Premature Heat-Related Mortality in Cyprus

M.J. Lubczynska[1], J. Lelieveld[1,2,3] and P. Hadjinicolaou[1]

[1]The Cyprus Institute, 1645 Nicosia, Cyprus
[2]Max Planck Institute for Chemistry, 55020 Mainz, Germany
[3]King Saud University, 11451 Riyadh, Saudi Arabia
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Presenting author email: m.lubczynska@cyi.ac.cy

The frequency and intensity of heat waves is projected to increase in many regions of the world, amongst other the East Mediterranean and Middle East region. The relationship between extreme temperatures and premature mortality is widely acknowledged and therefore deserves full attention in a region identified as a hotspot considering the negative effects of climate change.

The objective of this study is to identify whether cardio-vascular mortality risk increases with high temperatures in the Republic of Cyprus, located centrally in the East Mediterranean and Middle East region and considered a climate change hotspot. Five categories of diseases are included in this study, identified by the following ICD-10 codes: I10-I13, I20-I25, I26-I51, I60-I69 and I71-I99.

The methodology is based on a cross-analysis of daily mortality data and daily mean, maximum and minimum temperature series for the period between 2004 and 2010 using a case-crossover study design combined with a distributed lag non-linear model, a combination that permits a flexible assessment of the non-linear and delayed effects of temperature on mortality and controls for the effects of seasonality.

A relationship between high temperatures and mortality is recognized for the following categories of diseases: cerebrovascular diseases; ischaemic heart diseases and other heart diseases, characterized by increasing mortality on days with the highest temperatures. This relationship is lacking for hypertensive diseases and remainder of diseases of circulatory system. These results are consistent for all temperature series with the analysis for the mean temperature being most pronounced.

Based on the results, conclusions can be drawn that i) a relationship between high temperatures and mortality in Cyprus for cerebrovascular diseases, ischaemic heart diseases and other heart diseases is identifiable, ii) hypertensive diseases and remainder of diseases of circulatory system show random behaviours which can be ascribed either to the lack of interrelation with temperature or to data scarcity and iii) the mean temperature analysis results in the highest relative risks which potentially indicate that a consecutiveness of high day and night temperatures is the most harmful.