

A Population-Based Study on the Prevalence of Gestational Diabetes Mellitus in Association with Temperature in Taiwan

Wen-Ling Su¹, Chin-Li Lu², Santi Martini³, Yuu-Hueih Hsu¹, [Chung-Yi Li^{1,*}](mailto:cyli99@mail.ncku.edu.tw)

¹ Department of Public Health, College of Medicine, National Cheng Kung University, Tainan, Taiwan

² Graduate Institute of Food Safety, College of Agriculture and Natural Resources, National Chung Hsing University, Taichung, Taiwan

³ Department of Epidemiology, Faculty of Public Health, Universitas Airlangga, Surabaya, Indonesia

cyli99@mail.ncku.edu.tw

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Ambient temperature may pose influence on glucose metabolism. Recent studies have found the association between prevalence of gestational diabetes mellitus (GDM) and daily temperature. However, all the studies were conducted in the temperate or frigid zones, and little information is available from areas (including South Eastern Asia and Middle East) where both temperature and GDM prevalence are relatively high. This was a population-based retrospective cohort study with 371,131 pregnancies in Taiwan between 2013 and 2014. This study aimed to assess the association of GDM with daily mean temperature averaged over 35 days prior to GDM screening. Information of ambient temperature was retrieved from 21 monitoring stations of Central Weather Bureau around the country; and the residential city district / township at time of delivery was used to perform exposure assessment. The GDM prevalence was estimated at 11.7%. After adjusting for age and certain risk factors for GDM, summer and fall were associated with a higher chance of GDM diagnosis by a magnitude of 5% and 4%, respectively, as compared to winter. Additionally, per 1°C increase was significantly associated with an elevated prevalence of GDM by 3% between 14°C and 27°C. The elevated prevalence increased sharply to 54% after 28°C (see the figure below). Pregnant women are advised to avoid overexposure to high environment temperature.

