A Systematic Review: The Urban Heat Island Effect and Heat-Related Morbidity

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METHODS

This review was conducted by searching for relevant literature across scholarly sources including PubMed, Himmelfarb Library, and ScienceDirect. Across all sites, 2,169 studies were found. 556 studies were deemed relevant and the abstracts of those studies were screened. After this screening, 242 studies were selected based on evidence linking the urban heat island effect to increase heat-related mortality as well as other heat related illnesses.

Studies were excluded based on the following criteria: studies that were not in English, studies that were not case studies, studies that did not examine heat stress exposure in major urban areas, studies that did not focus on heat-related morbidity as a major health outcome, studies that were less than 3 years.

Strength of evidence was based on: risk of bias for individual studies, the quality of evidence across all eight studies and the strength of evidence across all studies.

RESULTS

Overall, the studies included in this review had a low to moderate risk of bias.

All studies found an increased risk of heat-related morbidity with increased heat-stress.

Risk of bias was most prevalent in the areas of confounding, exposure assessments, and other sources of bias.

Risk of confounding was highest due to lack of consideration for variables such as socioeconomic status of the district, air pollution, housing factors, and demographic factors.

CONCLUSIONS

Heat stress was always associated with higher heat-related morbidity, and the results support further research on heat related illness in urban populations as well as provide evidence for the need for more heat emergency protection measures.

More research may be warranted to investigate spatial variations in heat vulnerability within each urban population, as well as differences amongst rural populations. Major differences amongst low income communities should be analyzed further in addition.

REFERENCES


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