



Perceived Ambiguity About Cancer Prevention Recommendations: Relationship to Perceptions of Cancer Preventability and of Cancer Risk and Worry

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Ambiguity

- Ellsberg (1961): “...a quality depending on the amount, type, reliability and ‘unanimity’ of information ...’Ambiguity’ may be high when there are questions of reliability and relevance of information, and particularly **where there is conflicting opinion and evidence.**”

Ellsberg, D. (1961) Risk, Ambiguity and the Savage Axioms. *Quart J Econ*, 75, 643-69.

Perceived Ambiguity About Cancer Prevention Recommendations

- “There are so many different recommendations about preventing cancer, it’s hard to know which ones to follow”
(CK14cTooManyRecommendations)
- 77% of HINTS respondents agreed “somewhat” or “strongly”

Ambiguity About Cancer Prevention Recommendations

- Possible causes: multiple
- An expected outcome of Informed Decision Making (IDM)?
- Possible consequences: does increasing ambiguity affect other cognitions and emotions related to cancer prevention?

Research Questions

- How does perceived ambiguity about cancer prevention recommendations relate to other cancer-related cognitions and emotions?
 - Perceived preventability of cancer
 - Cancer-related worry
 - Perceived cancer risk
- How do these factors relate to one another?
- An exploratory, hypothesis-generating study

Analysis

- Logistic regression – SUDAAN
- Subpopulation: age ≥ 40
- Adjusted for gender, race, education
- Predictor variable in all models: “Ambiguity”
(CK14cTooManyRecommendations)

Analysis – Response Variables (separate regression models)

1. **Perceived cancer preventability** (CK14bCannotLowerChances)
“There is not much people can do to lower their chances of getting cancer”
2. **Cancer-related worry** (CK9WorryGetCancer)
“How often do you worry about cancer?”
3. **Perceived cancer risk** (CK8ChanceGetCancer)
“How likely do you think it is that you will develop cancer in the future?”

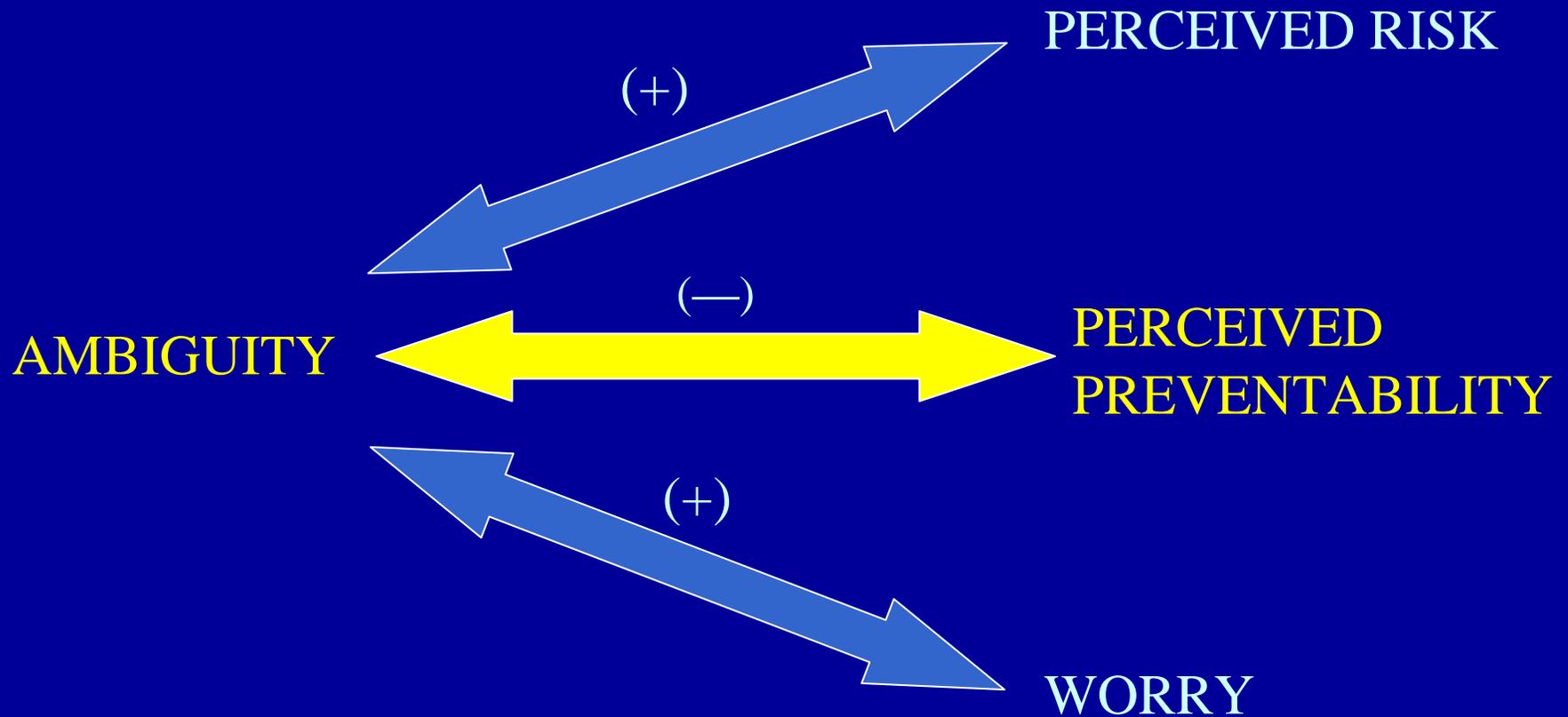
Results: Main Effects

- Perceived ambiguity negatively related to **perceived cancer preventability**
 - OR .30 (95% CI: .22-.40)
 - p=.00
- Perceived ambiguity positively related to **cancer-related worry**
 - OR 1.55 (95% CI: 1.03-2.33)
 - p=.03
- Perceived ambiguity positively related to **perceived cancer risk**
 - OR 1.45 (95% CI: 1.18-1.77)
 - p=.00

Questions

- Causal direction of relationships
- Theoretical explanations
- Predicted relationships between variables:
moderating, mediating effects

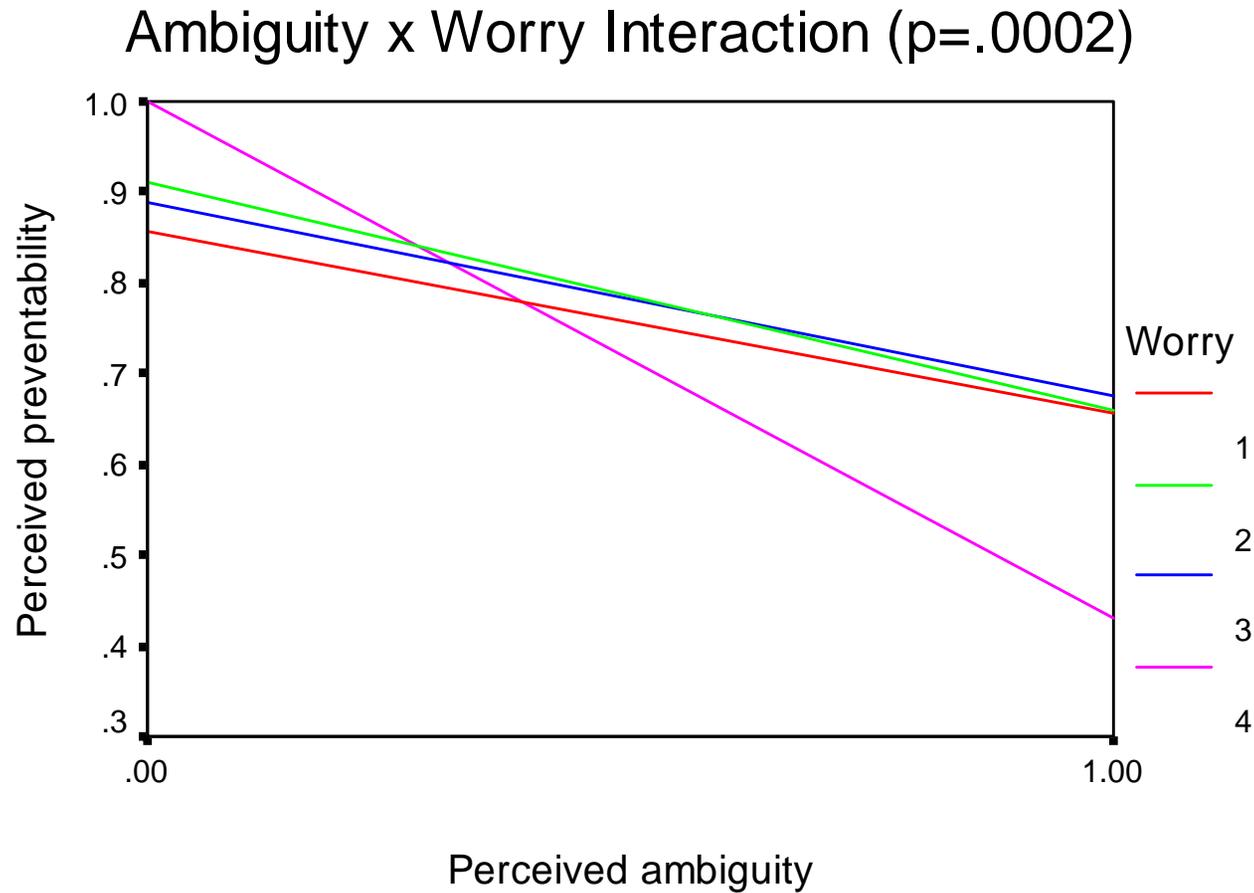
Ambiguity and Perceived Preventability



Perceived Ambiguity and Perceived Preventability

- Hypothetical causal direction:
 Ambiguity → Perceived preventability
- Theoretical support: “ambiguity aversion”—
 pessimistic / threatening interpretation bias
- Predicted relationships with other variables—
 cancer-related worry:
 - Moderating effect of emotion on processing of
 ambiguous information

Worry Moderates the Possible Effect of Ambiguity Upon Perceived Preventability



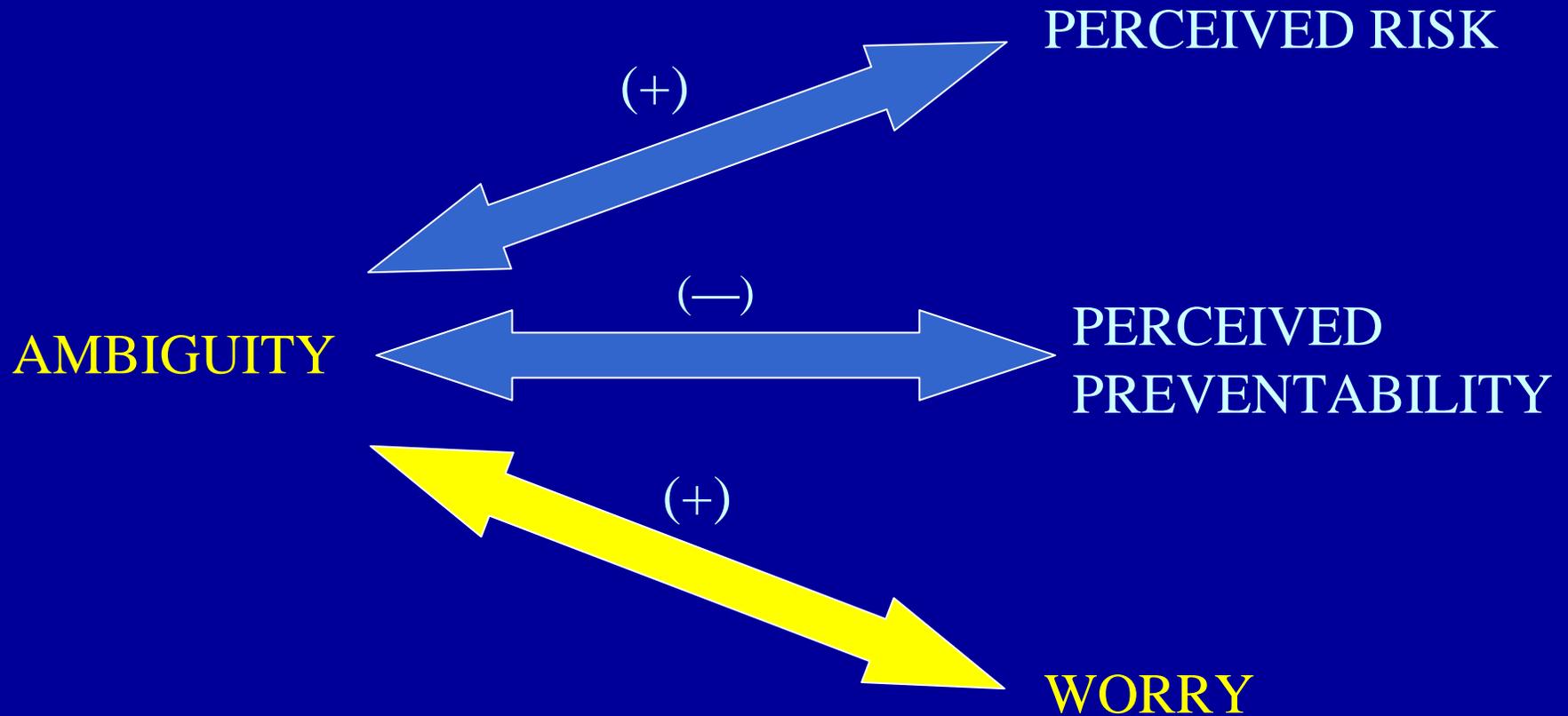
Worry level 1 (red) = Low est

Worry level 4 (pink) = Highest

Ambiguity x Worry Interaction

- Worry about cancer moderates extent of ambiguity aversion
- Worry may bias people towards more pessimistic / threatening interpretations of ambiguity (i.e., lower preventability beliefs)
- Findings consistent with past research

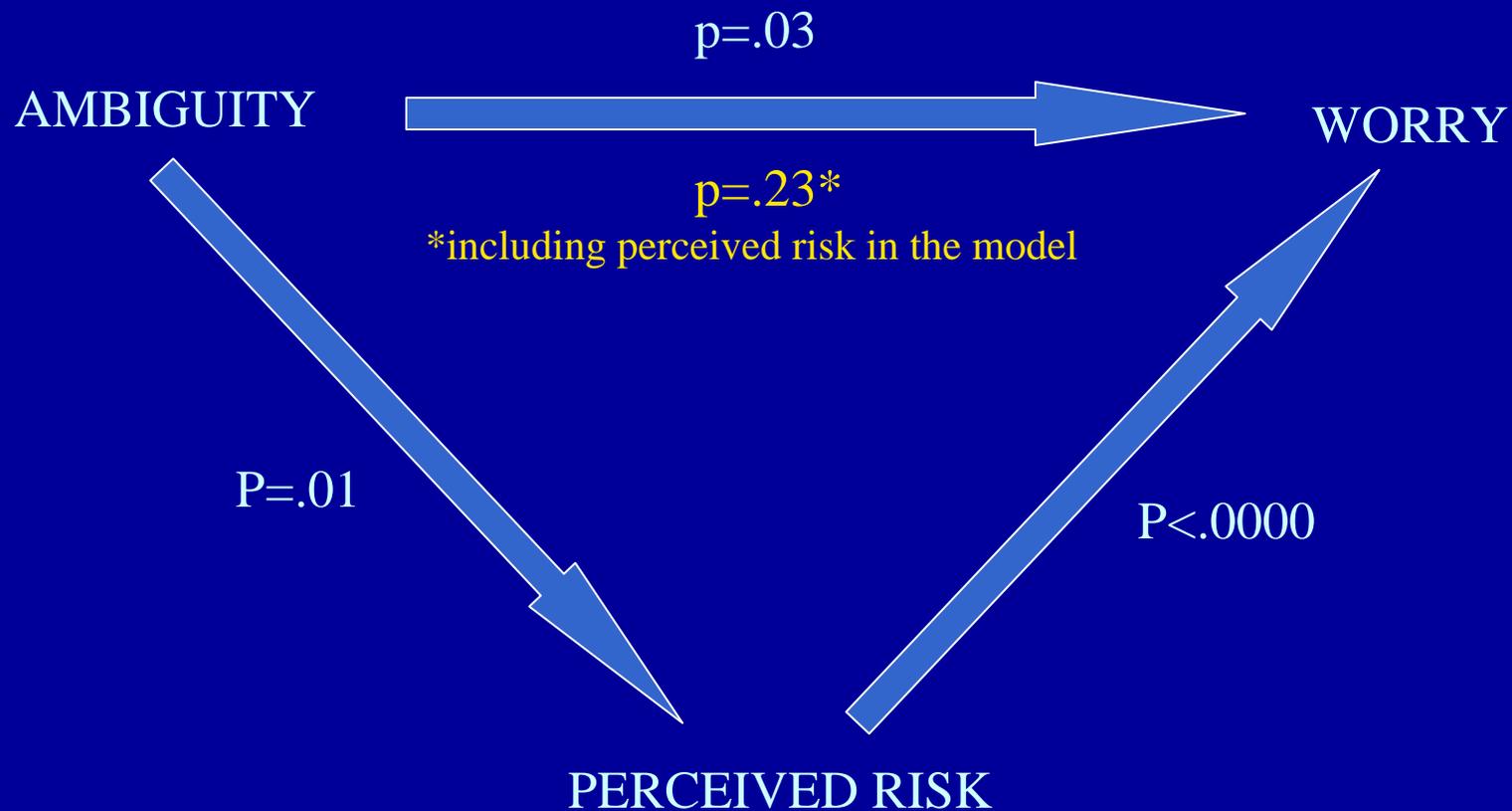
Ambiguity and Worry



Ambiguity Aversion and Cancer-related Worry

- Hypothetical causal direction:
Ambiguity → Cancer-related worry
- Theoretical support: perceived ambiguity activates emotion; intolerance of ambiguity associated with affective states and traits (worry, anxiety, depression)
- Predicted relationships with other variables:
 - Effect of cancer risk perceptions on worry about cancer—may suggest mediating role of perceived risk

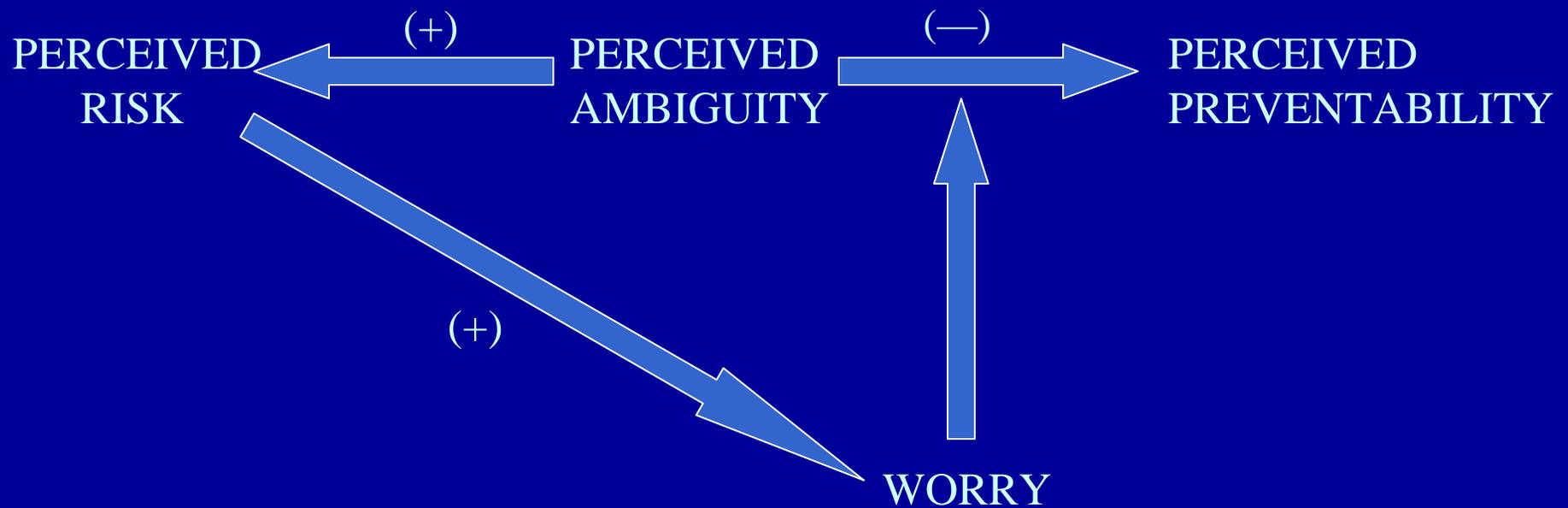
Perceived Risk Mediates the Possible Effect of Ambiguity Upon Cancer-related Worry



Conclusion: Preliminary Hypotheses

- Perceived ambiguity about cancer prevention recommendations may have broad effects on cancer-related cognitions and emotions:
 - Perceived ambiguity may decrease perceived preventability of cancer
 - Cancer-related worry may moderate this effect
 - Perceived ambiguity may increase perceived cancer risk
 - Perceived ambiguity may increase cancer-related worry
 - Perceived cancer risk may mediate this effect

Tentative Model



Implications and Future Directions

- Relevance for risk communication and IDM interventions: increasing ambiguity may influence health-related cognitions and emotions
- Prospective and experimental studies
 - Confirm causal directions
 - Link to actual cancer-protective behaviors
- Integrate ambiguity into health behavior theories