

Forschungszentrum Jülich



A short guide to risk communication

with special focus on risk characterization,
risk amplification, and precaution

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Endocrine Disruption 2005

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Key Issues

- How to provide a transparent, consistent, and reasonable hazard characterization?
 - Synopsis to communicate uncertainties
- How to deal with risk amplification?
 - Risk as feelings
- How to deal with precautionary measures?
 - Unintended site effects of precautionary actions

Risk Communication

***RISK COMMUNICATION:** An interactive process of exchange of information and opinion among individuals, groups, and institutions; often involves multiple messages about the nature of risk or expressing concerns, opinions, or reactions to risk messages or to legal and institutional arrangements for risk management.*

- Who?
- With whom?

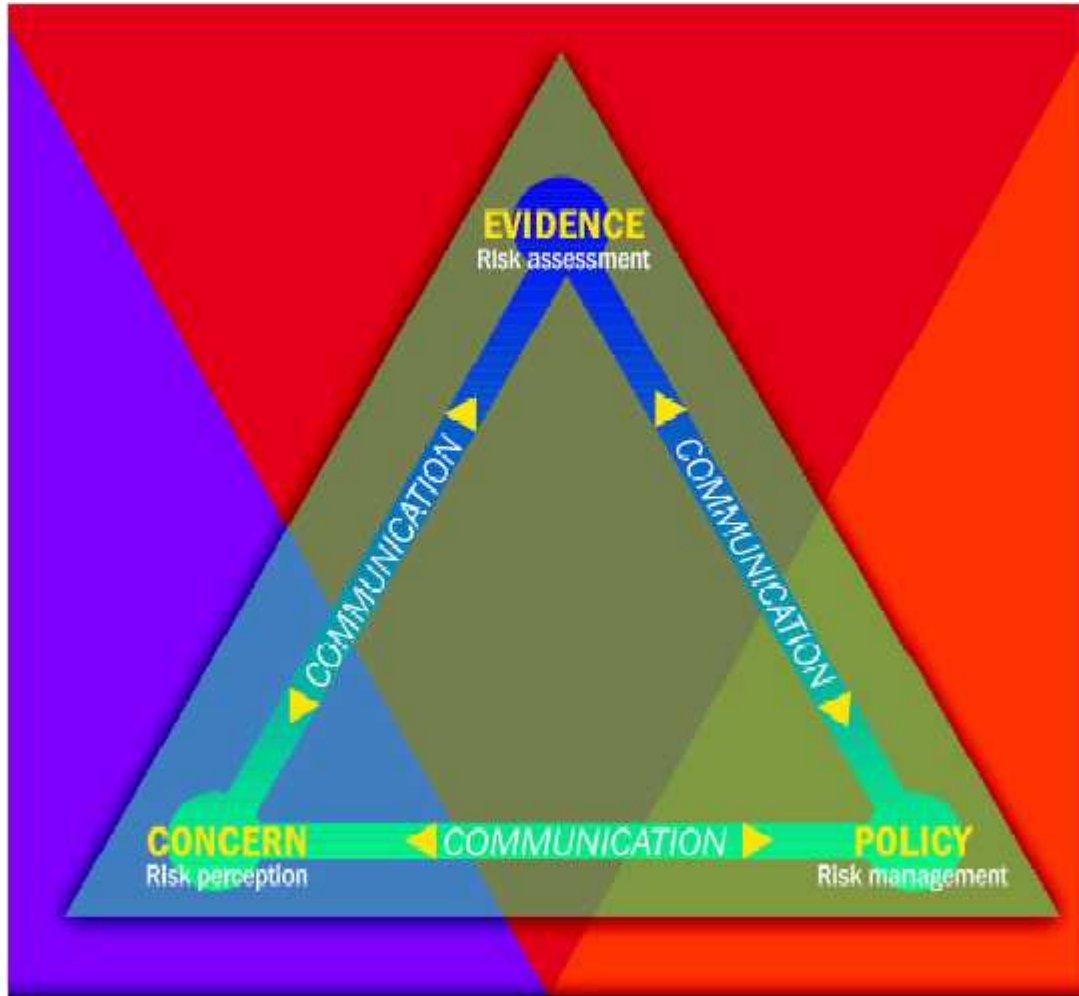
Warning
Reassuring
Supporting

- When?
- About what?
- How?



How to provide a transparent,
consistent, and reasonable
hazard characterization?

Hazard Characterization



Transparent
Clear
Consistent
Reasonable

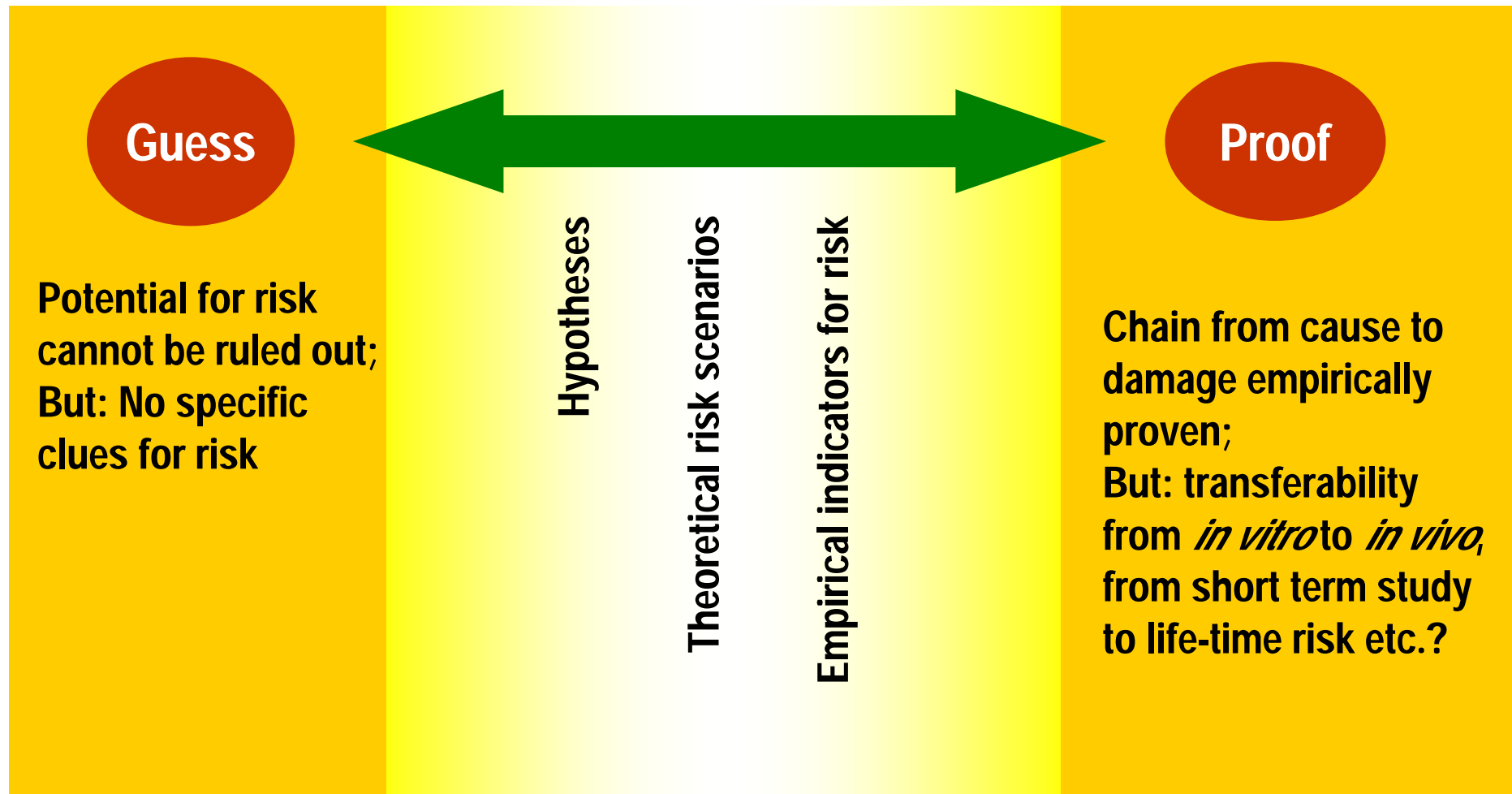
Hazard Characterization

- Is there a hazard?
- How likely is it ?
- How much evidence is available?
- How much evidence is enough?



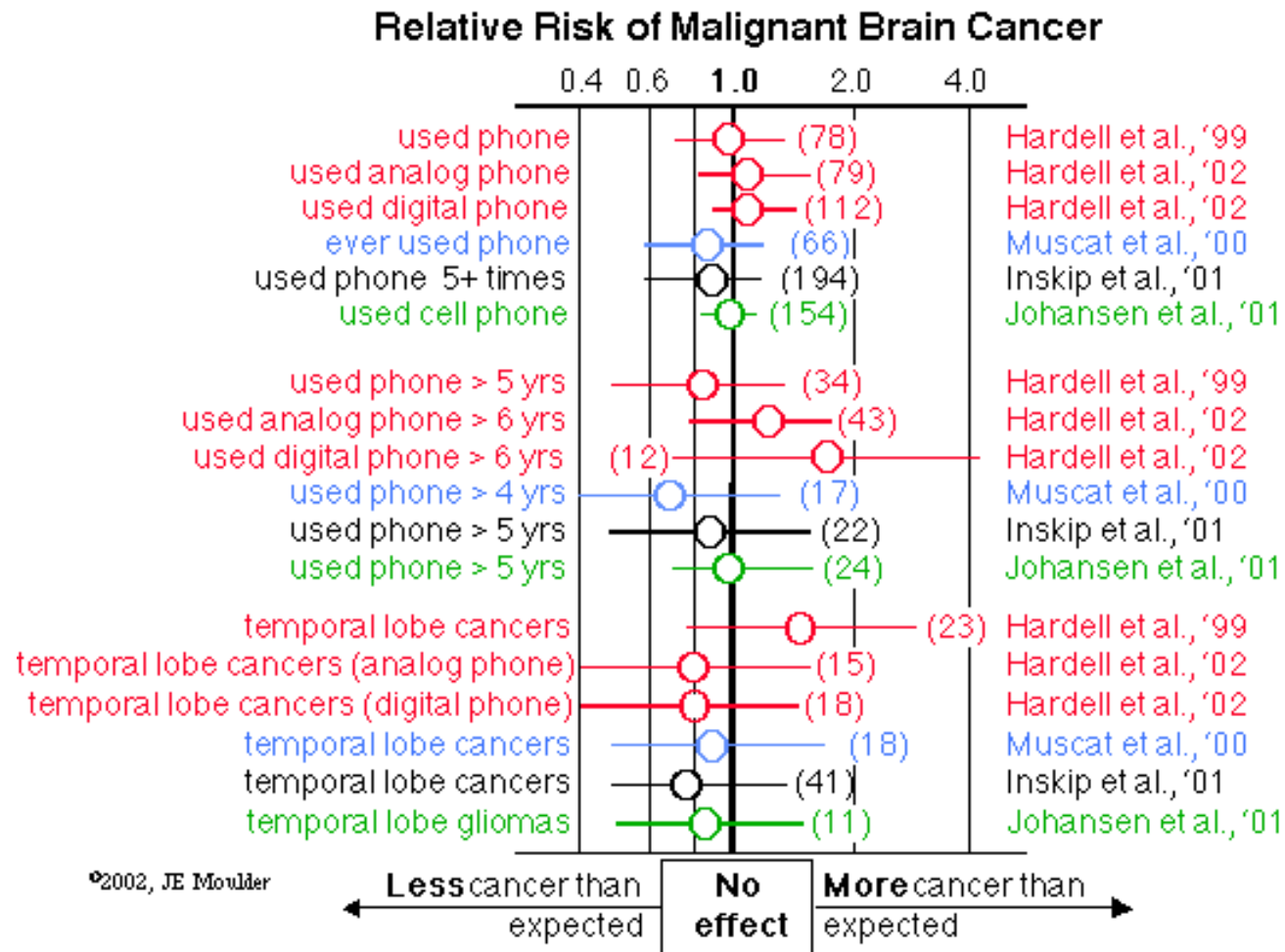
Hazard Characterization

What is certain? What is uncertain? And why?



Hazard Characterization

Contradictory evidence



Hazard Characterization

Idioms in order to describe uncertain and contradictory evidence:

- "probably no relationship",
- "rather unlikely",
- "a relationship cannot be excluded",
- "not likely, but possible",
- "vague initial suspicion".

attenuating

- All studies of this endpoint are cross-sectional surveys where confounders cannot be excluded.
- 2 of the 4 studies where a relationship was observed are methodologically inadequate (Navarro et al. 2003, Santini 2003b).

Pro-argument:
4 of 7 studies show a relationship between HF EMF exposure and headaches.

supporting

Noticeable is that in the two methodologically sound cross-sectional surveys (Chia et al. 2000; OSW 200x), wherein a row of unspecific symptoms was investigated, the relationship relative to headache was positive.

Con-argument:
3 of 7 studies do not observe such a relationship.

supporting

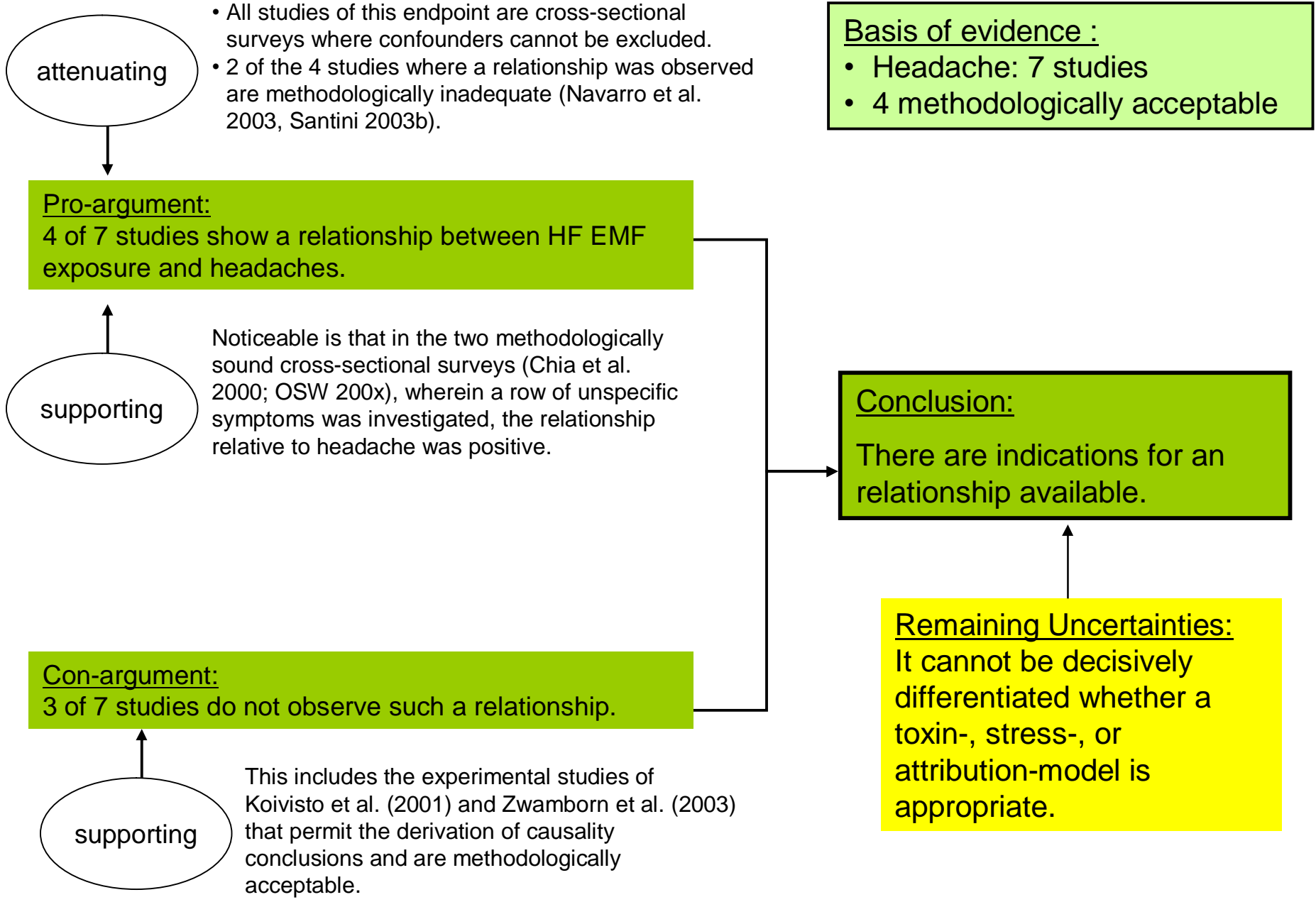
This includes the experimental studies of Koivisto et al. (2001) and Zwamborn et al. (2003) that permit the derivation of causality conclusions and are methodologically acceptable.

Basis of evidence :

- Headache: 7 studies
- 4 methodologically acceptable

Conclusion:
There are indications for an relationship available.

Remaining Uncertainties:
It cannot be decisively differentiated whether a toxin-, stress-, or attribution-model is appropriate.



Summary



- Hazard Risk
- Hazard Characterization is a key issue
- Focus on the transparent description of the underlying evidence
- Give the pro's and the con's

How to deal with risk
amplification?

How to deal with risk amplification?



Frames

Framing of activities and actors (images)

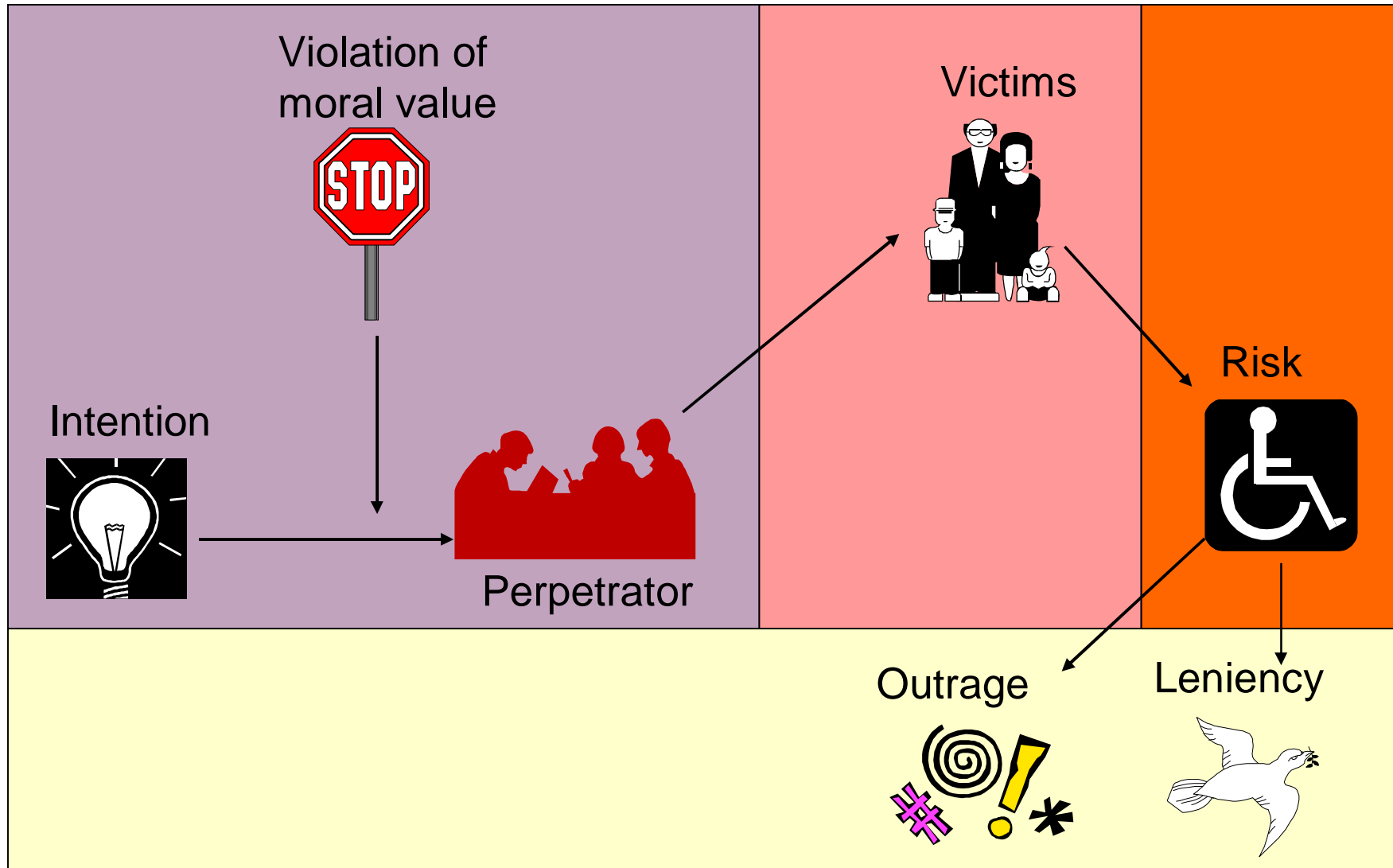
Emotions

Triggering of positive or negative emotions

Appraisal

Different risk perceptions

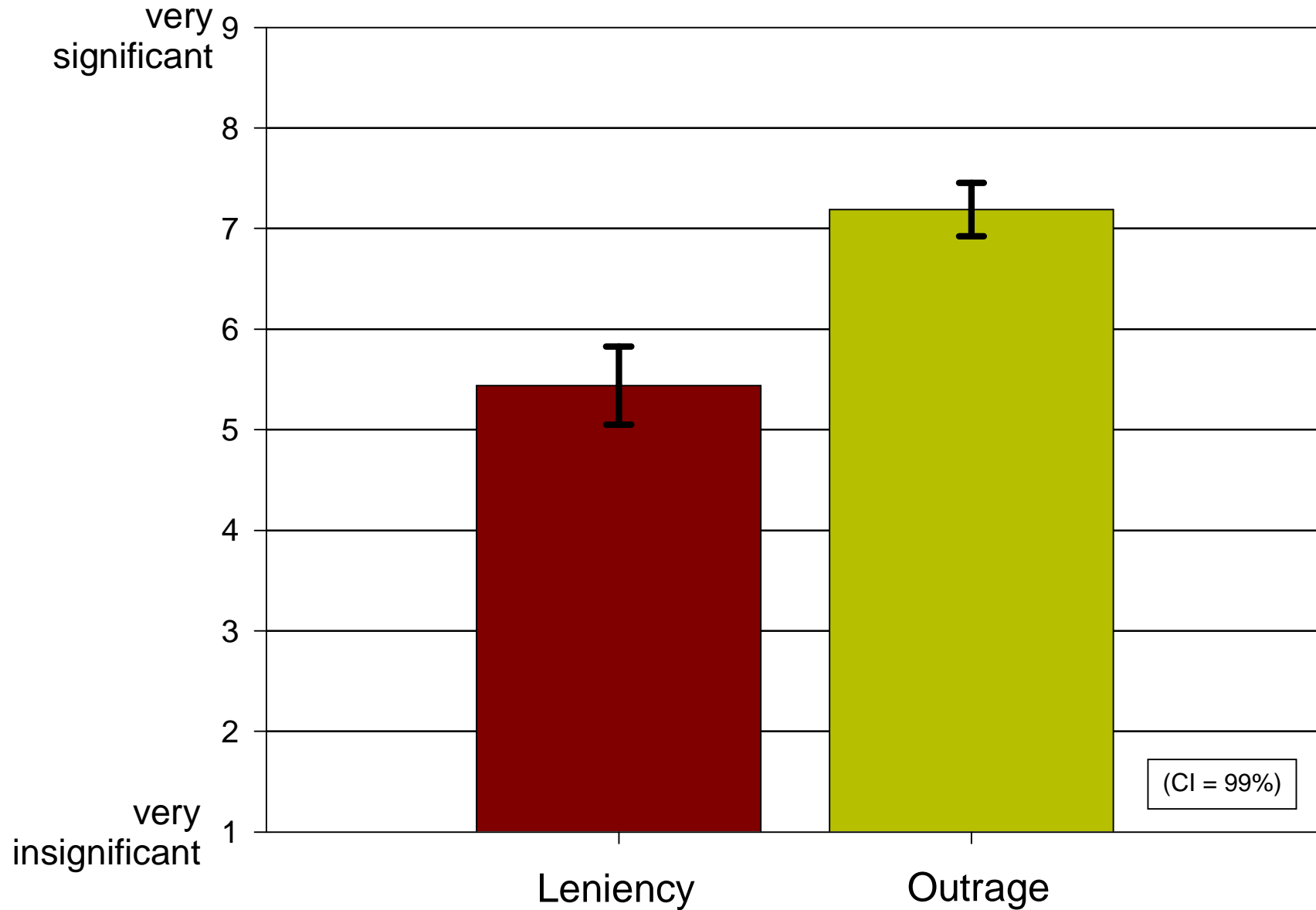
Framing of a Risk



Key elements of risk stories focus on social context, i.e. company's actions and motives:

- casting the implicated persons in particular roles
- ascribing objectives and motives (intentions)
- attributing a logic to the event (dramatization),
- describing the consequences (harm),
- and formulating a conclusion or lesson to be drawn (moral of the story)

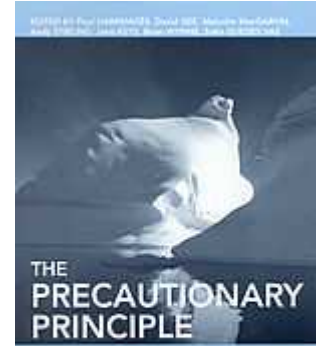
How bad are the outcomes of the risk?



Summary

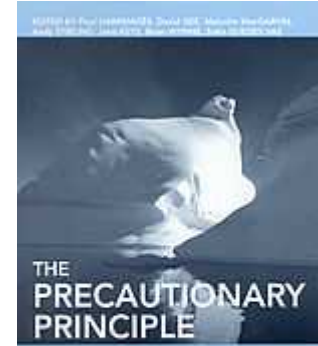


- Perceived risk = hazard + exposure
- Be aware of framing effects
- Image of social responsibility counts



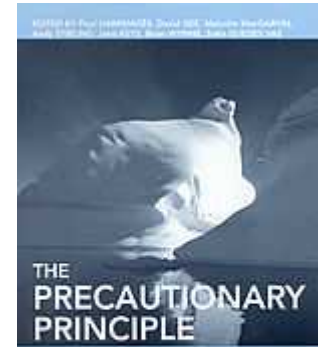
How to deal with precautionary measures?

Precautionary Principle



The precautionary principle suggests acting to prevent serious potential harm, regardless of scientific uncertainty as to the likelihood, magnitude, or causation of that harm.

Precautionary Measures



By implementing precautionary measures the policy makers hope to cope with the potential risks and with the public fears about EMF.

Various strategies are offered including

- more research
- better risk communication
- exposure minimization strategies
- stricter exposure limits

Research Questions



How do people respond to the implementation of the precautionary principle?

Do precautionary measures influence risk perception, and if so, in which direction?

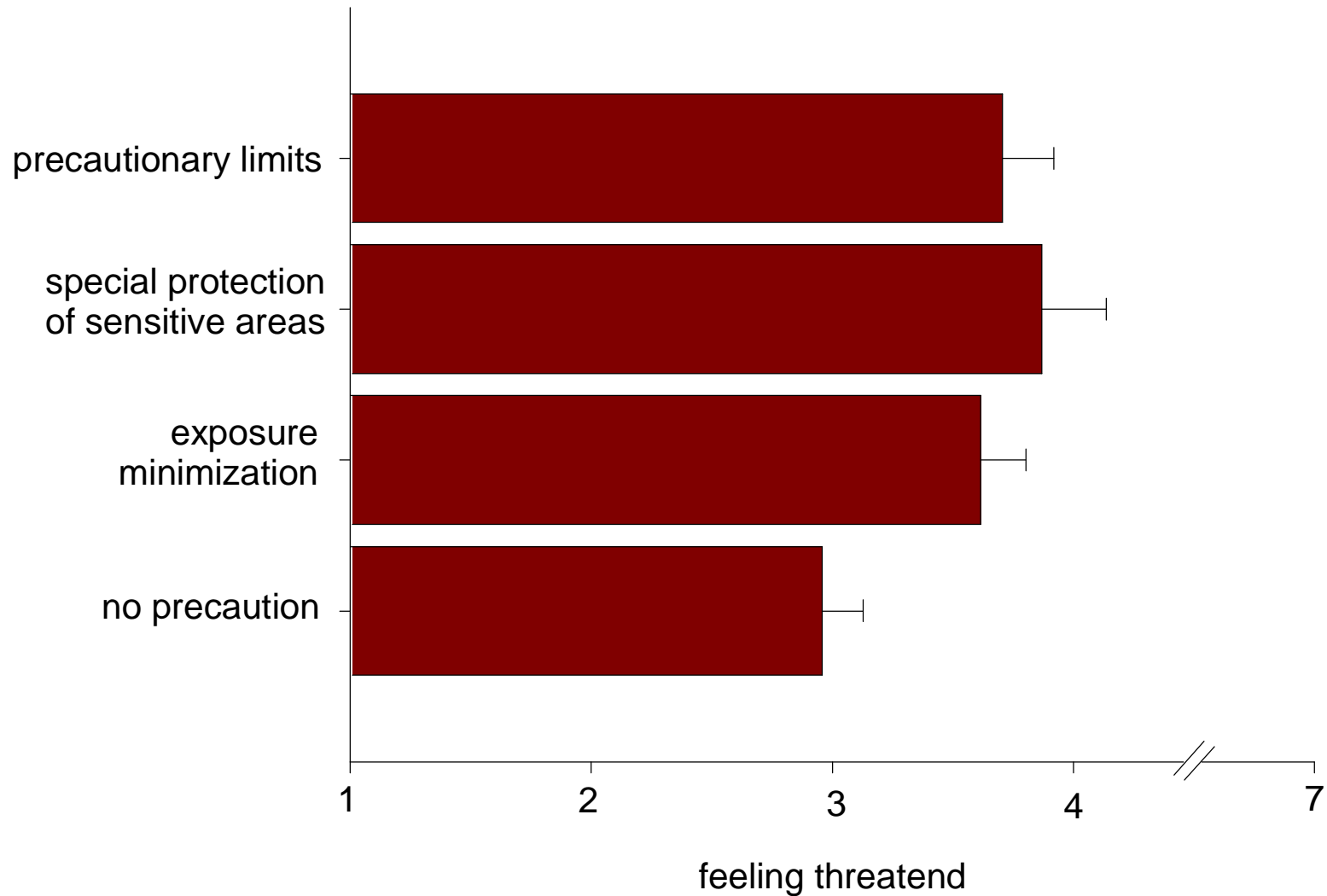
Do precautionary measures influence trust?

Does the disclosure of existing uncertainty in scientific knowledge affect risk perception, trust, and the perceived quality of the scientific knowledge?

Wiedemann & Schuetz

Environmental Health Perspectives, 2005

Impact on Risk Perception



Wiedemann & Schuetz

Environmental Health Perspectives, 2005

Summary



- In contrast to the policy makers' intentions precautionary measures trigger concerns and amplify EMF risk perception.
- Policy makers should take into account such countervailing risks.
- PM require more and better risk communication to improve the understanding of such measures.

Conclusions

Risk Communication has to overcome three hurdles

- Cognitive limitations with respect to the understanding of hazards & risks
- Tremendous impact of affective processes on risk perceptions
- Countervailing effects of risk management measures