

STANDING THE HEAT DURING THE 2013 HEAT WAVES IN THE DUTCH PROVINCE OF LIMBURG

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Introduction

- Within the Netherlands, the direct health effect of high temperatures under a changing climate has been identified- by the Health Council of The Netherlands, the Dutch Court of Audits, policymakers (incl. national government), and other stakeholders- as an important issue demanding further research and policy action. However, very little is known about the Dutch morbidity impacts of and heat protection behaviour during heat events.¹⁻⁵
- The HEAL (Health Effects of heAtwaves in Limburg) project explored the morbidity impacts and heat protection behaviour during the 2013 heat episodes (July 21-27 and August 1-5) among the general public in the Dutch province of Limburg.

Methods

- We developed the HEAL questionnaire in order to assess:
 - Self-reported heat-related health outcomes during the heat episodes (i.e. the degree to which subjects were bothered by the indicated symptoms during the heat episodes)
 - Self-reported heat-protection measures during the heat episodes (i.e. the degree to which subjects engaged in the indicated heat protection behaviour during the heat episodes).
 - Risk perception in view of climate change (i.e. the degree to which subjects were personally concerned about climate change, and the health impacts of future heat waves).
- The HEAL questionnaire was administered online (September 2013) to a sample of adult residents in the Dutch province of Limburg (N=588).
- Data were analysed using the SPSS- 20.0 package.

Results: self-reported health outcomes

- 35% of the respondents was severely hindered by the high temperatures (using a 11-point scale ranging from 0='no hindrance' to 10= 'severe hindrance'; 8-10=severely hindered); for the elderly (65+ years) and for chronically ill persons this number was 43%.
- Figure 1 shows that 35% of the respondents reported to have been bothered by sleep deprivation/disturbance during the heat-episodes; 13.4% even reported feelings of exhaustion.
- Figure 1 shows that 3.4% suffered from heart complaints, 14.3% from swollen legs, hands or feet and 9.7% from respiratory problems.
- Other reported health outcomes included problems concentrating (16.8%), feeling irritated/annoyed (12.7%), dizziness (8.0%), headache (9.7%), and skin irritation (8.7%).
- Most respondents attributed the onset/aggravation of their symptoms to the extreme heat.

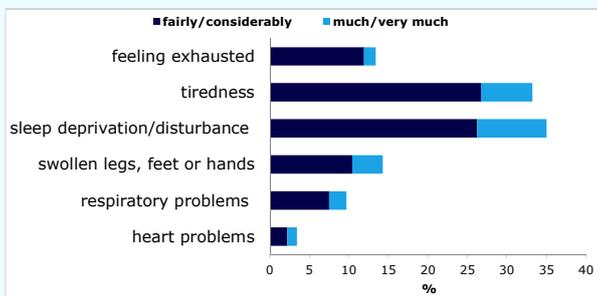


Figure 1: Percentage of respondents who reported that they have been bothered by the indicated health outcomes during the 2013 heat episodes.

Results: self-reported heat-protection behaviour/measures

- Table 1 shows that respondents reported to take (frequent to very frequent) heat-protection measures during the heat episodes.
 - In particular drinking regularly (94%), wearing appropriate clothing (93%), and opening windows at night (91%).
 - Other measures included, for example, taking a cool shower/bath (58%), staying inside (60%) and avoiding strenuous activity (65%).
- Respondents also used sun-blinds (78%), fans (49%) and- to a lesser extent- air conditioning (19%).
- The elderly were more likely to stay inside and avoid activity, while the younger respondents were more likely to use air conditioning.
- 89% indicated to be (reasonably) well-informed about possible heat-protection measures, mostly via television and the internet.
- Half of the respondents believed that without taking measures they would experience negative health impacts during future heat events.

Table 1: Percentage of respondents who reported that they (very) frequently took the indicated heat protection measures during the 2013 heat episodes.

	Drinking regularly	Wearing appropriate clothing	Taking a cool shower/bath	Staying inside	Avoiding strenuous activity	Opening window/door at night
Total	94	92	58	60	65	91
Aged 65+	92	90	57	67	74	86
Chronically ill	95	91	61	68	71	89

Results: risk perception in view of climate change

- Almost one-quarter of the respondents is (somewhat to very much) worried about the impact of a future heat episode on their personal health; this proportion is almost one-third in the elderly and in the chronically ill.
- More than two-thirds believe that it is (very) likely that heat episodes will become more frequent due to climate change.
- About 63% thinks that more frequent/intense heat episodes will lead to health impacts within the population.

Conclusion

- The extreme heat in the summer of 2013 caused severe hindrance in more than one-third of the general population in the Dutch province of Limburg. In vulnerable populations this proportion was even higher.
- Results also indicate relative large proportions of the population that reported to have been bothered by heat-related health outcomes during the heat episodes. However, as the survey explored self-reported health outcomes, it is important to note that the results cannot be interpreted as a valid measure of clinical heat illness.⁶ They do provide an important indication of the subjective experience of heat impacts on health.
- We found a relative high level of awareness of the actions to take during extreme high temperatures.
- Further stratified analyses of heat protection behaviour/measures in relevant sub-groups (e.g. low income, self-reported bad health status, urban residents; socially isolated; result not shown) can contribute to identifying opportunities for additional/targeted policy measures, in particular in view of the increasing concern about heat-related health impacts of climate change.

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