

Numeracy Predicts Accurate Knowledge: The Case of Global Warming Perception

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Biased Reasoning

- People's desires and values may bias cognitive processing (e.g., motivated reasoning)
- Biased information processing can cause polarization in beliefs and attitudes (e.g., climate change; see Kahan et al., 2012)

Numeracy & Effective Decision Making

- Statistical numeracy tends to be among the single best predictors of decision making skills, including risk literacy (the ability to evaluate and understand risk; www.RiskLiteracy.org).
- Numeracy benefits effective reasoning in socially and economically important domains (e.g., health, wealth, relationships).
- Highly numerate people tend to have acquired accurate knowledge and beliefs about risks (e.g., flood, tornado).

Numeracy & Biases

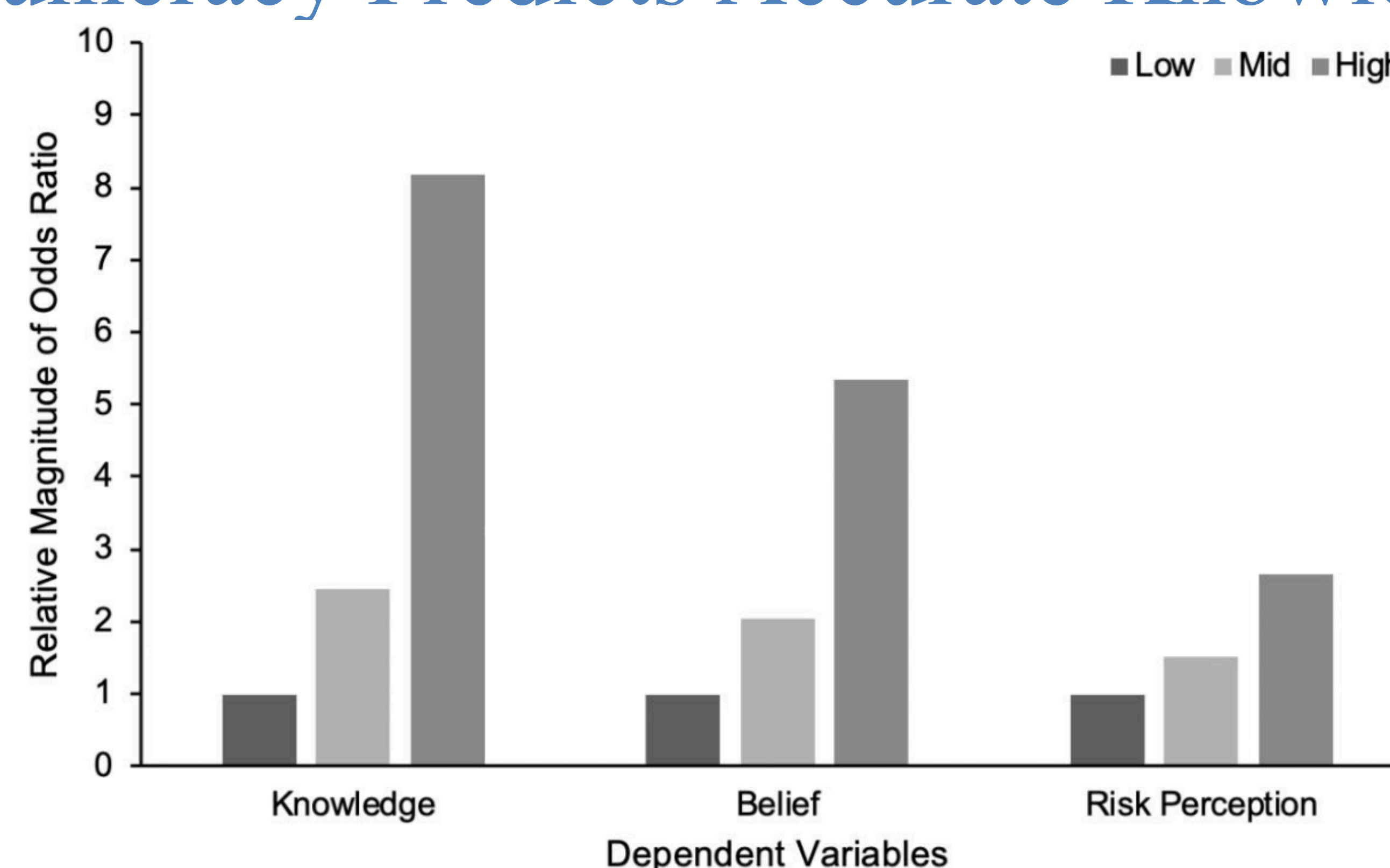
- Some evidence suggest that numeracy may ironically exacerbate biases by helping people selectively process information (e.g., numerate individuals having more polarized risk perception about climate change, in favor of their cultural worldviews)

Will numeracy be beneficial or harmful?

Methods

- **Sample:** probabilistically representative sample in the U.S. (n = 305)
 - Berlin Numeracy Test
 - Expert consensus knowledge
 - Belief in anthropogenic global warming (AGW)
 - Global warming risk perception
 - Cultural worldview

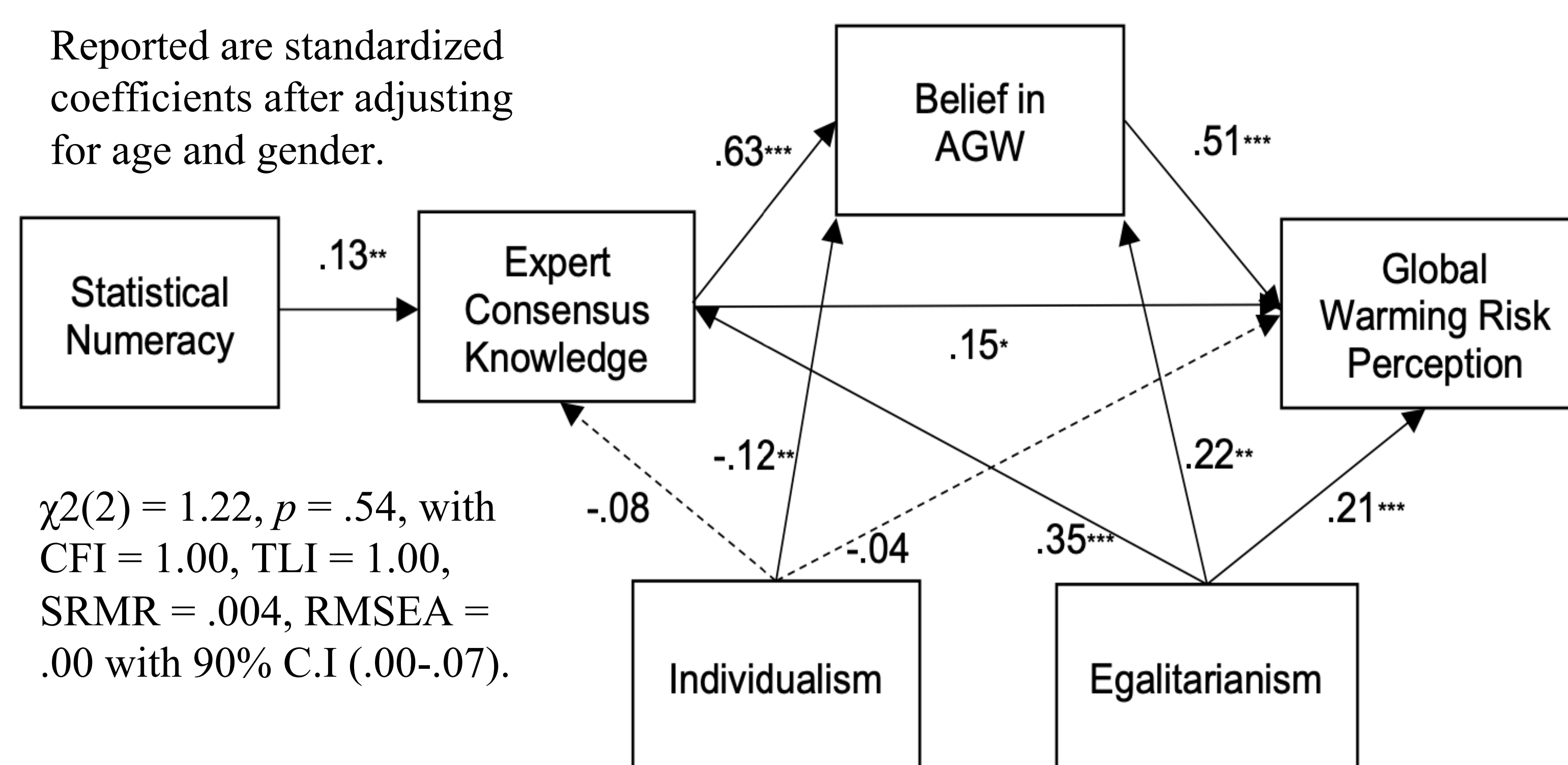
Numeracy Predicts Accurate Knowledge



- Numerate individuals were almost 8 times more likely to have accurate expert consensus knowledge, and 4 times more likely to have accurate belief

Integrated Model

Reported are standardized coefficients after adjusting for age and gender.



Discussion

- **Numeracy does not polarize:** Numeracy tends to predict accurate acquired knowledge and beliefs independent of other variables known to induce biases
- **Knowledge is Power:** knowledge tends to be the strongest predictor of belief and attitude about global warming risk perception

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