Perception of Risks in the Chinese People: A Hong Kong Perspective

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Outline
- Research on risk perception in Hong Kong Chinese
  - Lai et al. (2003); Lai & Tao (2003)
  - Cognitive representation of environmental hazards in Hong Kong Chinese
  - Factors that determine levels of perceived risk
- A recent study on risk perception related to food safety
  - The effects of social trust and personality factors on risk perception related to food safety

My research is motivated by:
1. The growing public concern about the risk of various hazards in Hong Kong
2. A need to understand lay perception of risk
   - To facilitate the communication of real risks inherent to specific hazards to the public

Cognitive Representation of Risks
- Objectives
  - To characterize risk perception in Hong Kong Chinese using the psychometric approach
  - To identify the most fundamental dimensions along which risks are perceived and evaluated
  - To identify risk characteristics that determine perceived levels of threat

Lay judgment is not simply a response to real risk

Risk Sensitivity
Values
Real Risk
Risk Perception
Heuristics
Social Trust
Other risk characteristics

Cognitive Representation of Risks
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Development of a spatial model

- Each hazard can then be plotted on a factor-space defined by these higher-order dimensions: a hypothetical 2-factor model

![A Cognitive Map of Risks](image)

Method

- Respondents
  - 167 Hong Kong Chinese from a larger public sample (N = 229)
  - Response rate = 73%
  - Male = 48%
  - Ages range: 18 – 63 yr.; mean: 36.8 yr.
  - Education: highest level attained
    - Elementary: 6%
    - Junior high school: 16.2%
    - Senior high school: 35.3%
    - College or higher: 42.5%

- Procedure
  - Survey questionnaires were sent to participants by mail

Measures

- 25 pre-selected hazards

<table>
<thead>
<tr>
<th>Acid Rain</th>
<th>Destruction of coral</th>
<th>Floods or tidal waves</th>
<th>Manipulation of human genetic materials</th>
<th>Water shortage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of biodiversity</td>
<td>Loss of topsoil</td>
<td>Genetically modified food</td>
<td>Radioactive fallout from nuclear power plant</td>
<td>Storms</td>
</tr>
<tr>
<td>Radioactivity in building materials</td>
<td>Emergence of new species</td>
<td>Germs and microorganisms</td>
<td>Over-fishing</td>
<td>Traffic noise</td>
</tr>
<tr>
<td>Pollution from cars</td>
<td>Earthquakes</td>
<td>Indoor air quality</td>
<td>Pesticides and herbicides</td>
<td>Visual pollution</td>
</tr>
<tr>
<td>Chemical waste</td>
<td>Destruction of feng shui</td>
<td>Loss of natural landscape</td>
<td>Second-hand smoking</td>
<td>Loss of wetland</td>
</tr>
</tbody>
</table>

Assessment of perceived levels of threat

- How threatening was each of the 25 hazards to (a) the Hong Kong environment and (b) the global environment?

- Respondents indicated their answers on a 7-point scale
  - 1 no threat at all
  - 2 minimal threat
  - 3 mild threat
  - 4 moderate threat
  - 5 strong threat
  - 6 very strong threat
  - 7 extreme threat

Comparison with the Typical 2-factor Structure

- Prior studies

- Knowledge
- Dread Risk
- Catastrophe
- New/old
- Control
- Scientific Knowledge
A Cognitive Map of Risk Perception in Hong Kong Chinese

Factors determining risk perception

<table>
<thead>
<tr>
<th></th>
<th>Threat to local environment</th>
<th>Threat to global environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge &amp; Fear</td>
<td>Positive association</td>
<td>Positive association</td>
</tr>
<tr>
<td>Controllability</td>
<td>Positive association</td>
<td>No association</td>
</tr>
<tr>
<td>Sex</td>
<td>F &gt; M</td>
<td>F &gt; M</td>
</tr>
<tr>
<td>Age</td>
<td>Old &gt; Young</td>
<td>Old &gt; Young</td>
</tr>
<tr>
<td>Education</td>
<td>Low &gt; High</td>
<td>No association</td>
</tr>
</tbody>
</table>

Implications

- The most unique finding is related to the cognitive representation of risks
  - The typical Dread and Unknown Risk Factors have not been successfully replicated
  - Hong Kong Chinese perceive risks within a different cognitive space. Why?
    - Ongoing influences of traditional Chinese values and beliefs in Hong Kong

Social Trust and Optimism in risk perceptions related to food safety

- Background
  - Social trust has been found to influence both risk and benefit perception of a technology in recent research (Siegrist, 1999; Siegrist et al., 2000)
  - Higher trust predicts lower risk perception

- Personality factors such as high anxiety have been shown to accentuate risk perception (Bouyer et al., 2001)
  - Factors that potentially lower perceived risk have rarely been studied
    - Optimism, which is related to a generalized positive outcome expectancy, is expected to attenuate perceived risk via its effect on social trust

Factors Predicting Risk Perception related to Food Safety

- Knowledge
- Social Trust
- Risk Perception
- Optimism
- Demographic factors

Risk Perception

- A telephone survey administered to 1200 Hong Kong Chinese (498 men & 671 women; ages ranged from 18 to 64 yr)
  - Items tapping respondents’ perception of risk associated with
    1. Mad cow disease after eating beef in Hong Kong
    2. Food poisoning after eating vegetables having pesticide residues in Hong Kong
    3. Food poisoning after eating coral reef fish having ciguatoxin in Hong Kong
    4. Food poisoning after eating unsafe food in Hong Kong

- Items tapping social trust
  - Degree of confidence in the food control and enforcement system in Hong Kong

- Items tapping optimism
  1. How optimistic a respondent is
  2. If there are more good things than bad in the life of a respondent

- Items tapping knowledge of food safety
  - How much knowledge about food safety a respondent claims to have

Levels of Perceived Risk

<table>
<thead>
<tr>
<th>Subjective Probability</th>
<th>MC</th>
<th>PR</th>
<th>CT</th>
<th>FP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extremely Low</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Low</td>
<td>1.5</td>
<td>2.5</td>
<td>3.5</td>
<td>4</td>
</tr>
<tr>
<td>Medium</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>High</td>
<td>2.5</td>
<td>3.5</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

Demographic Factors → Risk Perception

<table>
<thead>
<tr>
<th></th>
<th>Mad Cow</th>
<th>Pesticides Residues</th>
<th>Ciguatoxin</th>
<th>Food Poisoning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>F &gt; M</td>
<td>F &gt; M</td>
<td>F &gt; M</td>
<td>F &gt; M</td>
</tr>
<tr>
<td>Education</td>
<td>No association</td>
<td>No association</td>
<td>No association</td>
<td>No association</td>
</tr>
<tr>
<td>Income</td>
<td>No association</td>
<td>No association</td>
<td>No association</td>
<td>No association</td>
</tr>
<tr>
<td>High &gt; Low</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sex difference in risk perception

- Female vs. Male
Explanations for the consistent gender difference

Women more oriented toward home and family but men more toward their working life (Gustafson, 1998)


Social Trust → Risk Perception

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<th>Pesticide Residues</th>
<th>Ciguatoxin</th>
<th>Food Poisoning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Little Knowledge</td>
<td>X</td>
<td>✓</td>
<td>X</td>
<td>✓</td>
</tr>
<tr>
<td>Much Knowledge</td>
<td>X</td>
<td>X</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

X = no association
✓ = significant association

Optimism → Social Trust

• “An optimistic person or not?”
  – More optimistic → higher level of trust
• “There are more happy and good things than unhappy and bad things in my life”
  – More optimistic → higher level of trust

Implications

• Social trust had significant impact on perceived risk of food poisoning
• Social trust is determined by optimism
• The effect of social trust on risk perception is stronger in those having more knowledge
• The attenuating effect of high social trust on perceived risk can be enhanced by
  1. Increase in optimism
  2. Increase in knowledge about risks

Conclusions

• Socio-cultural context is a very important factor determining risk perception
  – Chinese people may perceive risks along a set of unique dimensions
  – Knowledge of risks may have different effects across different cultures
  – In the context of Hong Kong, higher levels of knowledge and social trust reduce perceived risk

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