

10 Ways We Get the Odds Wrong (Adapted)

By Maia Szalavitz, published on January 01, 2008

The human brain is exquisitely adapted to respond to risk—uncertainty about the outcome of actions. Faced with a precipice or a predator, the brain is biased to make certain decisions. Our biases reflect the choices that kept our ancestors alive. But we have yet to evolve similarly effective responses to statistics, media coverage, and fear-mongering politicians. For most of human existence, 24-hour news channels didn't exist, so we don't have cognitive shortcuts to deal with novel uncertainties.

Still, uncertainty unbalances us, pitching us into anxiety and producing an array of cognitive distortions. Even minor dilemmas like deciding whether to get a cell phone (brain cancer vs. dying on the road because you can't call for help?) can be intolerable for some people. And though emotions are themselves critical to making rational decisions, they were designed for a world in which dangers took the form of predators, not pollutants. Our emotions push us to make snap judgments that once were sensible—but may not be anymore.

I. We Fear Snakes, Not Cars

Risk and emotion are inseparable.

Fear feels like anything but a cool and detached computation of the odds. But that's precisely what it is, a lightning-fast risk assessment performed by your reptilian brain, which is ever on the lookout for danger. The amygdala flags perceptions, sends out an alarm message, and—before you have a chance to think—your system gets flooded with adrenaline. "This is the way our ancestors evaluated risk before we had statistics," says Paul Slovic, president of Decision Research. Emotions are decision-making shortcuts.

As a result of these evolved emotional algorithms, ancient threats like spiders and snakes cause fear out of proportion to the real danger they pose, while experiences that should frighten us—like fast driving—don't. Dangers like speedy motorized vehicles are newcomers on the landscape of life. The instinctive response to being approached rapidly is to freeze. In the ancestral environment, this reduced a predator's ability to see you—but that doesn't help when what's speeding toward you is a car.

II. We Fear Spectacular, Unlikely Events

Fear skews risk analysis in predictable ways.

Fear hits primitive brain areas to produce reflexive reactions before the situation is even consciously perceived. Because fear strengthens memory, catastrophes such as earthquakes, plane crashes, and terrorist incidents completely capture our attention. As a result, we overestimate the odds of dreadful but infrequent events and underestimate how risky ordinary events are. The drama and excitement of improbable events make them appear to be more common. The effect is amplified by the fact that media tend to cover what's dramatic and exciting, Slovic notes. The more we see something, the more common we think it is, even if we are watching the same footage over and over.

After 9/11, 1.4 million people changed their holiday travel plans to avoid flying. The vast majority chose to drive instead. But driving is far more dangerous than flying, and the decision to switch caused roughly 1,000 additional auto fatalities, according to two separate analyses comparing traffic patterns in late 2001 to those the year before. In other words, 1,000 people who chose to drive wouldn't have died had they flown instead.

III. We Fear Cancer But Not Heart Disease

We underestimate threats that creep up on us.

Humans are ill-prepared to deal with risks that don't produce immediate negative consequences, like eating a cupcake or smoking cigarettes. As a result, we are less frightened of heart disease than we should be. Heart disease is the end result of actions that one at a time (one cigarette or one french fry) aren't especially dangerous. But repeated over the years, those actions have deadly consequences. "Things that build up slowly are very hard for us to see," says Kimberly Thompson, a professor of risk analysis at the Harvard School of Public Health. Obesity and global warming are in that category. "We focus on the short-term even if we know the long-term risk."

IX. We Love Sunlight But Fear Nuclear Power

Why "natural" risks are easier to accept.

The word radiation stirs thoughts of nuclear power, X-rays, and danger, so we shudder at the thought of erecting nuclear power plants in our neighborhoods. But every day we're bathed in radiation that has killed many more people than nuclear reactors: sunlight. It's hard for us to grasp the danger because sunlight feels so familiar and natural.

Our built-in bias for the natural led a California town to choose a toxic poison made from chrysanthemums over a milder artificial chemical to fight mosquitoes: People felt more comfortable with a plant-based product. We see what's "natural" as safe—and regard the new and "unnatural" as frightening.

Any sort of novelty—including new and unpronounceable chemicals—evokes a low-level stress response, says Bruce Perry, a child psychiatrist at Child Trauma Academy. When a case report suggested that lavender and tea-tree oil products caused abnormal breast development in boys, the media shrugged and activists were silent. If these had been artificial chemicals, there likely would have been calls for a ban, but because they are natural plant products, no outrage resulted. "Nature has a good reputation," says Slovic. "We think of natural as benign and safe. But malaria's natural and so are deadly mushrooms."

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