

Country Factsheet Series

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

Estonia

Key messages

In Estonia, national average cancer mortality rates in 2015–2019* were higher than the European average in men, and similar for women. Mortality rates for total cancer were approximately twice as high in men compared to women. Mortality rates varied greatly across educational levels, following a social gradient, i.e., progressive increase in mortality rates as educational levels decreased. A clear social gradient was observed for all selected cancer types for both sexes, but a reverse social gradient was observed for breast cancer. Among the assessed cancer types, lung cancer showed the highest mortality rates, in both men and women.

Financial obstacles to obtaining cancer care are minimal in Estonia, but limited availability of personnel and equipment restricts access to proper diagnosis and treatment. The country has implemented two cancer control plans, since 2007. Nevertheless, inequalities in cancer mortality in Estonia, especially for lung cancer, are quite high.

Educational inequalities in total cancer mortality

In Estonia, mortality rates for total cancer** in 2015–2019 were 607 per 100,000 in men and 286 per 100,000 in women. Rates varied significantly according to a social gradient in both sexes, which was more pronounced among men. Men with primary education had cancer mortality rates over two times higher than men with tertiary education (871 vs 410 per 100,000). Among women, this

difference was lower (390 vs 253 per 100,000).

In both sexes, the difference in rates between primary and tertiary education (i.e., inequality gap) was larger than the European average*** and than that in Southern/Western and Northern European countries, but it was lower compared to other Baltic/Central/Eastern European countries, like Lithuania and Hungary.

* In Estonia, estimates were obtained using the method for group A. 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

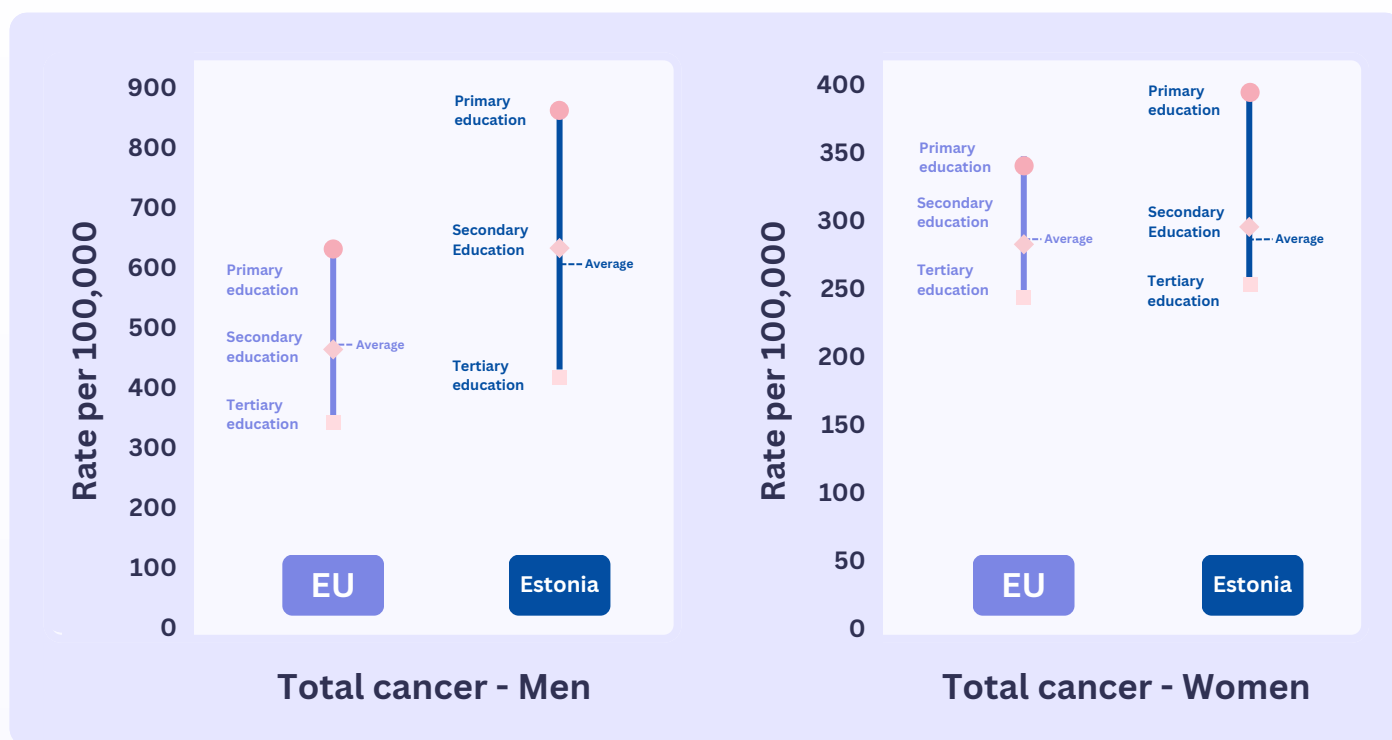


Figure 1. Total cancer mortality by sex and education level

Educational inequalities in mortality by cancer site



Lung cancer

Lung cancer mortality rates in men were about five times higher than in women. National average mortality rates were higher for men compared to the European average, and lower for women. A clear social gradient for lung cancer was observed in both sexes. Sex and socio-economic differences in tobacco smoking patterns over the past decades may largely explain the observed inequalities. In 1997, the prevalence of smoking among men (54%) in Estonia was more than twice that in women (24%) [1], with a gradient across educational levels [2, 3].



Colorectal and stomach cancers

The national average mortality rates for colorectal and stomach cancers were above the European average. For both cancer sites, mortality rates were higher in men compared to women with a social

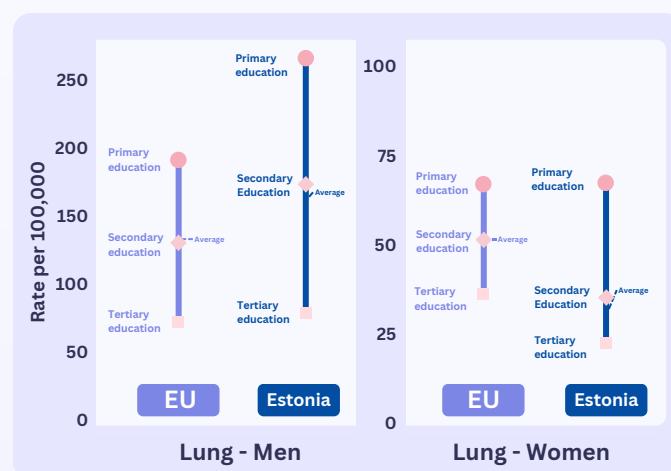


Figure 2.a. Cancer-specific mortality by sex and education level: lung

gradient observed for both sexes. The observed socio-economic and sex inequalities could be partly explained by past inequalities in the exposure to risk factors such as poor diet, physical inactivity, obesity, alcohol consumption, smoking [1, 4] and infection with *Helicobacter pylori* (for stomach cancer) earlier in life [5]. In Estonia, 21% of men and 10% of women consumed alcohol at hazardous levels [4]. In 2019, despite the unclear educational gradient in screening uptake [6], people with higher incomes (23%) had higher colorectal cancer screening participation rates compared to those with low incomes (18%) [4]. These socio-economic differences potentially play a role in the observed inequalities.

Breast cancer

Breast cancer was the highest contributor to overall cancer deaths among women in Estonia. National average mortality rates were slightly lower than the European average. As observed in other countries, a reverse gradient was found with increased mortality rates as educational levels decreased. The observed patterns in breast cancer mortality may be influenced by several factors. Delayed diagnosis and limited access to timely treatment usually disproportionately affect women with lower levels of education. On the other hand, reproductive factors — such as delayed age at first childbirth, fewer children, or lack of breastfeeding — are more common among women with higher socio-economic positions, which could potentially counterbalance the benefits of higher screening rates in this group [4].

Prostate cancer

Prostate cancer was the second largest contributor to total cancer mortality in men after lung cancer. National average mortality rates were significantly higher than the European average, and a clear social gradient was observed with progressive increasing mortality rates as educational levels decreased. These observed inequalities could possibly be explained by inequalities in stage at diagnosis, and disparities in access to treatment or treatment options [7].

Cervical cancer

Cervical cancer mortality rates were the lowest compared to other cancer types assessed; however, national average mortality rates were higher than the

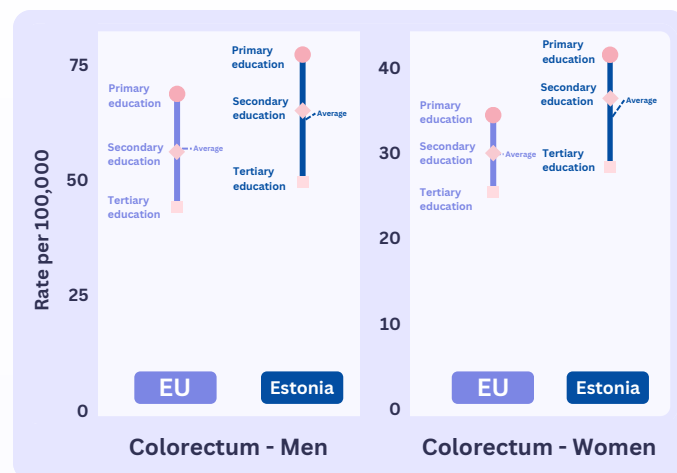


Figure 2.b. Cancer-specific mortality by sex and education level: colorectum

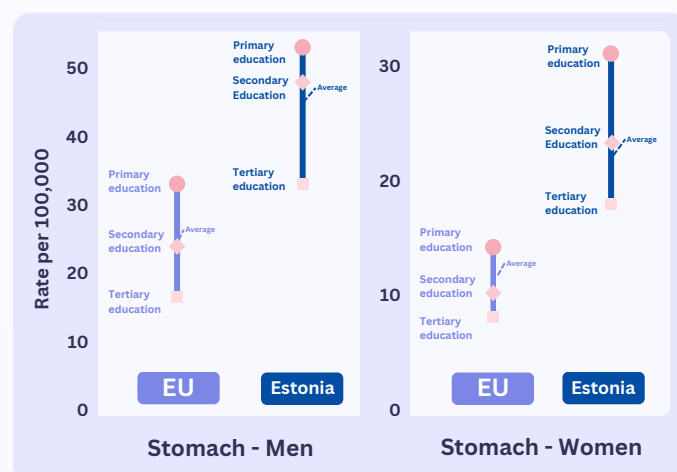


Figure 2.c. Cancer-specific mortality by sex and education level: stomach

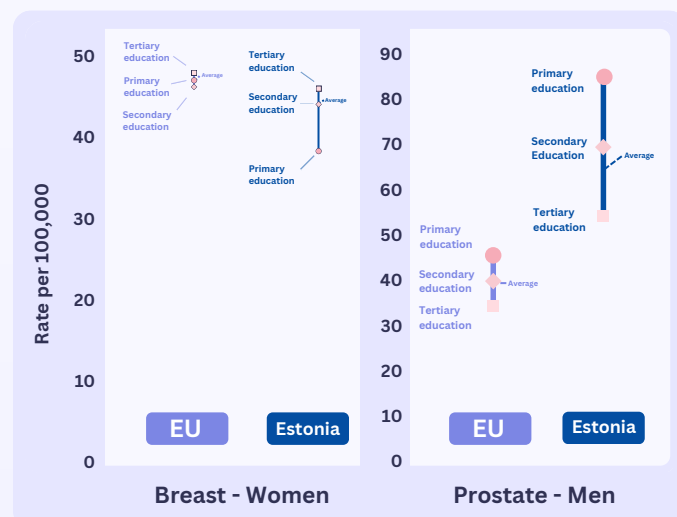


Figure 2.d. Cancer-specific mortality by sex and education level: breast (left), prostate (right)

European average. A clear social gradient was observed across educational levels, with increasing mortality as educational levels decreased. Differential uptake of cervical cancer screening services likely plays an important role in explaining these inequalities. In 2019, a clear social gradient in screening participation was recorded, with only 14% of women with tertiary education having reported to have never had a cervical smear test compared to 23% and 27% of women with secondary and tertiary education. Equitable implementation and scale-up of HPV vaccination and HPV-DNA testing has the potential to decrease the burden and reduce inequalities.

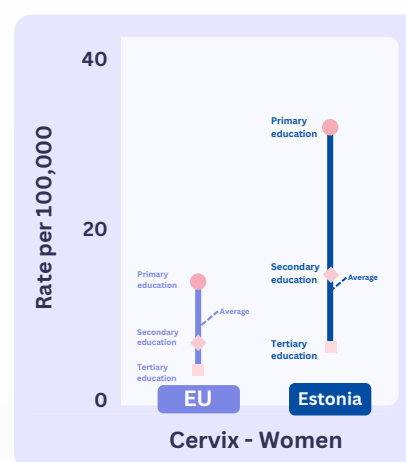


Figure 2.e.
Cancer-specific mortality by education level: cervix

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.

In Estonia, the method for group A countries was used.

Contact information

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