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[ABS-7]
Interactions between Temperature Variability and Monthly Fluctuations of Dengue Incidence Over 11 Years in DIY

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ABSTRACT

Background: Local temperatures can affect dengue virus transmission. However, most studies assess the connection between temperature and dengue cases. This approach stems from using a broad measure like Earth's surface average temperature, which is influenced by multiple factors.
Purpose: In this study, we used a more varied measure of temperature to determine the model of Interactions between temperature variability and monthly fluctuations of dengue incidence over 11 Years in Daerah Istimewa Yogyakarta (DIY)
Methods: In this study, an exploratory ecological design was used with time series analysis. The population included NASA temperature data and DHF cases from DIY Health Service, analyzed monthly over 11 years (2009-2020). Data were assessed assuming a normal distribution for correlation and regression tests (alfa= 0.05).
Results: In DIY, dengue incidence had a mean (X) of 215.71 cases and a standard deviation (S) of 0.52. The temperature models are as follows: 1) Earth's surface temperature: X=26.46 Degrees Celsius, S=0.93, 2) Dry bulb air temperature: X=25.83 Degrees Celsius, S=0.81, 3) Dew point temperature: X=22.63 Degrees Celsius, S=1.41, 4) Adiabatic saturation temperature: X=24.23 Degrees Celsius, S=1.00. Correlation analysis found a robust connection between dry bulb air temperature, dew point temperature, and adiabatic saturation temperature with dengue incidence in DIY. Dry bulb air temperature and adiabatic saturation temperature, as key factors- contribute 19.5% to case fluctuations assuming all linear regressions are met.
Conclusion: These results can be utilized to assist in mitigating dengue transmission by determining the timing of prevention and establishing infrastructure for the treatment of dengue.

Keywords: Dengue Incidence; Temperature; Variability

Topic: Caring for Communicable and Non-Communicable Diseases