

The psychology of climate change adaptation

Anne van Valkengoed



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Environmental psychology

- Study interaction between people and the environment
- At University of Groningen: focus on climate change



5 July 2023



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Environmental psychology

- Study interaction between people and the environment
- At University of Groningen: focus on climate change
- Mitigation, adaptation, and more...
- Individuals, households, and groups



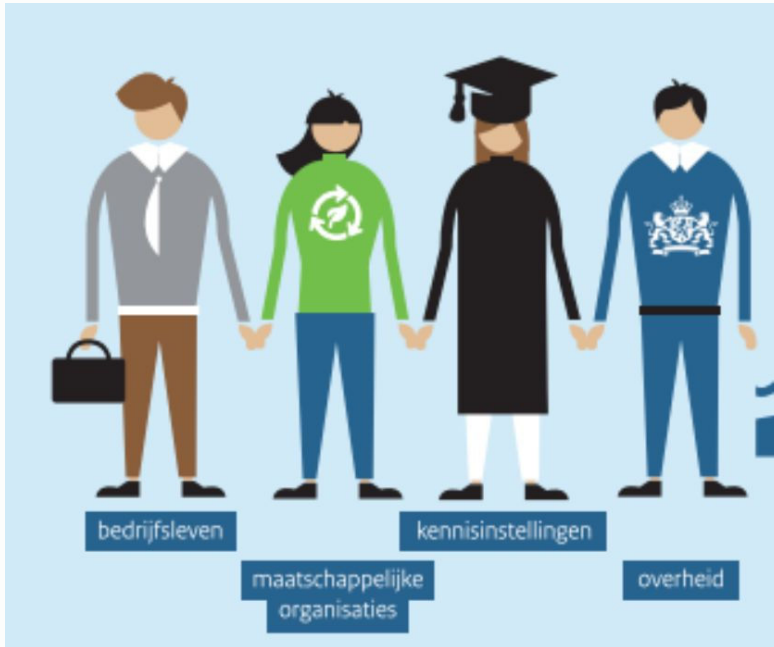
Part 1: Why focus on individuals and households?

Individuals overl





Global Environmental Change

Volume 53, November 2018, Pages 127-136



Industry NGO's Science Government

The role of the private sector and citizens in urban climate change adaptation: Evidence from a global assessment of large cities

Johannes Klein ^a, Malcolm Araos ^b, Aasa Karimo ^c, Milja Heikkinen ^d,
Tuomas Ylä-Anttila ^c, Sirkku Juhola ^d  

*'Using a large data set covering 402 cities around the world, we find that **a majority of adaptation initiatives focus exclusively on the public sector and do not address the private sector or citizens.** In the cases where they do, the private sector is more often governed through partnerships and participation, whereas citizen participation is relatively rare'*

Why important?

1. Governments will become overstrained in their capacity
– protection not guaranteed
2. Behaviours at micro-level are effective in reducing

Research Article |  Open Access |    

From Risk Governance to City–Citizen Collaboration: Capitalizing on individual adaptation to climate change

Christine Wamsler 

Example from Wamsler (2016)

An alarming example from the 2013 floods was that residents ignored emergency warnings and evacuation instructions. 'A lot of damage could have been avoided if people had taken the warnings seriously, had used their time to move their valuables, and drive their vehicles out of the area. This failure led to time-consuming, costly and dangerous rescues by boat and helicopter.'

Example from Wamsler (2016)

Inadequate individual adaptation leading to increased demands for municipal assistance can be found in all phases of a disaster. 'They hamper emergency assistance and the rapid handling of formalities through their constant requests for help. There are people who don't just call once or twice because their cellar is flooded, but 700 times, honestly, [...] they block the emergency lines'

Example from Wamsler (2016)

During the 2005 floods, Freising residents pumped water out of their cellars into toilets and showers. This overloaded the sewage system and eventually forced contaminated water into streets in other areas. Another example is fighting over sandbags and other forms of assistance

What does adaptation at the individual and household level look like?



Examples of how people can adapt to climate change



Information seeking

- Flood maps
- Information brochures
- Weather forecasts



Insurance

- Flood insurance
- Homeowner insurance
- Weather index insurance



Preparation

- Emergency kit
- Home maintenance
- Storing bottled water



Political actions

- Supporting adaptation policies
- Attending townhall meetings
- Signing a petition



Protection

- Closing hurricane shutters
- Staying cool during heatwave
- Placing sandbags against flood



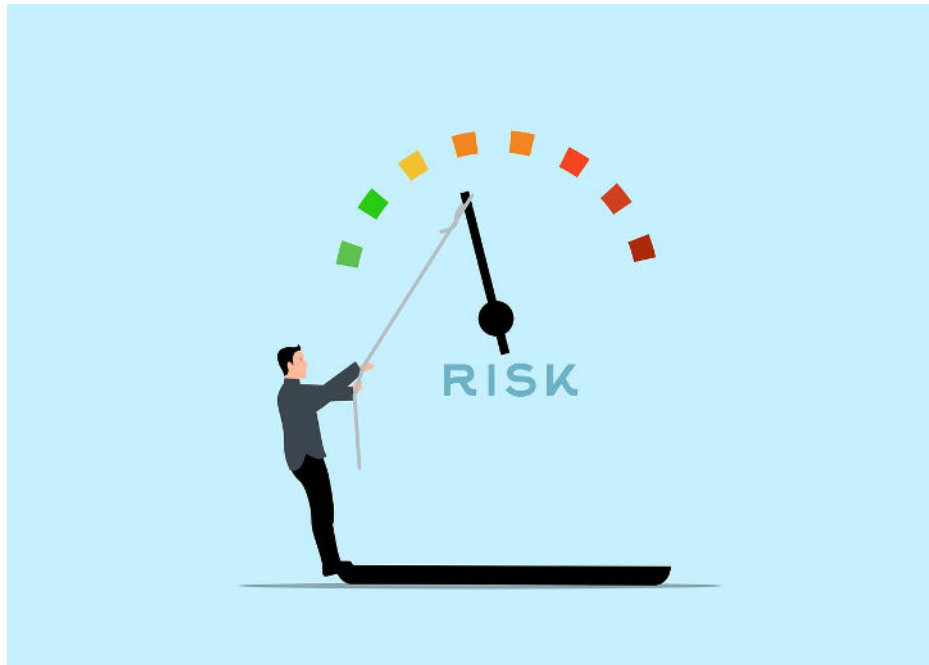
Evacuation/migration

- Hurricane evacuation
- Planned retreat
- Climate-induced migration

Part 2: What motivates individuals and households to adapt?



Assumption



Risk perception
Probability & Severity



Experience

Literature review

Article | [Published: 14 January 2019](#)

Meta-analyses of factors motivating climate change adaptation behaviour

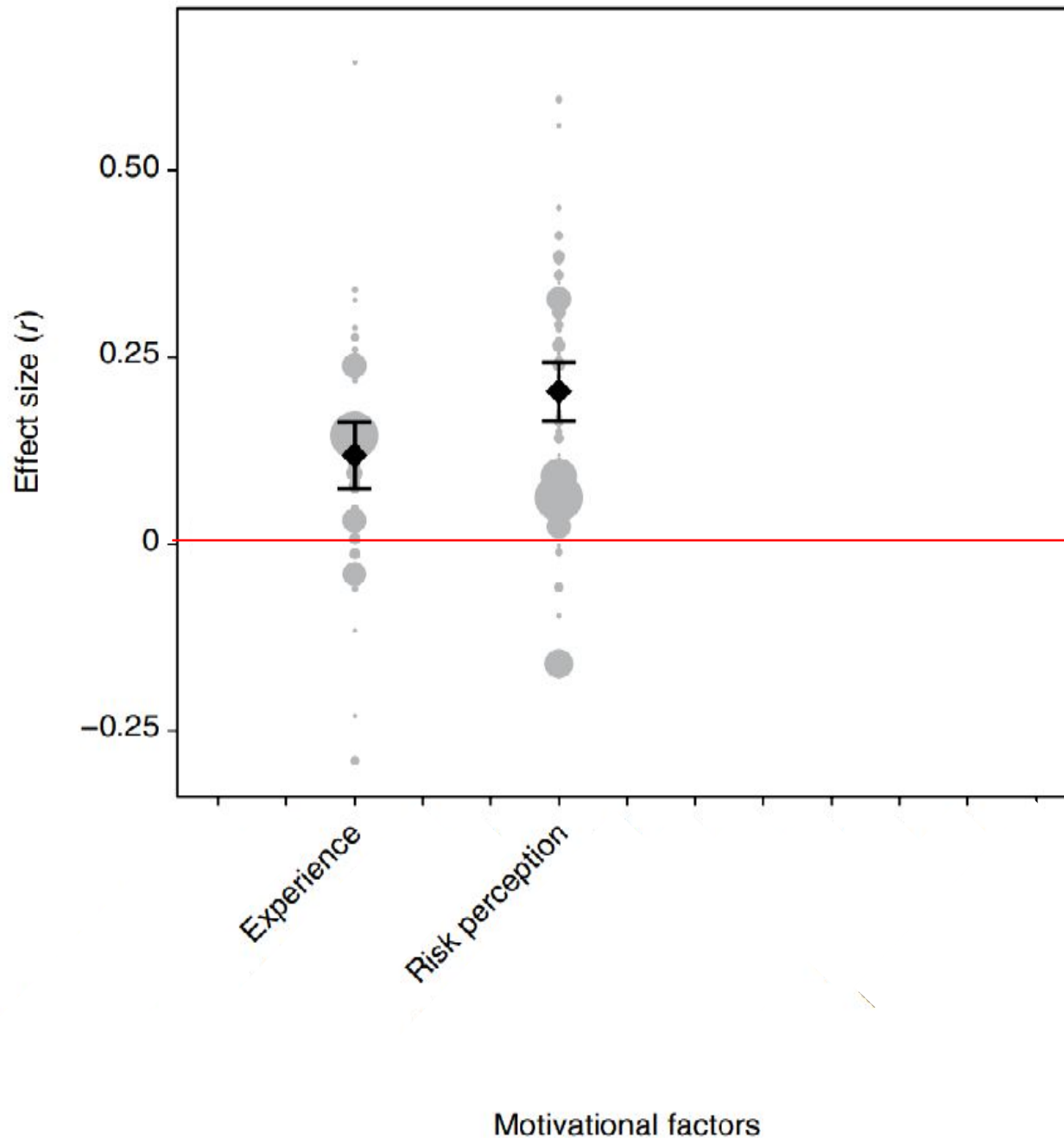
[Anne M. van Valkengoed](#)  & [Linda Steg](#)

[Nature Climate Change](#) **9**, 158–163 (2019) | [Cite this article](#)

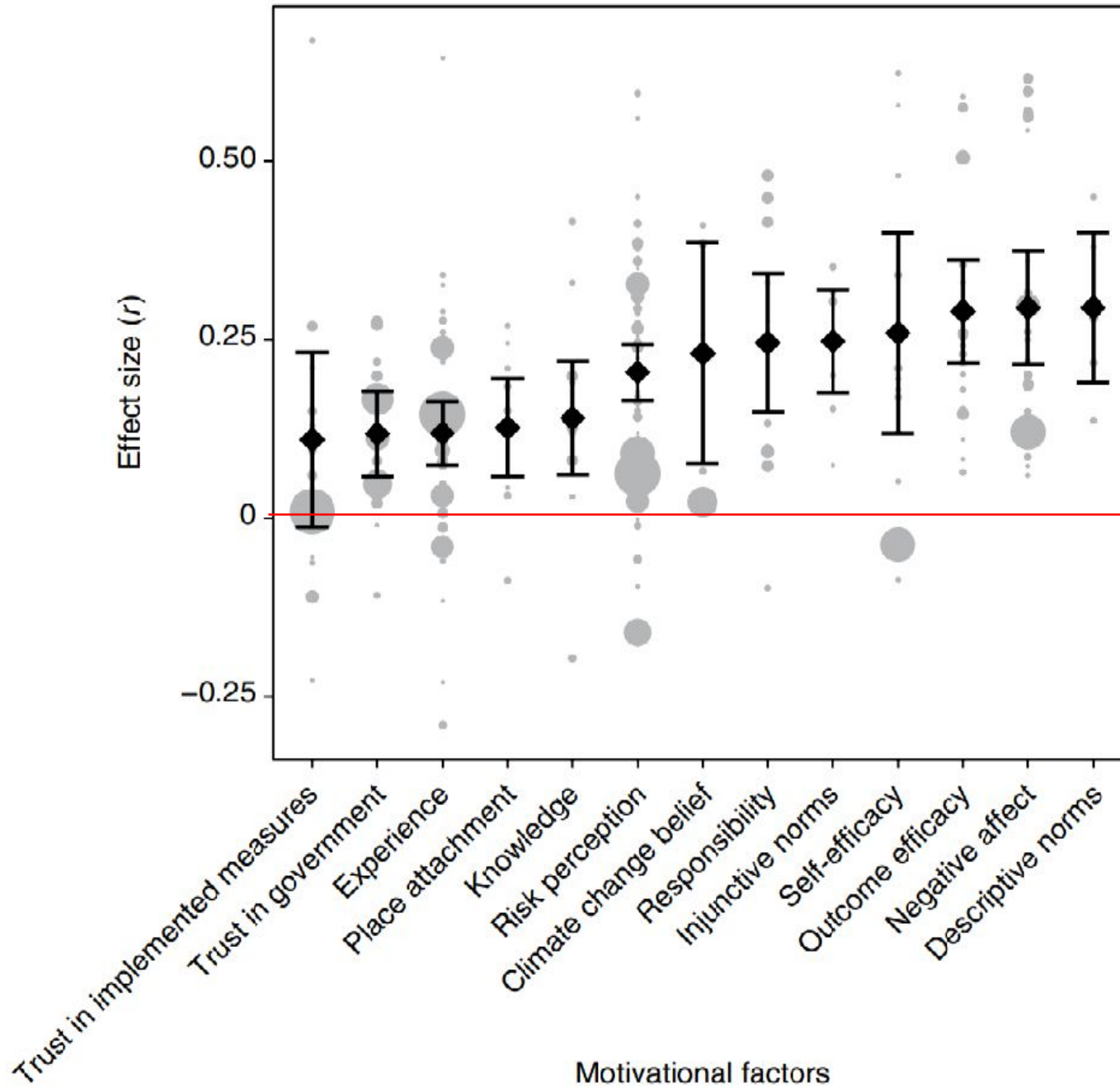
13k Accesses | **256** Citations | **173** Altmetric [Metrics](#)

Abstract

Adaptation behaviour is of critical importance to reduce or avoid negative impacts of climate change. Many studies have examined which factors motivate individuals to adapt. However, a comprehensive overview of the key motivating factors of various adaptation behaviours is lacking. Here, we conduct a series of meta-analyses using data from 106 studies (90 papers) conducted in 23 different countries to examine how 13 motivational factors relate to various adaptation behaviours. Descriptive norms, negative affect, perceived self-efficacy and outcome efficacy of adaptive actions were most strongly associated with adaptive behaviour. In contrast, knowledge and experience, which are often assumed to be key barriers to adaptation, were relatively weakly related to adaptation. Research has disproportionately focused on studying experience and risk perception, flooding and hurricanes, and

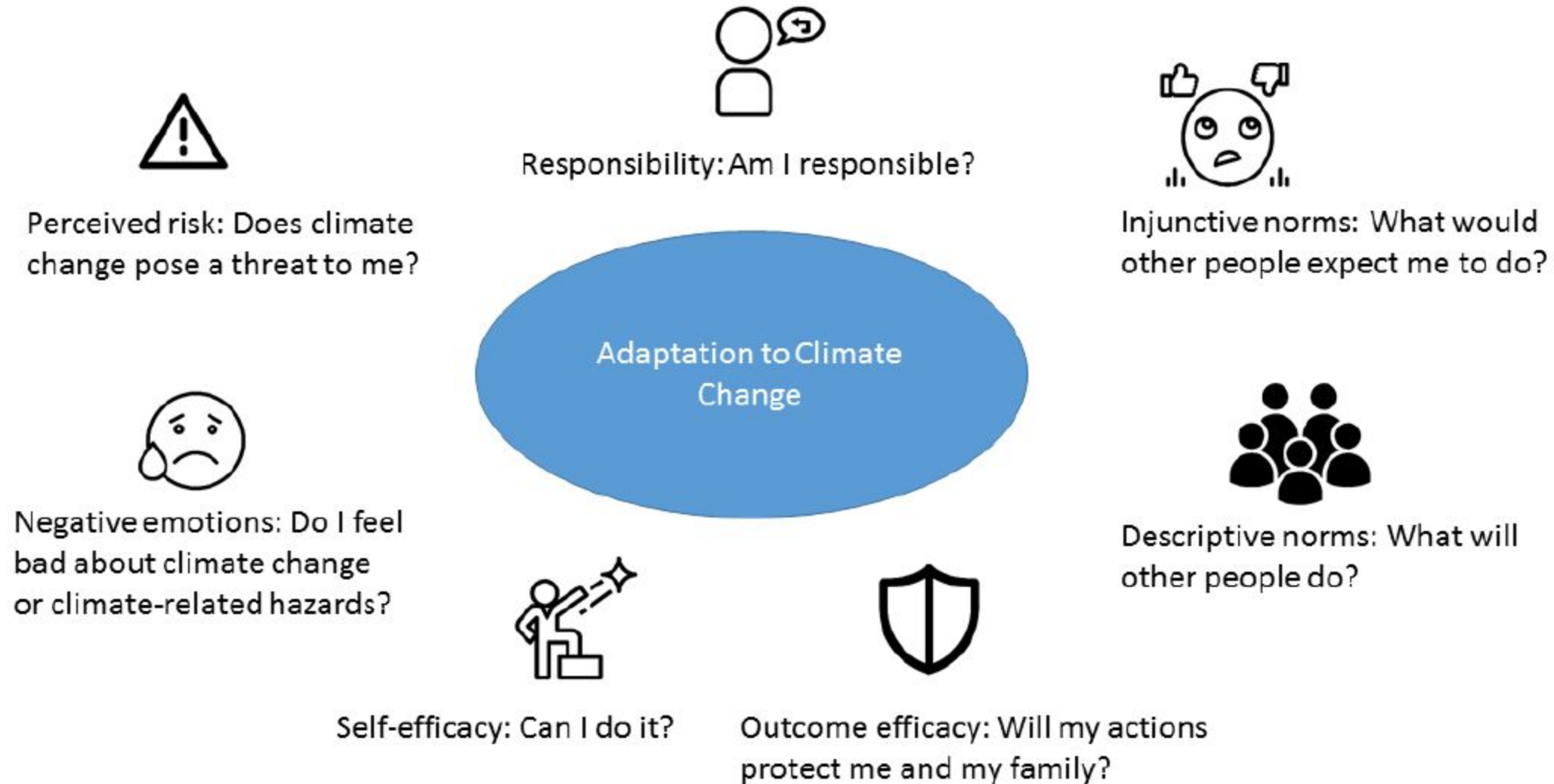


Risk perception = 65 studies
 Experience = 44 studies



Risk perception = 65 studies
Experience = 44 studies

What motivates people to adapt to climate change?



Part 3: The role of climate change perceptions



Climate change perceptions

‘A set of cognitions about what “climate” and “climate change” mean, what the essential attributes of climate are, [and] how these attributes are connected to each other.’ (Weber & Stern, 2011)

Reality, Causes, Consequences



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Published: 05 September 2019

Does it matter if you “believe” in climate change? Not for coastal home vulnerability

[Debra Javeline](#) , [Tracy Kijewski-Correa](#) & [Angela Chesler](#)

[Climatic Change](#) **155**, 511–532 (2019) | [Cite this article](#)

1684 Accesses | **14** Citations | **189** Altmetric | [Metrics](#)

Politics of Environmental Science and Knowledge

Avoiding Climate Change: “Agnostic Adaptation” and the Politics of Public Silence

Liz Koslov

Pages 568-580 | Received 01 Dec 2017, Accepted 01 Oct 2018, Published online: 13 Feb 2019

 Download citation

 <https://doi-org.proxy-ub.rug.nl/10.1080/24694452.2018.1549472>

 Check for updates

‘The term *agnostic adaptation* has emerged to refer to actions that address climate change’s effects without acknowledging its existence or human causes’



Do climate perceptions indeed not matter?

[Open Access](#) | [Published: 21 March 2022](#)

Relationships between climate change perceptions and climate adaptation actions: policy support, information seeking, and behaviour

[A. M. van Valkengoed](#) , [G. Perlaviciute](#) & [L. Steg](#)

[Climatic Change](#) **171**, Article number: 14 (2022) | [Cite this article](#)

4556 Accesses | **7** Citations | **25** Altmetric | [Metrics](#)

- Large scale survey in Northern Netherlands (3,000 + respondents)
- Questions about climate change perceptions
- Questions about support for adaptation policy, information seeking, and adaptation behaviour

Table 1

Summary of the observed effect sizes across different adaptation actions for the three different climate change perception in Study 1

	Reality	Causes	Consequences
Policy support (<i>r</i>)	.18	.16	.19

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Policy support (<i>r</i>)	.18	.16	.19
Information seeking (<i>d</i>)*			
Heat maps- and flood maps			
<i>Already looked up vs not planning</i>	0.36	0.32	0.44
<i>Planning vs not planning</i>	0.41	0.35	0.44
Information local impacts			
<i>Already looked up vs not planning</i>	0.35	0.58	0.54
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Adaptation intentions (<i>rho</i>)			
Green roof	.19	.18	.18
Front garden	.15	.15	.16
Green garden	.24	.21	.16
Pond	.09	.07	.09
Rain barrel	.16	.15	.14
Sun blinds	.06	.03	.03
Insulation	.14	.14	.12

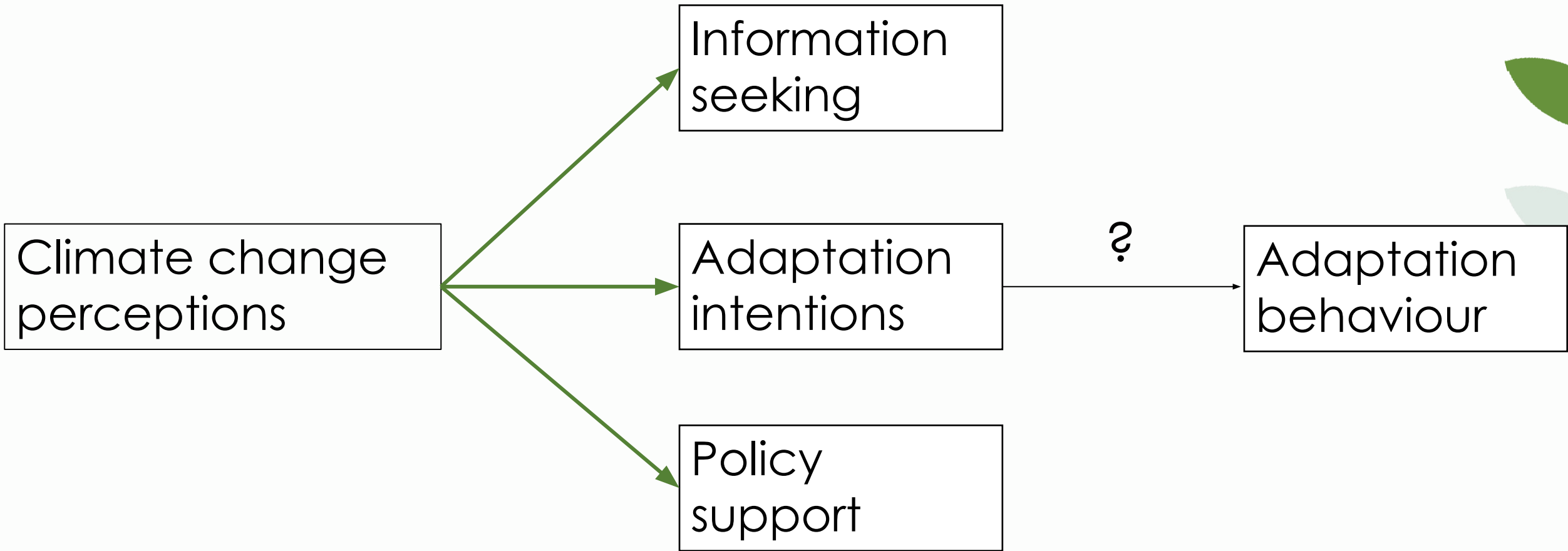
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Adaptation behaviour (<i>d</i>)*			
Green roof	0.03	0.15	0.21
Front garden	0.20	0.19	0.18
Green garden	0.27	0.26	0.25
Pond	0.08	0.02	0.05
Rain barrel	0.05	0.05	0.05
Sun blinds	-0.07	-0.04	-0.06
Insulation	0.04	-0.01	-0.05

Note: *r* = Pearson's correlation coefficient, *rho* = Spearman's correlation coefficient, *d* = Cohen's *d*. White cells indicate non-significant relationships, light grey cells indicate a small effect, dark grey cells indicate a medium sized effect (following effect sizes guidelines derived by Lovakov & Agadullina, 2021). * = details of the associated t-test are provided in the Supplemental Material.





Risk Analysis

AN INTERNATIONAL JOURNAL

An Official Publication of the Society for Risk Analysis

Edited By: L. Anthony Cox, Jr.

Impact factor (2021): 4.302

‘From believing in climate change to adapting to climate change: The role of risk perception and efficacy beliefs’
(van Valkengoed, Perlaviciute & Steg, in press)



- Study in the South of the Netherlands
- Longitudinal study (two measurements, 1 year apart)
- Ask for people's adaptation behaviours and intentions
- Different psychological factors, including climate change perceptions
- What can explain the intention-behaviour gap?

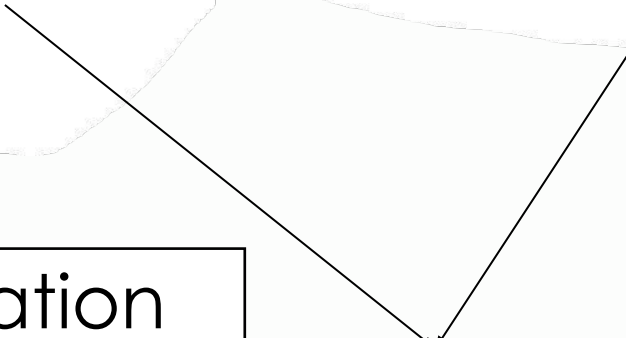
Climate change perceptions



Adaptation intentions



Adaptation behaviour



Takeaways

- **Individuals and households** play a key role in adaptation to climate change
- Different **psychological determinants** play a role in whether people decide to adapt or not
- **Climate change perceptions** play a role in adaptation too, but people also need to perceive **efficacy**