Investigating the Impact of Message Framing on Consumer Perceptions of Food Safety: A Meta-Analytic Review

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Introduction and Theoretical Framework

- The way information is framed can influence people's beliefs and behaviors (Britwum & Yainnaka, 2019).
- Framing, as a communications strategy, is grounded in Bateson's (1972) frame theory.
- Science communicators have used message framing to improve consumer perceptions, knowledge, and behaviors related to food safety.

Research Questions

1) What is the overall impact message framing strategies have on consumer perceptions of food safety?
2) How do the persuasive effects of message framing vary across different types of framing strategies?
3) How do the persuasive effects of message framing vary when the food safety topic involves animal agriculture versus plant agriculture?

Method

- Academic Search Ultimate, JSTOR, Web of Science, and ScienceDirect.
- Included studies that used experimental or survey research designs.
- Independent variable = specific type of message framing strategy.
- Dependent variable = consumer perceptions of a food safety topic.
- Screened 1,098 articles; Full text review of 28; Included 5.
- Extracted data to compute 12 effect sizes.
- Used Cohen's *d* as the effect size metric; Converted to Hedge's *g*.

Conclusions

- Message framing has a large, positive effect on consumers' perceptions of food safety (RQ1).
- Gain and loss framed messages had a more significant impact on consumers' perceptions of food safety than did other types of message frames (RQ2).
- Message frames had a more significant effect on consumers' perceptions of food safety when the message framed involved animal agriculture and a less significant effect when the message framed involved plant agriculture (RQ3).
- Results from Egger's regression test indicate that severe publication bias existed.

Results

- The summary effect size was 1.61.
- Results from Egger's regression test were statistically significant.
  - (t = 5.2177, df = 10, p = 0.0004).
- Used a random-effects model to conduct the Q test for heterogeneity.
  - (Q(df = 11) = 1672.2972, p < .0001).
- Conducted moderator analyses using unconditional fixed-effect ANOVA-like models, both of which has a statistically significant effect on the variation of effect sizes.
  - Investigated how the type of message frame effected consumer perceptions (*QE* = 545.57, *QM* = 1130.73, df = 10,1, p < .0001).
  - Investigated how the type of food or food production technology used as the topic for framing effected consumer perceptions (*QE* = 1649.14, *QM* = 27.16, df = 10,1, p < .0001).

Recommendations

- Results from studies investigating the impact of message frames should be published even if they do not show statistically significant findings.
- We recommend a similar meta-analysis be conducted that investigates how health claims effect consumer perceptions of food safety.

- Britwum, K., & Yiannaka, A. (2019). Consumer willingness to pay for food safety interventions: The role of message framing and issue involvement. *Food Policy, 86*, 1–14. https://doi.org/10.1016/j.foodpol.2019.05.009
- Bateson, G. (1972). *Steps to an ecology of mind: Collected essays in anthropology, psychology, evolution and epistemology*. Chandler
- Hedges, L. V. (1981). Distribution theory for Glass's estimator of effect size and related estimators. *Journal of Educational Statistics, 6*(2), 107–128. https://doi.org/10.3102/10769986006002107

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