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# EFFECTS OF THERMAL STRESS ON MORTALITY IN THE OLDER POPULATION OF HONG KONG

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**Background and Aims:** A wide body of epidemiological evidence demonstrated consistent associations between temperature and daily mortality mainly from ecological time series studies. But few studies have examined these associations in a cohort.

**Methods:** We used a matched case-control design with time-dependent covariates to assess short-term effects of apparent temperature (AT) on mortality in a cohort of 66,820 persons aged 65 years or older, with a total of 14,446 deaths after about 10 years of follow up. The cases and controls were matched by duration of exposure with adjustment for particulate matter of aero-diameter $\leq$ 10µm ($PM_{10}$) and potential confounding factors. We examined the associations of mortality with mean AT, defined by moving averages of AT at current day up to the previous 13 days for cool season ($\leq 20.8\,^{\circ}C$) and up to 7 days for warm season ($\geq 28.3\,^{\circ}C$).

**Results:** In the cool season, a $1\,^{\circ}C$ decrease of AT in moving average of current day up to previous 6 days was associated with 3.1 % (95% confidence interval:1.9%, 4.3%), 3.5% (1.4%, 5.6%) and 3.9% (0.1%, 5.9%) increase for all-cause, cardiovascular and respiratory mortality, respectively. In the warm season, a $1\,^{\circ}C$ increase of AT in moving average of current and previous one day was associated with 1.1 % (–1.0%, 3.2%), –0.8 % (–4.6%, 3.2%) and 2.2 % (–0.3%, 7.7%) change for the corresponding mortality categories.

**Conclusions:** In the cool season apparent temperature was associated with increased risks of all-cause and cardiorespiratory mortality. But in the warm season the associations were not observed in the sub-tropical city where air conditioners are commonly used.