

# Research shows that people overestimate benefits and underestimate risks of medical interventions

October 25 2018, by Amy Sweeny

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From major heart surgery to a course of minor drugs, people overestimate the benefits and underestimate the risks of a variety of medical procedures, according to new research.

Published in the journal *Risk Analysis*, the study of 376 adults was led by Professor Yaniv Hanoch from the University of Plymouth School of Psychology, together with Jonathan Rolison from the University of Essex and Alexandra Freund from the University of Zurich.

In several hypothetical scenarios, participants were asked to imagine that their doctor had recommended a treatment – a drug, dental surgery, ear surgery, kidney operation, or to take a newly developed medication – in order to treat an eye infection, a [gum infection](#), a hole in their eardrum, a benign growth, and a life-threatening blood disorder, respectively.

In each scenario, they were provided with precise information about the probability of success (e.g. saving a tooth) or the probability of the risks (e.g. liver damage). The treatments and side effects were taken from medical studies, but the probabilities of their happening were devised by the study authors for the research only.

Participants were then asked to indicate how likely they believed that they were to experience one of the benefits or risks by moving a pointer on a scale from 0 per cent to 100 per cent.

Results showed that on average, people perceived the [benefit](#) as higher than the benefit midpoint – in the case of the tooth, the perceived likelihood of benefit was 48 per cent, compared with the midpoint of 45 per cent.

In addition, the perceived [risk](#) of the side effects – in the case of the dental procedure, a possible gum infection – was perceived to be 46 per cent, compared to the risk midpoint (or average) of 50 per cent.

The biggest difference was regarding a kidney operation for a benign growth, where the perceived risk of the possible side effect, paralysis (43 per cent) was significantly lower than the actual risk (53 per cent).

Lead author Professor Yaniv Hanoch, Professor of Decision Science at the University of Plymouth, said:

"These were really interesting results. By presenting participants with a wide range of medical scenarios – including minor and serious ones, as well as physical, psychological, and dental – our findings lend support to a growing body of evidence regarding unrealistic optimism.

"From an applied perspective, these results suggest that clinicians may need to ensure that patients do not underestimate risks of medical interventions, and that they convey realistic expectations about the benefits that can be obtained with certain procedures. It would be good to carry out further studies on a larger population and also explore if and how clinicians can help manage expectations."

**More information:** Yaniv Hanoch et al. Reaping the Benefits and Avoiding the Risks: Unrealistic Optimism in the Health Domain, *Risk Analysis* (2018). [DOI: 10.1111/risa.13204](https://doi.org/10.1111/risa.13204)

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