

Translation Matters in Choices on Data

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If your doctor tells you that highly reliable studies have shown that taking a certain pill will cut your risk of getting a serious disease in half, would you take it?

Suppose he adds that the risk is 2 percent for people who do not take the pill, but your risk will be reduced to 1 percent if you do. Would you still take it? And what would you do if he told you that only one of every 100 patients who take the drug will actually benefit from it?

The doctor could have said any of these things, all truthfully, because they are just different ways of describing the same data.

In a review of studies published in The Cochrane Library, researchers found that both doctors and patients are largely unaware of these different and equally accurate ways of presenting the same information, and that the format in which data is presented can have a profound influence on health care decisions.

In the first example above, the doctor cited the relative risk reduction — an impressive-sounding 50 percent. In the second, he described the absolute risk reduction, only 1 percent. And in the last, in which he mentioned what appears to be the futility of taking the pill at all, he was reporting the number needed to treat: one case of the disease prevented for every 100 people treated.

The researchers, led by Dr. Elie A. Akl, an associate professor of medicine at the University at Buffalo, part of the State University of New York system, analyzed 35 studies that used hypothetical examples like the one above, and recorded the responses to statistics presented in different formats.

Some of the studies tested persuasiveness — the willingness of a patient to start a treatment, or that of a doctor to prescribe it. Others examined ability to understand — for example, by presenting data and seeing if the subject could accurately estimate the probability of getting the disease.

And some looked at perception, by offering statistics in various formats and having people rate how effective they believed the treatment to be.

The researchers tested health professionals, patients, students and the general public. Perhaps surprisingly, there were no significant differences among them in the accuracy with which they interpreted the various statistical presentations.

Both patients and doctors viewed a treatment as more effective when presented with its relative risk reduction rather than its absolute risk reduction.

Apparently, to health professionals and laymen alike, a 50 percent risk reduction sounds much bigger than a reduction from 2 percent to 1 percent, even though they are identical. When statistics were presented as number needed to treat — 100 people treated to prevent one case of the disease — they were least persuasive of all.

Dr. Akl believes that doctors need to be careful in reporting statistics to patients because how doctors describe the numbers affects decisions.

“Based on what we know,” he said, “the best thing is to present both sides of the story: If you don’t take the medication, your risk is 2 percent, and if you do take it your risk will be 1 percent. This is the most transparent way to present it.”

Still, he added, it depends on the patient. Some like to hear the numbers, while for others numbers only increase anxiety without increasing understanding.

“It’s good to know your patient and know how much they expect,” he said.

Dr. Akl had a warning for health writers and reporters as well, and, at least implicitly, for those who read them.

“Journalists have to be careful about press releases with ‘new’ or ‘groundbreaking’ studies presented with relative risk reductions,” he said. “For example, a study might claim a risk reduction of 50 percent. If the risk goes from 20 percent to 10 percent, that’s impressive. If it goes from 4 percent to 2 percent, it’s not. And both of them are 50 percent reductions.”