

TITLE: Evaluating Short and Long-Term Temperature Exposures on Cardiovascular Events and Mortality in the Global Prospective Urban and Rural Epidemiological Study

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STUDENT SUBMISSION: Yes

TOPIC/TARGET AUDIENCE: Environmental and climate epidemiologist. Local and state-level policy makers. Climate and health researchers.

ABSTRACT: Background: Few empirical studies have examined the effects of climate on chronic diseases, particularly cardiovascular disease (CVD). We describe ongoing research to examine the short- and long-term effects of temperature on all-cause mortality and incidence CVD in a global prospective cohort study. Methods: This study leverages a decade of detail observational data from the ongoing Prospective Urban and Rural Epidemiology (PURE) study (156,181 adults in 732 urban/rural communities across 21 countries of varying socio-economic status). Daily temperatures were derived for all communities (2006-2015) and five-year baseline (2001-2005) from remote sensing instruments. Extreme temperature days were defined as the daily average temperature greater than the 95% percentile of the baseline average temperature for each PURE community. Results: Across PURE communities, five-year daily averages increased from 17.0oC in 2001-2005 to 17.6oC in 2011-2015. Extreme heat days have increased from 28 days in 2006 to 44 days in 2015. Across all PURE communities, large inequities in extreme temperature change were observed. Individuals with less than primary school education experienced 27 extreme heat days at baseline compared to 20 for individuals with post-secondary education. Conclusions: Preliminary results show lower socioeconomic status individuals are experiencing the greatest impacts from extreme heat days and temperature change.

OBJECTIVE(S): Explain how publically available metrological data can be extracted and leverage in public health research. Describe trends in extreme temperature days in a global prospective cohort study. Evaluate inequities in community-level risk factors of extreme temperature days.
