Acute impacts of extreme temperature exposure on emergency room admissions related to mental and behavior disorders in Toronto, Canada

Abstract:

Background The purpose of this study was to assess the effects of extreme ambient temperature on hospital emergency room visits (ER) related to mental and behavioral illnesses in Toronto, Canada. Methods A time series study was conducted using health and climatic data from 2002 to 2010 in Toronto, Canada. Relative risks (RRs) for increases in emergency room (ER) visits were estimated for specific mental and behavioral diseases (MBD) after exposure to hot and cold temperatures while using the 50th percentile of the daily mean temperature as reference. Poisson regression models using a distributed lag non-linear model (DLNM) were used. We adjusted for the effects of seasonality, humidity, day-of-the-week and outdoor air pollutants. Results We found a strong association between MBD ER visits and mean daily temperature at 28 C. The association was strongest within a period of 0-4 days for exposure to hot temperatures. A 29% (RREuro Surveillance (Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin)1.29, 95% CI 1.09-1.53) increase in MBD ER vists was observed over a cumulative period of 7 days after exposure to high ambient temperature (99th percentile vs. 50th percentile). Similar associations were reported for schizophrenia, mood, and neurotic disorers. No significant associations with cold temperatures were reported. Limitations The ecological nature and the fact that only one city was investigated. Conclusions Our findings suggest that extreme temperature poses a risk to the health and wellbeing for individuals with mental and behavior illnesses. Patient management and education may need to be improved as extreme temperatures may become more prevalent with climate change.

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Resource Description

Exposure:

weather or climate related pathway by which climate change affects health

Meteorological Factor, Temperature

Temperature: Cold, Heat

Geographic Feature:

resource focuses on specific type of geography

General

Geographic Location:
resource focuses on specific location

Non-United States

**Non-United States:** Non-U.S. North America

**Health Impact:**

specification of health effect or disease related to climate change exposure

Mental Health and Well-Being/Stress

**Mental Health Effect/Stress:** Mood Disorder, Schizophrenia/Delusional Disorder, Stress Disorder, Substance-Induced Disorder

**Resource Type:**

format or standard characteristic of resource

Research Article

**Cross-cutting Themes:** Adaptation, Communication, Vulnerable Population, Sociodemographic Vulnerability