The impact of high fasting plasma glucose on the burden of lung cancer in the European Region

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Background

Lung cancer (LC) is the leading cause of cancer-related deaths worldwide. The role of high fasting plasma glucose (HFPG) in LC burden is still unclear. This study aimed to estimate disability pattern for LC attributed to HFPG in European Region.

Methods

A descriptive epidemiological study was done. Data were obtained from the database of the Global Burden of Disease 2019 study. The disability-adjusted life-years (DALYs) for HFPG as a risk factor for LC were presented. The age-standardized rates (ASRs) of DALYs were expressed per 100 000 population. Trends in LC attributable to HFPG in 1990-2019 were estimated using joinpoint regression analysis.

Key messages

- **Central Europe was the worst-affected region due to LC attributable to HFPG**
- **Contrary to a rise in women, trend in LC due to HFPG was stable in European men**

Results

The percentage of DALYs of LC attributable to HFPG was 8.6% in males (accounting for 641 718 DALYs) and 8.0% in females (accounting for 227 070 DALYs) in 2019 in the European Region (Fig. 1). In 2019, Central Europe was the worst-affected subregion, with ASR of DALYs due to LC attributable to HFPG of 146.6 per 100 000 in males and 37.6 per 100 000 in females (Fig. 2). The ASRs DALYs increased significantly in both sexes in Central Europe (by +0.8% per year in males and by 3.4% per year in females) from 1990 through 2019 (Fig. 3). In contrast, the ASRs of DALYs decreased significantly in males only in Western Europe (by -0.4% per year) and Eastern Europe (by -1.2% per year).

Conclusion

Our study noted sex differences in lung cancer burden due to high fasting plasma glucose, that need be evaluated in further analytical research.

References

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Figure 1. The contribution (%) of high fasting plasma glucose to lung cancer burden (DALYs) in the European Region, by sex, 1990-2019

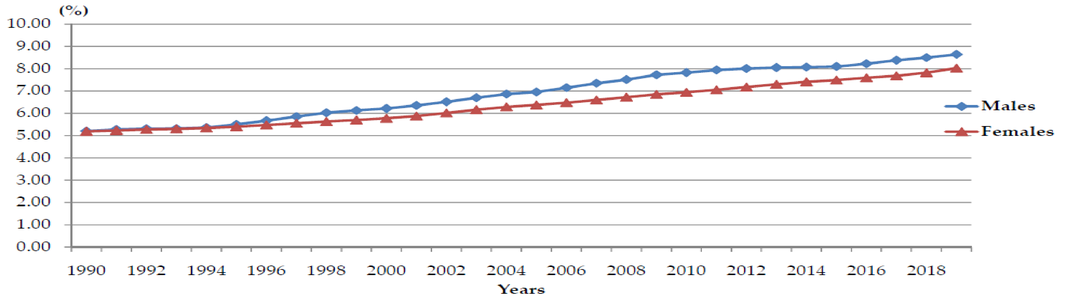
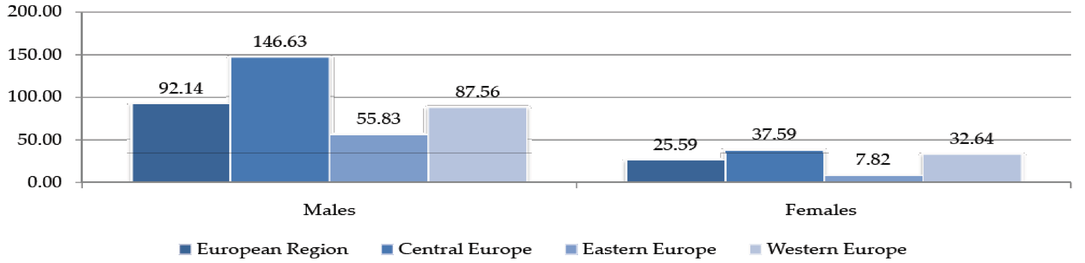
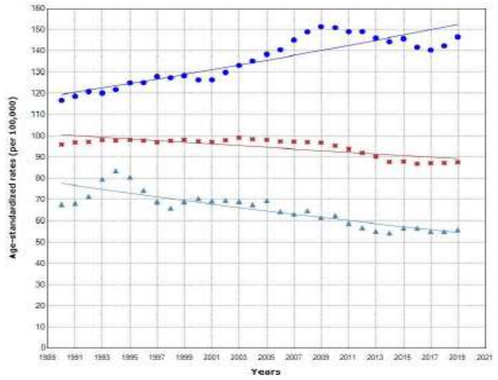
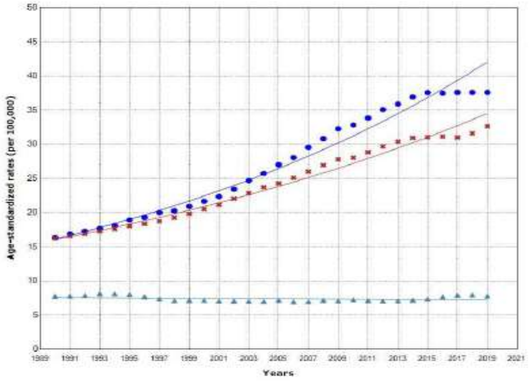


Figure 2. The burden (DALYs, ASRs per 100,000) of lung cancer attributed to high fasting plasma glucose in European Region, by sex, in 2019







(a) (b)

Figure 3. Lung cancer burden (DALYs) attributed to high fasting plasma glucose in the European Region, 1990-2019, a joinpoint regression analysis: (a) Males; (b) Females. Central Europe (circle); Western Europe (cross); Eastern Europe (triangle).