



Damage and destruction inflicted by a 2012 hurricane in the United States. According to the writers, dramatic and unusual events in the news lead people to overestimate the likelihood of those events occurring again. PHOTO: REUTERS

ScienceTalk

Securing a better understanding of risk

Insights into how people perceive risk can aid decision-making about an uncertain future

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A mounting body of evidence in psychology and behavioural economics shows that people find it difficult to weigh evidence objectively when making decisions about an uncertain future.

Research on risk perceptions has drawn attention to the mental shortcuts or “heuristics” which lead people to overestimate certain types of risk while disregarding others which may pose a greater threat to their health and safety.

LUCKY ME?

One of these heuristics is “optimism bias” – the tendency for people to perceive themselves as luckier than others.

Experiments in different cultures and across age groups show that people consistently rate the chances of negative events such as falling sick or getting into an accident as lower than the actual average for the population, and they retain these beliefs even when they are given information directly about average risks.

Although optimism may be desirable in many circumstances, this body of research shows that it can lead people to make poor choices when it comes to lifestyle or financial decisions.

Interestingly, optimism bias is also found among experts.

For example, doctors and nurses in many countries have low rates of flu vaccination. Information campaigns to highlight the risks to health workers and patients and to inform workers about how to get the vaccination have had limited success.

Studies have shown that while these health professionals may have an accurate sense of risks to the population as a whole, they perceive themselves as being less likely to fall sick.

The optimism bias also carries over into the way people think about themselves in the future.

People persistently expect their future selves to take different and better decisions than they do currently. This applies to decisions about exercising or saving more, for instance, even if they are aware how difficult it is to change these behaviour patterns.

IT'S ALL DOWNHILL FROM HERE – OR IS IT?

A second source of poor decisions about the future comes from “availability bias”. This refers to the tendency to rely on examples that come immediately to mind when evaluating a risk.

Dramatic and unusual events in the news lead people to overestimate the likelihood of those events occurring again.

This tendency is reinforced by traditional and social media which reports intensively on current issues of concern, resulting in an “availability cascade” in which more and more anecdotal evidence comes to the fore about a risk, fuelling public fears.

This can happen even when the original trigger is subsequently shown to be of doubtful validity.

The human papillomavirus (HPV) vaccination debate in Japan is a striking example of this.

In 2016, a Japanese researcher claimed to have shown a link between the vaccine and brain damage in mice.

His purported finding was questioned by other scientists and was not subsequently substantiated, but it has nonetheless dominated public discourse on the vaccine, and contributed to a fall in vaccination rates to just 1 per cent in Japan.

Media coverage may also have affected risk perceptions in other countries, and this is the subject of ongoing research by academics at the National University of Singapore.

The availability bias can also lead to the underestimation of risks when media attention switches to a new issue. This can happen surprisingly quickly after a dramatic event.

Studies on flood risk insurance, for example, show that while purchases of insurance jump in the aftermath of a devastating flood, just three years later, purchases fall back to their pre-disaster levels.

For scientists trying to convey the risks of climate change, availability bias is a double-edged sword.

In one sense, a dramatic storm or wildfire provides an opportunity to raise awareness and emotional engagement with climate change risks, which often seem too distant in both space and time to trigger feelings of risk.

On the other hand, many scientists feel a professional responsibility to report carefully on the sources and levels of uncertainty in climate science and are reluctant to claim that any particular weather event is the result of global climate change.

Yet, the acknowledgement of this uncertainty is sometimes taken by sceptics as an adequate justification to reject all mainstream climate science.

MISGUIDED PERCEPTIONS, MUDDLED POLICIES

Biased perceptions of risk can feed through into poor public policies, when governments direct public funds to assuaging a passing surge in public anxiety about a particular safety issue, or devote resources to countering misinformation.

Inversely, decision-makers may under-invest in projects to address major long-term risks which have not captured the attention of the public.

Social media scanning and global survey data can be used by governments to identify issues in which

there is growing divergence between the risk perceptions of the public and experts, and to gain insight into the drivers of risk perceptions across localities.

Systematic research is also needed to design and evaluate policy interventions to close these gaps.

With better understanding of

risks, society as a whole will be able to use resources rationally to build a safer world.

• The Lloyd's Register Foundation Institute for the Public Understanding of Risk has been established at the National University of Singapore to close the gap between perceived and actual risks,

and to help people make better decisions when faced with uncertainty.

• Dr Olivia Jensen (environment and climate) and Assistant Professor Reuben Ng (data and technology) are lead scientists at the institute. Professor Koh Chan Ghee is the institute's director.

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