

Electric fans for reducing adverse health impacts in heatwaves – A Cochrane systematic review

Catriona Carmichael¹, Claire Allen², Mike Clarke^{2,3}, Saurabh Gupta¹, Christina Simpson⁴, Virginia Murray¹, Emily Chan⁵ and Yeung Gao⁵

1. Health Protection Agency, London 2. Evidence Aid 3. All Ireland Hub for Trials Methodology Research, Queen's University Belfast 4. Health Canada 5. CERT-CUHK-Oxford University Centre for Disaster and Medical Humanitarian Response, the Chinese University of Hong Kong, Hong Kong, China



Introduction

Heatwaves have a clear impact on society, including increasing mortality and morbidity. The aim of fans in a heatwave is to increase cooling by increasing the efficiency of all normal methods of heat loss, particularly through evaporation and convection. There has been little comparative, intervention research on the physiological effects of electric fans.

NHS

A Cochrane systematic review was undertaken to determine the effects of electric fans on major health-related outcomes during periods of high ambient temperatures.

This would have implications for policies such as the Heatwave Plan for England 2012 (left)



Implications for research

Evidence could be generated by an appropriate randomised trial in a naturally occurring heatwave, comparing electric fans versus no fans within a general adult population of an area, but with a focus on older people. This should measure outcomes such as heat-related morbidity and mortality.

Conclusions

In light of the lack of eligible studies for this review, the uncertainties around the effects of electric fans in the observational studies that we identified and the potential for harm as well as for benefit in their use, we conclude

This review does not support or refute the use of electric fans during heatwaves

Further high quality research is needed to resolve the long standing and ongoing uncertainty about the benefits and harms of using electric fans during a heatwave.

Objectives

1. To determine whether the use of electric fans makes major health-related outcomes, including death, more or less likely at high ambient temperatures during a heatwave
2. To contribute to the evidence base for the public health impacts of heatwaves.

Methods

An extensive search was undertaken on several bibliographic databases (English and non-English) and relevant websites. Contact was made with experts in the field for additional work, published or unpublished. The references in the retrieved articles were checked for relevance. At least two reviewers assessed each article for eligibility.

Results

4500+ records were identified by the searches and 120 full text articles were checked. None of these met the eligibility criteria for the review.

However, some retrospective, observational studies, usually with a case-control design were identified, that investigated the association between the use of electric fans and health outcomes. The results of these studies were mixed. Some studies found that the use of fans was associated with better health outcomes, others found the reverse.

Acknowledgements

Sheila O'Malley of the Health Protection Agency for implementing the search strategy and obtaining most of the relevant articles, Kate Misso of Kleijnen Systematic Reviews Ltd for peer reviewing the search strategy, and Dr Rosamund Southgate and Professor Kevin Hung for assisting with the search of the Chinese literature.

References

1. Department of Health (2012) National Heatwave Plan for England: Protecting Health and reducing harm from severe heat and heatwaves. London: Department of Health.
2. Gupta S, Carmichael C, Simpson C, Clarke MJ, Allen C, Gao Y, Chan EYY, Murray V (2012) Electric fans for reducing adverse health impacts in heatwaves. *Cochrane Database of Systematic Reviews*, Issue 7. Art. No.: CD009888. DOI: 10.1002/14651858.CD009888.pub2 <http://doi.wiley.com/10.1002/14651858.CD009888.pub2>

