



## **Indexes to anticipate negative impacts of heat waves in urban Mediterranean environments**

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This study intention is to understand what might be the better indexes to anticipate health deterioration during temperature extreme events in a urban Mediterranean environment like Porto. To do this we look to the effects of the July 2006 Heat Wave using the Heat Index on the Mortality (All Causes) and Morbidity (All Causes, Respiratory and Circulatory diseases) in general, and in people over 74 years and by Gender, in Porto.

The Poisson Generalized Additive Regression model was used in order to estimate the impact of Apparent Temperature (Heat Index) and Daily Mortality and Morbidity during the July 2006 Heat Wave. Daily Mortality, Morbidity and Heat Index was correlated with lags of Apparent Temperature up to 7 days using Pearson correlation.

For a 1°C increase in mean Apparent Temperature we observed a 2.7% (95%CI:1.7-3.6%) increase in Mortality (for All Causes), 1.7% (95%CI:0.6-2.9%) in Respiratory Morbidity, 2.2% (95%CI:0.4-4.1%) in Women Respiratory Morbidity, 5.4% (95%CI:1.1-6.6%) in Chronic Obstructive Pulmonary Morbidity and 7.5% (95%CI:1.3-14.1%) in Women Chronic Obstructive Pulmonary Morbidity, for the entire population. For people  $\geq 75$  years, our work showed a 3.3% increase (95%CI:1.7-5.0%) in Respiratory Morbidity, 2.7% (95%CI:0.4-5.1%) in Men Respiratory Morbidity, 3.9% (95%CI:1.6-6.3%) in Women Respiratory Morbidity, 7.0% (95%CI:1.1-13.2%) in Chronic Obstructive Pulmonary Disease and 9.0% (95%CI:0.3-18.5%) in Women Chronic Obstructive Pulmonary Disease. We conclude that the use of Heat Index in a Mediterranean Tempered Climate enabled the identification of the effects of the July 2006 Heat Wave in Mortality due to All Causes and in Respiratory Morbidity of the General Population, as well as in Respiratory Morbidity of individuals with more than 74 years of age.