

Psychological Factors Influencing People's Reactions to Risk Information

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What This Tutorial Covers

- Reasons for understanding people's risk perceptions
- How heuristics or cognitive “rules of thumb” influence how people evaluate risk
- How risk perceptions influence people's concern about risk
- How optimistic biases influence how people react to risks

Why Do We Need to Understand How People Respond to Risks?

- To anticipate the way people will react to some risks
 - People evaluate risk using more than estimated number of fatalities.
- To facilitate communication among experts, lay people, and policy makers
 - Risk communication must be structured as a symmetrical process so that each side can contribute its viewpoints.

Heuristics

- Psychological research shows that people rely on “heuristic principles” or intuitive “rules of thumb” when assessing the probability of an event occurring (Tversky & Kahneman, 1974). These include:
 - Representativeness
 - Availability
 - Adjustment and Anchoring

Representativeness

- The degree to which “A” is representative (or similar to) “B.” When people judge “A” highly representative of “B,” they tend to give them similar attributes.
 - For example...
 - People may judge all nuclear reactors unsafe based on past problems with one reactor.
 - People may consider all government agencies untrustworthy based on past problems with one agency.
 - People may view all seafood as suspect given one particularly bad episode with shrimp.

Availability

- People assess the frequency or probability of an event by the ease with which instances or occurrences come to mind.
 - For example...
 - An outbreak of *E-coli* is covered widely in the media, causing people to think such outbreaks are common.
 - People believe shark attacks occur with great frequency along the East Coast given the media attention to a few cases.
 - People believe flying is more risky than driving because they can picture some dramatic plane crashes more easily than car crashes.

Adjustment and Anchoring

- People make estimates starting from initial values, from which they adjust to a final point. The initial value is called the “anchor.” Not everyone has the same anchor.
 - For example...
 - How at risk people consider themselves to be for contracting HIV-AIDS will influence how receptive they are to new information about the risks.
 - Similarly, how at risk people view themselves for contracting food poisoning will influence how they respond to new risk information.

Framing of Choices

- Psychological research also shows that how a choice is “framed” in terms of gains and losses influences what people choose (Tversky & Kahneman, 1981). Furthermore, people tend to be risk averse.
 - For example...
 - When deciding whether to accept a local landfill, people may either focus on the gains (e.g., host community benefits) or the losses (e.g., stigma).
 - When deciding whether to eat raw cookie dough, an individual may choose between the pleasure of eating the dough versus the risks of contracting salmonella poisoning.

Question to Consider

- Why is it important for risk communicators to consider heuristics?
 - If psychological research shows that when people have complete information, they still are susceptible to cognitive biases, what happens when people have to make choices based on incomplete or uncertain information (a greater likelihood)?
 - Quite a challenge for risk communicators!

Mapping Risk Perceptions

- Psychological studies demonstrate that risk perceptions have multiple dimensions that fall into two primary factors (Slovic, 1987):
 - Unknown Factor
 - Dread Factor

Unknown Factor

- On the Unknown Factor, people evaluate risk depending upon whether the risk is:
 - Observable/Unobservable
 - Known to those exposed/Unknown
 - Effect Immediate/Delayed
 - Risks known to science/Unknown
- People are typically less concerned about risks that are observable, known to those exposed, have immediate effects, and are known to science.

Dread Factor

- For the Dread Factor, people assess risk according to whether they judge the risk:
 - Controllable/Uncontrollable
 - Think calmly about/Dread
 - Not globally catastrophic/Globally catastrophic
 - Equitable/Not equitable
 - Not individually Catastrophic/Individually catastrophic
 - Low risk to future generations/High risk to future generations
 - Exposure easily reduced/Exposure difficult to reduce
 - Risks are decreasing/Risks are increasing
 - Voluntary exposure/Involuntary exposure
- Again, people tend to be less concerned about risks that are controllable, not dreadful, not globally catastrophic, equitable, not individually catastrophic, pose low risks to future generations, easily reduced in terms of exposure, decreasing, and voluntary in nature.

Question to Consider

- Why is it important to understand risk perceptions?
 - Understanding how people evaluate risk may help risk communicators predict how concerned people may be about a risk.
 - Under some circumstances, risk communicators may be able to lessen unnecessary concern by emphasizing certain actions that people can take, for example, to reduce or control their exposure to a risk.

Optimistic Biases

- When asked to rate their chances of being harmed *or* experiencing a positive event, people tend to rate their chances as above or below average.
 - They believe that negative things are more likely to happen to other people and positive things are more likely to happen to them.
- At times, it is valid to believe that you are more or less likely to be exposed to an event.
 - If these beliefs were not biased, in a representative sample, claims of being *below* average risk, for instance, would be balanced by claims of being *above* average risk.
 - *Research shows that people systematically view themselves at below average risk, however.*
- This is called *unrealistic optimism* (Weinstein, 1989).

Why Do Optimistic Biases Occur?

- People compare themselves to an incorrect norm. (*Remember representativeness?*)
 - People tend to have stereotypes in mind when they think about who is usually at risk from something. If they do not fit this stereotype, then they will downplay the likelihood of the event happening to them.
 - For example...
 - People may think that only people who eat raw oysters from the street vendor may be susceptible to food poisoning.

Why Do Optimistic Biases Occur, cont'd.

- People interpret risk information in a self-serving manner
 - For example...
 - People who have never tested their homes for radon poisoning tend to view themselves at less risk than others.
 - People who get flu shots tend to think it is more likely to make a difference in their health than in other people's health.
 - People think that signs of an event happen early, and if they haven't seen any signs, it isn't going to happen.

Why Do Optimistic Biases Occur, cont'd.

- People employ “ego-defensive” mechanisms to downplay their risks
 - For example...
 - People who are engaging in risky behavior or are exposed to risks will downplay their risks and give reasons to justify their behaviors, which are often ineffective precautions.
 - “I ordered my hamburger medium rare, not rare.”

Why Do Optimistic Biases Occur, cont'd.

- People believe they have more control over a situation than they really do
 - For example...
 - People who are driving perceive their risks of being in a car accident as much less likely than people who are in the passenger's seat.
 - People who are preparing the food may perceive their risks of contracting food poisoning as much less than people who are not preparing the food.

What Limits Unrealistic Optimism?

- When we compare our chances of being exposed to a risk to someone else's chances, the more like us that someone else is, the less we have unrealistic optimism.
- When people perceive a lack of control over their exposure to risk, or they view their exposure as less voluntary, unrealistic optimism decreases.
- Amount of information people are exposed to about a risk, and how salient or *meaningful* that information is to them personally can influence optimistic biases.
- Personal exposure to a risk can reduce unrealistic optimism.

Question to Consider

- Why is it important for risk communicators to consider unrealistic optimism?
 - Unrealistic optimism may hinder efforts to promote risk decreasing behavior.
 - *People do not think they are at risk or that the risks pose much danger to their health and safety.*

References

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