

YEARS OF LIFE LOST DUE TO COLD AND HOT TEMPERATURES IN BRISBANE, AUSTRALIA

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Background and Aims: Temperature is an important determinant of population health. Most previous studies were formulated in terms of temperature-related mortality risk, but it is also useful to consider years of life lost. Information on years of life lost is of great concern for policy makers, as evidenced by the issue of mortality displacement. This study aims to estimate the years of life lost associated with changes in season and temperature in Brisbane, Australia.

Methods: We used daily time series data on climate and mortality collected for Brisbane city between 1996 and 2004. The years of life lost were estimated by matching each death by age and sex to Australian life tables for the years 2002–2004. Regression was used to estimate the association between daily total years of life lost and daily maximum temperature, with adjustment for day of week, trend and season. To examine the non-linear and lagged effects of temperature, we used the distributed lag non-linear model.

Results: There was no effect of season on years of life lost. The association between daily maximum temperature and daily total years of life lost was V-shaped with increased years of life lost for cold and hot temperatures. The lowest years of life lost were at 30 °C for men and 27 °C for women. The greater heat-related years of life lost were most associated with a shorter lag (same day exposure), and the largest cold-related years of life lost were most associated with a multiple days lag.

Conclusions: This study provides evidence of increased years of life lost due to cold and hot temperatures. Extreme temperatures are known to cause increases in the number of deaths, our study demonstrates that temperature extremes also cause significant increases in years of life lost.