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Excess heat significantly affects health of migratory workers

March 9 2016

Hot weather is significantly associated with clinical visits among migratory farmworkers compared to other patients, according to a study by researchers at The University of Texas Health Science Center at Houston (UTHealth) published recently in the journal *Occupational and Environmental Medicine*.

Lead author Kai Zhang, Ph.D., assistant professor in the Department of Epidemiology, Human Genetics and Environmental Sciences at UTHealth School of Public Health, used data from the Community and Migrant Health Center in Colorado to compare clinical visits among migratory farmworkers, seasonal farmworkers and non-farmworkers.

Migratory farmworkers are those who travel for agricultural work while seasonal workers do not change homes or travel away from their established homes for work.

Zhang measured heat effects by using weather data obtained from the National Climate Data Center and ozone levels from the U.S. Environmental Protection Agency (EPA).

Throughout the summer of 2013, the year in which the data was collected, the average of daily mean temperatures was 71 degrees Fahrenheit and average daily ozone concentrations ranged from 0.036 to 0.074 parts per million. The current national standard for ozone is 0.070 parts per million, according to the EPA.

When Zhang compared hot days to average days, he found that migratory workers were 88 percent more likely to visit a clinic when not factoring in ozone levels and 96 percent more likely when factoring in high ozone levels. There was no significant increase for clinic visits among seasonal farmworkers when temperature and ozone levels were high.

"Migratory workers are more susceptible to heat-related health issues for several possible reasons. They tend to have poorer living environments, including a lack of air conditioning; suffer from poverty, which has been linked to a higher risk of vulnerability to heat; and may lack family support for prolonged periods of time. Also, their immigration status may make them more vulnerable to labor abuses," said Zhang.

Zhang found that the impact of heat on migratory farmworkers was more significant among males than females. Men were 118 percent more likely to visit a clinic on hot days compared to normal days while women were 57 percent more likely to visit a clinic on hot days.

"Heat has a significant impact on migratory farmworkers, even in a moderate summer. This research suggests possible significant impact of heat on migratory farmworkers and provides justification for undertaking further studies, making regulations and developing heat preventive programs," said Zhang.

While the research was done in Colorado, Zhang notes that Texas has a much hotter summer than Colorado and is the second largest agricultural state in the United States. With many migratory farmworkers supporting the agricultural industry in Texas, Zhang says his study suggests that migratory farmworkers in Texas might suffer even more heat stress than those in Colorado. He hopes to access the same data in Texas in future research.

More information: Kai Zhang et al. Heat effects among migrant and seasonal farmworkers: a case study in Colorado, *Occupational and Environmental Medicine* (2016). DOI: 10.1136/oemed-2015-103332