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Weathering Change - Media Coverage of Extreme Weather Events as a Window of Opportunity for Passing Effective Climate Policy

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Abstract

Broadly accepted climate policy is needed to mitigate and adapt to climate change. This study investigates how media coverage of extreme weather events influences public acceptance of climate policies, with a focus on the mediating role of climate change risk perception and the moderating role of policy type (adaptation vs. mitigation). In an online experiment, 278 participants (ages 18 - 77, 55.8% men, 41.4% women, 2.9% non-binary) read news articles that either made a heatwave salient and attributed the event to climate change or not. They were then presented with either an adaptation or mitigation policy package. All materials were designed to be comparable across conditions. Participants self-reported policy acceptance, risk perception, and confidence in attributing extreme weather events to climate change. Media coverage did not have a significant effect on risk perception, but the mediation path of climate change risk perception significantly predicted policy acceptance. However, the interaction between risk perception and policy type did not have a significant effect either. Even though the manipulation did not work, exploratory analyses showed that attribution of the event to climate change still led to the expected effect, i.e. predicted risk perception, which in turn predicted policy acceptance. Findings suggest that when climate change risk perception is high, following extreme weather events, there may be a window of opportunity to pass accepted climate policy, especially when those events are clearly attributed to climate change.

Keywords: Extreme Weather Events, Climate Policy Acceptance, Risk Perception

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Climate Change and Extreme Weather Events

Climate change is a present reality, characterized by increasingly frequent and severe extreme weather events such as heatwaves, wildfires, droughts, and floods (IPCC, 2023). Extreme weather events pose significant threats to both humans and nature (IPCC, 2023). However, these threats also influence public perceptions of climate change and acceptance of climate policy (Akerlof et al., 2013; Dietz et al., 2007; Garneau et al., 2024; Park & Vedlitz, 2013). Therefore, extreme weather events could serve as windows of opportunity for passing accepted climate policies (Birkland & DeYoung, 2013).

Risk Perception

One of the main perceptions that extreme weather events can change is the perception of risks. Especially personal and vicarious experiences of extreme weather events have an impact on people by heightening climate change risk perception (Akerlof et al., 2013; Konisky et al., 2016; Van Der Linden, 2015). Risk perception in turn is a key predictor of climate policy support, more so than demographics, ideology, or knowledge about climate change (Dietz et al., 2007; Park & Vedlitz, 2013). When individuals perceive extreme weather as a threat to their personal well-being and health, their willingness to support climate policies tends to increase significantly (DeBono et al., 2012). The impact of such experiences of extreme weather events on risk perception and, subsequently, policy acceptance is shaped by contextual factors like political discourse, an individual's pre-existing beliefs, and how media frames the events and their causes (Otto, 2023; Zanoocco et al., 2018). Furthermore, risk perception and policy acceptance are influenced by cognitive biases (Park & Vedlitz, 2013). The *availability heuristic*,

where a decision is made based on information, or a recent experience that is easily recalled (Tversky & Kahneman, 1973), can shape how individuals evaluate climate risks (Efendić, 2021).

Media Coverage

By highlighting extreme weather events, media coverage can reinforce the mental availability, the salience, of these events, making them more easily recalled (Riddle, 2010). This heightened salience can therefore further shape public perceptions of climate risks and acceptance of climate policies (Akerlof et al., 2013; Garneau et al., 2024; Lacroix et al., 2020). The framing of such coverage also matters: when stories are emphasizing the human and immediate impacts of extreme weather, they tend to increase concern (Hart & Feldman, 2014). Moreover, when media explicitly attribute these events to climate change, it helps the audience connect experience with systemic causes, thereby enhancing the policy relevance (Osaka et al., 2020; Otto, 2023). When media framing connects extreme weather events to climate change and presents policies as effective responses, it can lead to durable support (Cologna et al., 2025; Singh et al., 2017).

Policy Windows

Timing is critical for media reporting (Tenenboim-Weinblatt & Neiger, 2018), and it might also be critical for the relevance of introducing climate policies (Ettinger et al., 2023). Extreme weather events act as *focusing events* which create powerful *windows of opportunity* (Birkland & DeYoung, 2013) that can be strategically used to promote climate policies (Glaus et al., 2024). As spikes in concern often fade quickly, it emphasizes the importance of timely policy responses (Ettinger et al., 2023; Konisky et al., 2016; Thompson et al., 2011).

Even among groups with typically greater skepticism towards climate action, such as political conservatives, support can increase when policies are clearly connected to recent

extreme weather events (Garneau et al., 2024; Rudman et al., 2013). Media that emphasizes local relevance and emotional proximity can foster broader support of climate policies by making the risks and responses to them more relatable and urgent (Bergquist et al., 2019; Hendren, 2021).

Adaptation versus Mitigation Policies

Adaptation policies offer concrete, visible benefits in response to immediate threats. By addressing an individual's risk perception with an immediate, tangible focus, they might therefore see higher acceptance (Van Valkengoed et al., 2023; Visconti & Young, 2024). Their support can be further enhanced by media narratives (Giordono et al., 2021; Visconti & Young, 2024). In contrast, mitigation policies, which address long-term and global risks, tend to generate less immediate support. They may require more robust narrative framing to bridge the psychological distance and demonstrate long-term benefits (Fairbrother, 2022; Van Valkengoed et al., 2023). Thus, while heightened climate risk perception following extreme weather events can open a window of opportunity for passing accepted climate policies, the type of policy proposed could elicit differing responses.

Research Aim and Overview

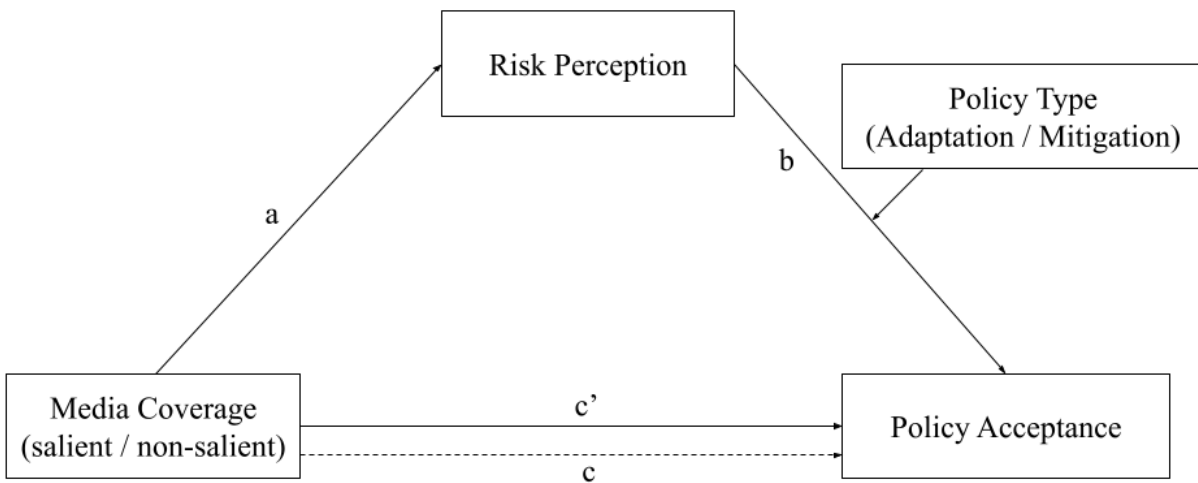
Based on the past literature just presented, we want to find out: How does media coverage where extreme weather events are salient and attributed to climate change increase climate change risk perception, which in turn creates a temporary window of opportunity to influence public acceptance of climate policies? How is the effect different for adaptation policies than for mitigation policies? The full model is summarized in Figure 1.

With this research, we hope to theoretically add to existing literature by combining media coverage of extreme weather events, risk perception and policy acceptance research in a mediation model. To assess general receptivity rather than active engagement, the present study

measures policy acceptance instead of policy support or acceptability, which has been done in past research. We are therefore adding nuance to previous research and testing it experimentally. We are extending the existing literature with the addition of policy type as a moderator for policy acceptance. Because, practically, this research could help policymakers better understand how to introduce climate policies that will be accepted. In particular, it highlights what kind of policy to introduce during the window of opportunity that follows extreme weather events.

Figure 1

Moderated Mediation Model of Media Coverage on Policy Acceptance via Risk Perception and Policy Type



Note. c = total effect, a = path of indirect effect, b = path of indirect effect, c' = direct effect

To explore this research topic, we have established the theoretical background and will set up hypotheses based on it. Next, we will lay out the methodology, consisting of research design, materials, procedure, participants and plan for data analyses. We are then moving on to the results of the research, where we first show the results of the main analysis before continuing

with exploratory questions. And lastly, we are drawing conclusions from these results, discussing the results and setting recommendations for future research.

Total effect: Media Coverage Opens a Window of Opportunity for Climate Policy Acceptance

Public responses to extreme weather events are not driven solely by the experiences themselves, but are critically shaped by how they are represented in the media (Boykoff & Roberts, 2007). Exposure to media framing that emphasizes the link between extreme weather events and climate change can heighten public risk perception, especially among individuals who might otherwise be skeptical of climate action, such as political conservatives (Hendren, 2021). Therefore, this heightened risk perception presents an opportunity to pass climate policies that might otherwise not be accepted by addressing the perceived risks with policies that present a solution to these risks. By increasing the perceived likelihood and severity of climate risks, media coverage can indirectly foster greater acceptance of policies designed to address these risks (Bergquist et al., 2019; Lacroix et al., 2020).

(H1) Media coverage where extreme weather events are salient and attributed to climate change creates a temporary window of opportunity in which the public is more receptive to climate policy, enabling policymakers to pass legislation with broader acceptance.

Indirect a: Media Coverage of Extreme Weather Events Increases Risk Perception

The impact of media coverage on climate policy support is likely not direct, but mediated by climate change risk perception, which consists of perceived likelihood and severity (Van Valkengoed et al., 2024; Wolff et al., 2019). In their climate change risk perception model, Van Der Linden (2015) explains that the public's risk perception of climate change is shaped by cognitive factors, socio-cultural influences, socio-demographics, and experiential processing, which includes personal experience, like extreme weather events. Direct experiences, such as

witnessing these events, and indirect experiences, such as media coverage, heighten individuals' awareness of climate risks (Akerlof et al., 2013), whereas indirect exposure seems to impact risk perception more strongly (Lacroix et al., 2020). Indirect experiences can also increase public concern, particularly when events are linked to climate change by politics and media (Garneau et al., 2024; Zanoocco et al., 2018).

(H2) Exposure to media coverage where extreme weather events are salient and attributed to climate change (compared to non-salient and not attributed coverage) increases climate change risk perception.

Indirect b: Risk Perception and Climate Policy Acceptance

The second path of the mediation zooms in on climate change risk perception which is one of the strongest predictors of people's support for climate policies (Dietz et al., 2007; Park & Vedlitz, 2013). When individuals perceive extreme weather as a threat to their well-being and health, their willingness to support climate policies tends to increase significantly (DeBono et al., 2012). This could be because such policies are seen as effective responses to currently salient risks by offering solutions that directly address the perceived threats (Huddy et al., 2005). This relationship is particularly pronounced in the immediate aftermath of extreme weather events. At this time concern and perceived urgency are temporarily heightened, while longer-term impacts are less prominent (Konisky et al., 2016). These short-term spikes in risk perception and public concern present a critical window for advancing climate policy (Hendren, 2021; Visconti & Young, 2024). These moments can serve as windows of opportunity, in which significant disruptions of individual's lives make people more receptive to new behaviors and policy changes (Ettinger et al., 2023; Glaus et al., 2024). In sum, this heightened risk perception increases the perceived necessity of policy responses (Huddy et al., 2005). These moments of

elevated risk, especially immediately after extreme weather events, create opportunities for promoting climate policies (Ettinger et al., 2023). Building on this logic, we propose the following hypothesis:

(H3) Heightened climate change risk perception leads to increased acceptance of climate policies.

The Mediation with Risk Perception

When combining Hypotheses 2 and 3, we are proposing the following mediation hypothesis:

(H4) The effect of media coverage of extreme weather events on climate policy acceptance is mediated by heightened risk perception.

Adaptation versus Mitigation Policies: Policy Type as a Moderator

As previously discussed, climate policies are generally more accepted when people perceive high levels of risk (Park & Vedlitz, 2013), often increased through exposure to extreme weather events (Akerlof et al., 2013; Van Der Linden, 2015), because such policies are seen as addressing that risk (Huddy et al., 2005). Therefore, the effect of risk perception on policy acceptance may also be moderated by the type of policy being proposed. People tend to prioritize policies that they perceive as directly relevant to managing risks they have experienced, dealing with a present extreme weather event, rather than those addressing more abstract or distant threats (Bergquist et al., 2019). In this regard, media coverage of extreme weather events may act as focal points, highlighting the urgency of addressing climate risks and increasing particularly the acceptability of policies that are perceived to directly address such risks. Adaptation policies provide immediate solutions to specific problems, so if they are introduced in this moment of

heightened risk perception they may reduce climate change risk concern more so than mitigation policies that only abstractly manage these risks (Visconti & Young, 2024).

(H5) Following media coverage of extreme weather events, climate policy acceptance increases more for adaptation policies than for mitigation policies.

Method

Design

In this study, we employed a 2 (extreme weather event media coverage - salient and attributed vs. non-salient and not attributed) \times 2 (implemented climate policy package type - adaptation vs. mitigation) between-subjects experimental design. We exposed participants to the manipulations of media coverage of an extreme weather event and policy type by giving them the task to read news articles where articles about a hypothetical extreme weather event are salient and attributing the event to climate change or non-salient and not attributed. Following that we presented participants with either a mitigation or adaptation policy package that was enacted in the hypothetical situation described in the newspaper articles. Participants were randomly assigned to the conditions. After the manipulations, we measured climate policy acceptance, risk perception, perceived fairness and impact, general preference for adaptation or mitigation and confidence in attributing extreme weather events to climate change. We pre-registered the study on OSF (<https://doi.org/10.17605/OSF.IO/CDTH2>).

Media Coverage Manipulation. The manipulation of media coverage consisted of the frontpage of a newspaper for a day in summer (1 July). Both conditions included one bigger and three smaller articles and one weather feature. The weather feature was the same in both conditions, it showed temperatures between 35°C and 41°C and included “Code Red: heatwave warning”. Apart from this one mention of a heatwave the non-salient condition had articles that

reported neutrally about summer (“Summer has Started” and “How to Make the Most of Summer”) and other neutral articles (“Train loses Door” (adapted from dpa, 2025) and “Cities Struggle with Housing”). The salient condition had similar articles but they were all related to the heatwave and attributed the heatwave to climate change (“Record Temperatures”, “How to Stay Safe during Extreme Heat” (adapted from Roser, 2024), “Rail System Brought to a Halt” (adapted from Voigt, 2021) and “Cities Struggle with Heat” (adapted from Böhmer & Münch, 2024) We attempted to make the articles as similar as possible regarding topic and structure ensuring the only variation was the salience of the heatwave and attributing it to climate change while keeping everything else similar. To ensure participants paid attention to the manipulation, they could only proceed to the next page after 20 seconds. The full conditions can be found in Appendix A.

Before we conducted the main study, we conducted a short pilot study ($n = 32$) to pre-test the strength of the manipulation by showing the newspaper articles and testing risk perception. We saw a slightly higher mean risk perception in the salient condition ($M = 28.35$, $SD = 12.30$) than in the non-salient condition ($M = 25.10$, $SD = 12.60$). While this higher mean was insignificant when tested due to small sample size, we interpreted it as a sign that the manipulation is inducing people with the desired processes and proceeded using the manipulation for the main study unchanged.

In the main study, to check if the media coverage manipulation was effective, participants were asked for their confidence in attributing extreme weather events to climate change. We assessed confidence in attributing extreme weather events to climate change with an item adapted from Zanoocco et al. (2024), rated on a 5-point scale (1 = *Not at all confident*, 5 = *Extremely confident*). A t -test showed the lack of difference between the media coverage

conditions ($t(276) = 0.31, p = .76$; M (non-salient) = 3.8, $SD = 1.2$; M (salient) = 3.9, $SD = 1.1$), which means that the manipulation of extreme weather event coverage did not change attribution of these events to climate change as we had intended.

Policy Type Manipulation. The policy package presented in the two policy type conditions included three climate policies that are costly to consumers or industries and two policies consisting of subsidies and investments. We attempted to make the conditions as comparable as possible by using similar phrasing, focusing on similar policies where in one condition they were mitigation and in one adaptation to climate change.

We also made them comparable regarding perceived fairness and perceived impact to ensure that their crucial difference lies in the type of policy. Perceived fairness of the policy package was assessed using a single item: “To what extent do you think the costs and benefits of the policy proposals are fairly distributed across different social/income groups?” Responses were recorded on a 7-point Likert scale (1 = *Very unfairly*, 7 = *Very fairly*), with a mean of 3.6 and standard deviation 1.6. Perceived fairness of adaptation policies ($M = 3.5, SD = 1.6$) and of mitigation policies ($M = 3.7, SD = 1.6$) did not differ significantly ($t(274) = -0.93, p = .35$).

We used three items adapted from Smith et al. (2025) to measure perceived impact: impact on their well-being and lifestyle ($M = 3.8, SD = 1.4$), impact on their country’s economy ($M = 3.8, SD = 1.5$), and impact on their household’s financial situation ($M = 2.9, SD = 1.0$). Perceived impact on well-being and lifestyle ($t(276) = -0.13, p = .90$), impact on their country’s economy ($t(276) = 0.94, p = .35$) and their household’s financial situation ($t(276) = -0.24, p = .81$) did not differ significantly between the adaptation or mitigation policy package.

The full conditions can be found in Appendix A.

Materials

We adapted the measure for risk perception from Van Valkengoed et al. (2024), it is measured through the product of perceived likelihood and seriousness of risks caused by climate change (Van Valkengoed et al., 2024; Wolff et al., 2019). We measured risk perception for the four dimensions “me and my family”, “the environment”, “the economy”, and “future generations” (descriptive statistics in Table 1; Singh et al., 2017). We measured likelihood on a seven-point Likert scale from *very unlikely* to *very likely* and seriousness from *not serious at all* to *extremely serious* on a five-point scale which we later transformed to a seven-point scale for the sake of analysis. For the risk perception scale we first took the products of likelihood and seriousness for each dimension and then calculated the mean of the four product scores, as developed by Van Valkengoed et al. (2024).

Table 1

Descriptive Statistics of Risk Perception

	Mean	Std. Deviation
For me and my family	24.62	13.62
For the environment	37.82	13.74
For the economy	30.48	12.40
For future generations	39.84	12.97
Risk Perception (combined)	33.19	11.26

Note. Valid N = 278

We measured climate policy acceptance with a single item (“How acceptable do you find the suggested policy proposal?”) with answers ranging from *very unacceptable* to *very*

acceptable on a seven-point Likert scale. While similar studies frequently use policy support as a measure (e.g., Van Valkengoed et al., 2021), the present study used policy acceptance instead. This decision was based on PytlikZillig et al. (2018), who conceptualize policy support as a more active and extreme form of policy acceptance. Given the study's goal to assess general receptivity rather than active engagement, we deemed policy acceptance a more appropriate and moderate measure. Furthermore, in contrast to acceptability, which describes attitudes before the implementation of a policy, acceptance captures public response to a policy after it has been implemented. This is in accordance with our experiment where participants are asked for their response to a policy package that has already been passed in their imagined situation. Policy acceptance ($M = 4.5$, $SD = 1.6$) was generally high and also did not differ between the groups ($t(276) = -1.64$, $p = .10$).

To account for a pre-existing preference for one or the other climate policy type we measured preference for adaptation versus mitigation strategies in response to climate change using a trade-off question ranging from 1 (*climate change mitigation*) to 10 (*climate change adaptation*). With a midpoint of 5.5, the tradeoff question showed a slight preference for mitigation ($M = 4.8$, $SD = 2.1$) while the responses did not differ significantly if people were shown adaptation or mitigation policy packages ($t(276) = -0.46$, $p = .65$). Practically this means that the two policy packages are comparable despite an overall preference for mitigation, displaying that while we achieved the comparability we wanted and therefore ensuring balanced manipulation, we need to control for the preference in the main analysis later.

The exact items are added in Appendix A.

Procedure

We recruited participants via the research panel website Prolific, where they were paid £0.90 for their participation in the study that took about 5 minutes ($M = 325.1$ s, $SD = 211.2$).

Participants started with reading information about the study and giving informed consent to participate. They were then placed in the experimental conditions. Participants were instructed to look at the newspaper and to imagine themselves in the situation of the newspaper, when they looked at the title page. For the next task, participants were presented with information about the policy package that politicians of their country had proposed and they had read about in the politics section of the newspaper.

After participants had read the newspaper and policy package, climate policy acceptance was measured. The next page measured risk perception through likelihood and seriousness.

Participants were reminded of the policy package they saw and then answered questions regarding perceived fairness and impact of the policy package. They then indicated general preference for adaptation versus mitigation measures to climate change via a tradeoff question where they moved a slider towards mitigation or adaptation. Participants were then asked for their confidence in attributing increased extreme weather events to climate change. Lastly, participants indicated their age and gender before reading a short debrief informing them about the actual cause of the study and being redirected back to Prolific. The whole survey flow can be found in Appendix A.

Participants

The sample was based on resident location, we chose only EU countries because the funding project is focused on EU countries. To make the manipulation realistic, we chose countries with lower average temperatures that could perceive the provided temperatures in the

manipulation as a heatwave. To still reach a sufficient sample size, the chosen countries were all Benelux countries and Ireland. We determined the sample size with an a priori power analysis using the standard levels of alpha ($\alpha = 0.05$) and power (0.80) and resulted in 278 participants for all groups, assuming a small effect for Equation 1 (0.03) and a moderate effect for the second equation (0.10). Originally 285 participants responded to the study, however we removed participants before data analysis if they failed one of the two attention checks, which resulted in a valid sample of 278 participants. We checked attention using *instructional manipulation checks* (Oppenheimer et al., 2009) at two points of the survey during a likert matrix table with a scale response. Participants' ages ranged from 18 to 77 years ($M = 34.3$, $SD = 11.3$). The sample included 155 men (55.8%) and 115 women (41.4%), as well as 8 non-binary participants (2.9%).

Data Analyses

We conducted a moderated mediation analysis using PROCESS Macro for SPSS Model 14 (Hayes, 2022) to test whether the effect of media coverage on policy acceptance was mediated by perceived risk and whether this indirect effect was moderated by the type of policy (adaptation or mitigation). To visualize the data analysis, we set up several equations, showing the total effect (1) and the effect of media coverage on risk perception (2). One equation showing the whole moderated mediation (3) and the indirect effects are visualized through Equation 4 showing the indirect effect when an adaptation policy package is introduced, while Equation 5 is showing the indirect effect when a mitigation policy package is introduced.

$$\text{Accept} = c_0 + c \times \text{Media Coverage} + e_1 \quad (1)$$

$$\text{Risk Perception} = a_0 + a_1 \times \text{Media Coverage} + e_1 \quad (2)$$

$$\begin{aligned} \text{Accept} = & b_0 + c' \times \text{Media Coverage} + b_1 \times \text{Risk Perception} + b_2 \times \text{Policy Type} \\ & + b_3 \times (\text{Risk Perception} \times \text{Policy Type}) + e_2 \end{aligned} \quad (3)$$

$$\text{Indirect(adaptation): } a_1 \times b_1 \quad (4)$$

$$\text{Indirect(mitigation): } a_1 \times (b_1 + b_3) \quad (5)$$

Results

Main Analyses

Our first hypothesis proposed that media coverage where extreme weather events are salient and attributed to climate change creates a temporary window of opportunity in which the public is more receptive to climate policy, enabling policymakers to pass legislation with broader acceptance. Our analysis finds no total effect of the media coverage manipulation on climate policy acceptance, $\beta = 0.06$, $t(272) = 0.54$, $p = .59$. Media coverage where an extreme weather event is salient and attributed to climate change does not result in higher climate policy acceptance immediately afterwards as compared to when this attribution is not salient.

The second hypothesis stated that exposure to media coverage that makes extreme weather events salient and attributes them to climate change (compared to non-salient and not attributed coverage) increases climate change risk perception. However, in our experiment media coverage of extreme weather events did not significantly predict climate change risk perception, $\beta = 0.05$, $t(275) = 0.42$, $p = .68$. This indicates that participant's risk perception was not increased through the media coverage they read.

The third hypothesis that heightened climate change risk perception leads to increased acceptance of climate policies was supported by our research. Perceived risk significantly predicted acceptance of climate policy regardless of policy type, $\beta = 0.36$, $t(272) = 4.31$, $p <$

.001. This supports the idea that individuals who perceive higher climate risks are more likely to accept climate policies.

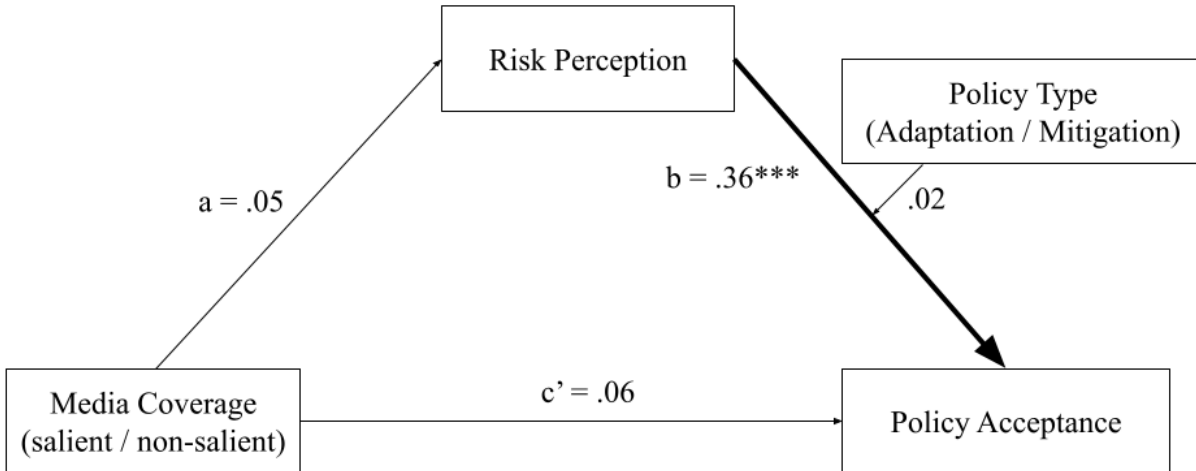
Our fourth hypothesis looks at the mediation of the effect of media coverage of extreme weather events on climate policy acceptance by heightened risk perception. The conditional indirect effects of media coverage on acceptance via perceived risk were non-significant for both adaptation ($\beta = 0.02$, 95% CI [-0.06, 0.10]) and mitigation ($\beta = 0.02$, 95% CI [-0.07, 0.10]) policies. The hypothesized moderated mediation pathway, in which media coverage increases risk perception, thereby enhancing policy acceptance, was not supported. While perceived risk is indeed an important predictor of acceptance, our manipulation of media coverage did not significantly influence this risk perception, and thus the indirect pathway was not established.

The fifth hypothesis adding the moderation to the mediation, that following media coverage of extreme weather events, climate policy acceptance increases more for adaptation policies than for mitigation policies was also not supported. The effect of the interaction between perceived risk and type of policy (adaptation versus mitigation) was not significant, $\beta = 0.02$, $t(272) = 0.19$, $p = .85$, suggesting that the relationship between risk perception and policy acceptance did not differ by policy type. The index of moderated mediation, representing the difference in these indirect effects, was also non-significant (Index = 0.001, 95% CI [-0.03, 0.03]). Therefore, we did not find support that the type of policy package, focusing on either adaptation or mitigation policies, changes how risk perceptions affect policy acceptance.

As discussed in the method section, we controlled for general preference for either policy as a covariate, because the different packages might not have an effect if there is an underlying preference for one policy type. The full regression table for the main analysis can be found in Table B1 in Appendix B.

Figure 2

Moderated Mediation Model 14 of Media Coverage of Extreme Weather Events



Note. Covariate = General Preference for Policy Type. Standardized coefficients are reported. a = path of indirect effect, b = path of indirect effect, c' = direct effect.

Exploratory Analyses

We did not find the expected effects of our manipulation as media coverage failed to change risk perception or policy acceptance. However, it might still be that the underlying concept holds, i.e. attributing extreme weather events to climate change to a greater extent might still increase risk perception and change policy acceptance. Possibly our manipulation just failed to vary risk perception, which is likely the case as the failed manipulation check, that participants did not attribute extreme weather events more to climate change depending on the condition, reaffirms. Therefore, we conducted an exploratory moderated mediation analysis where we used this manipulation check (attribution to climate change) as the independent variable. This correlational analysis with self-report measures cannot establish causality, in contrast to what we would have been able to do with the main analysis through manipulation. Just as in the main

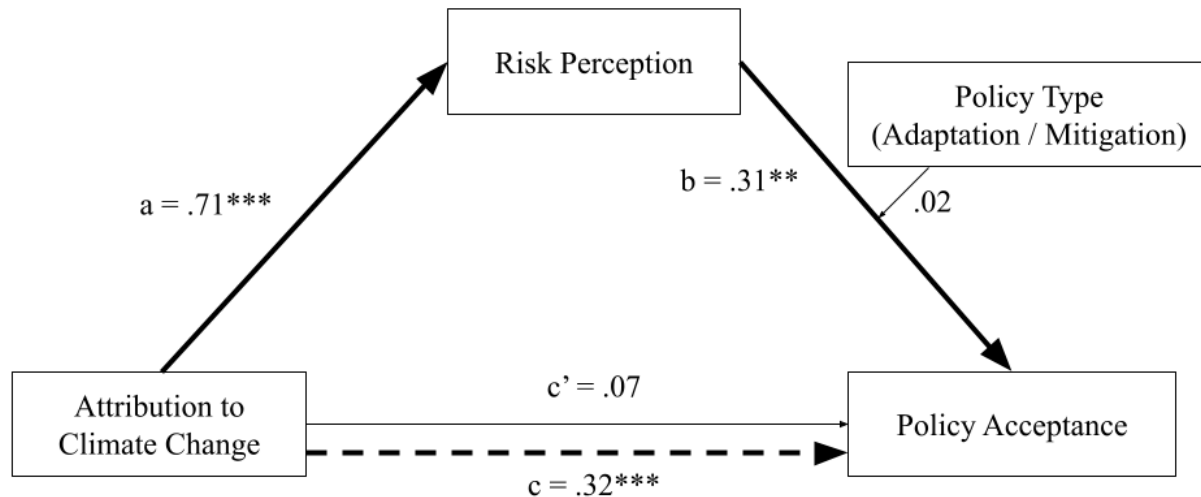
analysis, we also controlled for general preference for either policy as a covariate, because the different packages might not have an effect if there is an underlying preference for one policy type.

The results indicated a significant indirect effect of attribution to climate change on policy acceptance through risk perception. Specifically, attribution to climate change positively predicted risk perception, $\beta = 0.71$, $t(275) = 16.41$, $p < .001$, and risk perception in turn significantly predicted policy acceptance, $\beta = 0.31$, $t(272) = 3.01$, $p = .003$. Through a linear regression of attribution to climate change on policy acceptance, we found a total effect $\beta = 0.32$, $t(276) = 5.65$, $p < .001$, with the explained variance $R^2 = .10$. The direct effect of attribution to climate change on policy acceptance was not significant, $\beta = 0.07$, $t(272) = 0.80$, $p = .42$, suggesting full mediation. The interaction between risk perception and type of policy was not significant, $\beta = 0.02$, $t(272) = 0.20$, $p = .84$, indicating that type of policy did not significantly moderate the effect of risk perception on policy acceptance. Consistent with this, the index of moderated mediation was not significant, index = 0.02, SE = 0.07, 95% CI [-0.13, 0.17]. Collectively, these findings indicate that when individuals increasingly attribute extreme weather events to climate change, their perceived risk is also higher, thereby enhancing their acceptance of climate policies. This relationship remains unchanged regardless of the moderation of policy type.

The full regression table for the exploratory analysis can be found in Table B2 in Appendix B.

Figure 3

Moderated Mediation Model 14 of Attribution of Extreme Weather Events to Climate Change



Note. Covariate = General Preference for Policy Type. Standardized coefficients are reported. c = total effect, a = path of indirect effect, b = path of indirect effect, c' = direct effect.

Discussion

The results of our study provide partial support for the proposed relationships between media coverage of extreme weather events, climate change risk perception, and climate policy acceptance. While media coverage alone did not influence risk perception or policy acceptance as hypothesized, we did find strong evidence that individuals with higher climate change risk perception are more likely to accept climate policies. This supports the broader link between perceived risk and policy acceptance. However, our manipulation of salience of media coverage did not successfully alter participants' risk perception, suggesting that the proposed indirect pathway from media coverage to policy acceptance via increased risk perception was not supported. Additionally, we found no evidence that the type of policy (adaptation versus mitigation) moderates how risk perception affects policy acceptance.

Exploratory analyses offered further insight. When individuals attributed extreme weather events to climate change, their risk perception was also significantly increased, which in turn predicted greater acceptance of climate policies. This suggests that while our initial manipulation of media coverage did not change individual's attribution of extreme weather events to climate change, the conceptual model, that increased attribution is correlated with increased risk perception, remains potentially viable with a different manipulation. The type of policy, however, did again not moderate the effect of risk perception on policy acceptance.

Theoretical Interpretation of Findings

While media coverage plays a role in shaping public perceptions of climate change (Akerlof et al., 2013), our research seems to suggest that it is likely insufficient on its own to meaningfully increase risk perception or acceptance of climate policies. Our exploratory analysis suggests that the critical factor may not be the salience of extreme weather events in media coverage but whether individuals attribute extreme weather events to climate change, which is in line with prior research (Cologna et al., 2025). Scientific evidence that links the increasing intensity and frequency of extreme weather events to climate change may enhance communication by making attribution to climate change more salient (Ettinger et al., 2021; Otto, 2023).

The measured risk perception among participants was generally high across all conditions (as shown in Figure C1 in Appendix C), suggesting a ceiling effect. This raises the question: if risk perception is already high in many individuals, is it capable of changing during actual extreme weather events, or will it remain stable? Our reasoning was built on the hypothesis that extreme weather events affect policy acceptance via risk perception, but this might not be

possible if risk perception is already so high (Akerlof et al., 2013; Dietz et al., 2007; Park & Vedlitz, 2013; Van Der Linden, 2015).

Another theoretical consideration is that public acceptance of climate policies might be higher when policies are tailored to address relevant risks such as a recent heatwave or flood rather than when policies are presented in general terms. This could explain why adaptation policies could be more acceptable: they can more easily address visible and tangible local threats (Bergquist et al., 2019; Visconti & Young, 2024). However, our findings did not reveal a significant difference in perceived fairness or impacts (on well-being and lifestyle, their country's economy, or their household's financial situation) between adaptation and mitigation policy packages. This lack of difference was a part of the experimental design, in which we deliberately made the descriptions of adaptation and mitigation policies comparable in tone and scope to isolate policy type and did not focus on the immediate threat in the situation (present heatwave). This approach may have inadvertently suppressed meaningful variation in responses. In retrospect, it might not have been the best choice because those differences between mitigation and adaptation in terms of perceived fairness and impact might be important for how they differently address the perceived risks. In reality, adaptation policies could be perceived as more legitimate because they are addressing tangible, local threats to which humans are more adapted to cope (Bergquist et al., 2019). As Choudhury et al. (2021) argues, tailoring policies while emphasizing local institutional capacity, and timely responses can enhance responsiveness and community resilience. Our findings seem to suggest that when adaptation and mitigation policies are framed in similarly general terms, the usual perceived advantage of adaptation may be diminished. This is highlighting the importance of contextualized, locally grounded

communication in climate policy design playing into directly addressing the risk relevant to the extreme weather event at hand.

Methodological Limitations

A key limitation of the study lies in the experimental manipulation of the media coverage. The approach to make the extreme weather event more salient and attributed to climate change in one than the other has likely not sufficiently elicited meaningful differences in participants' perceptions of the extreme weather event which then influenced their risk perception. Moreover, the manipulation may not have mimicked real-world media exposure effectively enough. This may be attributed to the use of a research panel, where participants might have rushed through the questionnaire. Although a minimum viewing time for the newspaper was enforced, we cannot confirm whether participants thoroughly read it or were influenced by its content. In the future we would include comprehension checks to ensure participants have engaged with the manipulation. Possibly, the effects of media coverage on risk perception could still have an impact in reality (Bergquist et al., 2019; Lacroix et al., 2020; Van Der Linden, 2015) but our manipulation did not manage to bring them out as suggested by previous research.

Another limitation is that measured risk perception among participants was generally high across all conditions (as shown in Figure C1 in Appendix C), suggesting a ceiling effect. This pattern implies that participants may have entered the experiment already highly concerned about climate-related risks, which the experimental manipulations were unable to shift further. This could reflect the presence of climate threats in everyday life, making it difficult to create a neutral lab environment where baseline perceptions are low enough to measure meaningful change. The timing of data collection in April may have further influenced results, as participants

might still have idealized summer. Data collected during or after summer or even after an actual heatwave could yield different climate change risk perception, because the discomfort of high temperatures is more salient. Furthermore, the ceiling effect might be partially attributed to participants self-reporting higher risk perceptions than they might actually hold, so using other measures could deflate these values. Risk perception could, for example, be measured through distribution of words in language analyzed with the help of data science (Bhatia, 2019).

A further limitation concerns the design of the adaptation and mitigation policy options presented to participants. In attempting to create a controlled comparison, we may have made the policies too similar, potentially erasing the natural distinctions that typically drive preference, such as their perceived relevance to the given extreme weather event if introduced correctly. By making the descriptions comparable, the experiment may have suppressed meaningful variation in participant responses and undermined ecological validity.

Suggestions for Future Research

Building on the present findings and their limitations, there are several extensions for further research around media coverage of extreme weather events, risk perception and climate policy. First, while this study investigated the role of media in shaping perceptions of climate change, future research should distinguish between the mere salience of extreme weather events in media coverage and whether such events are explicitly attributed to climate change. Studies using real-world media coverage following actual extreme weather events can help find the distinct effects of salience and attribution, offering better ecological validity.

To strengthen experimental approaches, future work should also aim to improve the manipulation of media coverage to better simulate real-world messaging, this could go beyond

classic written communication like newspapers and could even capture messaging via social media.

It remains unclear whether individuals with already high levels of climate risk perception are still susceptible to influence during extreme events, or if their perceptions remain stable. Research should investigate whether and how risk perception can be meaningfully influenced when baseline concern is already elevated, using longitudinal designs. In addition to this, there is a need to work with alternative, non-self-report measures of risk perception to reduce biases and improve reliability, one option could be to use data science in language analysis (Bhatia, 2019).

Future research should examine the specific dimensions (e.g., perceived fairness or impact) that differentiate adaptation and mitigation strategies in natural settings, to better understand general policy preferences. Policy communication efforts could focus on contextualizing policies within specific, locally relevant risks in order to enhance public acceptance (Choudhury et al., 2021).

Conclusion

All in all, while our study did not find support for the hypothesized indirect effect of media coverage on climate policy acceptance through increased risk perception, it confirmed the role of perceived risk on acceptance of climate policies. Our findings highlight the importance of attribution to climate change in influencing how individuals interpret extreme weather events. This suggests that more targeted, context-specific communication that emphasizes the links between climate change and extreme weather events may be effective in shaping public attitudes towards climate policies. When public perception of climate change risk is high, in this specific case, after extreme weather events, there may be a valuable window of opportunity to advance

accepted climate policy. By grounding policy proposals in experiences and emphasizing local relevance, policymakers may be more effective in fostering public acceptance.

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Summer is the perfect season to explore new activities, enjoy the outdoors, and spend time with family and friends. With long days and warm weather, there are endless opportunities to make the most of the season. Moments are ideal for outdoor adventures such as hiking, cycling, or visiting local markets. Exploring nature trails, taking a morning swim, or enjoying breakfast outside can start the day on a refreshing note. Afternoons offer a chance to engage in cultural activities, such as visiting museums, reading books in a local library, or attending a theater performance. For those near the coast or lakes, water sports like kayaking, paddleboarding, or sailing can add cool excitement to the day. Evenings provide the perfect settings for social gatherings, from barbecues and picnics to cinema nights. Taking a stroll, or stargazing in a quiet location can round off the day. Whether you're seeking new experiences or enjoying traditional cultural activities, or enjoying simple pleasures, summer is a time to create lasting memories and experience all that the season has to offer.

Mitigation policies

After reading the front page of the newspaper, you read the politics section and see these information:

Before the start of summer recess in the national parliament, politicians in your country are considering passing **a very bold plan to reduce climate change**. This plan involves:

- Raising taxes for high emission industries, which increases the price of their products,
- a mandate for home owners to insulate houses to reduce energy consumption,
- a mandate for households to upgrade to more energy-efficient appliances.

The money collected from these taxes would then go towards:

- subsidising farmers to adopt low emission farming practices,
- investing in public transportation.

Adaptation policies

After reading the front page of the newspaper, you read the politics section and see these information:

Before the start of summer recess in the national parliament, politicians in your country are considering passing **a very bold plan for protection from climate change impacts**. This plan involves:

- Raising taxes for high water using industries, which increases the price of their products,
- a mandate for home owners to insulate houses to protect residents from heat,
- a mandate for households to purchase insurance against losses from natural hazards.

The money collected from these taxes would then go towards:

- subsidising farmers to adopt low water using farming practices,
- investing in planting urban greenery.

the economy ☐ ☐ ☐ ☐ ☐ ☐ ☐

(3)

future
generations ☐ ☐ ☐ ☐ ☐ ☐ ☐

(4)

attention
check:
please select ☐ ☐ ☐ ☐ ☐ ☐ ☐

"Very likely"

(5)

I think risks for ... caused by climate change are ...

	Not serious at all (1)	Slightly serious (2)	Moderately serious (3)	Very serious (4)	Extremely serious (5)
me and my family (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
the environment (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
the economy (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
future generations (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Can you now please remember the policy package that you were shown. It included: Raising taxes for high emission industries, which increases the price of their products, a mandate for home owners to insulate houses to reduce energy consumption, a mandate for households to upgrade to more energy-efficient appliances. Subsidising farmers to adopt low emission farming practices, investing in public transportation.

Can you now please remember the policy package that you were shown. It included: Raising taxes for high water using industries, which increases the price of their products, a mandate for home owners to insulate houses to protect residents from heat, a mandate for households to purchase insurance against losses from natural hazards. Subsidising farmers to adopt low water using farming practices, investing in planting urban greenery.

To what extent do you think the costs and benefits of the policy proposals are fairly distributed across different social/income groups?

- Very unfairly (1)
- Unfairly (2)
- Somewhat unfairly (3)
- Neither fairly, nor unfairly (4)
- Somewhat fairly (5)
- Fairly (6)
- Very fairly (7)

How do you think this policy proposal would impact the following:

[illegible]

You are in charge of the climate action budget for your country. You must decide how to allocate this funding between two areas: Climate Change Mitigation (reduce or prevent climate change) and Climate Change Adaptation (protect people from the impacts of climate change). How would you distribute the money between these two areas?

Climate Change Mitigation

Climate Change Adaptation

1 2 3 4 5 6 7 8 9 10

0

How confident are you that the increased frequency and severity of weather events, for example extreme heat, can be linked to human-caused climate change?

- ☐ Not at all confident (1)
- ☐ Slightly confident (2)
- ☐ Moderately confident (3)
- ☐ Very confident (4)
- ☐ Extremely confident (5)

How old are you?

Which of these best describe your gender identity?

☐ Male (1)

☐ Female (2)

☐ Non-binary (3)

☐ Prefer to self-describe: (4) _____

Appendix B
Regression Tables

Table B1

Summary of Regression Analysis

Predictor	Risk Perception		Policy Acceptance	
	β (SE)	t	β (SE)	t
Intercept	-.02 (0.08)	-0.30	-.13 (0.10)	-1.33
Media Coverage	.05 (0.11)	0.42	.06 (0.11)	0.54
Preference	-.38 (0.06)	-6.80	-.05 (0.06)	-0.76
Risk Perception			.36 (0.08)	4.31***
Policy Type			.20 (0.11)	1.77
Risk Perception × Policy Type			.02 (0.11)	0.19

Note. Covariate = General Preference for Policy Type. *** denotes $p < .001$. Standardized coefficients are reported. Equation 1. $R^2 = .15$, $F(2, 275) = 23.35$, $p < .001$. Equation 2. $R^2 = .16$, $F(5, 272) = 10.70$, $p < .001$.

Table B2*Summary of Exploratory Regression Analysis*

Predictor	Risk Perception		Policy Acceptance	
	β (SE)	t	β (SE)	t
Intercept	.00 (0.04)	0.00	-.10 (0.08)	-1.28
Attribution	.71 (0.04)	16.41***	.07 (0.08)	0.80
Preference	-.11 (0.04)	-2.52	-.04 (0.06)	-0.63
Risk Perception			.31 (0.08)	3.01**
Policy Type			.20 (0.11)	1.80
Risk Perception × Policy Type			.02 (0.11)	0.20

Note. Covariate = General Preference for Policy Type. *** denotes $p < .001$. ** denotes $p < .01$.

Standardized coefficients are reported. Equation 1. $R^2 = .57$, $F(2, 275) = 180.63$, $p < .001$.

Equation 2. $R^2 = .17$, $F(5, 272) = 10.78$, $p < .001$.

Appendix C

Distribution of Risk Perception

Figure C1

Distribution of Risk Perception split by Media Coverage

Risk Perception by Media Coverage

