The moderating influence of pedestrians' traffic beliefs and superstitions on their risk perception and safe walking practices

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Background

Pedestrian safety is a vital component of sustainable and inclusive mobility systems. As cities continue to grow and transportation networks expand, ensuring pedestrian safety has become a pressing challenge. According to global traffic safety reports, pedestrians represent a significant portion of road traffic fatalities and injuries, particularly in urban areas where vehicle-to-pedestrian interactions are common. The consequences of unsafe pedestrian environments go beyond individual harm, impacting public health, economic productivity, and urban liveability.

Beyond infrastructure and policy, pedestrian safety is also influenced by human factors, including individual traffic beliefs and cultural superstitions. Perceptions of road safety, risk-taking behaviours, and local customs shape how pedestrians navigate urban environments. Understanding these psychological and cultural dimensions is crucial for designing effective safety campaigns and behavioural interventions that resonate with public attitudes toward road safety.

Aim

This study investigates how pedestrians' traffic beliefs and superstitions influence their risk perception and safe walking practices. It, therefore, emphasises how cultural perspectives can enhance or hinder safe mobility practices.

Method

The study was conducted in Accra and Kumasi, Ghana's two most urbanised cities and leading hotspots for pedestrian crashes with high annual rates. Using an intercept sampling approach, the study surveyed 1,060 respondents in both cities' high-risk fatal crash corridors. The research instrument examined, among other factors, respondents' risk perception and acceptance, traffic beliefs and superstitions, safe walking practices, traffic crash experiences, and perceived causes of traffic crashes in their cities. The study employed a statistical moderation framework to analyse the influence of pedestrians' traffic beliefs and superstitions on their risk perception

and safe walking practices. The model specification utilised the Hayes PROCESS v4.2 Model 1 in SPSS version 29.

Results

The study found that risk perception positively influences safe walking practices. Additionally, traffic beliefs and superstitions also positively affect safe walking practices. However, the interaction between risk perception and traffic beliefs and superstitions was negative and statistically significant, indicating that these beliefs and superstitions negatively moderated the effect of pedestrians' risk perception on safe walking practices.

Conclusions

This study highlights the complex relationship among risk perception, traffic beliefs and superstitions, and safe walking practices. The findings indicate that while risk perception positively influences pedestrian safety behaviour, traffic beliefs and superstitions contribute positively. However, their interaction presents a paradox. Specifically, the negative moderation effect suggests that stronger traffic beliefs and superstitions may diminish the impact of risk perception on safe walking practices. This implies that although such beliefs might encourage cautious behaviour, they could also lead to misconceptions, weakening pedestrians' ability to assess risks and respond appropriately. These insights underscore the need for targeted educational interventions and awareness campaigns that effectively address rational risk assessment and cultural beliefs to enhance pedestrian safety. Integrating behavioural research into mobility planning can help policymakers develop interventions that resonate with public perceptions and promote responsible pedestrian behaviour.