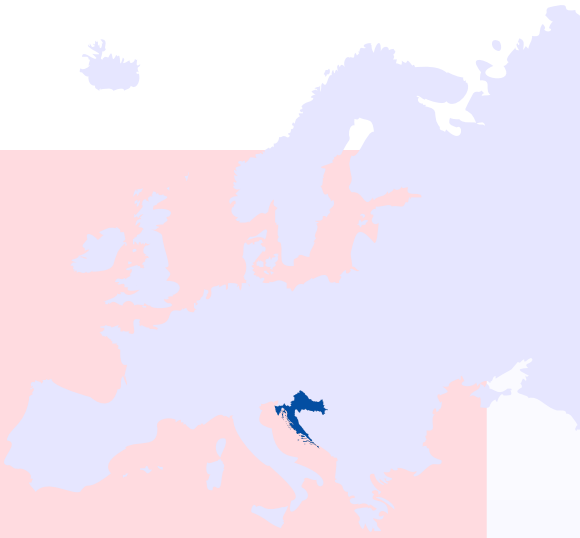
Country Factsheet Series

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

Croatia

Key messages



In Croatia, mortality rates for total cancer during the period 2015–2019* were higher in men than in women. National average mortality rates and educational inequalities in cancer mortality exceeded the corresponding European averages, in both sexes. The social gradient, with increasing mortality rates as educational level decreased, was driven by the large inequalities in lung cancer but was found in all assessed cancer sites, except for breast cancer. In Croatia equitable access to health care is a basic principle of social health Insurance, with coverage for all preventive and curative services, although issues related to medical personnel shortage and waiting times after diagnosis exist. Large inequalities in mortality from several cancer types still persist in the country.

Educational inequalities in total cancer mortality

In Croatia, total cancer** mortality rates in 2015–2019 were 641 per 100,000 among men and 331 per 100,000 among women, showing a social gradient, with increasing rates as educational level decreased. This gradient was more pronounced in men, with mortality rates for primary education being more than double those for tertiary education (912 vs 412 per 100,000). Among women, the disparity was still substantial, with rates for primary education being over 50% higher that those for tertiary education (413 vs 269 per 100,000).

The inequality gap between primary and tertiary education in Croatia exceeded the European average***, and that of some countries in the region, such as Slovenia, and aligning with that of other countries in the Eastern Europe/Baltic area, such as Hungary, Latvia and Lithuania.

* In Croatia, 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 Hungary, Lithuania and Estonia. 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

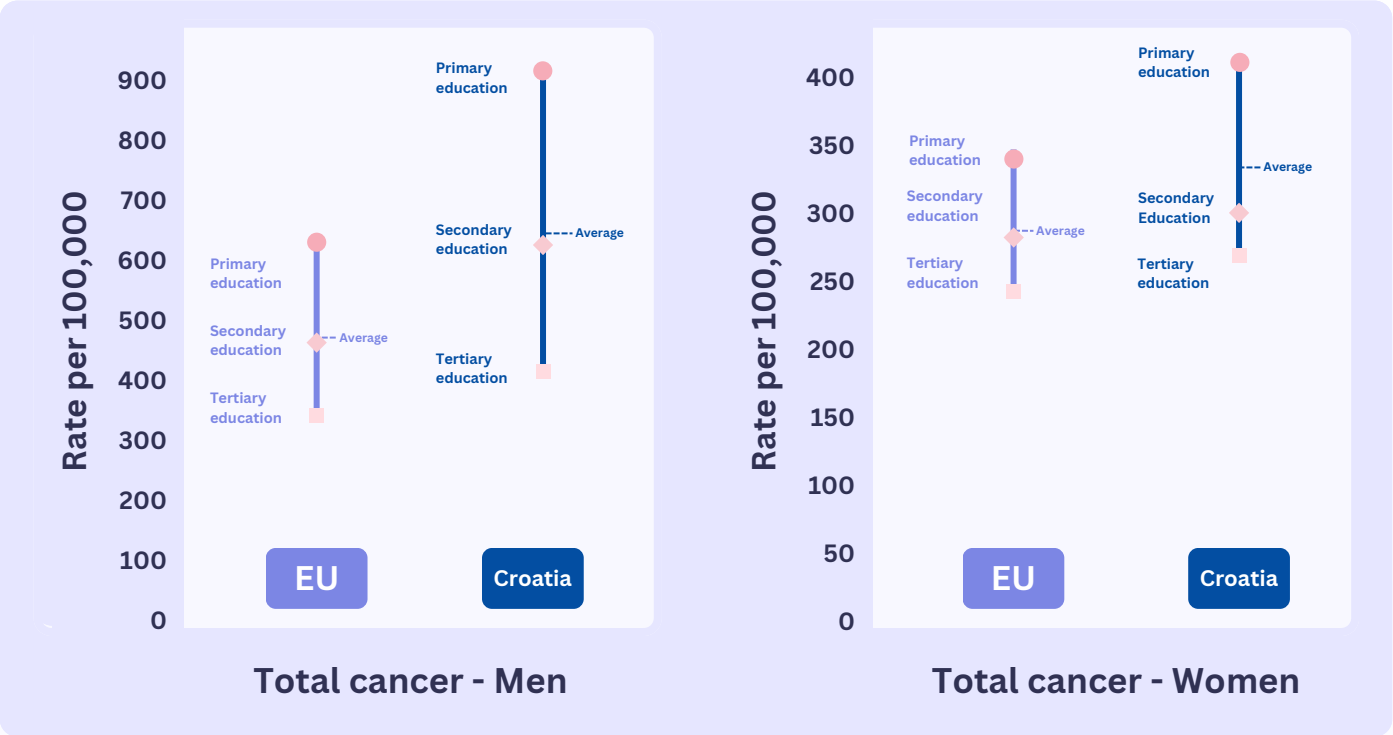


Figure 1. Total cancer mortality by sex and education level

Educational inequalities in mortality by cancer site

Lung cancer

Lung cancer was the leading cause of total cancer mortality in Croatia in both sexes, with rates in men approximately three times higher than those in women. Compared to the corresponding European average, the national mortality rate was higher, especially in men. A pronounced social gradient was evident in both sexes, with mortality rates increasing as educational attainment decreased. Lung cancer shows the largest disparities in cancer mortality, and inequalities in tobacco-smoking across sexes and educational level in the past decades have likely played an important role [1]. In Croatia, the rates of smoking and air pollution exposure are greater than in most other EU countries: the country has not kept pace with other countries in the effective enforcement of tobacco control policies [2, 3]. The recent smoking patterns do not show a clear social gradient, as the higher rates are observed in individuals with intermediate education [1, 4].

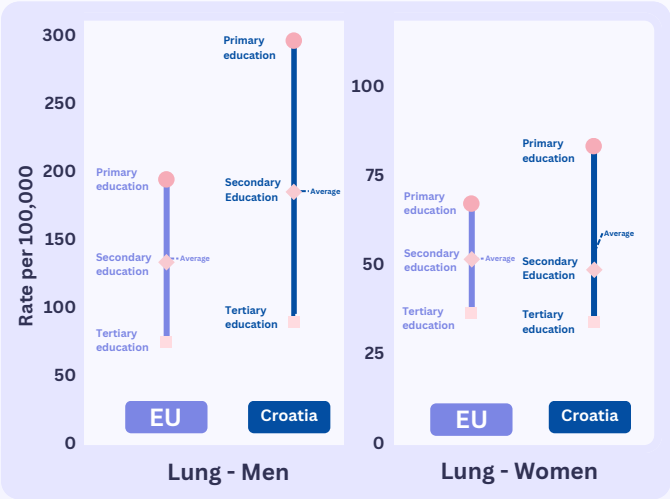


Figure 2.a. Cancer-specific mortality by sex and education level: lung

Colorectal and stomach cancers

In Croatia, mortality rates for colorectal and stomach cancers were above the corresponding European averages for both sexes. Colorectal and stomach cancer rates were (over two times) higher in men

compared to women. A social gradient was evident for both cancers, although it was more pronounced among men. The sex and socio-economic inequalities in colorectal and stomach cancer mortality may be partly due to inequalities in the past prevalence of cancer risk factors (including Helicobacter pylori infection for stomach cancer), as well as in the access to screening (for colorectal cancer), detection and treatment [5]. Croatia suffers from the highest rates of overweight or obesity in the EU, a problem that concerns around 65% of the population and that is characterized by a strong social gradient (with an increasing prevalence of obesity as educational level decreases [2, 4]). Consumption of alcohol in Croatia has declined substantially in the past two decades, from substantially high levels at the beginning of the millennium [2]. Participation rates to colorectal cancer screening are quite low, with differences still existing according to socio-economic status [4]. Additionally, colorectal cancer screening uptake revealed disparities by education level: only 23% of people with lower education levels reported screening within two years in 2019, which is lower than among those with high education levels (35 %) [2].

Breast cancer

Breast cancer was the second largest contributor to total cancer mortality among women in Croatia and the national average mortality rate was above the European average. Unlike other cancers, no distinct social gradient was identified, as no clear differences were found across educational groups. This lack of a clear gradient may be due to the balancing effects of differences in risk factors (especially reproductive factors, such as age at the first child, number of children and breastfeeding), screening uptake, early diagnosis, and access to treatment across educational groups. In 2006, the National Breast Cancer Screening Programme was launched. Breast cancer screening rates are characterized by substantial regional differences and by a lower uptake by women with low educational level [2, 6]. In 2019, screening uptake was about 70% among women with the highest educational level, whereas it was 61% among those with the lowest education [2].

Prostate cancer

In Croatia, the national average mortality rate for prostate cancer exceeded the European average, for all educational levels. Also, a clear social gradient was evident, with mortality rates increasing as educational levels decreased. These disparities

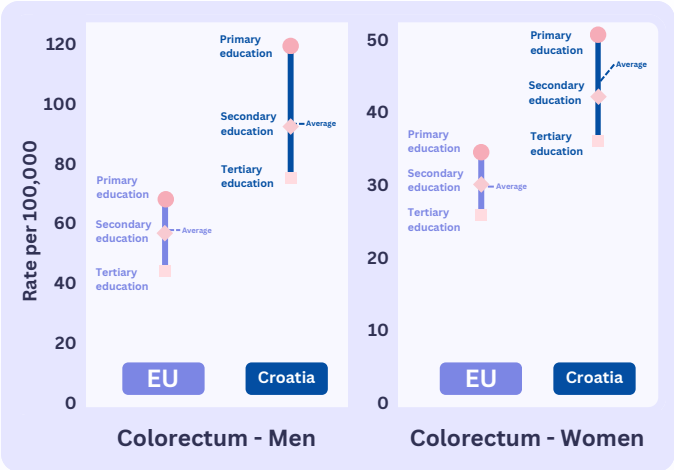


Figure 2.b. Cancer-specific mortality by sex and education level: colorectum

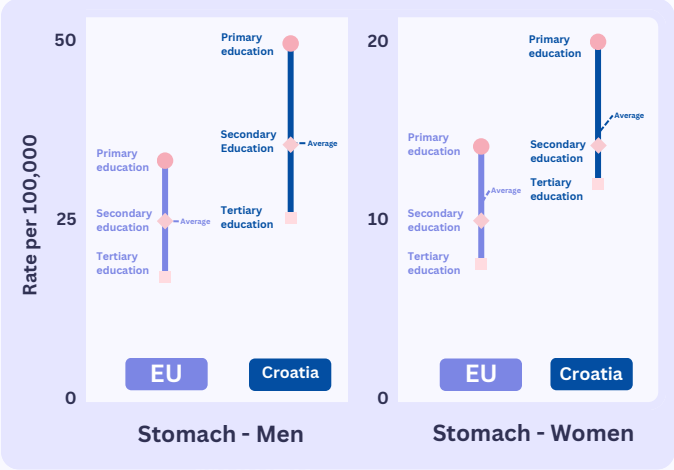


Figure 2.c. Cancer-specific mortality by sex and education level: stomach

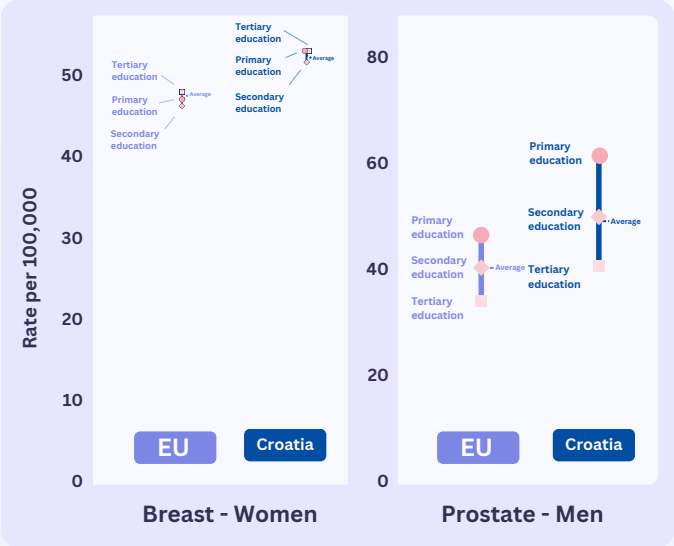


Figure 2.d. Cancer-specific mortality by sex and education level: breast (left), prostate (right)

might be partly explained by differences in the stage of diagnosis and inequities in timely access to treatment across educational groups [7].

Cervical cancer

Cervical cancer mortality rates in Croatia were low and similar to the corresponding European average. However, a social gradient was evident, with mortality rates progressively increasing as educational levels decreased. In 2019, only 33% of women with lower education levels reported having undergone a cervical smear test in the past three years, whereas this percentage rose to 80% among women with tertiary education [2]. Expanding access to Human papillomavirus (HPV) vaccination and implementing HPV-based screening equitably could help reduce both the disease burden and socio-economic disparities.

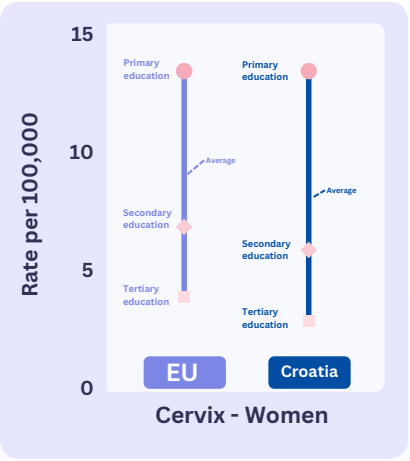


Figure 2.e. Cancer-specific mortality by education level: cervix

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 Croatia, 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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References:

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