



“What does not kill you makes you stronger”: Lay hardship beliefs impact judgments of climate vulnerability and resilience

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Introduction

The popular belief that experiencing adversity strengthens (vs. weakens) resilience (e.g., no pain, no gain) could lead people to see communities facing more hardship as less vulnerable to climate impacts. We address this question by testing the following hypotheses:

Hypothesis 1: The “hardship strengthens” (vs. weakens) lay belief would decrease perceived climate vulnerability and increase perceived climate resilience.

Hypothesis 2: The effect of hardship beliefs would be stronger for disadvantaged communities (e.g., low-income, communities of color).

Study Design

Study 1-2: 2x2 Between-Subject Factorial Design

Hardship belief manipulation

Fictitious climate-fueled flooding

Impacted Neighborhoods were described as primarily:

Study 1-2:

Subjects read scientific evidence and personal anecdote suggesting either **hardship strengthens** or **weakens** resilience [3]



Study 1:

Low-income or Middle-Upper income

Study 2:

Low-income Black or Low-Income White

Study 3 replicated study 1 materials and included a hardship belief control condition.

Measures

Dimension	Individual Measure	Prompt
Vulnerability	Perceived Harm Experienced	Physical (2-item)* How much were the residents physically harmed?
		Psychological (5-item)* How much did the residents struggle psychologically? (Response: 1=Not at all to 5=Very Much)
Resilience	Perceived Recovery Capacity	Physical Imagine that two months have passed since the flood. In your best estimate, to what extent have those affected been able to recover in the following ways? (Physically / Emotionally / Financially) (Response: 1=Very slowly to 5=Very quickly)
		Psychological
	Perceived Future Resilience	Physical People would be much less physically harmed by a similar flood in the future.
		Psychological People would be much less emotionally harmed by a similar flood in the future.
	Speed of Recovery People would recover much more quickly after a similar flood in the future. (Response: 1=Strongly disagree to 5=Strongly agree)	

*One example item is shown for composite measures

Hypothesis 1: Hardship Belief Main Effects

Hardship Strengthens (vs. Weakens) Effects

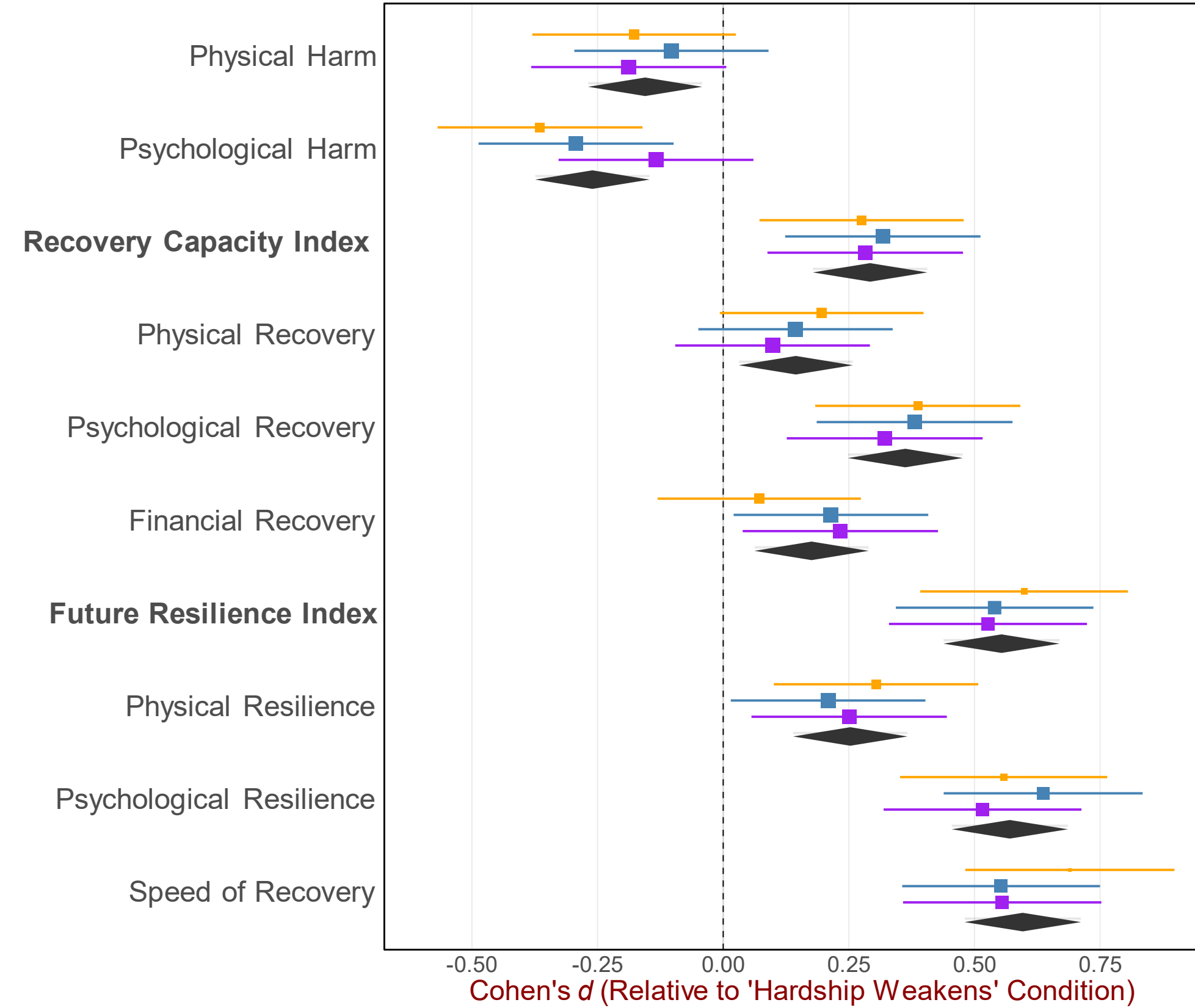


Fig 1. Fixed-effects meta-analysis results. DVs are on the y-axis. For Study 1-2, Cohen's *d* compares marginal means between hardship belief conditions. Bolded indices represent the mean scores of individual measures listed below each index.

Hypothesis 2: Interaction Effects

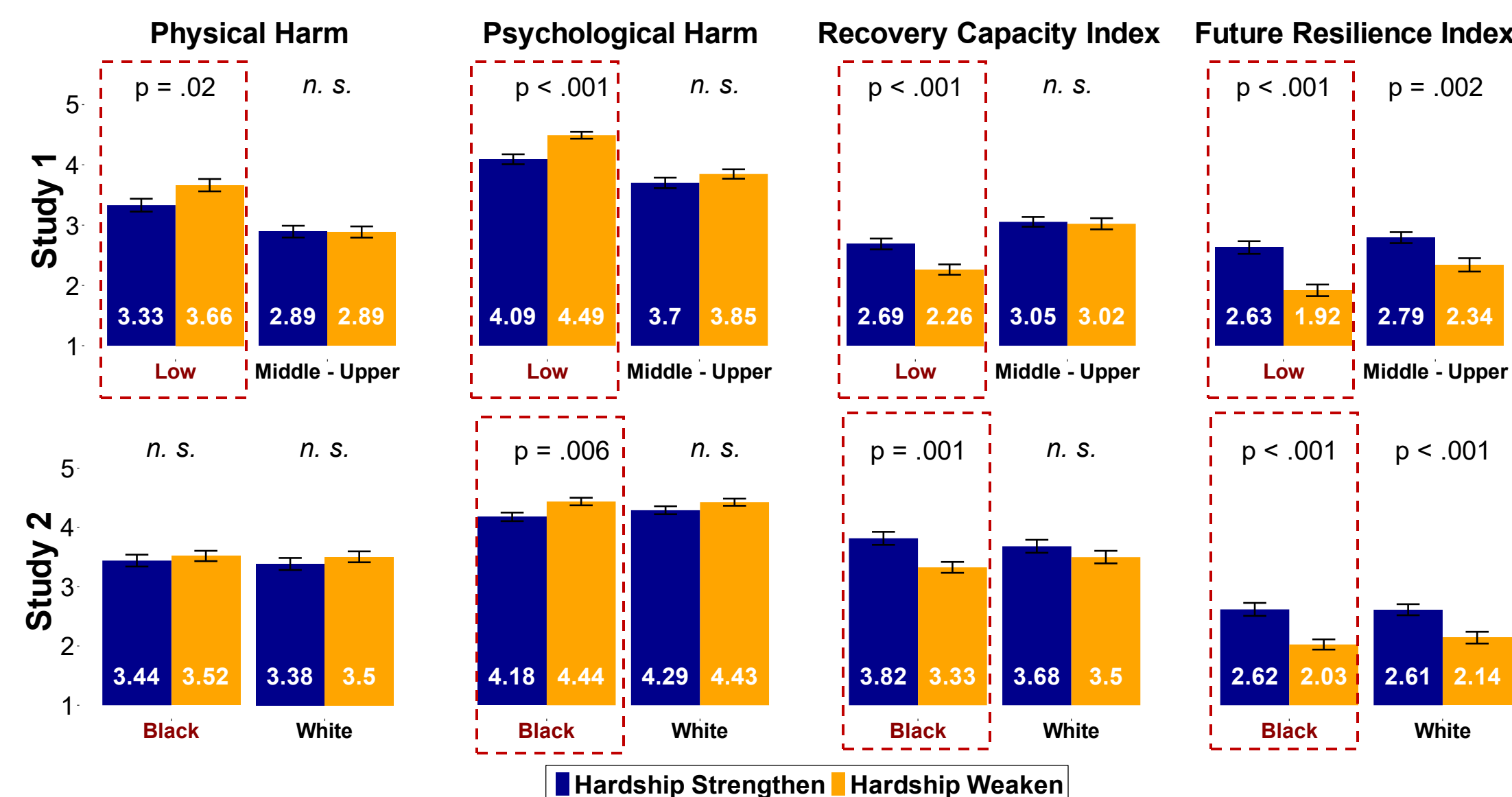


Fig 2. Contrasts in hardship belief levels based on community demographics (Study 1: low-income vs. middle-upper income; Study 2: low-income Black vs. low-income White). Hardship beliefs show a stronger effect among more disadvantaged communities, with only one exception.

Results (Part 3): Correlations with Justice Perceptions

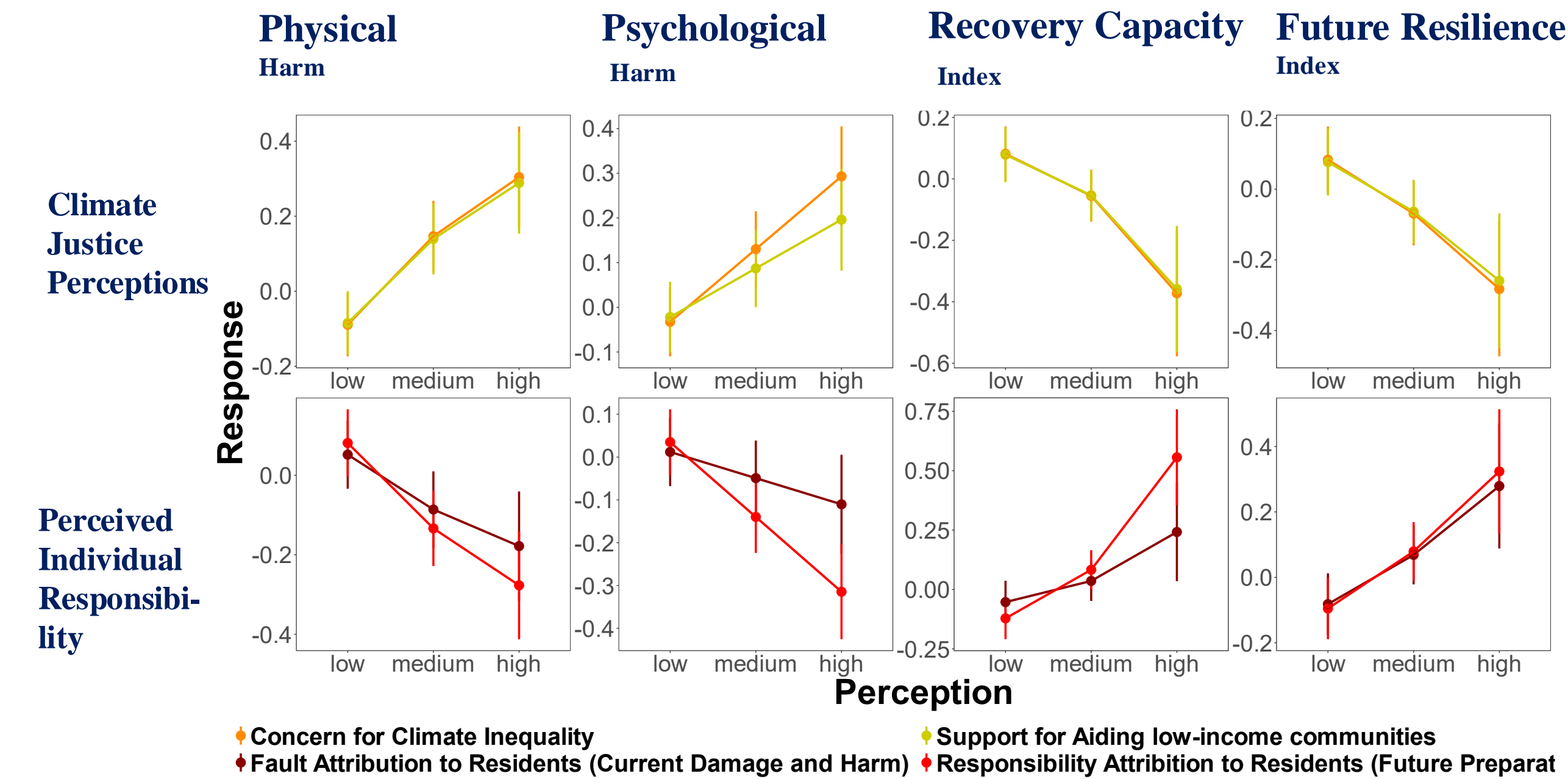


Fig 3. Linear models predicting justice perceptions in Study 3, using vulnerability and resilience perception indices as predictors. Error bars represent 95% CIs. Perception levels are defined by the 33rd, 66th, and 99th percentiles, labeled as low, medium, and high, respectively.

Conclusion

Additional Findings:

- **Study 3** replicated Study 1 materials and included a hardship belief control condition. Subjects in the **control condition** expressed **beliefs more similar to those in the “hardship strengthen” condition.**
- Exploratory Analysis found that the **hardship belief effects are stronger among Democrats (vs. Republicans).**
- Vulnerability and Resilience Judgments were associated with **lower support for policies aiding flood victims.**

Discussion:

Disadvantaged groups are **more vulnerable** to climate disasters since they have more limited access to resources. However, prevailing hardship beliefs such as “no pain, no gain” can **obscure this social inequalities.** This may contribute to the widespread **failure among many Americans to recognize that climate change impacts “some groups more than others”** [1]. Communication about developing climate resilience should be caution about fostering the **misconceptions** that vulnerable groups should “**always be resilient**” [2]. Such misconceptions could shift responsibility away from government action in preparing for climate hazards.

References

- [1] Schuldt, J. P., & Pearson, A. R. (2023). Public recognition of climate change inequities within the United States. *Climatic Change*, 176(8), 114.
- [2] Bonilla, Yarimar. (2022). “Why Must Puerto Ricans Always Be Resilient?” *The New York Times*. <https://www.nytimes.com/2022/10/10/opinion/fema-fiona-puerto-rico.html>