

# **Elucidating the Mechanisms of the Discrepancy Between Traffic Accident Risk and Perceived Safety on Residential Streets**

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This study aimed to obtain policy insights to mitigate the discrepancy between actual traffic accident risks and road users' risk perceptions on residential streets. By presenting road users with virtual environments where known risk-influencing factors were controlled, we assessed their risk perceptions and constructed a model to identify which factors are most likely to induce such discrepancies. An analysis of data obtained through a web-based survey ( $n = 856, 860$ ) revealed the mechanisms underlying these perception gaps. Specifically, pedestrians perceived a lower risk when walking on the road shoulder while vehicles were present (where actual risk exists) compared to walking on the roadway with no vehicles present (where no risk exists). Furthermore, for an equivalent difference in kinetic energy, pedestrians' sensitivity to differences in vehicle mass was only about half that of their sensitivity to vehicle speed, highlighting the danger that the traffic accident risk associated with vehicle mass tends to be underestimated.