

## Behavioral Adaptation to Heatwaves in Urban Netherlands: A Sequential Mixed-Method Inquiry

Ahmed, Istiaque; van Esch, M.M.E.; Petrović, A.; van der Hoeven, F.D.

**DOI**

[10.5194/icuc12-1044](https://doi.org/10.5194/icuc12-1044)

**Publication date**

2025

**Document Version**

Final published version

**Citation (APA)**

Ahmed, I., van Esch, M. M. E., Petrović, A., & van der Hoeven, F. D. (2025). *Behavioral Adaptation to Heatwaves in Urban Netherlands: A Sequential Mixed-Method Inquiry*. Abstract from 12th International Conference on Urban Climate, Rotterdam, Netherlands. <https://doi.org/10.5194/icuc12-1044>

**Important note**

To cite this publication, please use the final published version (if applicable). Please check the document version above.

**Copyright**

Other than for strictly personal use, it is not permitted to download, forward or distribute the text or part of it, without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license such as Creative Commons.

**Takedown policy**

Please contact us and provide details if you believe this document breaches copyrights. We will remove access to the work immediately and investigate your claim.



ICUC12-1044, updated on 23 Jul 2025

<https://doi.org/10.5194/icuc12-1044>

12th International Conference on Urban Climate  
© Author(s) 2025. This work is distributed under  
the Creative Commons Attribution 4.0 License.



## Behavioral Adaptation to Heatwaves in Urban Netherlands: A Sequential Mixed-Method Inquiry

Istiaque Ahmed<sup>1</sup>, Marjolein van Esch<sup>2</sup>, Ana Petrović<sup>3</sup>, and Frank van der Hoeven<sup>4</sup>

<sup>1</sup>Faculty of Architecture & the Built Environment, Department of Urbanism, TU Delft, Delft, Netherlands (a.ahmed-1@tudelft.nl)

<sup>2</sup>Faculty of Architecture & the Built Environment, Department of Urbanism, TU Delft, Delft, Netherlands  
(m.m.e.vanesch@tudelft.nl)

<sup>3</sup>Faculty of Architecture & the Built Environment, Department of Urbanism, TU Delft, Delft, Netherlands (a.petrovic@tudelft.nl)

<sup>4</sup>Faculty of Architecture & the Built Environment, Department of Urbanism, TU Delft, Delft, Netherlands  
(f.d.vanderhoeven@tudelft.nl)

As heatwaves in cities intensify, understanding how urban residents adapt to extreme heat is critical. Yet, climate literature predominantly focuses on exposure-centric, spatial approaches, while bottom-up, people-first perspectives remain underrepresented. This study employs a sequential mixed-method approach to investigate behavioural adaptation practices among urban dwellers in the Netherlands.

In the first phase of the study, semi-structured, in-depth interviews (n=21) identified key themes that informed a Likert-scale survey instrument employed in the second phase to test a set of hypotheses. Subsequently, in phase two, a nationwide survey (n=1,849) across three urban typologies—*Extremely Urban*, *Strongly Urban*, and *Moderately Urban*—captured perceptions and behavioural practices related to heatwave adaptation.

Findings indicate that residents in highly dense, extremely urban areas have a lower behavioural adaptation score compared to the other two urban types. Additionally, ownership emerges as a key factor in the adaptation process; where homeowners prioritize technological adjustments, renters rely more on personal and cultural adjustments. In terms of risk perception, statistically significant differences exist between adults living alone and those living with a partner or family.

The tested hypotheses provide a nuanced understanding of specific vulnerability to heatwaves in the Netherlands, offering insights that can inform targeted urban design and planning strategies at the local level.