

Alcohol Consumption and Mortality in Czech Middle- and Older-Age Adults: The HAPIEE Study

Background:

Excessive alcohol consumption remains a major public health concern and is thought to contribute to the high morbidity and premature mortality observed in Central and Eastern Europe. Although overall alcohol intake has declined in some parts of the region, hazardous drinking patterns—particularly heavy episodic (binge) drinking and consumption of beer and spirits—remain widespread. While previous research has examined short- and medium-term effects of alcohol on mortality, the long-term consequences of midlife drinking into older age are less well understood. Clarifying these effects is critical for developing effective prevention strategies and improving health outcomes in ageing populations.

Aim:

To examine the long-term association between midlife alcohol consumption and all-cause mortality over more than two decades of follow-up in a general population sample from the Czech Republic.

Methods:

Data came from the Czech arm of the Health, Alcohol and Psychosocial factors in Eastern Europe (HAPIEE) prospective cohort study. A random population sample of 8,856 men and women aged 45–69 years at baseline (2002–2005) was recruited from seven towns (Hradec Králové, Liberec, Jihlava, Kroměříž, Ústí nad Labem, Havířov, and Karviná), stratified by sex and five-year age groups. Participants completed questionnaires on socio-demographic characteristics, health behaviours, and alcohol consumption (volume, frequency, and drinking pattern) using a graduated frequency questionnaire, and underwent medical examination and blood sampling. Mortality data were obtained from national death registers and linked to baseline records. Participants were followed for an average of 18.2 years (maximum 22.6 years). Cox proportional hazards models estimated hazard ratios (HRs) and 95% confidence intervals (CIs) for associations between alcohol measures and all-cause mortality, adjusted sequentially for demographic, socioeconomic, lifestyle, and health-related factors. Ethical approval was obtained from all participating centres and University College London; all participants provided written informed consent.

Results:

Over the follow-up period, more than 3,000 participants died. In age- and sex-adjusted models, participants consuming >20 litres of pure ethanol per year had an increased mortality risk compared with those consuming <1 litre (HR

1.55; 95% CI: 1.29–1.87). After full adjustment, the risk remained elevated (HR 1.36; 95% CI: 1.12–1.65), with decade-specific HRs of 1.37 (95% CI: 0.96–1.95) and 1.38 (95% CI: 1.09–1.73) for the first and second decades, respectively. For participants consuming 10–20 litres per year, HRs were 1.26 (95% CI: 0.96–1.67) in the first decade and lower in the second. Weekly binge drinking (≥ 180 ml ethanol per occasion) was also associated with higher mortality, although not significantly (HR 1.32; 95% CI: 0.93–1.88). The association was slightly stronger in men, but sex-stratified analyses did not show statistically significant differences.

Conclusions:

This study provides robust evidence of a long-term association between midlife alcohol consumption and mortality in middle- and older-age adults in Central Europe. The elevated mortality risk among heavy drinkers persisted after full adjustment and did not attenuate over time. These findings highlight the importance of reducing hazardous alcohol consumption in midlife as a key strategy to prevent premature death and promote healthy ageing in Central and Eastern Europe. Public health policies focusing on alcohol control, early screening, and behavioural interventions could substantially improve population longevity in the region.