

The changing pattern of trends in liver cancer burden in the European Region

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Background

Liver cancer (LC) remains one of the major public health issues worldwide. This study aimed to reveal the burden of LC attributable to five specific risk factors in the European Region in 1990-2019.

Methods

An ecological trend study was conducted. This study used the Global Burden of Disease Study 2019 data (including disability-adjusted life years - DALYs of LC, as well as LC due to alcohol use, hepatitis B, hepatitis C, nonalcoholic steatohepatitis, other causes). The DALYs are presented as age-standardized rates (ASRs) per 100,000 population. The trends in the LC burden were assessed using joinpoint regression analysis, by the average annual percent change (AAPC) with 95% confidence interval (CI).

Key messages

- The burden of liver cancer has been increasing in the European Region
- The major causes of the liver cancer burden vary considerably across Europe

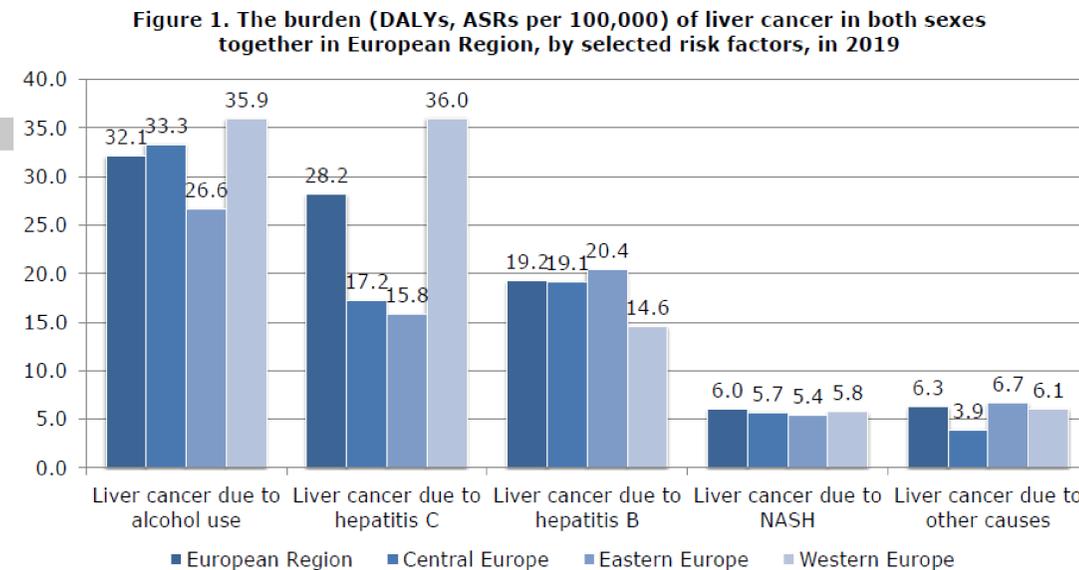
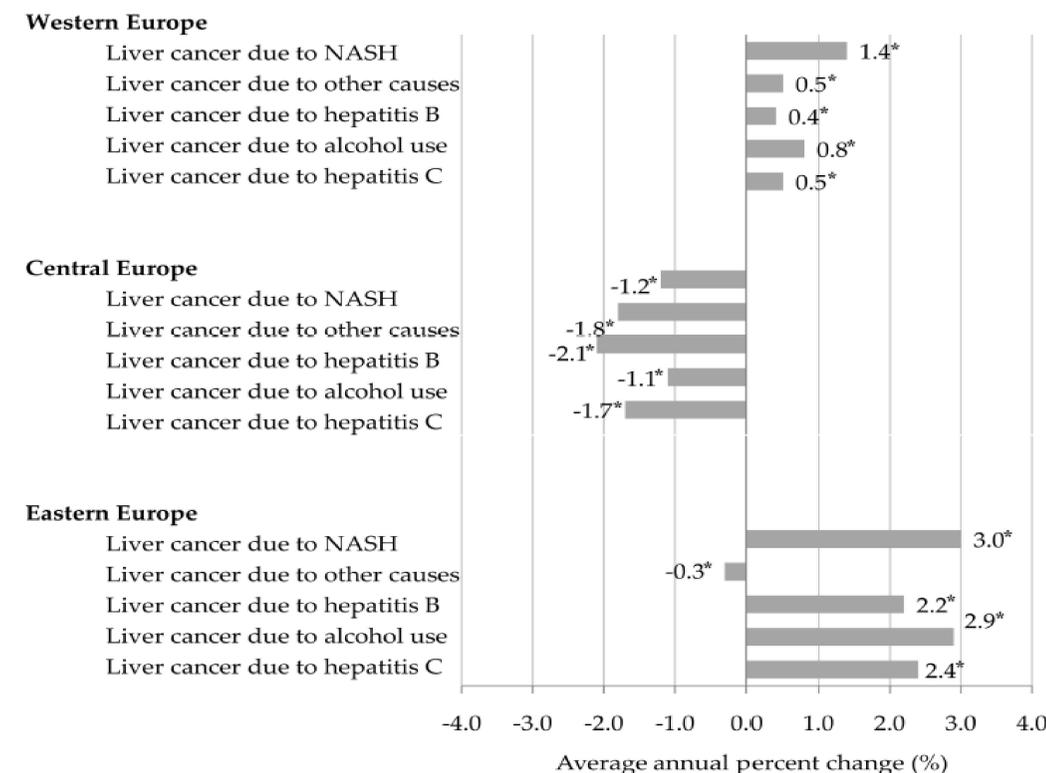


Figure 2. Trends of liver cancer burden (DALYs, ASRs per 100,000) attributed to selected risk factors, in both sexes together in the European Region, 1990-2019; a joinpoint regression analysis



* (statistically significant, $p < 0.05$)

Results

In both sexes together, the highest ASR of DALYs for LC in the European Region was attributed to alcohol use – 32.1 per 100,000 in 2019, followed by hepatitis C (28.2) and hepatitis B (19.2), and then nonalcoholic steatohepatitis and other causes (equally about 6.0) (Fig. 1). The DALYs for LC attributable to hepatitis C are concentrated in Western European countries (ASR=36.0), with a significantly increasing trend in the last three decades (AAPC=+0.5; 95% CI=0.3 to 0.6) (Fig. 2). The rising trends in ASRs of DALYs for LC in Eastern Europe are particularly worrying, both for LC due to alcohol use (AAPC=+2.9; 95% CI=2.6 to 3.3) and hepatitis C (AAPC=+2.4; 95% CI=1.8 to 2.5).

Conclusion

These epidemiological data indicate that additional preventive strategies for LC are needed to further reduce disease burden in the European Region.

References

- GBD 2019 Diseases and Injuries Collaborators. Global burden of 369 diseases and injuries in 204 countries and territories, 1990-2019: a systematic analysis for the Global Burden of Disease Study 2019. *Lancet* **2020**, *396*, 1204-1222.
- GBD 2019 Risk Factors Collaborators. Global burden of 87 risk factors in 204 countries and territories, 1990-2019: a systematic analysis for the Global Burden of Disease Study 2019. *Lancet* **2020**, *396*, 1223-1249.
- Mårdh, O.; Quinten, C.; Amato-Gauci, A.J.; Duffell, E. Mortality from liver diseases attributable to hepatitis B and C in the EU/EEA - descriptive analysis and estimation of 2015 baseline. *Infect Dis (Lond)* **2020**, *52*, 625-637.
- Global Burden of Disease Collaborative Network. Global Burden of Disease Study 2019 (GBD 2019) Results. Seattle, United States: Institute for Health Metrics and Evaluation (IHME), 2020. Available from <http://ghdx.healthdata.org/gbd-results-tool> (Accessed on: 29/08/2022)
- Kim, H.J.; Fay, M.P.; Feuer, E.J.; Midthune, D.N. Permutation tests for joinpoint regression with applications to cancer rates. *Stat Med* **2000**; *19*: 335-351.