Heat-Related Thermal Sensation, Comfort and Symptoms in a Northern Population: The National Finrisk 2007 Study

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Background

The occurrence of subjective symptoms related to heat strain in the general population is unknown. The present study aimed to describe the temperatures considered to be comfortable or hot, and the prevalence of heat-related complaints and symptoms in the Finnish population.

Methods

4007 men and women aged 25-74, participants of the National FINRISK 2007 Study, answered a questionnaire inquiring about the ambient temperatures considered to be hot and the upper limit of comfortable temperature, and about heat-related complaints and symptoms. The age trends in threshold temperatures and symptom prevalence were examined in one-year groups by gender after smoothing with loess regression. The prevalence estimates were also adjusted for age.

Results

The temperature considered as hot averaged 26°C and the upper limit for thermal comfort was 22°C. Both temperatures declined with age (from 25 to 74 years) by 2–5°C. Approximately 80% of the subjects reported signs or symptoms of heat strain in warm weather, mostly thirst (68%), drying of mouth (43%), impaired endurance (43%), sleep disturbances (32%), flushing of skin (29%), headache (19%), impaired concentration (19%) and strong fatigue (16%). Cardiac and respiratory symptoms were reported by 6% and 7%, respectively, and their prevalence increased up to the age of 75 years. The exception was thirst, whose prevalence declined with age. Most symptoms and complaints were more prevalent in women than men.

Conclusions

Even though summer heat in this northern area is rarely extreme, a considerable fraction of people suffer from various heat-related general or cardiorespiratory symptoms. Women and the oldest were identified as the most vulnerable groups. Information on these is an aid in assessing the burden of summer heat on population health and is a prerequisite for any rational planning of pre-emptive measures.