European Commission

International Agency for Research on Cancer
World Health Organization

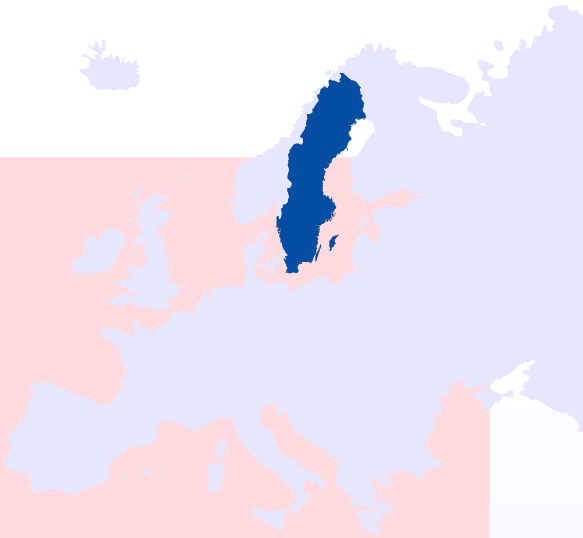
Erasmus MC

Country Factsheet Series

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

Sweden

Key messages



In Sweden, national mortality rates for total cancer in 2015-2019* were higher among men than women, and below the corresponding European average for both sexes. Marked differences existed across educational levels, following a social gradient, with mortality increasing as educational attainment decreased. The social gradient for cancer mortality among women was high, compared to the corresponding European average, due to the large educational inequalities in lung cancer. A social gradient was evident for all selected cancers in men and for all cancers, except for breast cancer, in women. Despite the introduction of the National Cancer Strategy in 2009, national screening programs for breast, cervical, and colorectal cancers, and universal health service coverage, inequalities in cancer mortality remain evident in Sweden.

Educational inequalities in total cancer mortality

In Sweden, mortality rates for total cancer** in 2015-2019 were 312 per 100,000 people among men and 267 per 100,000 people among women, and varied greatly according to a social gradient in both sexes. Men with primary education had cancer mortality rates that were about 50% higher than those of men with tertiary education (380 vs 251 per 100,000). Women with primary education had approximately 60% higher cancer mortality rates compared to those with tertiary education (337 vs 216 per 100,000).

Among men, the difference in rates between primary and tertiary education (i.e., inequality gap) was smaller than the European average*** and than that in countries in the same geographical area, such as Norway, Denmark and Finland. Conversely, among women, the inequality gap was larger than the corresponding European average and that of Finland, but smaller than that in Denmark and Norway.

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

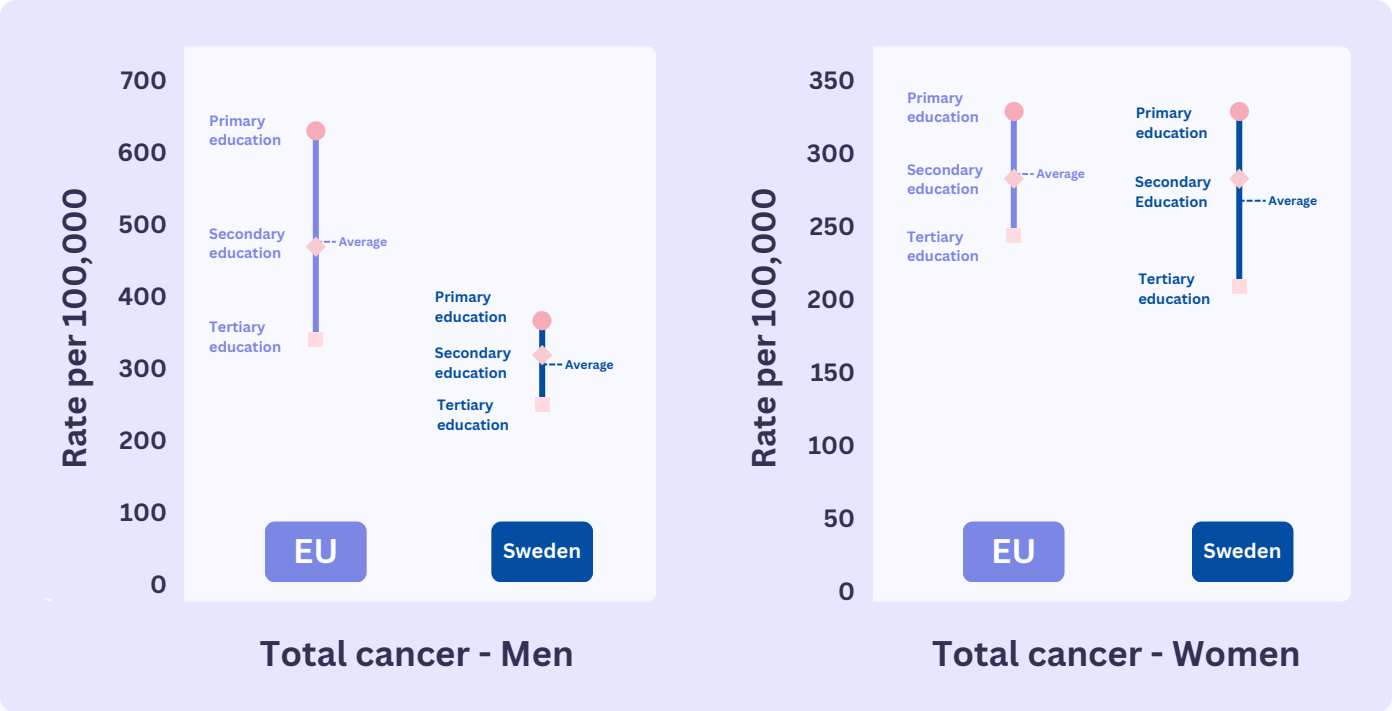


Figure 1. Total cancer mortality by sex and education level

Educational inequalities in mortality by cancer site

Lung cancer

Similar lung cancer mortality rates were observed for both sexes; however, compared to their corresponding European average, rates for men were lower and for women higher. In both sexes, there was a clear social gradient and the disease was a large contributor to inequalities in total cancer mortality. Given the long delay between smoking and the development of lung cancer, sex and socio-economic differences in lung cancer mortality in 2015-2019 may be partly explained by past inequalities in smoking patterns across these groups. Around 1990 the smoking prevalence was higher for men than for women, and for both sexes smoking prevalence was higher for lower educated than for higher educated persons [1].

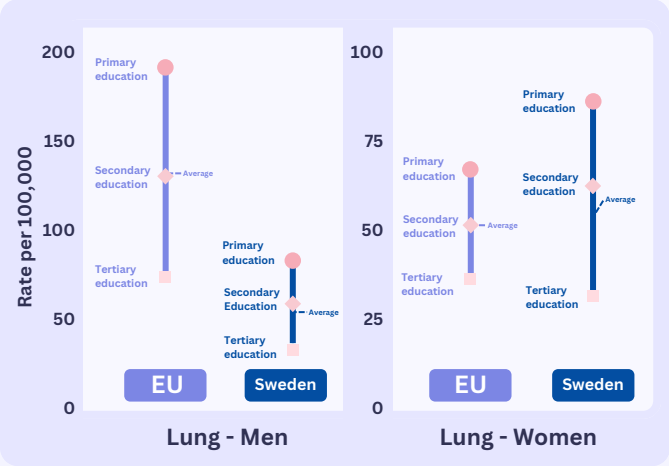


Figure 2.a. Cancer-specific mortality by sex and education level: lung

Colorectal and stomach cancers

For colorectal cancer, average rates in Sweden for men were below the European average, while

for women they were similar. National rates for stomach cancer mortality in Sweden were below the corresponding European average, in both sexes, although rates were approximately 1.8 higher in men than in women. For both colorectal and stomach cancer, a clear social gradient was observed. Socio-economic and sex inequalities in exposure to risk factors such as poor diet, physical inactivity, obesity, smoking [2, 4] and Helicobacter pylori infection at young ages (for stomach cancer), which are more prevalent among those with lower educational attainment [5], may partly explain the observed inequalities in colorectal and stomach cancer. Participation to colorectal cancer screening was similar across education groups in 2019 [2, 6]. This points to other factors as the primary causes underlying inequalities in colorectal cancer mortality [2, 6].

Breast cancer

Breast cancer had the second-highest mortality rate among women, following lung cancer, with a national average below the corresponding European average. No clear social gradient was found, suggesting a balancing between risk factors, such as reproductive behaviours, early diagnosis, screening and treatment practices [7]. The participation rate in the national breast screening programme was higher as compared to other countries (in 2019, 95% for women 50-69 years old compared to the European average of 66%) with small educational differences [2].

Prostate cancer

Prostate cancer was a significant contributor to overall cancer mortality among men in Sweden, although rates were comparable to the European average. A clear social gradient in mortality was observed, with rates decreasing as education level increased. This may be attributed to inequalities in the stage of diagnosis and disparities in access to treatment or treatment options [8].

Cervical cancer

Despite the relatively low rates, in comparison to the European average and to other cancer types, a clear social gradient was found for cervical cancer mortality, with increasing rates as educational attainment decreased. The differences across educational groups may largely be explained by

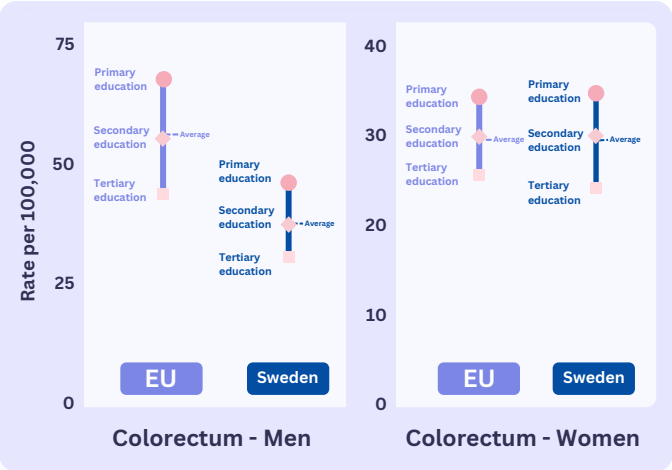


Figure 2.b. Cancer-specific mortality by sex and education level: colorectum

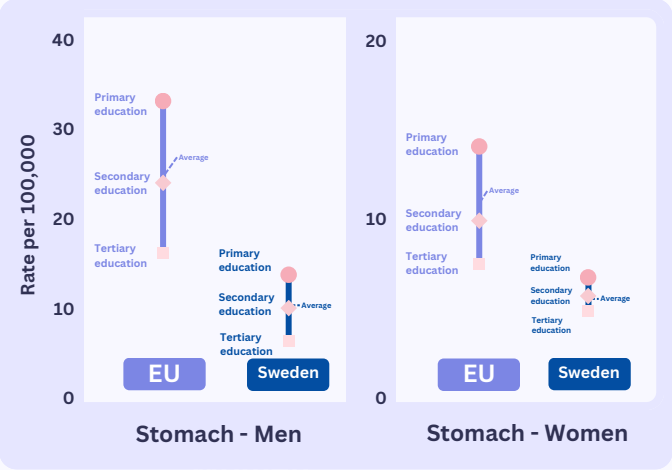


Figure 2.c. Cancer-specific mortality by sex and education level: stomach

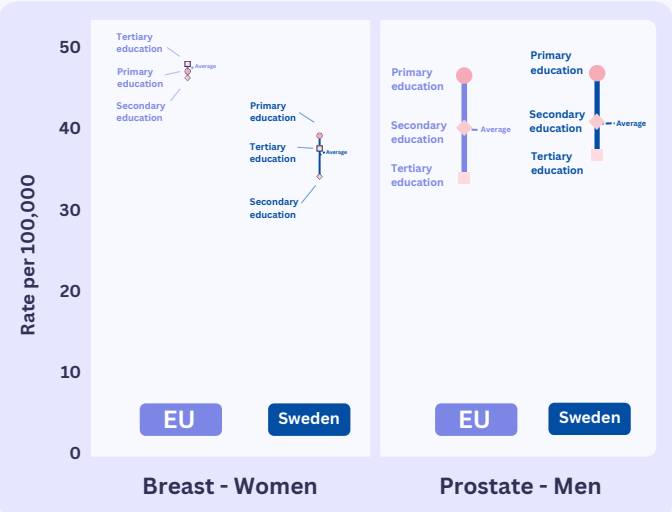


Figure 2.d. Cancer-specific mortality by sex and education level: breast (left), prostate (right)

variations in the uptake of cervical cancer screening. Despite high overall participation, screening uptake is lower among those with lower educational attainment. In 2019, 51% of women with low education levels had taken a smear test in the last three years compared to 88% of women with high education levels [2]. Human papillomavirus (HPV) vaccination and HPV-based screening, if implemented equitably, have the potential to further decrease the disease burden and reduce inequalities in cervical cancer mortality.

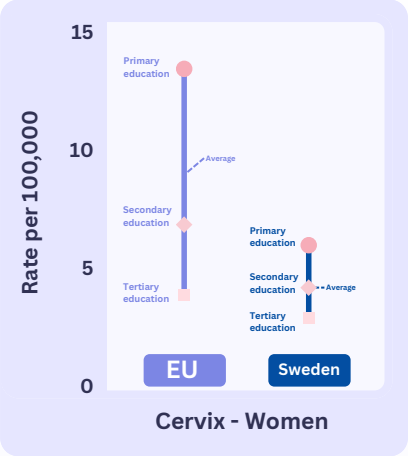


Figure 2.e. Cancer-specific mortality by education level: cervix

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 Sweden, the method for group A countries was used. The statistics for Sweden are based on preliminary descriptive analyses carried out as part a research project on time trends in social inequalities in health at Stockholm University. The use of Swedish data for this research was provided by the Central Ethical Review Board of Sweden (Dnr Ö 25-2017).

Contact information

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