

How cognitive biases influence preparedness.

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⌘ Funding GNS Science

Legislated vs voluntary actions

⌘ We have legislation e.g., building regulations

☑ This provides only partial protection

⌘ Also need voluntary actions

☑ Mitigation & survival

⌘ But people often don't act.

☑ Why not?

⌘ How can we increase preparedness?

Four strands (Paton & Johnston)

- ⌘ Risk perception (& Communication)
- ⌘ Belief that can/can't counter the risk
 - ⌘ (i.e. efficacy vs fatalism)
- ⌘ Getting from good intentions to action
- ⌘ Motivation
- ⌘ Our research focuses on the first two
- ⌘ Earthquake e.g.s, but concepts are universal

Fatalism about natural disasters

⌘ Earthquakes are hugely powerful, with devastating outcomes

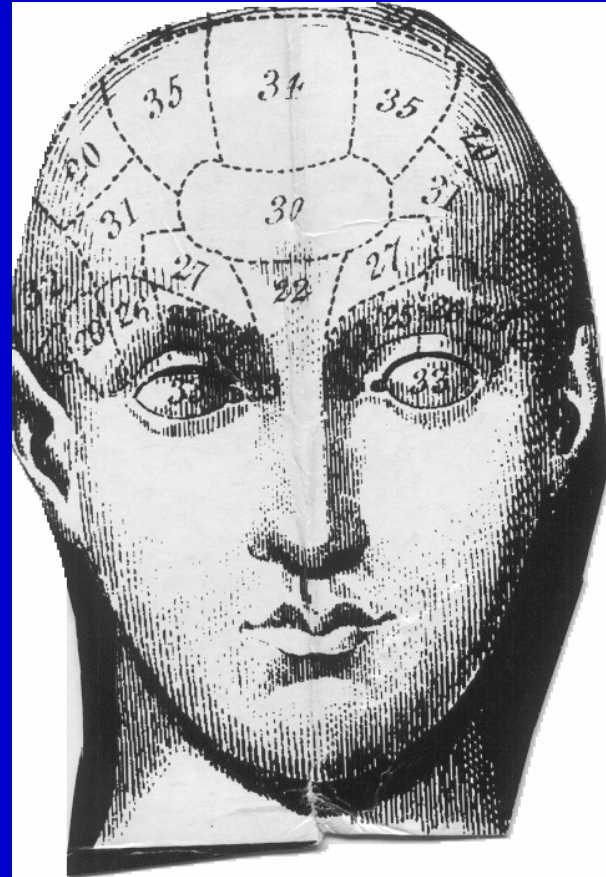
☑ Napier 1931

⌘ People think: What can you do? Our efforts are puny - fatalism



Fatalism about earthquake damage 2

- ⌘ What explains difference between Loma Prieta (68 dead) and Iran (5,000)?
 - ☑ Not earthquake magnitude
 - ☑ Preparedness—building design
- ⌘ People don't distinguish the earthquake from other causes that lead to outcomes - fatalism



Countering fatalism:

1 Present contrasting outcomes

⌘ News media present widespread damage

⌘ We need to focus on distinctive damage

☒ e.g. In Kobe, one motorway collapsed whereas the rest stayed up. What was the cause of the motorway collapsing?

☒ People think: The building design (and the quake)

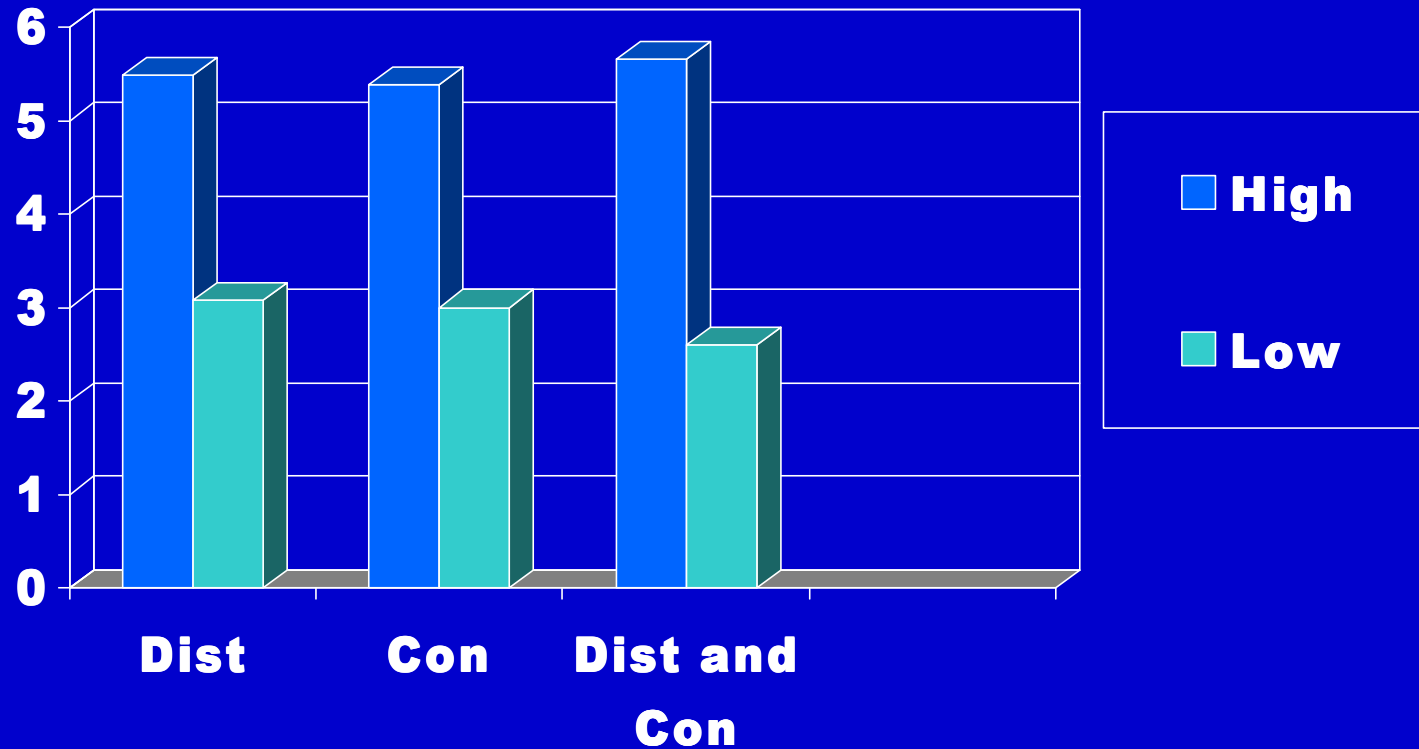
☒ People see distinctive damage as preventable

☒ They attribute damage to the building design

☒ (McClure, Allen & Walkey, 2001)

Vary distinctiveness & consistency of damage

- How preventable is the damage?



Countering fatalism: What a difference a year makes

⌘ News reports on Kobe

⌘ Straight after earthquake: Kobe devastated!

☒ At the anniversary: Lessons from Kobe

☒ People reading anniversary reports less fatalistic – think damage could have been prevented, etc

☒ (Cowan McClure & Wilson. 2002)

☒ Use this type of information

Countering fatalism

Rates of damage vs dramatic instances

⌘ Present Engineers/reporters' statements:

☑ Most buildings that collapsed had a faulty design

☒ accurate, rate based, engineers

☑ Many buildings that collapsed had a good design

☒ inaccurate, instance based, reporters

⌘ With accurate rate-based accounts, people attribute damage more to building design

☑ (Mcclure, Sutton & Sibley, JASP, in press)

Countering fatalism

⌘ Focus on specific actions

- ☑ Can we prepare for earthquakes? People say 'No'
- ☑ Is there anything we can do to help people in this old people's home? They think "yes".

⌘ Small actions can make a big difference

- ☑ Best predictor of business survival Loma Prieta 89?
- ☑ Computer locks - Cost \$18.00 each

Biases in risk perception:

1. Unrealistic optimism: Self-other bias

- ⌘ It will happen to the other guy, not to me
- ⌘ I'll be helping to clean up
- ⌘ We think we are better prepared than others, and more likely to survive
- ⌘ Has been shown in Wellington
 - ⌘ (Spittal, McClure, Walkey, Siegert, 2005)
- ⌘ How counter this?
 - ⌘ Tell people what actions others have taken

Biases in risk perception:

2. Low frequency events 1

⌘ People are not casual about all risks

☒ Less action on low frequency hazards

⌘ Previous research (Slovic)

☒ People see low frequency events as “never happening”, or at least, not in their lifetime

☒ High and low frequency events often have confounds e.g., different cost structures.

⌘ What happens when we equalise the annual insurance cost of high and low frequency events?

☒ McClure & Sibley, 2004 (& GNS)

Low frequency events 2

- ⌘ Read a vignette
- ⌘ “Imagine you have moved to a town where an earthquake (or flood) was estimated by the local insurance company to occur at one of four frequencies”:
 - ☑ every year, or 4 years, 16 years, or 64 years).
- ⌘ Each person gets only one scenario
- ⌘ Study 1 with students , Study 2 with general public

Low frequency events 3

- ⌘ Insurance company estimates of the damage per annum to the average household is held constant at \$100.
- ⌘ e.g., Where a disaster is estimated to occur once a year, the company estimated damage to the average household at \$100, so for 1 year, = \$100 per year,
- ⌘ When the event is estimated to occur once every 16 yrs, estimated damage to each household is \$1600. i.e. \$100 per yr

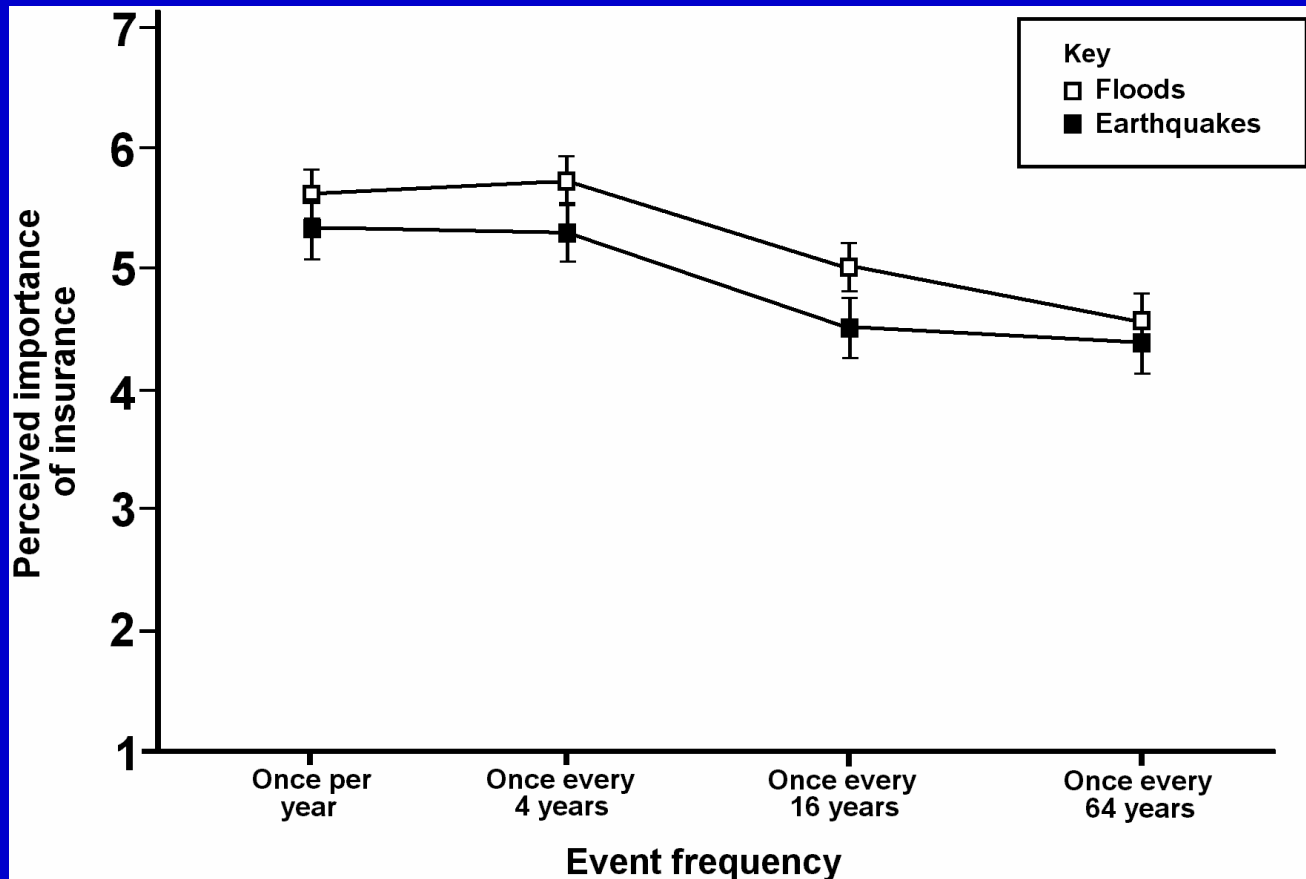
Low frequency events 4; measures

⌘ e.g. How important would it be for you to take out insurance for [earthquakes, floods] in this situation?

☑ A std measure of perceived importance / risk

⌘ 4 items - correlated ($\alpha = .87$, $M = 5.06$).

Low Freq. 5: Effects of event frequency on importance of insurance; $p < .001$



Low frequency events 6: Implications

- ⌘ People see low frequency risks as less important, even if the annual insurance cost is the same as high frequency risks.
- ⌘ People lock the car but don't fasten the computer to desk.
- ⌘ We need to counter this bias.

Positive and negative framing 1: Focus on the action or the outcome

- ⌘ Is it best to frame warning in negative terms or positive?
- ⌘ The usual framing design (translated into quakes):
- ⌘ If you are well prepared for an earthquake you are more likely to survive the event unharmed.
 - ⌘ (High preparation, positive outcome)
- ⌘ If you are poorly prepared for an earthquake you are more likely to experience harm in the event.
 - ⌘ (Low preparation, negative outcome)
- ⌘ This confounds positivity of the action and the outcome
 - ⌘ White, McClure, & Sibley 2007

Framing 2: Separate action and outcome

⌘ Two new conditions

⌘ If you are poorly prepared for a major earthquake you are less likely to survive the event in good shape

☒ (Low preparation, positive outcome)

⌘ If you are well prepared for a major earthquake you are less likely to experience harm in the event.

☒ (High preparation, negative outcome)

Framing 3:

Measures of importance of preparation

⌘ General preparation:

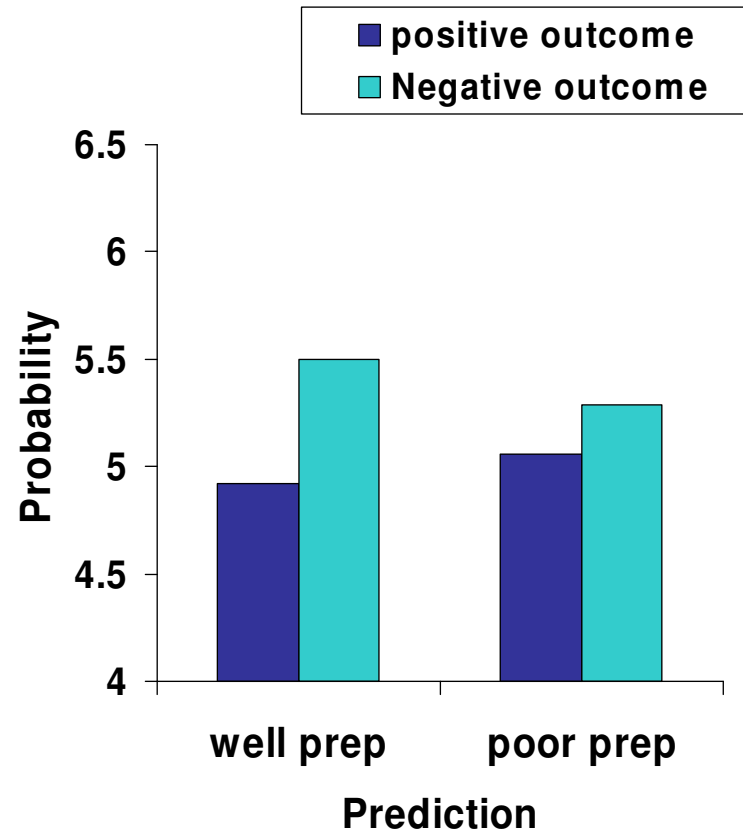
- ☑ How important do you think it is to be well prepared for a major earthquake

⌘ Specific preparations (5 items):

⌘ I believe that it is important that I personally:

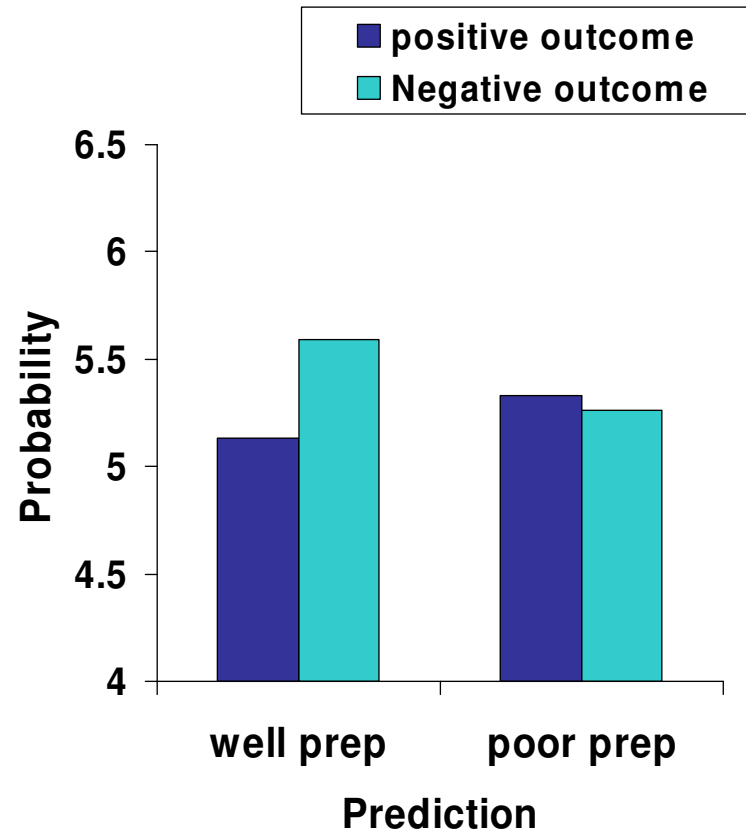
- ☑ Ensure that heavy objects are stored on the floor
- ☑ Store water for survival

On general preparation, outcome frame is significant (not the action)



Specific preparations [e.g. first aid kit]

Interaction of outcome & action frames



Framing 6: Implications

- ⌘ Negative framing of the outcome (i.e. harm) helps people see the importance of preparation
- ⌘ Framing of action affects judgments about specific actions

Summary

- ⌘ Enhance efficacy, reduce fatalism
- ⌘ Aim for more realistic judgments of risk
- ⌘ Counter bias against low frequency events
- ⌘ Framing risk: focus on negative outcome
- ⌘ But don't forget motivation, incentives