A Study on the Mortality Related to Extreme Temperature

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As climate change continues, the intensity and frequency of extreme weathers and disasters are expected to increase. For this reason, more and more people have started to have concerns and interests in impacts and factors related to natural disasters. In addition more sophisticated measurements are requested by people to mitigate the adverse impacts of climate change. In this study, sensitivity to temperature of each city and the number of mortality of its residents are investigated with 20 years data period (1991-2010), and Korea has been divided into two categories: 7 major cities and rural areas. The results represent that most of the major 7 cities have V-shape graph regarding temperature and the number of mortality while this trend is not well shown in rural areas. In case of 7 major cities, the highest number of mortality concerning high temperature is found in Daegu, and followed by Incheon, Gwangju, Daejeon, Seoul, and Ulsan in order. As for excess mortality, Incheon shows the highest value and followed by Seoul, Daejeon, Ulsan, Busan, Gwangju, and Daegu. As for rural areas, Kyunggi-do represents the minimum number of mortality in 8 rural districts and excess mortality does not show strong distinct spatial patterns.

The optimum temperatures of many regions in Korea are between 23° and 24° and threshold temperatures showing rapid mortality increases are found between 27° and 30°. The Moran's I indicates that Korea is spatially clustered regarding demographic (0.447) and socioeconomic factors (0.487). In addition, Interesting fact is that the more vulnerable areas represents the lower optimum temperature and the higher threshold temperature.

In brief, this study represents that the number of mortality could increase rapidly in the context of climate change and these figures could vary spatially depending on various factors such as demographic and socioeconomic factors.