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Opinion

Despite 50 Years of Knowledge of Actual Versus Perceived Risk, Public Fear Persists of Contaminated Foods

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Irrational overreactions to the food we eat are commonplace these days, despite food scientists' and regulators' best efforts at communicating actual risk associated with consuming foods to be significantly low. This is because we can detect toxins in foods to the parts per billion, which has advanced significantly since we were only able to detect to contaminants to the parts per million. Despite the infinitesimally small risk still associated with food production and consumption, consumers still fear adulteration of the foods they eat.

This is largely because consumers are painfully inept at processing numbers. Despite the base-rate statistics of the actual risk of contamination, consumers systematically attribute much higher risk than is actually the case. In the case of food-related risks, perception is often far greater than the reality of the risk. This incongruence can be attributed to the disproportionate media coverage of certain risks over others. Stories that are scandalous, sexy and attention-grabbing receive far more airtime in the media. No example in modern reporting of food safety showcases this better than the infamous Dioxin Affair.

In the spring on 1999 in Belgium, the dioxin, polychlorinated biphenyls (PCB) was detected in animal food products--mainly eggs and chickens. Dioxin refers to a large group of toxic chemicals, including PCBs and polychlorinated dibenzofurans (PCDFs). Dioxins are by-products of industrial processes and are particularly dangerous because of their ability to accumulate in the fatty tissue of animals. Prolonged exposure, even at very low doses, can damage the immune, hormonal and reproductive systems, and can lead to cancer. Human exposure to dioxins mainly occur through food, and specifically through meat, fish and dairy products.¹

Our bodies, and the food we consume are made up of chemical compounds. The chemical compounds which contribute to fats and proteins in food are mostly beneficial to human health.² Some synthetic chemicals can be harmful, however, and those that find their way up the food chain, like dioxin, fall into that category.

The Dioxin Affair was not simply identifying and containing the alleged harm to human health posed from toxins in what was later found to be mainly in animal feed; rather, the perceived food safety risk turned into an all-out political and social crisis. It resulted in the resignation of both of Belgium's Ministers of Health and Agriculture. The perceived ineptitude of the government to protect the public from food risk also resulted a historic loss for the incumbent governing party in Belgium.

Belgian farms suffered critically from the cost of lost operations. Potentially contaminated products were banned from markets and export bans were put in place. Approximately 70 million chickens and 50 thousand pigs were slaughtered in the process of attempting to contain the contamination. All of this would prove futile upon completion of the investigation, which found that there was never a serious threat to human health because the contaminated material was largely diluted during the production of animal feed.

In the rare circumstance that food is found to be contaminated, even when the contamination is ultimately found to be non-threatening, the media picks up on the story and propagates it through various channels and outlets. Developed by Kasperson et al. The social amplification of risk framework (SARF)² provides a conceptual charter for describing this phenomenon. Risks are amplified or attenuated through the media through "social am-

plification stations,” which can range from individuals to the news media. Amplification happens in two stages: in the initial transfer of information about the risk, and in the response mechanisms in society.

Social amplification of a risk story, like dioxin in eggs, results in easy cognitive retrieval of the risk. As scandals reverberate through the media and through our social networks, they are easily retrieved upon recall—potentially coloring our views and assessments on new information and new risks. Hearing about a new, similar-sounding story can very well result in retrieval of the most salient example imbedded in our brains, even if much of the contextual details are dissimilar or wholly unique. From that biased foundation, humans then make judgments about the new story without fully processing the new information. This explains not just the public reaction to food scares regardless of their nature (e.g., food fraud, foodborne illnesses), but also reaction to risks in other sectors such as pharmaceuticals. For example, it’s been found that drug recalls result in decreased prescription refills—an affect even observed across totally different drug classes from that of the recall.³

There are inherent biases contributing to public perceptions of risk around food scares and drug recalls. The primary heuristic of note is what Nobel Prize-winning researchers Amos Tversky and Daniel Kahneman described as the “availability bias,” or a rule of thumb in which consumers “*assess the frequency of a class or the probability of an event by the ease with which instances or occurrences can be brought to mind.*”⁴

This type of bias may appear to be cognitively disadvantageous; however, the ability to remember or imagine common events over uncommon events has been essential to human evolution and progress. The issue arises when the lay public is asked to assess probability and frequency, which salience based on social amplifications can and does often skew.

Researchers have known for almost half a century now that human assessment of risk frequency and probability often depends on how easily it can be conjured in the mind. The SARF has robustly showcased how media and social media networks

propagate news of scandals like dioxins in eggs, creating echo chambers—where information accepted to be true is continuously reinforced.² Depending on the networks to which a consumer belongs, their chosen information will become more salient, easier to retrieve, and destined to influence future judgments particularly around the risk of contaminated food.

Risks will continue to be perceived where they do not exist or are immeasurably low, and demands will be made for reducing or removing inconsequential risks altogether. Despite the knowledge of how humans cognitively process risk information, society continues to fear the food they eat. Human brains may not have evolved fast enough to catch up to the modern-day risk landscape, or in actuality how well regulated it is, and so the continued public fear and pushback stems from the inability to close the discrepancy between real and perceived risk. Despite keen knowledge on the science of communication, application of science communication to communicating science is still in its early days. Once widespread effective science communication is in place, perhaps the gap between the base-rate statistics of food contamination and it’s perceived rates will begin to narrow.

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Opinion

How to Make Your New Year's Resolutions Work?

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There's something about the holidays that make us take stock of where we are. You probably start thinking about those annual resolutions before the New Year arrives.

"I'm going to lose weight."

"I'm going to exercise more."

"I'm going to spend more time with my family."

All great goals! And probably ones you make year after year. Sadly, New Year's resolutions are notorious for being left by the wayside rather quickly. About 77% of people who make New Year's resolutions break them within a few weeks. Even with that statistic, making resolutions is actually a good thing. The key is making them in a way that sets you up for success! You can make your New Year's resolutions before the New Year arrives, or even soon after the first of the year. There is nothing magical about making those decisions or starting on January 1st.

You're at Your Most Insightful Around the Holidays

With the year coming to an end, it's natural to look back at the year. We start to think ahead to the coming year and what we'd like to accomplish. Seeing where you've been and where you want to go gives you clarity. You can envision what it is that you want without the pressure that comes with making a resolution on exactly January 1st.

Give Yourself Time to Plan

There's an old saying, "*Failing to plan is planning to fail.*" Would it surprise you to know that most people abandon their resolutions by mid-January? Why is that? Resolutions are usually broad and lofty ideas. There is not really a plan to achieve them. Sometimes, we don't even really know what the goal is. "I want to lose weight" – what does that mean? What are you going to do to get there? How will you know if you achieved your goal? The number one

reason why resolutions fail is that there is no plan. There's just the idea. Motivation wanes quickly and people simply stop.

You Avoid the Pressure of January 1st

Have you ever set a resolution and when January 1st arrives, you have no idea how to get started so you just don't? You're not alone. New Year's resolutions in particular tend to be grand and lofty and lacking in specifics. There is so much pressure to start on January 1st that it can literally stop you before you even start. So, why not pick another date that works for you? Why not before or after the celebrations? There is no right or wrong time to make a change. Having a workable plan can be a huge confidence booster!

You Give Yourself the Chance to Try Again

You know the saying, "*Every day is a chance to start over?*" It's so true with goals we set. We are not perfect. Some days we excel. Other days, we miss the mark. It's ok. Our goals are not absolutes. Resolutions can feel like it is "all or nothing", "win or lose", "pass or fail". Why not do something different? Why not give yourself permission to chase your dreams and goals every day? When you give yourself the gift of choosing, you give yourself control of your destiny and not the date on a calendar.

Here are some tips for getting a jump start on those 2020 goals:

- Spend some time reflecting on your year. What did you accomplish? What do you want for 2020?
- Take some time and write down a couple of things you might want to achieve in 2020.
- If you're having trouble narrowing it down, spend some time journaling and exploring what is most important for you.
- Set one or two small, achievable goals to start with
- Identify the small steps you will need to take
- Write your plan down and put it where you'll see it. The act

of writing your plan down increases your chances of success. (Research backs this up!)

- Set dates to check in with yourself to see how you're doing
- You can start when you are ready
- Commit to making one small change each day that moves you closer to your goal
- You may use January 1st as a check-in date instead of the start date
- Seek out someone to be your support and someone you can be accountable to.

With a little planning, you can step into 2020 strong and

moving confidently towards your goals.

FURTHER READING

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