

Trust in beliefs

From: [Key Concepts for assessing claims about treatment effects and making well-informed treatment choices \(Version 2022\)](#)

1.4b Do not assume that your beliefs are correct.

Explanation

People often look for and use information to support their own beliefs, including beliefs about the effects of treatments. This is sometimes called ‘confirmation bias’. Confirmation bias can occur when people want a claim about treatment effects to be true. By focussing on evidence or arguments that support their existing beliefs and ignoring evidence or arguments that challenge these, people believe claims that confirm what they believe or wanted to be true without thinking critically about the basis for the claims.

When looking for health information, many people search the Internet. However, the information they select, and their perception of that information may be biased based on their prior beliefs. For example, parents of young children are more likely to select information about vaccination that is consistent than information that is inconsistent with their prior beliefs, and they perceive information that is consistent with their prior beliefs as being more credible, useful, and convincing [[Meppelink 2019 \(RS\)](#)].

Basis for this concept

A great deal of empirical evidence supports the idea that confirmation bias is extensive and strong [[Nickerson 1998 \(OR\)](#)]. The evidence also supports the view that once one has a belief, the primary motivation in seeking and evaluating information is to defend or justify that belief. People tend to seek information that they consider supportive of their existing beliefs and to interpret information in ways that endorse those beliefs. Conversely, they tend not to seek and perhaps even to avoid information that contradicts their beliefs.

Confirmation bias may explain people’s tendency to believe that a treatment was responsible for a desired result. People decide to use a treatment to bring about a health-related result. If the desired result occurs, the natural tendency is to attribute it to the treatment, which was used based on the belief it would cause the desired result. They often do not seriously consider the possibility that the result might have occurred without the treatment.

There are several explanations for confirmation bias. One is that people find it easier to believe propositions they would like to be true than propositions they would prefer to be false. Another is that people tend to avoid cognitive dissonance – anxiety that results from holding contradictory beliefs. People do not naturally adopt a falsifying strategy of hypothesis testing. Our natural tendency seems to be to look for evidence that is directly supportive of hypotheses we favour.

Confirmation bias is also found in the scientific literature. Citation bias is the selective citation of scientific articles based on their results [[Götzsche 2022 \(OR\)](#)]. Studies of citation bias have found that articles in which the authors explicitly concluded to have found support for their hypothesis were cited 2.7 times as often as articles that did not [[Duyx 2017 \(SR\)](#)]. This can lead to wrong conclusions and decisions.

Implications

Don't be misled by your own beliefs or rely on them unless they are based on the results of systematic reviews of fair comparisons of treatments.

References

Systematic reviews

Duyx B, Urlings MJE, Swaen GMH, Bouter LM, Zeegers MP. Scientific citations favor positive results: a systematic review and meta-analysis. *J Clin Epidemiol.* 2017;88:92-101.

<https://doi.org/10.1016/j.jclinepi.2017.06.002>

Other reviews

Gøtzsche PC. Citation bias: questionable research practice or scientific misconduct? *J R Soc Med.* 2022;115(1):31-5. <https://doi.org/10.1177/01410768221075881>

Nickerson RS. Confirmation bias: a ubiquitous phenomenon in many guises. *Rev Gen Psychol.* 1998;2(2):175-220. <https://doi.org/10.1037%2F1089-2680.2.2.175>

Research studies

Meppelink CS, Smit EG, Fransen ML, Diviani N. "I was right about vaccination": confirmation bias and health literacy in online health information seeking. *J Health Commun.* 2019;24(2):129-40.

<https://doi.org/10.1080/10810730.2019.1583701>