Active travel infrastructure has more positive effects than people expect [1, 2]

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Introduction

The transport sector is one of the largest contributors to climate change, with greenhouse gas emission continuing to grow. Modal shifts from car journeys to active travel (e.g., cycling, walking) in urban areas thus holds substantial potential for reducing greenhouse gas emissions, with knock-on benefits for air quality and public health. However, despite widespread concern about climate change, opposition to infrastructure change to facilitate active travel is widespread in multiple countries. The aim of this study was to review national and international evidence on how to design and implement active travel infrastructure from a behavioural science perspective.

Method

The review is narrative in nature, such that it gathers and analyses evidence relating to a broad set of research questions relevant to policymakers interested in implementing active travel infrastructure. These issues include, for example, the effects of active travel infrastructure change on the local economy, the importance of cycle lane design features and reasons for community opposition to change. The research team undertook database searches for research evidence in academic journals and policy publications, although only peer-reviewed studies are referenced. Over 180 papers are cited in the study. The review focuses on cycling given its prominence within this international literature.

[1] This Bulletin summaries the findings from: Timmons, S., Andersson, Y., McGowan, F. P., & Lunn, P. D. (2024). Active travel infrastructure design and implementation: Insights from behavioral science. *Wiley Interdisciplinary Reviews: Climate Change*, e878. Available at: https://doi.org/10.1002/wcc.878

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FINDINGS

The review first establishes that active travel infrastructure has impacts on communities. There is strong evidence that changes to the built environment boost rates of active travel, particularly among individuals living close to the new infrastructure. The evidence further shows that economic effects on local food and retail businesses tend to be positive or neutral, although effects on car-centric businesses (e.g., petrol stations) can be negative. Where schemes lead to increased active travel, there is generally a reduction in traffic congestion, although some studies observe small negative effects (around a four-minute increase in typical journey times).

However, the degree of behaviour change can depend on design features and particularly those that influence perceptions of safety, especially among groups less likely to cycle (e.g., women and older people). There is reasonably strong evidence that safety and perceptions of safety are improved by segregating lanes from traffic using physical boundaries and distinguishing them by colour. Safety at intersections can be improved by using advance stop lines, providing dedicated priority lights for cyclists, raising cyclist crossings to the pavement level and implementing traffic calming measures such as speed limits of 30 km/h. Designs that further allow for full journeys to be made safely by foot or bike between popular areas, with limited breaks in infrastructure, also generate positive impacts. End-of-journey facilities such as bike parking near public transport or shower facilities at workplaces both help to promote use.

There are relatively few studies that have quantitatively investigated public opinion of active travel schemes and tested predictors of support. Qualitative research with retail traders consistently show, however, that retail traders associate the presence of car parking spaces with turnover, despite contradictory empirical evidence. Research on community residents points to expectations that infrastructure change will increase in traffic congestion, again despite evidence that effects tend to be positive.

Evidence from behavioural science more generally suggests that, in addition to overestimating the negative effects of infrastructure change, the public can underestimate the scale of environmental and health benefits of such schemes. The review also points to multiple psychological biases that may hinder support, including “status quo bias” (the preference for things to remain the same even if change is beneficial), “primacy effects” (overweighting of the first piece of information encountered about schemes), “messenger effects” (evaluations of information based on who it comes from rather than what it contains) and “collective illusion” (e.g., incorrect belief among supporters of schemes that they are in a minority). Trust in public institutions and perceptions of fairness also matter for support.

CONCLUSIONS

When designing active travel infrastructure, there is good evidence to support prioritising connectivity, proximity and safety over other design elements.

Segregated, painted, one-way cycle lanes, dedicated priority lights at intersections, advance stop lines, traffic calming measures and direct routes accessible only by walkers and cyclists are ways to improve perceived and objective safety and, in turn, usage. Support for new active travel schemes is enhanced by early communication undertaken within an open and fair consultation. Messages that challenge status quo bias can help local residents to make up their minds about the benefits and disadvantages of change based on accurate perceptions and expectations. In particular, impacts on traffic, local businesses, and safety need to be addressed. However, more targeted research is required to understand public opinion of active travel initiatives and how communities respond to change.