

More Correlations Signal Causation: The Impact of Correlational Scope on Perceived Causality

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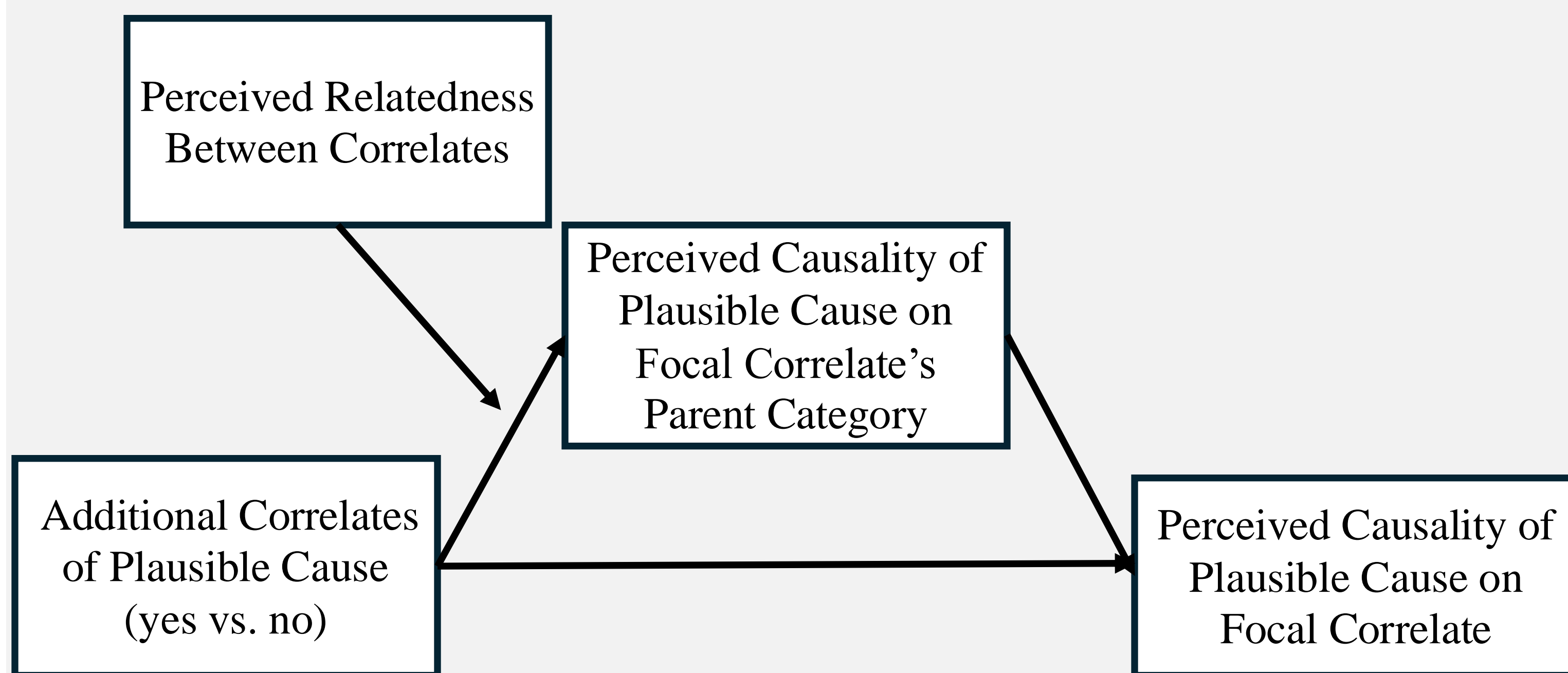
Research Background

Understanding when and why consumers interpret a correlation as causation is essential for promoting their well-being (Sloman and Haggmayer 2006; Daniels and Kupor 2022).

In the era of big data, consumers frequently encounter reports linking product consumption to various health benefits. This research project investigates **how the scope of correlations influences consumers' perceptions of causality.**

Theoretical Framework

- Single correlation: Compared to others, people who drink tea more frequently tend to report having *stronger bones*.
- Multiple correlations: Compared to others, people who drink tea more frequently tend to report having *stronger bones* and *healthier hearts*.
- DV: How likely do you think it is that drinking tea makes *bones* stronger?



Empirical Summary

Study 1A: The Impact of Correlational Scope

Study 1B: The Effect Holds In A Joint Evaluation Mode

- The effect is not driven by the magnitude of correlations.

Study 1C: Incentivizing Judgments

- The effect holds when the judgment is consequential.
- The effect is not driven by the perceived accuracy of the information.

Study 2: The Impact of Scientific Reasoning Skills (SRS)

- SRS does not moderate the effect of correlational scope on perceived causality.

Study 3A&3B: The Role of Relatedness Between Correlates

Study 4: Correlational Scope Affects Product Choice

- Perceived causality mediates the effect of correlation scope on product choices.

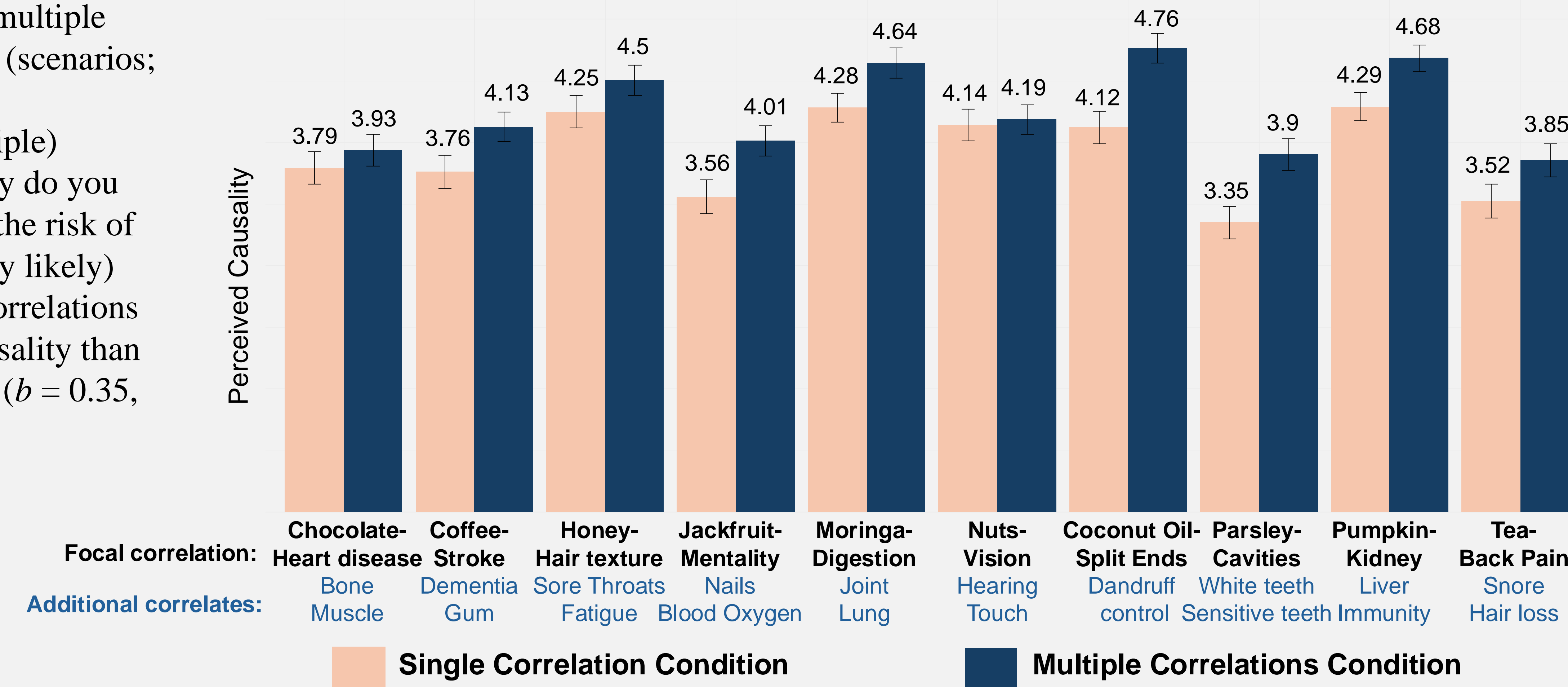
Study 5: Cause-last Framing Attenuates the Effect

- Cause-first framing: Compared to others, people who drink tea more frequently tend to report having *stronger bones* and *healthier hearts*.
- Cause-last framing: Compared to others, people who report having *stronger bones* and *healthier hearts* tend to drink more tea.

Study 1A – Main Effect



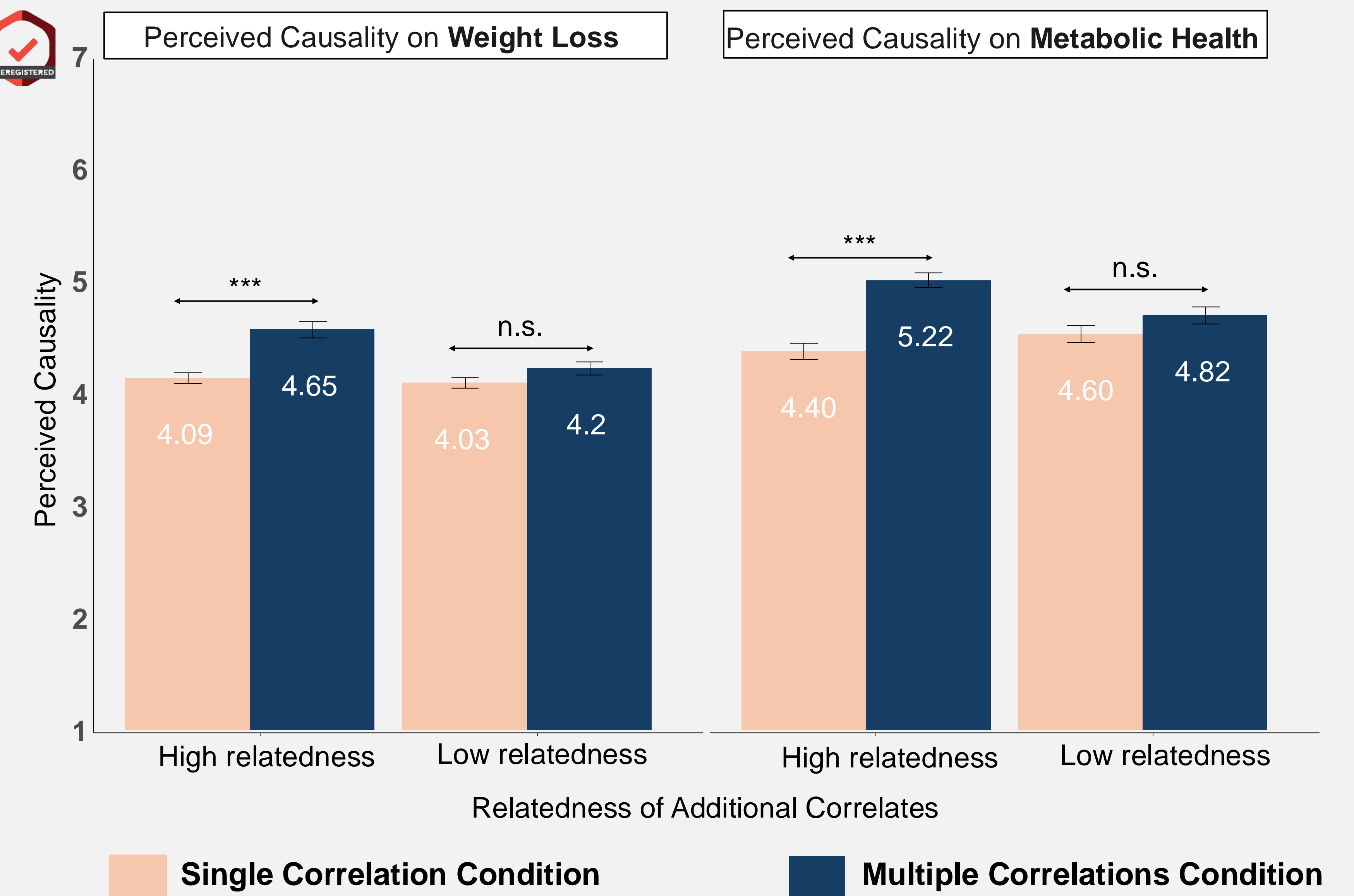
- N = 300
- Study design:** 2 (single correlation vs. multiple correlations; between-participants) x 10 (scenarios; within-participant) mixed-design study.
- IV:** Correlational scope (single vs. multiple)
- DV:** Perceived causality (e.g., how likely do you think it is that eating chocolate reduces the risk of heart disease? 1 = very unlikely, 7 = very likely)
- Findings:** Participants in the multiple correlations condition reported higher perceived causality than those in the single correlation condition ($b = 0.35$, $SE = 0.13$, $t(298) = 2.71$, $p = .007$).



Study 3B – Process Evidence



- N = 801
- Study design:** 2 (number of correlations: single vs. multiple) x 2 (perceived relatedness of additional correlates: low vs. high) fully between-participants design
- IV:** Correlational scope (single vs. multiple)
- Moderator:** Perceived relatedness of additional correlates: low vs. high
- DV:** Perceived causality (e.g., which food is more likely to promote weight loss? 1 = definitely mangosteen, 4 = equally likely, 7 = definitely chayote)
- Findings:**
 - Moderated mediation index: Index = 0.11, SE = 0.04, 95% CI = [0.04, 0.19]
 - High relatedness condition: $b = 0.15$, SE = 0.04, 95% CI = [0.08, 0.22]
 - Low relatedness condition: $b = 0.04$, SE = 0.03, 95% CI = [-0.01, 0.09]



Summary

- Additional correlations enhance perceptions that the plausible cause has a generalized effect on the parent category of the target outcome (e.g., overall health), reinforcing the belief that the focal correlation reflects a causal relationship.
- An easy-to-implement intervention is to adopt a cause-last framing.

References

- Daniels, David P. and Daniella Kupor (2022), "The Magnitude Heuristic: Larger Differences Increase Perceived Causality," *Journal of Consumer Research*, 49 (6), 1140-59.
- Sloman, Steven A. and York Haggmayer (2006), "The Causal Psycho-Logic of Choice," *Trends in Cognitive Sciences*, 10 (9), 407-12.

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