

Superstition can affect eye tests

August 4 2016



People having eye examinations may be affecting the results due to a natural tendency to base their responses on past decisions.

Research just published in the journal *Proceedings of the National Academy of Science* shows that people cannot avoid using their past decisions to inform their current decisions, says co-author Professor Steven Dakin, the head of Optometry and Vision Science at the University of Auckland.

"Successfully adapting to our environment means we use information about our past successes and failures to make better decisions in the future," says Dr Dakin. "But sometimes the outcomes of past experiences are not helpful and taking them into account leads to worse

decisions."

The research, (conducted at University College London and Stanford University in collaboration with Dr Dakin at the University of Auckland), shows it is easier to reinforce these tendencies than to break them down.

"We found that people's choices are influenced by the success or failure of past choices even where this history is irrelevant," he says.

"For example, many people switch their decision following a failure, even though such superstitious behaviour makes them perform poorly. "Our study shows that it's a rigid response system. Even when it's not to your advantage, you can't help but incorporate past decisions in your decision making."

The research found this tendency could be strengthened but not weakened: existing biases could not be eradicated.

"Adaptation is more sensitive to confirming than contradicting responses," says Dr Dakin.

Ways to counteract this response to make better measures of performance, such as when assessing vision at an eye clinic, are presented by the study.

"People's irrational tendency to rely on their past decisions is important because vision and hearing tests assume we are rational. Without accommodating people's individual biases, the test results can look worse than they really are," says Dr Dakin.

"We are now looking at children to see how prone they are to biases, because you could argue either way that they might be more or less

superstitious than adults.

"You could argue that they are likely to be less superstitious because they have less experience of the world, or they could be more superstitious because [superstition](#) has a kind of adaptive value and is a default state for the system," he says.

More information: Arman Abrahamyan et al. Adaptable history biases in human perceptual decisions, *Proceedings of the National Academy of Sciences* (2016). [DOI: 10.1073/pnas.1518786113](https://doi.org/10.1073/pnas.1518786113)

Provided by University of Auckland

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