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Urban Heat Island (UHI) and Kidney Disease in Indonesia

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Objectives: In increase of global temperature as the impact of global warming can increase the risk of dehydration. These conditions can ultimately increase the risk of kidney disease. Urban Heat Island (UHI) is a small form of global warming, where the temperature of urban areas will be higher than its surroundings. In Indonesia, most major cities are on the island of Java. This study aims to determine the relationship between the existence of UHI and the prevalence of kidney disease in every province on Java.

Methods: UHI distribution is obtained through interpolation of temperature data from meteorological stations in Java. The interpolation results are then calculated into the average temperature of each province. While the prevalence of kidney disease in each province is obtained from the annual report of the Indonesian Ministry of Health. Both data are then applied to the correlation formula to determine the shape and strengths of the relationship between UHI and kidney disease.

Results: The prevalence of kidney disease in Java stands at 1.93-3.81 ‰. The UHI mean results show temperatures between 32.4-34.3°C. The results of the application of the correlation formula indicate a positive value between kidney disease and kidney disease. This means that the greater the presence of UHI as indicated by the high air temperature, the greater the prevalence of kidney disease occurring in every province in Java. The relationship that occurs is included in the category of correlation is quite strong (0.6906).

Conclusions: Areas that experience UHI events tend to have a higher kidney disease prevalence than other regions.

UHI Distibution and Kidneys Disease Prevalece in Java Island