



UvA-DARE (Digital Academic Repository)

Climate Concern and Engagement: Large Face-to-Face and Online Polls by the Dutch non-profit Milieudefensie

Bosshard, A.; Chatrou, A.; Brick, C.

DOI

[10.1017/SJP.2023.3](https://doi.org/10.1017/SJP.2023.3)

Publication date

2023

Document Version

Final published version

Published in

Spanish Journal of Psychology

License

CC BY

[Link to publication](#)

Citation for published version (APA):

Bosshard, A., Chatrou, A., & Brick, C. (2023). Climate Concern and Engagement: Large Face-to-Face and Online Polls by the Dutch non-profit Milieudefensie. *Spanish Journal of Psychology*, 26, [e6]. <https://doi.org/10.1017/SJP.2023.3>

General rights

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

Disclaimer/Complaints regulations

If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: <https://uba.uva.nl/en/contact>, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.

UvA-DARE is a service provided by the library of the University of Amsterdam (<https://dare.uva.nl>)

Climate Concern and Engagement: Large Face-to-Face and Online Polls by the Dutch non-profit Milieudefensie

Anna Bosshard , Anne Chatrou  and Cameron Brick 

University of Amsterdam (Netherlands)

Abstract. Climate change mitigation depends on tracking public opinion across populations. Social scientists can collaborate with environmental organizations that conduct surveys among their audiences. We teamed up with the non-profit Milieudefensie, who surveyed Dutch attitudes towards climate change in 2019–2020. The large dataset had face-to-face ($n = 3,102$) and online interviews ($n = 30,311$) of urbanity, climate concern, policy preferences, interviewer-rated engagement with climate change, and behavior (whether the interviewee provided their email and phone number to the organization). To reveal the representativeness of these kinds of convenience samples, we tested whether attitudes and their associations with behaviors were similar to previous studies. Climate concern, preference for climate policy, and interviewer-rated engagement were high. In the online survey, 47% of respondents signed up for an email newsletter, and 7% provided their phone number. Higher climate concern and preference for climate policy predicted interviewer-rated engagement and behavior (weak to strong associations). Urbanity was not related to concern, policy preferences, or interviewer-rated engagement. Policy preferences did not differ between the face-to-face and online samples. The results provide convergent evidence to conventional online surveys. These Dutch residents appear slightly more engaged with systemic change to mitigate climate change than the general public.

Received 22 July 2022; Revised 16 February 2023; Accepted 15 March 2023

Keywords: climate change, collective action, environmental concern, policy preferences, public polling

To avoid the extreme consequences of climate change, people need to make collective efforts to reduce greenhouse gas emissions (Gifford, 2011). The present study investigates Dutch residents' climate concern, preferences for climate policy, interviewer-rated engagement

with climate change, and behavior in large face-to-face and online pools collected by the environmental non-profit Milieudefensie.

Public Polling in Environmental Organizations

Describing perspectives over time and among diverse audiences is essential for effective climate change mitigation. Because public support is a substantial driver of political decision-making in participatory democracies (Burstein, 2003), public polling enables policy solutions supported by public opinion (Wlezien & Soroka, 2016). Second, a better understanding of beliefs and behaviors across groups allows the design of more effective communication to increase awareness and behavioral engagement with climate change (Lee et al., 2015; Moser, 2009; Roser-Renouf et al., 2015).

Correspondence concerning this article should be addressed to Cameron Brick. Universiteit van Amsterdam (Netherlands).

E-mail: c.brick@uva.nl

Acknowledgement: We thank Xinlei Wang for assistance with data visualization.

Funding Statement: This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors. The in-person interviews were coordinated by Milieudefensie and staffed with volunteers.

Conflicts of Interest: CB and AB have no financial relationship, involvement, membership, or other relationships to the subject matter nor to Milieudefensie. AC volunteered at Milieudefensie from September 2019 until June 2020. Milieudefensie did not review the analyses nor manuscript prior to submission and gave no input into what research questions to prioritize nor which results to share.

Data Sharing: The datasets and analysis scripts are available at the Open Science Framework <https://osf.io/kfhu8>

Author Note: *Author contributions (credit roles).* Conceptualization by AC and CB; methodology by AB, AC, and CB; data collection by AC; supervision by CB; writing-original draft by AC and CB; writing-rewriting and editing by AB, AC, and CB.

How to cite this article:

Bosshard, A., Chatrou, A., & Brick, C. (2023). Climate concern and engagement: Large face-to-face and online polls by the Dutch nonprofit milieudefensie. *The Spanish Journal of Psychology*, 26, e6. Doi:10.1017/SJP.2023.3

Social scientists studying public opinion on climate change and policy preferences can use large, existing international datasets like the World Values Survey, International Social Survey, Eurobarometer, or Latino-barometer, which increasingly include items on environmental issues (Prakash & Bernauer, 2020). Moreover, they can collaborate with environmental organizations that conduct surveys to gather information or engage their audiences with climate change. The second author was a student volunteer at the Dutch environmental non-profit Milieudefensie.

Milieudefensie conducted the public poll ‘Operatie Klimaat’ (Operation Climate) in 2019–2020. Milieudefensie volunteers interviewed 3,000 Dutch residents face-to-face and recruited a larger sample for an online survey from their website and email newsletter. Both the online and face-to-face sample were convenience samples and likely represent a more concerned and engaged segment than the general Dutch public based on their willingness to participate in surveys of an environmental group. Therefore, it is helpful to explore the potential selection bias of this group to inform future research collaborations with organizations such as Milieudefensie. Our first aim was to explore whether attitudes and their association with behavioral engagement were similar to previous studies (*Aim 1*). This can help inform how to interpret findings from such convenience samples and integrate them into the scientific record.

Moreover, this effortful face-to-face sampling is unique because online surveys are increasingly selected for describing environmental attitudes and behavior (Prakash & Bernauer, 2020). Face-to-face interviews have several advantages over online surveys: reduced non-response, more control of the data collection process, the possibility of clarifying content to the survey taker, and the inclusion of social cues (Doyle, 2014). Advantages of online surveys over face-to-face interviews include more anonymity, broader geographic accessibility, and less interviewer bias (Evans & Mathur, 2018). Relying on different surveying modes may thus influence results and lead researchers to draw different conclusions (Ansolabehere & Schaffner, 2011). Therefore, contrasting outcomes across surveying methods in similar samples and periods can inform cost-benefit analyses of techniques (Ansolabehere & Schaffner, 2011). For instance, if climate concern were similar for a given population between sampling modes, it might be more efficient and justifiable to use online over costly face-to-face interviews. Therefore, our second aim was to compare attitudes between the online and face-to-face samples (*Aim 2*).

Climate Concern

We define environmental concern as how much individuals are aware of environmental problems and

support efforts to solve them (Dunlap & Jones, 2002). In the Netherlands, most residents (74%, European Commission, 2019; 76%, Kloosterman et al., 2021) saw climate change as a very serious problem, slightly below the EU average (European Commission, 2019). 27% of Dutch residents thought climate change was the single most serious problem the world was facing, slightly above the EU average (23%, European Commission, 2019), and 69% expressed strong concern (Ipsos, 2021). Moreover, 85% found it important that the government focuses on climate policy and 42% said that current policies were insufficient to address the climate crisis (Kloosterman et al., 2021). The majority supported the development of renewable energy sources, with solar (83%) and wind (72%) as the most popular options (Kloosterman et al., 2021).

These results suggest that Dutch residents increasingly see the climate crisis as an emergency, consistent with the scientific consensus. A radical and widespread change in behavior towards a system of lower production and consumption is needed (Lorenzoni et al., 2007; Steg & Vlek, 2009). One domain of behavior change is consumer behaviors that reduce environmental impact.

Environmental concern does not necessarily lead to pro-environmental behavior (Tam & Chan, 2017). Climate change is perceived as a slow, distant, and abstract threat, unlike those humans have evolved to understand and act upon (Gifford, 2011). Several psychological barriers to action, such as limited cognition, feelings of helplessness, and social norms, undermine the reliance on individual action and obstruct climate change mitigation efforts (Gifford et al., 2011; Lorenzoni et al., 2007). Moreover, behavior not only emerges from thoughts and intentions but is also a product of social and institutional contexts (Lorenzoni et al., 2007).

Climate Activism

Besides psychological barriers to behavior, the climate crisis is structurally anchored in industrialized ways of life (Jensen & Schnack, 1997). Individuals are therefore incapable of attaining sufficient emissions reductions by themselves (Ockwell et al., 2009). Environmental policy and regulation are inevitable for facilitating individual behavior change through large-scale solutions (Lorenzoni et al., 2007; Nielsen et al., 2021). Besides voting, people can pressure governments through activism: intentional behaviors aimed at a collective and political system change (Alisat & Riemer, 2015; Roser-Renouf et al., 2014). Current governmental efforts are highly inadequate to address the climate crisis, and continued inaction will irreversibly damage the biosphere and exacerbate global inequalities (Hagedorn et al., 2019). Given that the governments are unlikely to act without public pressure, climate activism is more

effective than consumer behaviors, like recycling, for achieving emission reductions (Ockwell et al., 2009).

Climate activism can range from more participatory citizenship behaviors like informing oneself about an issue and engaging in conversations with friends to political leadership actions like organizing a protest (Alisat & Riemer, 2015).

The more people were worried about climate change, the stronger their preferences for climate policy (Bouman et al., 2020; Rauwald & Moore, 2002). Similarly, higher environmental concern predicted emphasizing environmental consequences when evaluating trade policy (Bechtel et al., 2012). However, according to the Social Identity Model of Collective Action (Thomas et al., 2012; van Zomeren et al., 2008) and the Encapsulated Model of Social Identity in Collective Action (Thomas et al., 2012), key predictors of environmental activism are not concern and policy preferences but identifying with an environmental group (social identity), experiencing emotional responses to injustice (i.e., anger and moral outrage), and believing in the effectiveness of group efforts (collective efficacy). Therefore, in line with the value-action gap (Tam & Chan, 2017), in the Netherlands, we expect weak positive associations between both climate concern and preference for climate policy and interviewer-rated engagement with climate change (*Hypothesis 1a,b*) (face-to-face sample), and preference for climate policy and behavior (providing email and phone number in the online sample) (*Hypothesis 1c*).

Rural-Urban Differences

Demographic characteristics, like age, gender, and urbanity, predict beliefs and behaviors about climate change (Gifford & Nilsson, 2014; Wolf & Moser, 2011). As an indicator of urbanity, Milieudefensie recorded postcodes in the face-to-face sample. There are mixed findings regarding rural-urban differences in environmental concern (Ergun et al., 2021). Several studies suggested that rural residents were less concerned about environmental problems than urban residents (Tremblay & Dunlap, 1978; Yu, 2014), possibly because they perceived a higher dependence on natural resources (Lowe & Pinhey, 1982). However, these differences may also be explained by lower education and income in rural areas (Huddart-Kennedy et al., 2009). When controlling for socio-economic variables, there were no rural-urban differences in China (Liu et al., 2020) and in Pakistan rural residents were more environmentally concerned than urban residents (Ergun et al., 2021). Moreover, rural residents in Poland (Piekarski et al., 2016) and Spain (Berenguer et al., 2005) reported concerns about local environmental problems like water shortages, while urban residents reported abstract environmental concerns like climate

change. People living in rural areas may hold more anthropocentric environmental concerns (protect the environment to fulfill human needs), while urban residents may have more ecocentric concerns (protect the environment for its own sake) (Gagnon Thompson & Barton, 1994; Huddart-Kennedy et al., 2009; Rauwald & Moore, 2002). Because of these mixed results, we will compare climate concern in rural versus urban residents in the Netherlands without a strong prediction.

Urban residents in the United States were more supportive of climate action than rural residents, controlling for partisanship and other demographics (Bonnie et al., 2020). Moreover, urban residents in Scotland preferred renewable energy projects with low impacts on landscape, wildlife, and air pollution, but job creation was the most important factor for rural residents (Bergmann et al., 2008). Rural residents may oppose measures less considerate of rural lifestyles due to their greater reliance on cars (Otto & Gugushvili, 2020). Therefore, we expect that rural residents in the Netherlands will be less supportive of climate mitigation policy than urban residents (*Hypothesis 2a*).

If rural residents disfavor climate policy compared to urban residents, they may also be less willing to engage in climate activism. However, social identity, collective efficacy, and group-based emotions were stronger predictors of activism behaviors than environmental attitudes (review: van Zomeren et al., 2008). Because rural residents in the United States reported less identification with environmentalists than urban residents (Brick & Lai, 2018), we expect that rural residents in the Netherlands will be rated as less engaged with climate change than urban residents (*Hypothesis 2b*).

Method

Operation Climate

Milieudefensie conducted the 'Operation Climate' poll in Dutch residents from September 2019 to March 2020. Their process was based on the principles of Big Organizing, which guides large-scale and decentralized activism (Bond & Exley, 2016). The goal of Operation Climate was to focus the 2021 Dutch elections on climate justice, to raise public awareness, and to create a widespread movement of engaged citizens. Around 200 volunteers participated in groups across the Netherlands. Most groups were managed by a city organizer who coordinated the campaign in a town or region. City organizers worked together with office organizers who coordinated the campaign across the Netherlands.

These 200 interviewers were recruited in different ways: Milieudefensie contacted them by phone or email because they had previously volunteered, joined a local meetup, participated in a survey, or other methods (e.g.,

through friends). Upon registration as a volunteer, a city or office organizer called them to discuss the campaign's procedures and objectives. In larger cities, volunteers joined local groups. In smaller towns, volunteers joined the nearest local group or set up a new one.

Respondents

In total, 3,102 Dutch residents were interviewed face-to-face and 30,311 people answered a similar survey online. Participation was voluntary and responses were anonymized apart from postal codes in the face-to-face sample. Contact information (email addresses and telephone numbers) was collected and either deleted from the datasets (face-to-face sample) or anonymized (online sample) by Milieudedefensie. Other respondent characteristics like age or gender were not recorded, which limits the comparability between the samples and generalizability to the broader Dutch population.

Conversation Procedure (Face-to-Face Interviews)

Interviews took place in residential areas (interviewers went door-to-door in neighborhoods) and in public spaces like train stations. Respondents in public spaces and households were selected based on convenience (e.g., proximity to the interviewing team). Usually, volunteers went in pairs, with one volunteer asking the questions and the other one entering participant answers through an online application. When ringing a door, a volunteer entered the postal code and sometimes the specific address. If residents agreed to participate, there was no fixed framework for opening a conversation. Typically, volunteers introduced themselves and the organization, and asked for five minutes of the respondent's time to talk about climate change and policy solutions. There were four other outcomes: The address did not exist, nobody was home, volunteers were asked to come back later, or residents did not want to participate. After the conversation, volunteers thanked respondents for their participation and explained how the data would be used. Participants could enter their email addresses if they wanted to stay updated on the campaign or sign-up as future volunteers. At the end of the conversation, the interviewers rated the participant's engagement with climate change.

Respondent Recruitment (Online Survey)

The online survey was available on the Milieudedefensie website and advertised through their social media channels (Facebook and Instagram) and newsletter. Occasionally, volunteers handed out a note with a prompt to the online survey if people did not have time for a face-to-face interview on the streets or left these notes in mailboxes if people were not at home.

Materials

Interviewers entered data into an online application by Milieudedefensie and the online respondents filled in a survey on the Milieudedefensie website (English translation in the [Supplemental Material](#)). The face-to-face and online surveys were not identical: The face-to-face survey collected items on urbanity, climate concern, preferences for climate policy, and interviewer-rated engagement with climate change, while the online survey included items on preference for climate policy and objective measures of behavior (whether the interviewee provided their email and phone number to the organization). The authors were not involved in the survey design and had therefore no influence on which items were selected or the content of the policies.

Climate concern (quantitative, face-to-face survey only). To measure climate concern, the item "Are you worried about climate change?" was answered on a three-point scale of *no* (-1), *slightly* (0), *yes* (1).

Climate concern (qualitative, face-to-face survey only). To measure the contents of climate concern, interviewers recorded what participants' responses to: "If yes, what are you particularly worried about? If no, why not?"

Preference for climate policy (quantitative). To measure preference for climate policy, several items were rated on a scale from *completely disagree* (1) to *completely agree* (5), or *don't know*. An example item was "I think it is more important that the government puts money in good public transport than in motorways." The original surveys included six items (online sample) or seven items (face-to-face sample). However, in the online sample, some items were adjusted between the 2019 to the 2020 versions based on feedback on item clarity. This resulted in differences in content and phrasing between the 2019 and 2020 versions. Therefore, only the five items that were present in both versions of the online sample were analyzed here. During the write-up of this research, Milieudedefensie also told the authors that some policy items in the face-to-face sample may have been slightly adjusted in phrasing and unfortunately these minor changes were not recorded. Last, several items differed between the face-to-face and online samples. To assess comparability between the two scales, exploratory factor analyses were conducted (see [Supplementary Tables S1–S3](#) for fit statistics and factor loadings). One-factor solutions were adequate for both scales in the face-to-face and online sample after dropping one item ("prevent losses for low-income households") from both scales. The remaining items ($k = 6$ for the face-to-face data and $k = 4$ for the online data) were adapted into composite scales, with acceptable internal consistency both face-to-face ($\alpha = .67$) and online ($\alpha = .67$). However, due to the differences

described above, the comparisons of the policy composites should be interpreted with caution.

Beliefs about climate policy (qualitative). To assess beliefs about climate policy, three items were used: “How can climate policy become fairer?” (both samples), “If we want to stop further climate change, we must invest in green solutions. That costs money. Who do you think should pay for this? Why or why not?” (face-to-face sample), and “Oil, coal, and gas cause climate change. That is why the Netherlands must switch to sustainable energy. Nevertheless, the Netherlands gives a subsidy of 7.6 billion euros to oil, coal, and gas. Did you know? What do you think of that?” (face-to-face sample). We did not analyze these open-ended items.

Behavior (objective, online survey). To assess behavior towards climate action, two questions were asked: “Can we keep you informed by email?” and “Could we get your telephone number (optional)?”, scored either *no* (0) or *yes* (1).

Engagement with climate change (face-to-face interviewer rating). After the interaction, interviewers privately recorded their perception of the person’s engagement (“How engaged with climate change was the person you talked to?”) from *not engaged with climate change* (0) to *engaged with climate change* (4). Because of the timing of these ratings, they were likely influenced by two questions just asked: “We visit as many Dutch people as possible. Do you want to be kept informed of our work?” and “Would you like to help with going from door to door and having conversations yourself?”, both scored either *no* (0) or *yes* (1). Due to the privacy concerns of Milieudefensie, these items were not connected to the other survey items and therefore cannot be used for testing relationships with other variables.

Urbanity. Participant postal codes were used to calculate urbanity scores from data by *Centraal Bureau voor de Statistiek* (CBS, Statistics Netherlands) (see [Supplemental Material](#)). CBS categorizes postal codes from *very urban*: > 2,500 addresses per km² (1) to *not urban*: < 500 addresses per km² (5).

Analytic Plan

For the current study, we performed mostly quantitative and descriptive analyses (data and code are available at <https://osf.io/kfhu8>).

Climate concern, preferences for climate policy, interviewer-rated engagement with climate change, behavior (providing email and phone number), and differences between urban and rural residents were analyzed in RStudio (Version 2022.2.3.492, RStudio Team, 2022). Exploratory analyses of qualitative data using thematic coding are given in the [Supplemental Material](#) (see [Table S7](#) for key themes of climate concern). The only inferential statistics are correlations.

Power was computed with a sensitivity analysis in the R package *pwr* (Champely et al., 2017) for two-tailed correlations, alpha = .05, power = .80, and the smallest cell used in the correlations ($N = 1,956$), and this revealed 80% power to detect effect sizes of $r = .06$ or larger.

Results

Descriptives

Climate concern ([Figure 1](#)) and preference for climate policy were high ([Table 1a](#) and [1b](#), [Figure 2a](#) and [2b](#)). Interviewer-rated engagement with climate change was high ([Figure 3a](#)). Half of online respondents signed up for an email newsletter and 7% provided their phone number ([Figure 3b](#)). In the face-to-face sample, 2,560 participants provided their post codes, and most were urban ($M = 1.71$, $SD = 1.01$, with 1 indicating high urbanity). Mean urbanity in the Netherlands is 2.77 (*Centraal Bureau voor de Statistiek* [CBS], 2021).

Correlational Analyses

As all variables were non-normally distributed, non-parametric tests were performed. Kendall’s tau-b (τ_b) correlations revealed associations between climate concern and preference for climate policy with engagement with climate change (face-to-face sample, *Hypothesis 1a,b*), preference for climate policy and behavior (providing email and phone number) (online sample, *Hypothesis 1c*), and between urbanity and climate concern, preference for climate policy, and engagement with climate change (face-to-face sample) (*Hypothesis 2a,b*). See [Table 1a](#) and [1b](#) for correlation coefficients. To determine effect sizes (Cohen, 2013), τ_b was transformed to Pearson R (r) (Kendall, 1970).

Exploratory Analyses

Wilcoxon rank sum tests revealed mean differences between the face-to-face ($N_s = 2,389$ to $3,102$) and online samples ($N_s = 12,532$ to $30,311$). The assumption of equality of variances was met based on visual inspection. Face-to-face respondents ($M = 4.33$, $SD = 0.60$) reported a higher preference for climate policy than online respondents ($M = 4.14$, $SD = 0.84$), $z = 8.34$, $p < .001$, yet this difference was negligible, $r(32,183) = .05$.

Robustness Checks

To test whether two key analytic decisions influenced the results, three robustness checks are reported in the [Supplemental Material](#) ([Tables S4–S6](#)). We assessed removing “prevent losses for low-income households” from the preference for climate policy-scale, and also not

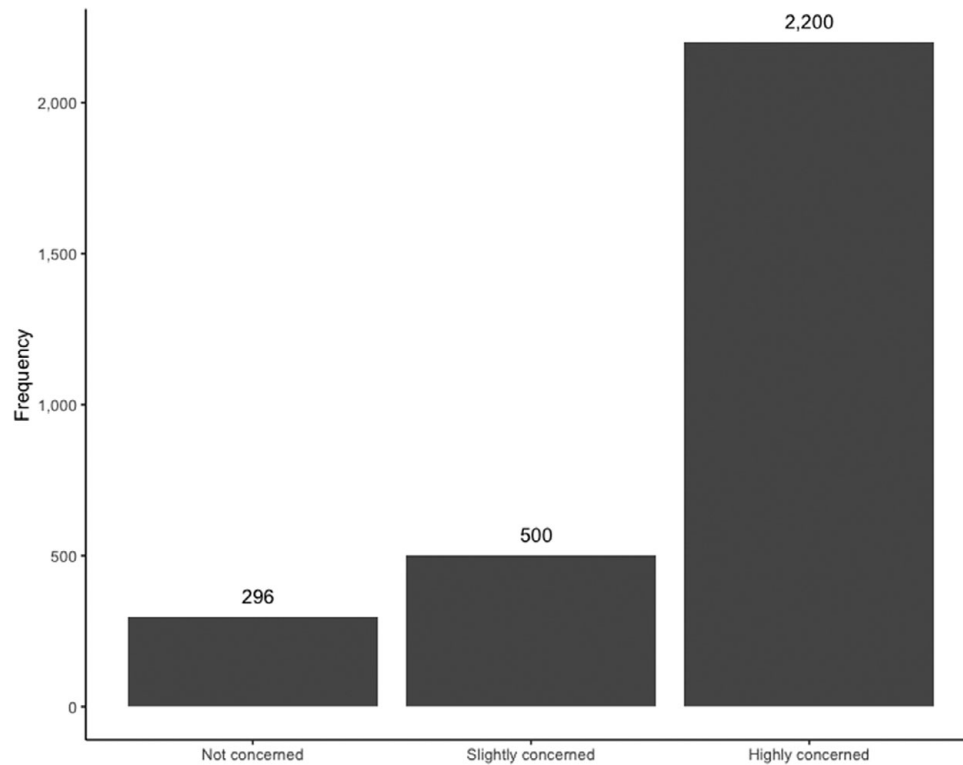


Figure 1. Histogram of Climate Concern in The Face-To-Face Sample ($N = 3,102$)

Table 1a. Descriptive Statistics and Correlations (Face-to-Face Sample, $N_s = 1,956$ to $2,996$)

	Climate concern	Preference for climate policy	Engagement with climate change	Urbanity
Range	-1 to 1	1 to 5	0 to 4	1 to 5
<i>M</i>	0.64	4.35	3.04	1.71
<i>SD</i>	0.66	0.60	1.01	1.01
Preference for climate policy	.25***			
Engagement with climate change	.36***	.34***		
Urbanity	-.04*	.04*	-.03*	

Note. Kendall's tau-b (τ_b) correlation significance (2-tailed): * $p < .05$. *** $p < .001$.

Table 1b. Correlations (Online Sample, $N_s = 12,305$ to $29,796$)

	Preference for climate policy	Provided email	Provided phone number
Range	1 to 5	0 to 1	0 to 1
<i>M</i>	4.14	0.47	0.07
<i>SD</i>	0.84	0.50	0.26
Provided email	.29***		
Provided phone number	.09***	.41***	

Note. Kendall's tau-b (τ_b) correlation significance (2-tailed): *** $p < .001$.

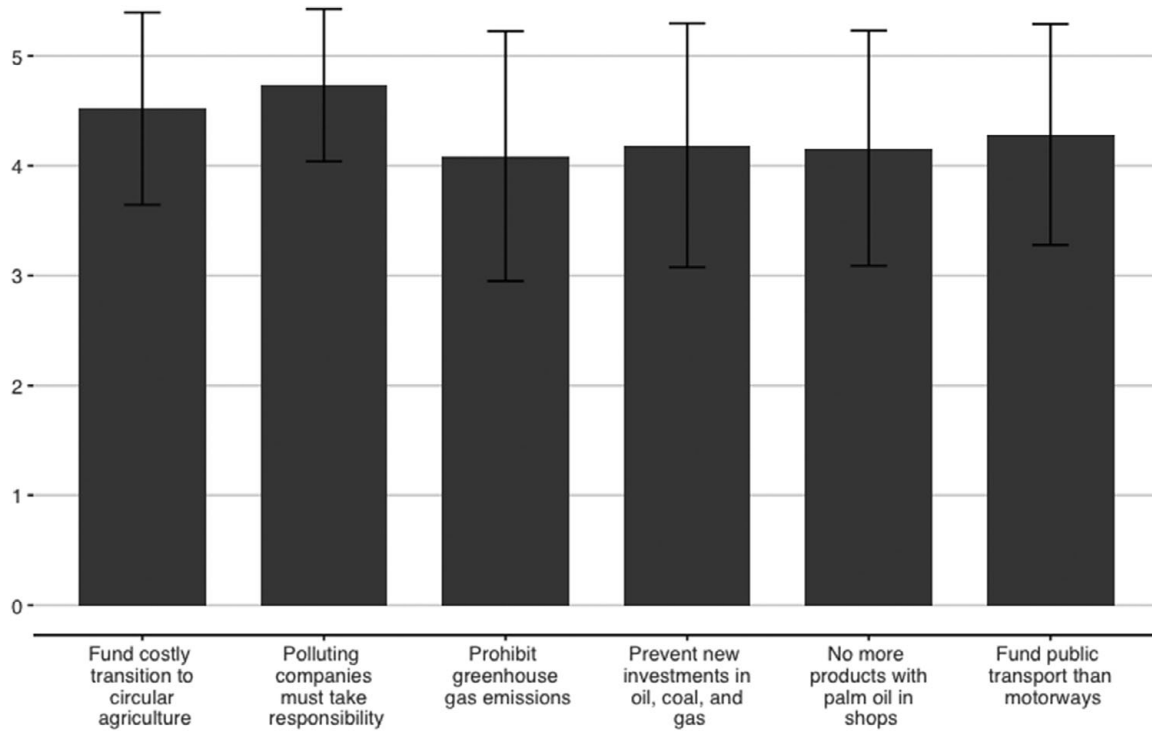


Figure 2a. Item-level Descriptives: Preference for Climate Policy In The Face-To-Face Sample (N = 2,846 to 2,959)

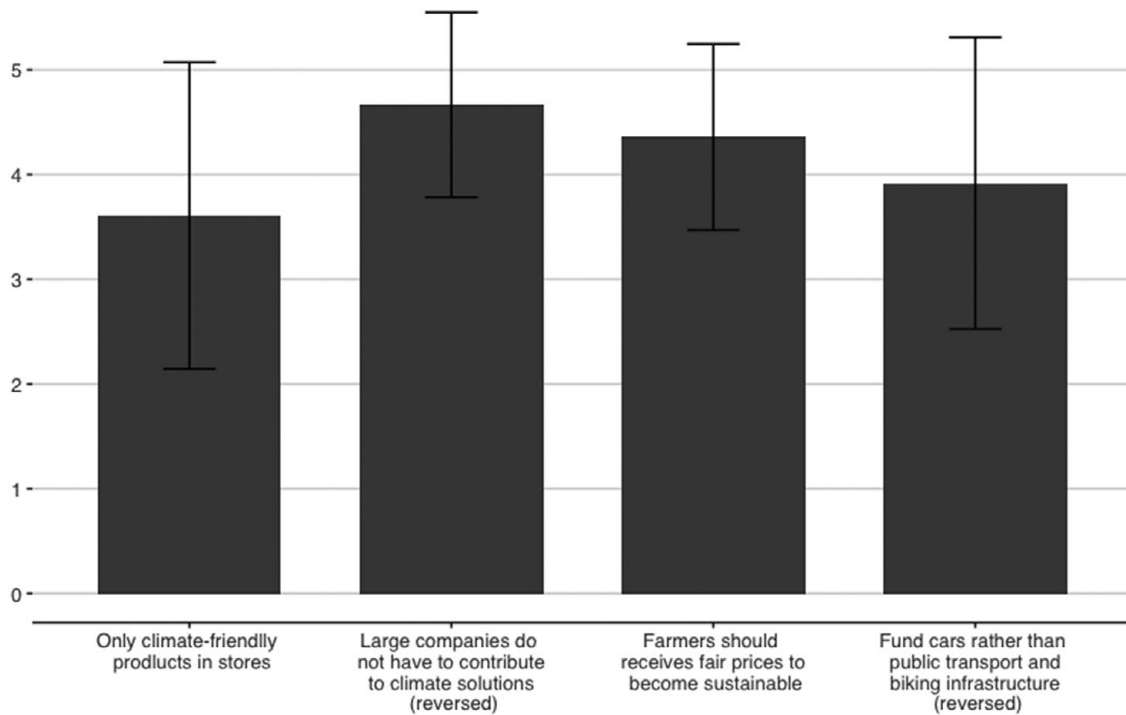


Figure 2b. Item-level Descriptives: Preference for Climate Policy In The Online Sample (N = 30,081–30,164)

imputing missing data. The robustness tests revealed that all results for both main and exploratory analyses were highly similar.

Discussion

The Dutch environmental non-profit Milieudefensie conducted a study on climate change attitudes and

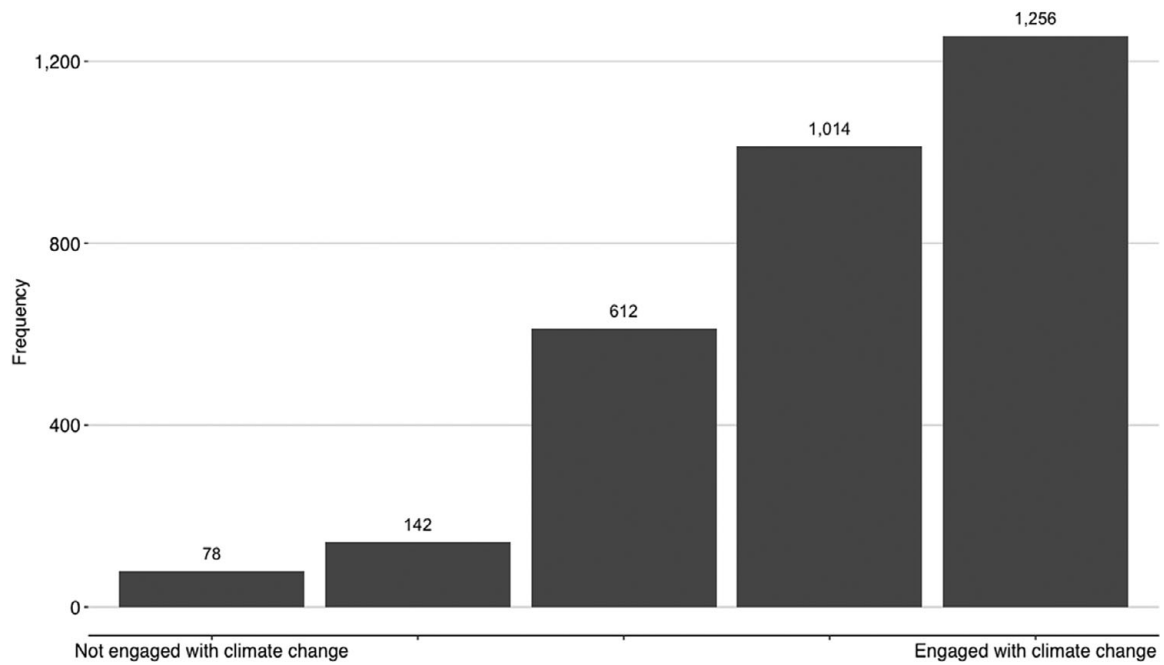


Figure 3a. Histogram of Interviewer-Rated Engagement with Climate Change In The Face-to-Face Sample ($N = 3,102$)

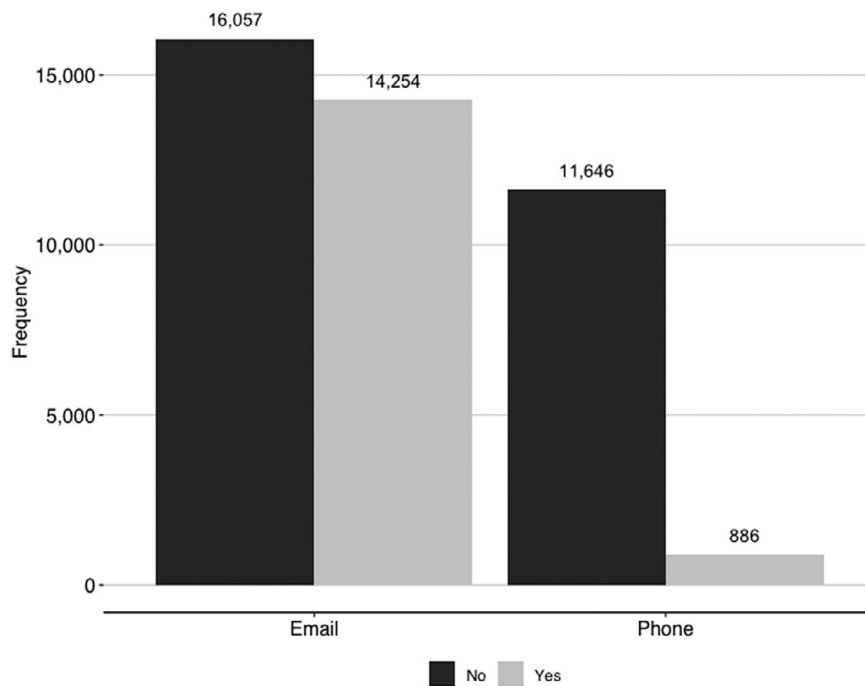


Figure 3b. Frequency of Providing Email and Phone Number in The Online Sample ($N = 30,311$)

Note. Phone numbers were only collected for a subset of the online respondents. This decision was made by the partner non-profit (missing $N = 17,779$)

engagement both face-to-face and online in 2019/2020. The aim of this study was to test whether previous findings held in large-scale, face-to-face and online studies by outside groups. We also explored differences in

preference for climate policy between the face-to-face and online samples.

The majority of face-to-face respondents (73%) were highly concerned about climate change and strongly supported climate policy. Online and face-to-face

respondents widely agreed with strategies to reduce emissions, like investing in circular agriculture or public transport, and disagreed with hindering practices, like not requiring corporations to contribute to climate solutions. Interviewers rated the majority of face-to-face respondents as engaged with climate change (73%). In the online sample, 7% provided their phone number to Milieudefensie, and half signed up for an email newsletter. These findings align with recent reports of high climate concern in the Netherlands (European Commission, 2019; Ipsos, 2021; Kloosterman et al., 2021). Policy support was somewhat higher than recent reports of the Netherlands (Kloosterman et al., 2021) and Europe (Kácha et al., 2022), which suggests the current samples might have been biased by willingness to participate in polls by an environmental group.

Based on the value-action gap (Tam & Chan, 2017) and previous work identifying environmentalist identities, group-based emotions, and collective efficacy as key predictors of climate action (Thomas et al., 2012; van Zomeren et al., 2008), we expected weak positive associations between both climate concern and preference for climate policy and interviewer-rated engagement with climate change (*Hypothesis 1a,b*) as well as between policy preferences and behavior (providing email and phone number) (*Hypothesis 1c*).

Higher climate concern and preference for climate policy strongly predicted interviewer-rated engagement with climate change. These associations are likely inflated because the observer ratings were not solely based on respondents' willingness to become engaged with the movement but also on having just heard the participant's perceived concerns and policy preferences. Unfortunately, objective behavioral measures (willingness to stay informed and signing up as a volunteer) were not connected by Milieudefensie in the face-to-face data and could therefore not be predicted from the other variables. In the online sample, more preference for climate policy moderately predicted email newsletter sign-up and weakly predicted whether participants provided their phone number to movement organizers, which aligns with prior findings (e.g., Thomas et al., 2012; van Zomeren et al., 2008).

Contrary to expectations (*Hypothesis 2a,b*), higher urbanity did not predict preference for climate policy and interviewer-rated engagement with climate change in face-to-face respondents. On the one hand, this may be due to the high urbanization and availability of infrastructure, like public transport, in the Netherlands. On the other hand, the underrepresentation of rural residents in the sample may have concealed rural-urban differences.

Urbanity did not predict climate concern either, which aligns with previous mixed results (Ergun et al., 2021;

Gifford & Nilsson, 2014), but this may also be due to the underrepresentation of rural residents in the sample. Future polls by environmental organizations can strive for more representative samples of the Dutch public, include highly urban and highly rural respondents, and compare the concerns of urban and rural residents (Gagnon Thompson & Barton, 1994; Huddart-Kennedy et al., 2009; Rauwald & Moore, 2002).

Exploratory Findings

Preference for climate policy did not differ between the face-to-face and online samples. This was surprising as one might expect more socially desirable reporting during in-person interviews than in online surveys (Evans & Mathur, 2018). In any case, the policy preferences need to be interpreted with caution because the items were not identical between the two samples. To inform cost-benefit analyses of both techniques, future research can test this using identical items in similar populations and timeframes (Ansolabehere & Schaffner, 2011).

Limitations

This study had large sample sizes, included objective behaviors (providing email and phone number), and had a rare face-to-face sample. Yet, except for residence (Netherlands) and urbanity (face-to-face sample only), no demographics were collected, which limits the comparability between the two samples and the generalizability. We suspect that the sample represents a more concerned and engaged segment than the general Dutch public because participation depended on willingness to participate in the survey of an environmental group.

Second, although factor analysis on the policy preference items yielded one-factor solutions, the phrasing of some face-to-face survey items may have been changed by Milieudefensie over time, and these changes were not recorded, which makes it difficult to interpret the results of the policy items. Third, climate concern was assessed by a single item rather than multiple items. Fourth, self-reports are susceptible to social desirability and poor introspection (Brewis, 2014; Demetriou et al., 2015). Fifth, interviewer ratings are not objective measures of behavior (Lange & Dewitte, 2019). Last, data were collected by over 200 volunteers, who likely did not interact with respondents identically. Respondents were interviewed by one or two interviewers, but which interviewers was not recorded. Interviewer bias can be assessed through multilevel modeling in future studies (Hox, 1994) and using independent ratings of two or more interviewers, which allows for calculating interrater reliability of the ratings.

Future Avenues

Partnering with environmental organizations can give social psychologists access to effortful survey data, like face-to-face interviews or phone calls, and help shape their research in ways that are helpful to environmental groups. However, like in the current project, researchers often have low control over study design and data collection, which can reduce the validity and reliability of the results. Building long-term relationships with environmental organizations may enable scientists to become involved earlier in the research cycle.

Moreover, these partnerships enable researchers to observe behaviors more objectively than self-reports of behaviors or intentions. In the current study, behavior was measured by whether people provided their email address or phone number to become engaged with Milieudefensie. However, climate activism is a diverse category, and people may have different expectations of what engagement with an environmental organization would require, e.g., informing oneself about an issue versus organizing a climate march (Alisat & Riemer, 2015).

Future research with environmental groups can map the range of possible and helpful behaviors in a given context and study psychological (e.g., policy preferences or environmental identity), behavioral (e.g., previous engagement with an environmental organization), and structural (e.g., income or urbanity) predictors. Such a systematic understanding of climate activism could help design and test targeting and communication strategies and help environmental organizations attract and engage more people.

Rare face-to-face interviews and online polls by the environmental group Milieudefensie revealed high concern, preference for climate policy, and interviewer-rated engagement with climate change in the Netherlands in 2019/20. Providing contact details to engage in climate activism was rare to uncommon. The results provide convergent evidence to conventional online surveys, and these Dutch residents appear slightly more engaged with systemic change to mitigate climate change than in previous polls.

Supplementary Materials

To view supplementary material for this article, please visit <http://doi.org/10.1017/SJP.2023.3>.

References

Alisat, S., & Riemer, M. (2015). The environmental action scale: Development and psychometric evaluation. *Journal of Environmental Psychology, 43*, 13–23. <https://doi.org/10.1016/j.jenvp.2015.05.006>

- Ansolabehere, S., & Schaffner, B. F. (2011, May 12–15). *Re-examining the validity of different survey modes for measuring public opinion in the US: Findings from a 2010 multi-mode comparison* [Paper presentation]. 66th AAPOR Annual Conference. Phoenix. https://scholar.harvard.edu/files/sansolabehere/files/ansolabehere_schaffner_mode.pdf
- Bechtel, M. M., Bernauer, T., & Meyer, R. (2012). The green side of protectionism: Environmental concerns and three facets of trade policy preferences. *Review of International Political Economy, 19*, 837–866.
- Berenguer, J., Corraliza, J. A., & Martín, R. (2005). Rural-urban differences in environmental concern, attitudes, and actions. *European Journal of Psychological Assessment, 21*(2), 128–138. <https://doi.org/10.1027/1015-5759.21.2.128>
- Bergmann, A., Colombo, S., & Hanley, N. (2008). Rural versus urban preferences for renewable energy developments. *Ecological Economics, 65*(3), 616–625. <https://doi.org/10.1016/j.ecolecon.2007.08.011>
- Bond, B., & Exley, Z. (2016). *Rules for revolutionaries: How big organizing can change everything* [eBook]. Chelsea Green Publishing. https://play.google.com/store/books/details?id=9_vrdqaaqbaj
- Bonnie, R., Diamond, E. P., & Rowe, E. (2020). *Understanding rural attitudes toward the environment and conservation in America* (Publication No. NI R 20–03). Nicholas Institute for Environmental Policy Solutions. <https://www.landcan.org/pdfs/understanding-rural-attitudes-toward-environment-conservation-america.pdf>
- Bouman, T., Verschoor, M., Albers, C. J., Böhm, G., Fisher, S. D., Poortinga, W., Whitmarsh, L., & Steg, L. (2020). When worry about climate change leads to climate action: How values, worry and personal responsibility relate to various climate actions. *Global Environmental Change, 62*, Article 102061. <https://doi.org/10.1016/j.gloenvcha.2020.102061>
- Brewis, J. (2014). The ethics of researching friends: On convenience sampling in qualitative management and organization studies. *British Journal of Management, 25*(4), 849–862. <https://doi.org/10.1111/1467-8551.12064>
- Brick, C., & Lai, C. K. (2018). Explicit (but not implicit) environmentalist identity predicts pro-environmental behavior and policy preferences. *Journal of Environmental Psychology, 58*, 8–17. <https://doi.org/10.1016/j.jenvp.2018.07.003>
- Burstein, P. (2003). The impact of public opinion on public policy: A review and an agenda. *Political Research Quarterly, 56*(1), 29–40. <https://doi.org/10.1177/106591290305600103>
- Centraal Bureau voor de Statistiek. (2021). *Regionale kerncijfers Nederland* [Regional key figures Netherlands] (Version 1) [Data set]. <https://www.cbs.nl/nl-nl/cijfers/detail/70072ned?q=stedelijkheid>
- Champely, S., Ekstrom, C., Dalgaard, P., Gill, J., Weibelzahl, S., Anandkumar, A., Ford, C., Volcic, R., & De Rosario, H. (2017). *pwr: Basic functions for power analysis*. (Version 1.3–0) [Computer software]. <https://nyuscholars.nyu.edu/en/publications/pwr-basic-functions-for-power-analysis>
- Cohen, J. (2013). *Statistical power analysis for the behavioral sciences*. Routledge.
- Demetriou, C., Ozer, B. U., & Essau, C. A. (2015). Self-report questionnaires. In R. L. Cautin & S. O. Lilienfeld (Eds.), *The*

- encyclopedia of clinical psychology* (pp. 1–6). John Wiley & Sons, Inc. <https://doi.org/10.1002/9781118625392.wbecp507>
- Doyle, J. K. (2014). Face to face surveys. In N. Balakrishnan, T. Colton, B. Everitt, W. Piegorsch, F. Ruggeri, & J. L. Teugels (Eds.), *Wiley statsref: Statistics reference online*. <https://doi.org/10.1002/9781118445112.stat06686>
- Dunlap, R. E., & Jones, R. E. (2002). Environmental concern: Conceptual and measurement issues. *Handbook of Environmental Sociology*, 3(6), 482–524.
- Ergun, S. J., Khan, M. U., & Rivas, M. F. (2021). Factors affecting climate change concern in Pakistan: Are there rural/urban differences? *Environmental Science and Pollution Research International*, 28(26), 34553–34569. <https://doi.org/10.1007/s11356-021-13082-7>
- European Commission. (2019). *Special Eurobarometer 490: Climate Change*. European Union Brussels. https://ec.europa.eu/clima/citizens/citizen-support-climate-action_nl#ecl-inpage-1709
- Evans, J. R., & Mathur, A. (2018). The value of online surveys: A look back and a look ahead. *Internet Research*, 28(4), 854–887. <https://doi.org/10.1108/IntR-03-2018-0089>
- Gagnon Thompson, S. C., & Barton, M. A. (1994). Eocentric and anthropocentric attitudes toward the environment. *Journal of Environmental Psychology*, 14(2), 149–157. [https://doi.org/10.1016/S0272-4944\(05\)80168-9](https://doi.org/10.1016/S0272-4944(05)80168-9)
- Gifford, R. (2011). The dragons of inaction: Psychological barriers that limit climate change mitigation and adaptation. *American Psychologist*, 66(4), 290–302. <https://doi.org/10.1037/a0023566>
- Gifford, R., Kormos, C., & McIntyre, A. (2011). Behavioral dimensions of climate change: Drivers, responses, barriers, and interventions. *WIREs Climate Change*, 2(6), 801–827. <https://doi.org/10.1002/wcc.143>
- Gifford, R., & Nilsson, A. (2014). Personal and social factors that influence pro-environmental concern and behaviour: A review. *International Journal of Psychology*, 49(3), 141–157. <https://doi.org/10.1002/ijop.12034>
- Hagedorn, G., Loew, T., Seneviratne, S. I., Lucht, W., Beck, M.-L., Hesse, J., Knutti, R., Quaschnig, V., Schleimer, J.-H., Mattauch, L., Breyer, C., Hübener, H., Kirchengast, G., Chodura, A., Clausen, J., Creutzig, F., Darbi, M., Daub, C.-H., Ekardt, F., ... Zens, J. (2019). The concerns of the young protesters are justified: A statement by Scientists for Future concerning the protests for more climate protection. *GAIA - Ecological Perspectives for Science and Society*, 28(2), 79–87. <https://doi.org/10.14512/gaia.28.2.3>
- Hox, J. J. (1994). Hierarchical regression models for interviewer and respondent effects. *Sociological Methods & Research*, 22(3), 300–318. <https://doi.org/10.1177/0049124194022003002>
- Huddart-Kennedy, E., Beckley, T. M., McFarlane, B. L., & Nadeau, S. (2009). Rural-urban differences in environmental concern in Canada. *Rural Sociology*, 74(3), 309–329. <https://doi.org/10.1526/003601109789037268>
- Ipsos. (2021, November 1). *Nederlanders over klimaatverandering* [Dutch opinion on climate change]. <https://www.ipsos.com/nl-nl/nederlanders-over-klimaatverandering>
- Jensen, B. B., & Schnack, K. (1997). The action competence approach in environmental education. *Environmental Education Research*, 3(2), 163–178. <https://doi.org/10.1080/1350462970030205>
- Kácha, O., Vintr, J., & Brick, C. (2022). Four Europes: Climate change beliefs and attitudes predict behavior and policy preferences using a latent class analysis on 23 countries. *Journal of Environmental Psychology*, 81, Article 101815. <https://doi.org/10.1016/j.jenvp.2022.101815>
- Kendall, M. G. (1970). *Rank correlation methods* (4th Ed.). Griffin.
- Kloosterman, R., Akkermans, M., Reep, C., Wingen, M., Veld, H. M.-I. 't, & van Beuningen, J. (2021). *Klimaatverandering en energietransitie: Opvattingen en gedrag van Nederlanders in 2020* [Climate change and the energy transition: Attitudes and behavior of Dutch people in 2020]. Centraal Bureau voor de Statistiek.
- Lange, F., & Dewitte, S. (2019). Measuring pro-environmental behavior: Review and recommendations. *Journal of Environmental Psychology*, 63, 92–100. <https://doi.org/10.1016/j.jenvp.2019.04.009>
- Lee, T. M., Markowitz, E. M., Howe, P. D., Ko, C.-Y., & Leiserowitz, A. (2015). Predictors of public climate change awareness and risk perception around the world. *Nature Climate Change*, 5(11), 1014–1020. <https://doi.org/10.1038/nclimate2728>
- Liu, X., Hao, F., Portney, K., & Liu, Y. (2020). Examining public concern about global warming and climate change in China. *The China Quarterly*, 242, 460–486. <https://doi.org/10.1017/S0305741019000845>
- Lorenzoni, I., Nicholson-Cole, S., & Whitmarsh, L. (2007). Barriers perceived to engaging with climate change among the UK public and their policy implications. *Global Environmental Change*, 17(3), 445–459. <https://doi.org/10.1016/j.gloenvcha.2007.01.004>
- Lowe, G. D., & Pinhey, T. K. (1982). Rural-urban differences in support for environmental protection. *Rural Sociology*, 47, 114–128.
- Moser, S. C. (2009). Communicating climate change and motivating civic action: Renewing, activating, and building democracies. In H. Selin & S. D. VanDeveer (Eds.), *Changing climates in North American politics: Institutions, policymaking and multilevel governance* (pp. 283–302). <http://doi.org/10.7551/mitpress/9780262012997.003.0014>
- Nielsen, K. S., Clayton, S., Stern, P. C., Dietz, T., Capstick, S., & Whitmarsh, L. (2021). How psychology can help limit climate change. *American Psychologist*, 76(1), 130–144. <https://doi.org/10.1037/amp0000624>
- Ockwell, D., Whitmarsh, L., & O'Neill, S. (2009). Reorienting climate change communication for effective mitigation: Forcing people to be green or fostering grass-roots engagement? *Science Communication*, 30(3), 305–327. <https://doi.org/10.1177/1075547008328969>
- Otto, A., & Gugushvili, D. (2020). Eco-social divides in Europe: Public attitudes towards welfare and climate change policies. *Sustainability*, 12(1), Article 404. <https://doi.org/10.3390/su12010404>
- Piekarski, W., Stoma, M., Dudziak, A., Andrejko, D., & Ślaska-Grzywna, B. (2016). How location shapes environmental awareness among inhabitants of eastern Poland – An empirical study. *Polish Journal of Environmental*

- Studies*, 25(2), 733–740. <https://doi.org/10.15244/pjoes/60722>
- Prakash, A., & Bernauer, T.** (2020). Survey research in environmental politics: Why it is important and what the challenges are. *Environmental Politics*, 29(7), 1127–1134. <https://doi.org/10.1080/09644016.2020.1789337>
- Rauwald, K. S., & Moore, C. F.** (2002). Environmental attitudes as predictors of policy support across three countries. *Environment and Behavior*, 34(6), 709–739. <https://doi.org/10.1177/001391602237243>
- RStudio Team** (2022). RStudio: Integrated Development Environment for R. Version 2022.2.3.492 [Computer software]. Posit. <https://www.npackd.org/p/rstudio/2022.2.3.492>
- Roser-Renouf, C., Maibach, E. W., Leiserowitz, A., & Zhao, X.** (2014). The genesis of climate change activism: From key beliefs to political action. *Climatic Change*, 125(2), 163–178. <https://doi.org/10.1007/s10584-014-1173-5>
- Roser-Renouf, C., Stenhouse, N., Rolfe-Redding, J., Maibach, E., & Leiserowitz, A.** (2015). Engaging diverse audiences with climate change: Message strategies for global warming’s six Americas. In A. Hanson & R. Cox (Eds.), *The Routledge handbook of environment and communication* (pp. 388–406). Routledge.
- Steg, L., & Vlek, C.** (2009). Encouraging pro-environmental behaviour: An integrative review and research agenda. *Journal of Environmental Psychology*, 29(3), 309–317. <https://doi.org/10.1016/j.jenvp.2008.10.004>
- Tam, K.-P., & Chan, H.-W.** (2017). Environmental concern has a weaker association with pro-environmental behavior in some societies than others: A cross-cultural psychology perspective. *Journal of Environmental Psychology*, 53, 213–223. <https://doi.org/10.1016/j.jenvp.2017.09.001>
- Thomas, E. F., Mavor, K. L., & McGarty, C.** (2012). Social identities facilitate and encapsulate action-relevant constructs. *Group Processes & Intergroup Relations*, 15(1), 75–88. <https://doi.org/10.1177/1368430211413619>
- Tremblay, K. R., Jr., & Dunlap, R. E.** (1978). Rural-urban residence and concern with environmental quality: A replication and extension. *Rural Sociology*, 43, 474–491.
- van Zomeren, M., Postmes, T., & Spears, R.** (2008). Toward an integrative social identity model of collective action: A quantitative research synthesis of three socio-psychological perspectives. *Psychological Bulletin*, 134(4), 504–535. <https://doi.org/10.1037/0033-2909.134.4.504>
- Wlezien, C., & Soroka, S. N.** (2016). Public opinion and public policy. *Oxford Research Encyclopedia of Politics*. <https://doi.org/10.1093/acrefore/9780190228637.013.74>
- Wolf, J., & Moser, S. C.** (2011). Individual understandings, perceptions, and engagement with climate change: Insights from in-depth studies across the world. *WIREs Climate Change*, 2(4), 547–569. <https://doi.org/10.1002/wcc.120>
- Yu, X.** (2014). Is environment “a city thing” in China? Rural–urban differences in environmental attitudes. *Journal of Environmental Psychology*, 38, 39–48. <https://doi.org/10.1016/j.jenvp.2013.12.009>