Country Factsheet Series

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

Iceland

Key messages

In Iceland, total cancer mortality rates in 2015-2019* were below the European average for men and comparable for women. Mortality rates were higher in men than in women and exhibited a pronounced social gradient, increasing as educational attainment decreased. This gradient was steep among women, largely driven by disparities in lung cancer mortality. A clear social gradient was found for all selected cancer types, except for breast cancer. Iceland has national screening progammes for breast and cervical cancer but these are not free of charge and financial barriers for using cancer care may exit.

Educational inequalities in total cancer mortality

In Iceland, mortality rates for total cancer** in 2015-2019 were 316 per 100,000 among men and 301 per 100,000 among women and varied greatly according to a social gradient. Men with primary education had cancer mortality rates approximately 70% higher than men with tertiary education (398 vs 237 per 100,000). Women with primary education had approximately 60% higher cancer rates compared to those with tertiary education (384 vs 236 per 100,000).

The difference in rates between primary and tertiary education (i.e., inequality gap) was smaller than the European average*** for men, but larger for women. Compared to countries in the same area, the inequality gap was larger than in Sweden for both sexes, and in Finland for women only.

* In Iceland, estimates of cancer mortality by education level were based on the "back-calculation" method, which consists in borrowing information from countries with observed data in the same geographical area, specifically Norway, Denmark, Sweden and Finland. 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

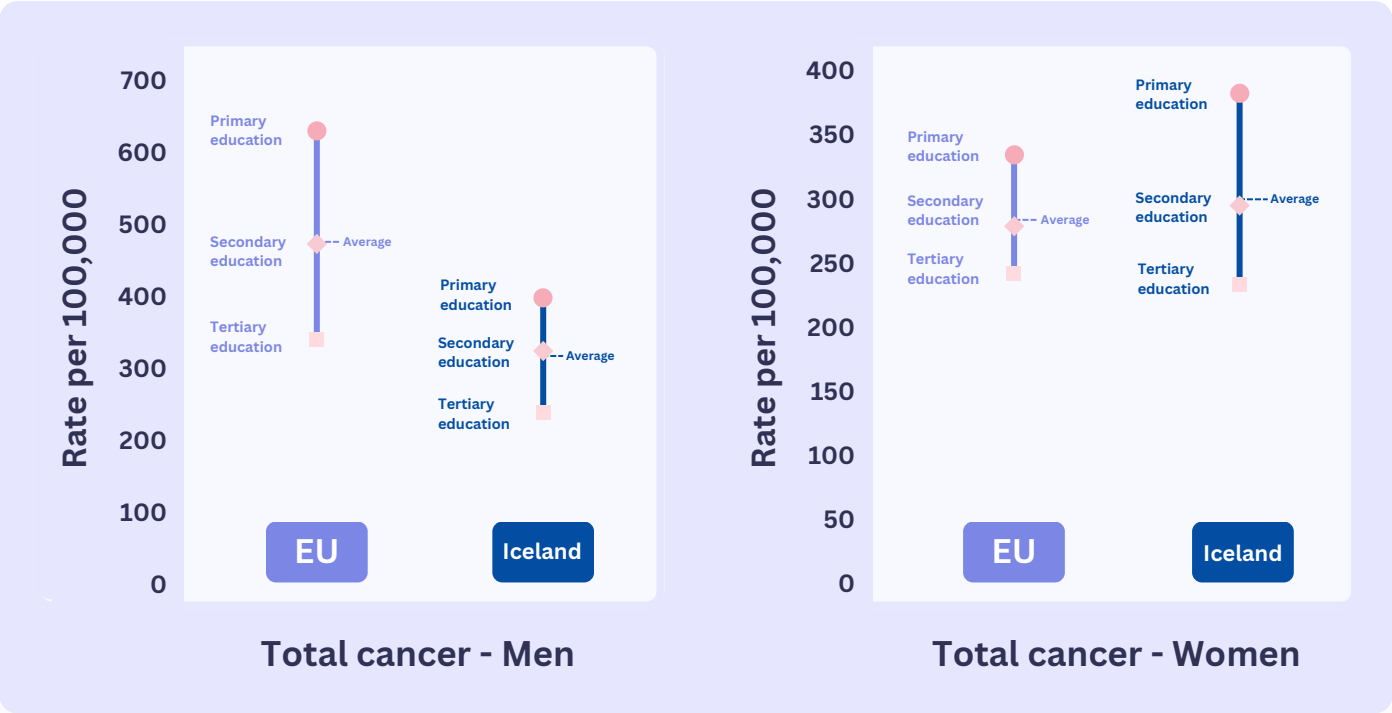

Figure 1. Total cancer mortality by sex and education level

Educational inequalities in mortality by cancer site

Lung cancer

Lung cancer mortality was lower than the European average in men and above the European average in women. Contrary to most of the other countries in Europe, lung cancer mortality rates were higher among women than among men. In both sexes, there was a clear social gradient for lung cancer and the disease was a large contributor to inequalities in total cancer mortality. The educational inequalities in lung cancer mortality were particularly marked among women, with an inequality gap that was much larger than the European average. Given the long delay between smoking and the development of lung cancer, sex and socio-economic differences in lung cancer mortality in Iceland may be partly explained by inequalities in tobacco smoking over past decades, when smoking prevalences were still higher [1].

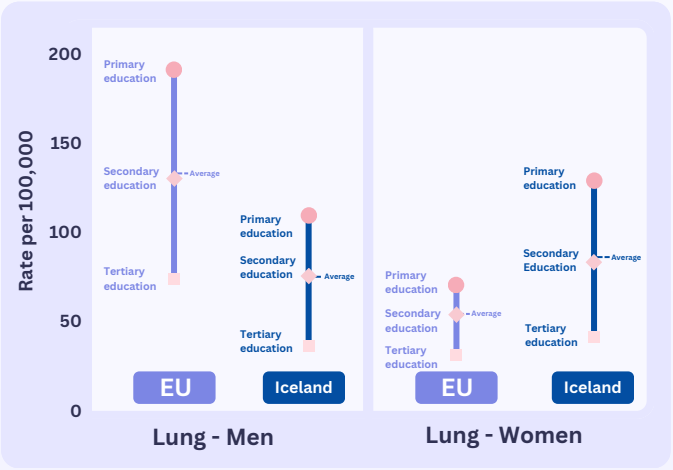

Figure 2.a. Cancer-specific mortality by sex and education level: lung

Colorectal and stomach cancers

National average rates for stomach and colorectal cancer mortality in Iceland were below the corresponding European average, or similar (for colorectal cancer in women). For both cancer sites, there was a clear social gradient, with rates being approximately 20 to 30% higher among men, compared to women. Socio-economic and sex inequalities in past exposure to risk factors, i.e., poor diet, physical inactivity, obesity, alcohol consumption, smoking [2, 3], and Helicobacter pylori infection at young ages (for stomach cancer), which are more prevalent among those with lower educational attainment [4], may partly explain the inequalities in colorectal and stomach cancer. Colorectal screening is not conducted on a population-wide basis and opportunistic screening participation is relatively low, although with only small inequalities between educational groups [5].

Breast cancer

Breast cancer showed the second highest mortality rate among women, after lung cancer, and was slightly higher compared to the corresponding European average. There was no clear social gradient, but women with primary education had a higher mortality rate compared to those with tertiary education, suggesting an equilibrated balance between the effect of risk factors, early diagnosis, screening and treatment practices [6]. The participation in screening was higher than the EU average, and similar for lower and higher educated groups [7].

Prostate cancer

Prostate cancer contributed significantly to overall cancer mortality among men in Iceland, with mortality rates comparable to the European average. A clear social gradient in mortality was evident, with rates decreasing as educational levels rose. This disparity may stem from differences in the stage at which cancer is diagnosed and unequal timely access to or availability of treatment options [8].

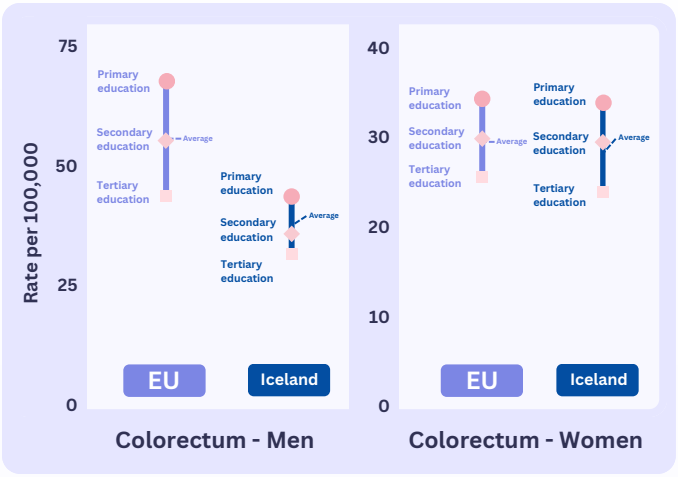

Figure 2.b. Cancer-specific mortality by sex and education level: colorectum

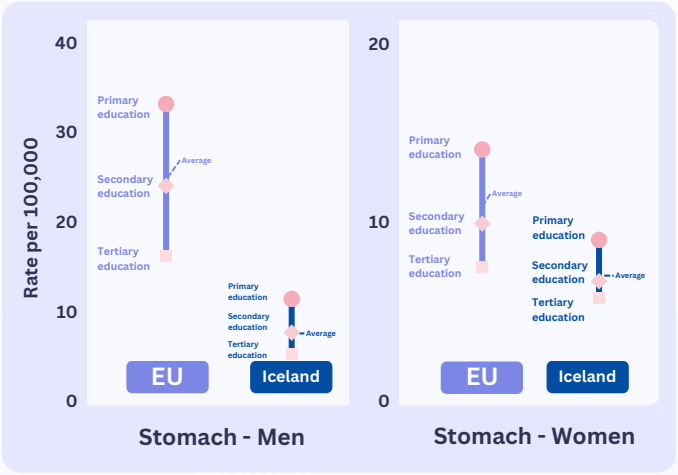

Figure 2.c. Cancer-specific mortality by sex and education level: stomach

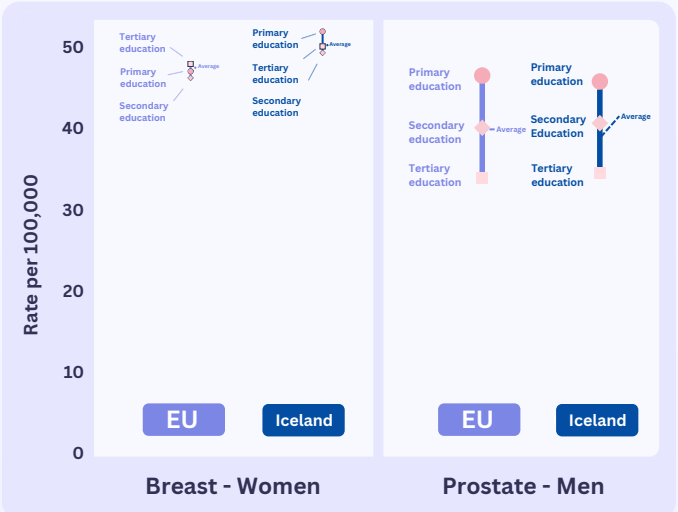

Figure 2.d. Cancer-specific mortality by sex and education level: breast (left), prostate (right)

Cervical cancer

Despite the relatively low rates, in comparison to the European average and to other cancer types, cervical cancer mortality showed a marked social gradient, increasing with decreased educational attainment. The differences across educational groups may be largely related to inequalities in the uptake of cervical cancer screening. In 2019, cervical cancer screening uptake was more than 30% lower among women with lower education as compared to those with high education [2]. Human papillomavirus (HPV) vaccination and HPV-based screening has the potential to further decrease the inequalities in the disease burden.

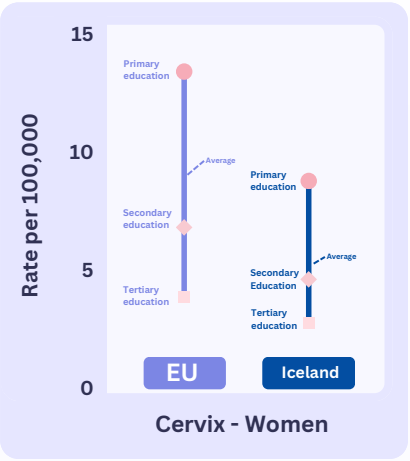

Figure 2.e. Cancer-specific mortality by education level: cervix

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;
- **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 Iceland, the "back-calculation' method was used.
Disclaimer: As this method also integrates information from countries within the same geographical area, the degree of uncertainty associated with the estimates is higher compared to estimates based solely on national data.

Contact information

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