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HIGH TEMPERATURE AND RISK OF HOSPITALIZATIONS AND EFFECT MODIFYING POTENTIAL OF SOCIO-ECONOMIC CONDITIONS: A MULTI-PROVINCE STUDY IN THE TROPICAL MEKONG DELTA REGION

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The Mekong Delta Region (MDR) in Vietnam is highly vulnerable to extreme weather related to climate change. However there have been hardly any studies on temperature-hospitalization relationships. The objectives of this study were to examine temperature-hospitalization relationship and to evaluate the effects of socio-economic factors on the risk of hospitalizations due to high temperature in the MDR. The Generalized Linear and Distributed Lag Models were used to examine hospitalizations for extreme temperature for each of the 13 provinces in the MDR. A random-effects meta-analysis was used to estimate the pooled risk for all causes, and for infectious, cardiovascular, and respiratory diseases sorted by sex and age groups. Random-effects meta-regression was used to evaluate the effect of socio-economic factors on the temperature-hospitalization association. For 1°C increase in average temperature, the risk of hospital admissions increased by 1.3% (95%CI, 0.9-1.8) for all causes, 2.2% (95%CI, 1.4-3.1) for infectious diseases, and 1.1% (95%CI, 0.5-1.7) for respiratory diseases. However the result was inconsistent for cardiovascular diseases. Meta-regression showed population density, poverty rate, and illiteracy rate increased the risk of hospitalization due to high temperature, while higher household income, houses using safe water, and houses using hygienic toilets reduced this risk. In the MDR, high temperatures have a significant impact on hospitalizations for infectious and respiratory diseases. Our findings have important implications for better understanding the future impacts of climate change on residents of the MDR. Adaptation programs that consider the risk and protective factors should be developed to protect residents from extreme temperature conditions.

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