

International Agency for Research on Cancer





Country Factsheet Series

Socio-economic inequalities in cancer mortality across the EU27, Norway and Iceland

Slovenia

Key messages

National average mortality rates for total cancer in 2015–2019* in Slovenia were higher in men compared to women, and for both sexes higher than the corresponding European average. A social gradient was observed among men, with a progressive increase in mortality rates as educational levels decreased. This gradient was not observed among women, as total cancer mortality rates were similar across all educational groups. The social gradient was observed for all cancer sites in men. Among women, the gradient was clear for stomach and cervical cancer, whereas for lung and breast a cancer a reverse social gradient was observed, with

increasing mortality rates as educational levels increased. In Slovenia, equitable access to health care is a basic principle of social health insurance. Cancer services are free of charge, new cancer therapies are accessible, and out-of-pocket expenditures are low, even though there are shortages of oncology specialists and equipment. However, inequalities in cancer mortality still remain, especially among men.

Educational inequalities in total cancer mortality

In Slovenia, mortality rates for total cancer** in 2015-2019 were 529 per 100,000 among men, and 307 per 100,000 among women. Rates varied across educational levels in men, with a progressive decrease in mortality rates as educational levels increased. Men with primary education had about 60% higher mortality rates compared to men with tertiary education (657 vs 403 per 100,000). Among women, there was no significant difference in mortality rates across educational level (306 vs 307 per 100,000).

The inequality gap among men (i.e., the difference in rates between primary and tertiary education) was smaller than the European average***, and the smallest in the Baltic/Central/Eastern European area.

^{*} In Slovenia, the estimates were based on the method used for group B countries. See methodological notes at the end and the Methodological report for more information.

^{**} All cancers combined

^{***} European average is calculated considering 27 EU Member states + Norway and Iceland



Figure 1. Total cancer mortality by sex and education level

Educational inequalities in mortality by cancer site

🚺 Lung cancer

Lung cancer was the largest contributor to cancer mortality in both sexes, although rates among men were over two times higher compared to those among women. National mortality rates were higher than the corresponding European average for both sexes. A social gradient was observed for men with increasing mortality rates as educational levels decreased. Conversely, among women, a reverse gradient was found, with increasing mortality rates as educational levels increased. These patterns could be explained by past inequalities in tobacco consumption across educational levels and sexes. In 2002 in Slovenia, tobacco smoking rates were almost twice as high among men (27%) compared to women (18%) [1].



Colorectal and stomach cancer mortality rates among men were higher compared to the corresponding European average, but similar among





women. For both cancer sites, a clear social gradient was observed among men, whereas among women the social gradient was evident only for stomach cancer. Inequalities in the past exposure to risk factors such as smoking, alcohol consumption, poor diet, physical inactivity [2, 3], and Helicobacter pylori infection (for stomach cancer) [4]) by sex and educational level could, at least partly, explain inequalities in mortality for stomach and colorectal cancers. In Slovenia, although alcohol consumption rates are similar to the European average (9.8 litres per capita), heavy episodic alcohol consumption is increasing, with four in ten adults reporting binge drinking at least once in 2019 [3]. This is a behavior that could be social patterned. Another important factor affecting colorectal cancer mortality is screening: in 2019, more people (aged 50-74 years) with primary (32%) and secondary education (32%) reported to have never had a colorectal cancer screening compared to people with tertiary education (25%) [5], and participation was higher among women than men (69% vs 58%) [3].

Breast cancer Breast cancer was the second largest contributor to

cancer mortality among women after lung cancer, with national mortality rates comparable to the European average. Breast cancer showed a clear and strong reverse gradient, with progressively decreasing mortality rates as educational levels decreased. This pattern can be explained by the higher prevalence of certain risk factors among women with higher educational levels, such as delayed age at first childbirth, lower parity, and greater use of hormone replacement therapy [6]. These factors are known to increase breast cancer risk. With respect to screening, in 2019, there were no significant educational differences in participation (8% of the women with secondary and tertiary education, and 10% of women with primary education reported to have never had a breast exam [5]).

Prostate cancer

National average mortality rates for prostate cancer were higher than the corresponding European average. There was a clear social gradient with mortality rates decreasing as educational levels increased. This gradient could be possibly explained by inequalities in the stage at diagnosis, and in access to treatment or treatment options [7].



Figure 2.b. Cancer-specific mortality by sex and education level: colorectum



Figure 2.c. Cancer-specific mortality by sex and education level: stomach



Figure 2.d. Cancer-specific mortality by sex and education level: breast (left), prostate (right)

Cervical cancer

Cervical cancer mortality rates were the lowest among all cancers assessed, and national rates were lower than the European average. A social gradient was found, with primary and secondary education level women having higher rates compared to those with tertiary education. In 2019, more women with high incomes (69%) reported to have taken a smear test compared to those with low incomes (48%) [3]. The scale-up and equitable implementation of Human papillomavirus (HPV) vaccination and HPVbased screening could potentially further decrease the disease burden and associated socio-economic disparities.

Methodological notes:

Findings are based on the ERAINHE dataset, which includes mortality data by educational attainment, age group, sex, period, country and cause of death. For most countries, the data are derived from individually-linked records, collected and harmonized in different periods in different projects (for the full description see the Methodological report). Geographical and temporal gaps in the ERAINHE dataset were addressed using complementary data sources and appropriate estimation methodologies tailored to the availability of the data. Age-standardised (European Standard Population) mortality rates by educational level for individuals aged 40–79 years were thus estimated for 2015– 2019, using four different methods:

 Method for group A countries, for countries with at least 3 recorded observations over different periods of time: actual observed data for 2015–2019 (when available) or projections based on linear regression models;



Figure 2.e. Cancer-specific mortality by education level: cervix

- Method for group B countries, for countries with 1 or 2 recorded observations only: incomplete data combined with trends from other databases;
- Method for group C countries, for countries with no observations for certain cancer sites: integration of data from different databases with information from countries in the same geographical area;
- "Back-calculation" method, for countries without available data in the ERAINHE dataset: combination of population a mortality data from different databases with information on educational inequalities in cancer from countries in the same geographical area.

For Slovenia, the method for group B was used. Since this method is based on a relatively small number of observations, caution is advised when interpreting the results

Contact information

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