

Sustainability | Individual communication

IC - (20797) - BEYOND THE VULNERABLE ROAD USER: AN ECOLOGICAL MODEL OF ROAD USER VULNERABILITY

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Background and objectives

The need to minimise transport emissions has inspired policies to encourage active travel and micro-mobility. However, achieving widespread adoption is challenging as these road users are at greater risk of injury and death than other modes and report high levels of perceived vulnerability. This vulnerability means that many people avoid using these modes or do not sustain their use long-term. Yet, despite its importance to research, 'vulnerability' remains largely a common-sense construct, with no firm definition. This makes designing and evaluating interventions to minimise vulnerability difficult. The objective of this research was to address this knowledge gap by developing the first comprehensive conceptual model of road user vulnerability.

Main results (or main arguments in the case of critical reviews)

We identified limitations in understandings of road user vulnerability in research and policy literature. These include reductionism (reducing vulnerability to physical risk), ambiguity (the lack of a consistent conceptual definition of vulnerability), and framing (presenting vulnerability as an intrinsic attribute of the road user). Based on these findings, we developed an "ecological" model of vulnerability. This model decomposes vulnerability into state, trait, and environmental components. Here, vulnerability is not a static attribute of the individual. Instead, it is a dynamic construct that emerges from interactions between individuals and their environments. This model provides a framework to analyse the impact of different factors on the expression of vulnerability.

Implications for research and practice/policy | Importance and originality of the contribution

This approach to conceptualising vulnerability has important benefits for research and practice. It disambiguates different forms of vulnerability, meaning we can design targeted interventions to address the root causes while understanding these might vary across people and across time. It improves the clarity, consistency, and comparability of discussions of vulnerability, differentiating between vulnerabilities that can be addressed at different levels. Consequently, this new conceptual framework is a valuable analytical tool for researchers and practitioners working on active travel, road safety, and sustainable mobility.

Palavras-chave : Road user vulnerability, Environmental psychology, Active travel