

**To:** Transport & Health Policy Makers, & Practitioners  
**From:** Prof Adrian Davis, TRI, Edinburgh Napier University  
**Date:** March 9<sup>th</sup> 2024  
**Subject:** Essential Evidence 4 Scotland No 83 Confirmation bias and false beliefs

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**Top line:** Humans tend to discount information that undermines past choices and judgments, a phenomenon known as confirmation bias.

People are more influenced when others express judgments with high confidence than low confidence. All else being equal, if an eye-witness is confident she observed Jim stabbing George, the jury would treat such testimony as strong evidence that Jim is guilty and would be more likely to convict Jim than if the eye witness was unsure it was Jim they observed. If a doctor is confident in her diagnosis, the patient is more likely to follow the recommended treatment. There are, however, many examples in which the strength of another's opinion is dissociated from the influence it exerts. For instance, over the last decade climate scientists have expressed greater confidence that climate change is man-made. Yet, the percentage of the population that believe this notion to be true has dropped over the same period of time. While there are complex, multi-layered reasons for this specific trend, such examples may be related to a bias in the utilization of the strength of other's opinions.

Humans tend to discount information that undermines past choices and judgments, a phenomenon known as confirmation bias.<sup>1</sup> This confirmation bias has significant impacts on public policy, ranging from politics to science and education. The behavioural tendency to discount information contrary to existing beliefs and information sources has significant implications for individuals and society as it can generate polarisation and facilitate the maintenance of false beliefs. In a study of confirmation bias and the strength of opinions of others, researchers characterised a mechanism underlying the confirmation bias.<sup>2</sup> In particular, they reported a reduction in the use of the strength of others' opinions to alter judgments when those opinions do not confirm existing beliefs. Their behavioural results showed that participants are more likely to incorporate the strength of another's opinion when evaluating the accuracy of their own judgment when that opinion aligns with their own. Moreover, participants utilise the strength of another's opinion when re-evaluating their judgments only when those opinions are confirmatory.

Allied to confirmation bias is selective exposure which denotes that individuals selectively focus on messages they can choose from and do not spend equal time with all available messages. Researchers looked at on-line political information and selection bias exposure.<sup>3</sup> Participants favoured attitude-consistent content over attitude-challenging content. The more time individuals spent with attitude-consistent content associated with slanted sources, the more immediate attitude reinforcement occurred. The more time was spent with attitude-discrepant content from an unbiased source, the more were attitudes weakened.

Confirmation bias is present in the transport policy domain. For example, the health risks of using public transport during the pandemic were examined in a study.<sup>4</sup> Findings support the hypothesis that confirmation bias exists but having access to public transport likely lessens confirmation bias, while high income and a lack of public transport experience are likely to strengthen confirmation bias. Those who are older, have less experience with public transport, have a higher income, lower education level, and those who identify with a right-leaning political party are less likely to search for, trust, and recall viewpoints that support low health risks associated with public transport.

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<sup>1</sup> Nickerson, R. 1998 Confirmation bias: a ubiquitous phenomenon in many guises. *Rev. of General Psychology*. 2:175.

<sup>2</sup> Kappes, H. et al, 2020 Confirmation bias in utilization of others' opinion strength, *Nature neuroscience*, 23:1: 130-137

<sup>3</sup> Westerwick, A., Johnson, B., Knobloch-Westerwick, S. 2017 Confirmation biases in selective exposure to political online information: Source bias vs. content bias, *Communication Monographs*, 84:3, 343-364.

<sup>4</sup> Pan, M., Ryan, 2022 Investigating confirmation bias in transportation: An analysis of perceived health risk on public transit during the pandemic, *Journal of Transport & Health*, 101485.