

# TEMPERATURE EFFECTS ON THE TRANSPORT-RELATED INJURIES IN KOREA

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**Background and Aims:** Several studies reported that the occurrence of injury has seasonality. Although climate change may be associated with the increased risk of traffic-related injuries, there have been little studies investigating temperature effect on the type of transportation. The aim of this study is to evaluate the association between outdoor temperature and transport-related injury.

**Methods:** Data on injury were derived from emergency ambulance delivery database of the National Emergency Management Agent in Korea from 2006 to 2007. We counted daily ambulance delivery in major seven cities and Gyeonggi Province according to sub-categories of transport injury, such as motor vehicle drivers, motor cyclists, and pedal cyclists. Generalized additive models (GAM) were used to examine the association between transport injury and mean temperature, adjusting for relative humidity, effect of holidays, and long-term trends in seven cities. Then city-specific estimates were combined using a meta-analysis. In addition, the analysis only for injury of pedal cyclists in metropolitan area was performed to evaluate temperature effect on injury by the deprivation index grouped into three levels that was calculated by using 2005 Census in Korea.

**Results:** Daily injuries of motor and pedal cyclists showed seasonality, higher in summer and lower in winter, but motor vehicle drivers were relatively steady across season. City-combined change in injuries of motor and pedal cyclists associated with a 1°C increase in mean temperature were 1.23% (95% CI 1.01, 1.46) and 2.89% (95% CI 2.13, 3.65), respectively, while the estimate for motor vehicle drivers was -1.19% (95% CI -1.73, -0.66). For the analysis by deprivation index, the temperature effect on injury of pedal cyclists during high temperature (above about 23°C) was positive in more deprived areas while the effect was negative in less deprived areas.

**Conclusions:** The occurrence of transport-related injury attributable to outdoor temperature depends on the type of transportation and area-level deprivation.

**References:**

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