

## Poorly presented risk statistics could misinform health decisions

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Choosing the appropriate way to present risk statistics is key to helping people make well-informed decisions. A new Cochrane Systematic Review found that health professionals and consumers may change their perceptions when the same risks and risk reductions are presented using alternative statistical formats.

Risk statistics can be used persuasively to present health interventions in different lights. The different ways of expressing risk can prove confusing and there has been much debate about how to improve the communication of <u>health statistics</u>.

For example, you could read that a drug cuts the risk of hip fracture over a three year period by 50%. At first sight, this would seem like an incredible breakthrough. In fact, what it might equally mean is that without taking the drug 1% of people have fractures, and with the drug only 0.5% do. Now the benefit seems to be much less. Another way of phrasing it would be that 200 people need to take the drug for three years to prevent one incidence of hip fracture. In this case, the drug could start to look a rather expensive option.

Statisticians have terms to describe each type of presentation. The statement of a 50% reduction is typically expressed as a Relative Risk Reduction (RRR). Saying that 0.5% fewer people will have broken hips is an Absolute Risk Reduction (ARR). Saying that 200 people need to be treated to prevent one occurrence is referred to as the Number Needed to Treat (NNT). Furthermore, these effects can be shown as a frequency,



where the effect is expressed as 1 out of 200 people avoiding a hip fracture.

In the new study, Cochrane researchers reviewed data from 35 studies assessing understanding of risk statistics by health professionals and consumers. They found that participants in the studies understood frequencies better than probabilities. Relative risk reductions, as in "the drug cuts the risk by 50%", were less well understood. Participants perceived risk reductions to be inappropriately greater compared to the same benefits presented using absolute risk or NNT.

"People perceive risk reductions to be larger and are more persuaded to adopt a health intervention when its effect is presented in relative terms," said Elie Akl of the Department of Medicine, University at Buffalo, USA and first author on the review. "What we don't know yet is whether doctors or policymakers might actually make different decisions based on the way health benefits are presented."

Although the researchers say further studies are required to explore how different risk formats affect behaviour, they believe there are strong logical arguments for not reporting relative values alone. "Relative risk statistics do not allow a fair comparison of benefits and harms in the same way as absolute values do," said lead researcher Holger Schünemann of the Department of Clinical Epidemiology and Biostatistics at McMaster University in Ontario, Canada. "If relative risk is to be used, then the absolute change in risk should also be given, as relative risk alone is likely to misinform decisions."

Provided by Wiley

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