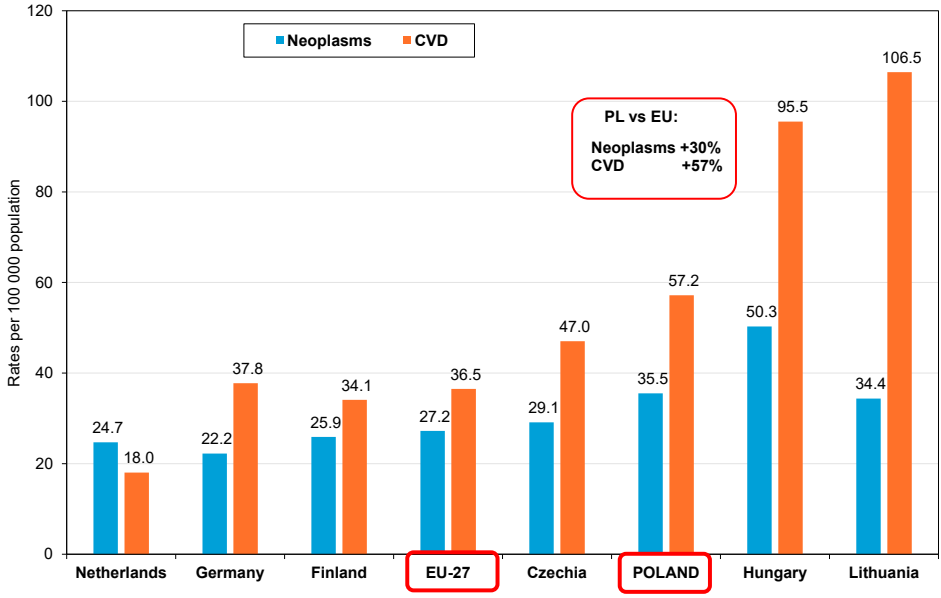

Fig. 3.70b. Age-standardised death rates for persons under 75 due to treatable diseases of the circulatory system (CVDs) and neoplsms in Poland and selected EU-27 countries, 2022 (based on Eurostat data)

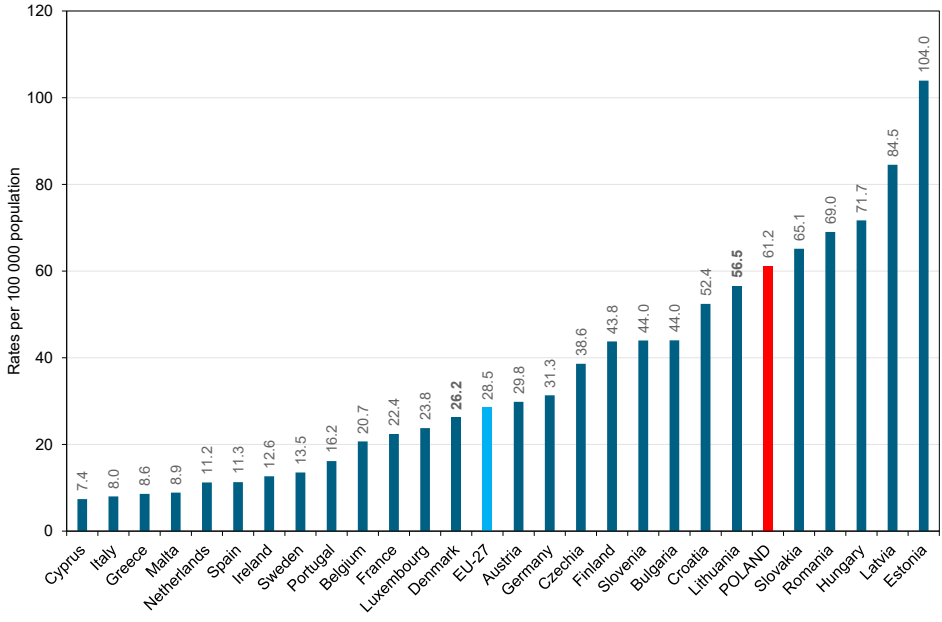

Fig. 3.71a. Age-standardised death rates for men under 75 due to alcohol-related causes in EU-27 countries in 2022 (Eurostat data)

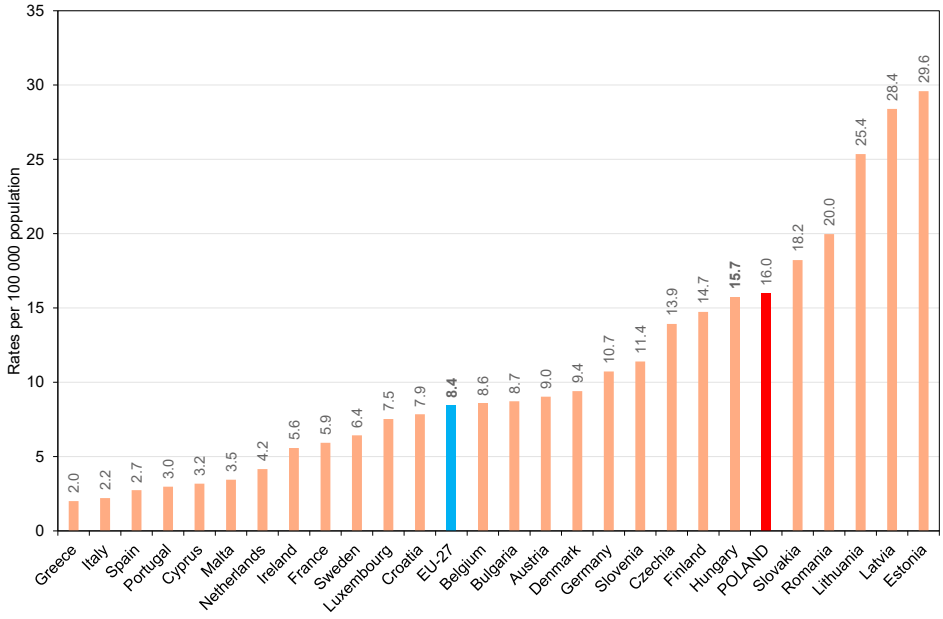

Fig. 3.71b. Age-standardised death rates for women under 75 due to alcohol-related causes in EU-27 countries in 2022 (Eurostat data)

As a result, the excess mortality in Poland compared to the EU-27 increased from 60% in 2014 to the aforementioned 114% in 2022, thus almost doubling. Of note is the situation in Lithuania, where measures taken in the late 2000s in response to the significant health damage caused by alcohol consumption led to a substantial decline in alcohol-related mortality by 2018. However, despite further measures, this trend has failed to continue in recent years, indicating undoubted difficulties in achieving this goal.[25] Considering that the causes of death included are almost entirely direct consequences of alcohol consumption and do not include causes that are only partially alcohol-related, the problem is undoubtedly much greater and requires urgent and effective measures to reduce alcohol consumption.

Since the mortality rate in Poland is higher than in Western European countries for most causes of death, it is worth considering to what extent these differences in mortality due to specific causes contribute to a shorter life expectancy of the Polish population compared to the inhabitants of Western Europe.

[25] Rehm J, Rovira P, Jiang H, Lange S, Shield KD, Tran A, Štelemėkas M. Trends of alcohol-attributable deaths in Lithuania 2001–2021: epidemiology a d policy conclusions. BMC Public Health (2024) 24:774, https://doi.org/10.1186/s12889-024-18237-y.

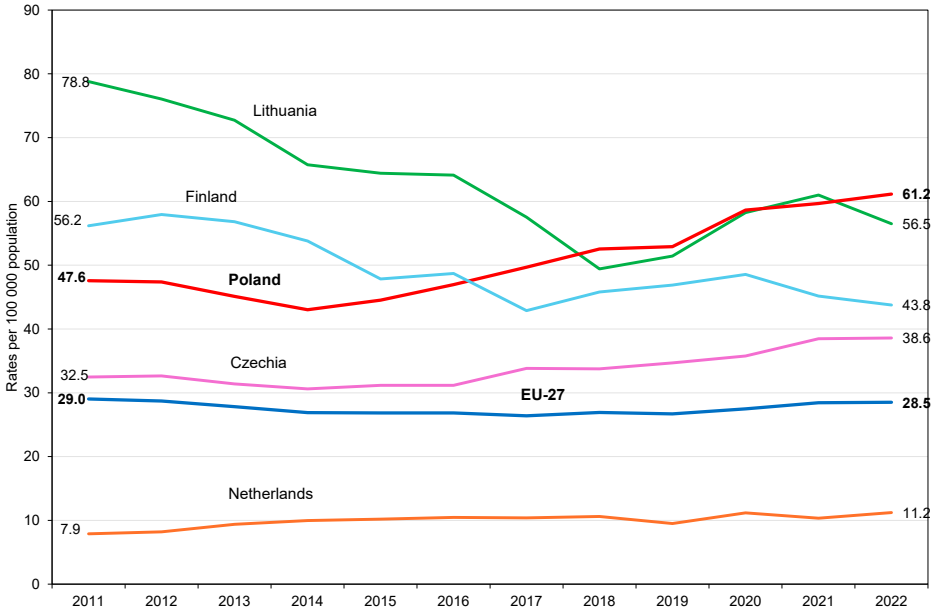

Fig. 3.72. Age-standardised death rates for men under 75 due to alcohol-related causes in EU-27 countries and selected countries in 2011–2022 (based on Eurostat data)

In order to estimate this proportion, the difference in life expectancy for men and women in Poland in relation to the inhabitants of selected countries, was broken down taking into account mortality from the main causes of death according to the previously mentioned Arriaga's method. As shown in Figures 3.73a and 3.73b, the shorter life expectancy of Poland's population is mainly due to higher mortality from diseases of the circulatory system, particularly heart disease, which shortens the lives of Polish men and women by 2.5 and 2.3 years, respectively, compared to the population of France, 2.2 and 1.9 years compared to the population of Spain, 2.3 and 1.4 years compared to the population of the Netherlands, etc. Higher mortality due to malignant neoplasms shortens the life expectancy of Polish men and women in comparison to their counterparts in the Netherlands and Sweden, by 1.5 years for men and 0.8 years for women. However, it should be noted that the imperfections of our system for assigning causes of death mean that deaths coded as due to symptoms and ill-defined causes play a large role in explaining the difference in life expectancy between the populations of Poland and other countries. The WHO considers these garbage codes, which are rarely used in countries with sound death certification systems. This means that heart disease and cerebrovascular disease may play an even greater role in explaining the shorter life expectancy of the Polish population.

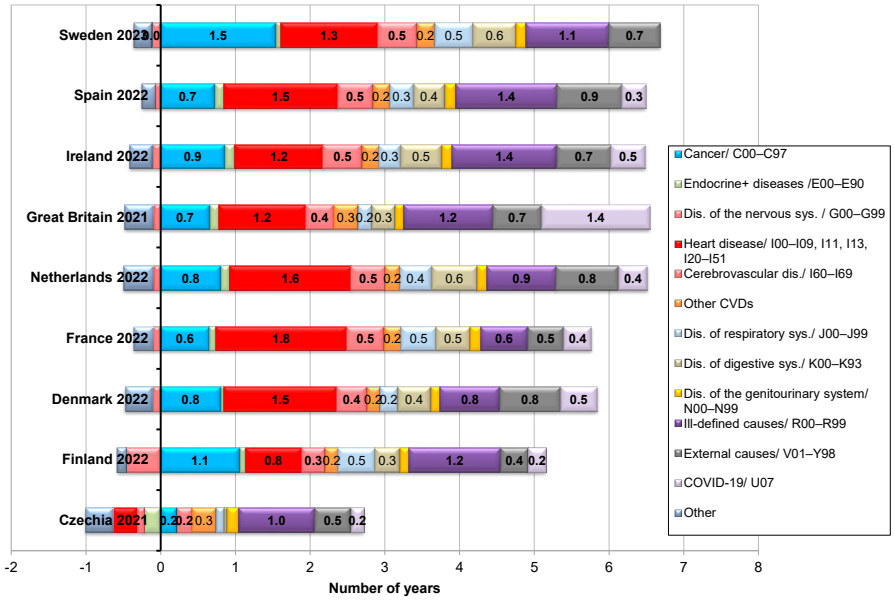

Fig. 3.73a. Number of years of shorter life expectancy for MEN in Poland compared to men in other countries, resulting from higher death rates among Polish men due to specific causes of death (authors' calculations based on the WHO Mortality Database)

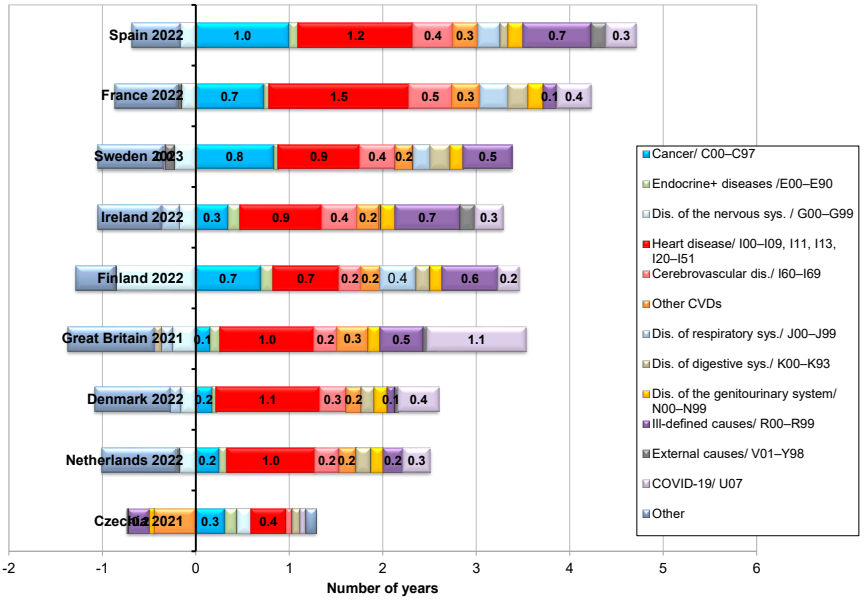

Fig. 3.73b. Number of years of shorter life expectancy for WOMEN in Poland compared to women in other countries, resulting from higher death rates among Polish women due to specific causes of death (authors' calculations based on the WHO Mortality Database)