



Alcohol-related liver disease: do weather and daylight level matter or is there a paradoxical good side of global warming?

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As a matter of fact, a prevalence of alcohol misuse can be observed in colder regions at a global scale. As an example, Eastern Europe has the highest annual consumption per capita (15.7 L per person) and North Africa/Middle East has the lowest one (1.0 L per person) (1). However, while numerous confounders such as cultural or religious parameters could explain this difference, no article has already linked climate and alcohol consumption after adjustment for confounders.

To provide scientific evidence of the independent influence of climate on alcohol consumption and alcoholic cirrhosis, the Pittsburgh Liver Research Center performed a large epidemiological study recently published in *Hepatology* (2). Using data from official sources, such as the World Health Organization, the World Meteorological Organization, and the Institute on Health Metrics and Evaluation, Bataller's group collected the following 2 climatic variables covering 193 countries and the 50 US states: average temperatures and sunlight hours. Alcohol consumption was measured as total alcohol intake per capita and its patterns were assessed by the percent of the population that drinks alcohol and the incidence of binge drinking. After adjustment for potential confounders such as religion or legislation limiting alcohol intake, the authors demonstrated a clear inverse relationship between these 2 climate-related factors and alcohol consumption at a global

level. Furthermore, after adjustment for health factors that might exacerbate the effects of alcohol on the liver—like viral hepatitis, obesity or smoking—a potential causal effect of climatic variables on alcohol-attributable fraction of cirrhosis mediated by an increase in alcohol consumption was suggested. Quantitative alcohol consumption was indeed demonstrated to be an independent risk factor for alcohol-attributable fraction of cirrhosis while climatic variables were not. Both trends were observed when comparing across countries but also across counties within the United States.

Several reasons could explain this association between colder and darker regions and alcohol consumption. Primarily, thanks to its vasodilator action, alcohol increases the skin blood flow leading its temperature sensors to produce a heat sensation. Moreover, cold weather and short sunshine periods are known to promote depression, which in turn can cause a significant attraction for alcohol. Lastly, cold regions are likelier to be geographically isolated. Therefore, boredom (or even isolation caused depression) could lead to an alcohol overconsumption. The observations of this study thus raise additional social questions. Grossly, are people in small northern communities drinking because it is cold and dark, or just to break the daily monotony?

Before setting up specifically designed prevention campaigns targeting colder and darker regions' populations,

further researches seem to be mandatory. These results appear to be conflicting and far from being consensual, especially in Europe: overall, lower alcohol intakes can be observed in Scandinavian countries—such as Norway, Sweden and Finland—as opposed to Spain and Portugal, further south (3,4).

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Footnote

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