

Road Users' Safety Attitudes Towards Speeding Across 39 Countries

Anna Marie Harkin¹, Dimitrios Nikolaou^{2*}, George Yannis² & Fabian Surges¹

¹ Federal Highway Research Institute Germany (BAST)

² National Technical University of Athens, Greece

*corresponding author: dnikolaou@mail.ntua.gr

Abstract

Background

Road traffic crashes remain a critical public health issue, ranking as the 12th leading cause of death globally, according to the World Health Organization (WHO, 2023a). Among the major contributors to these crashes, speeding stands out as a key factor, significantly increasing the likelihood and severity of crashes. A 1% increase in speed is estimated to result in a 4% increase in the risk of fatal crashes, and pedestrians struck by vehicles traveling at 65 km/h instead of 50 km/h face a 4.5-fold increase in fatal injury risk (WHO, 2023b). The European Commission (2024) reports that speeding is involved in approximately 30% of fatal crashes, underscoring the critical need for effective measures to reduce speeding behaviours.

Speeding encompasses not only exceeding legal speed limits but also failing to adjust driving speeds to specific conditions such as weather, traffic density, or road design. The combined impact of these behaviours makes speeding a central focus of road safety research. Addressing it requires a comprehensive approach that includes legislation, enforcement, education, and advancements in vehicle technology and infrastructure design. Despite these efforts, a significant proportion of drivers - up to 50% in Europe - continue to exceed speed limits, with 10% to 20% driving more than 10 km/h over the limit (European Commission, 2018). Younger age and male gender are consistently associated with higher rates of speeding, highlighting the need for targeted interventions for these demographic groups (NHTSA, 2023).

Methods

The ESRA3 study, conducted in 2023 across 39 countries, offers a unique opportunity to analyze self-reported behaviours, attitudes, and perceptions related to speeding. The ESRA initiative aims to collect and analyze comparable data on road safety performance and culture. This paper includes topics such as self-declared speeding behaviours, acceptability of speeding, risk perception, and support for policy measures and enforcement. By employing a harmonized questionnaire translated into national languages, the study captures regional variations and demographic differences, providing valuable insights into the global speeding landscape.

Results

The descriptive analyses of the ESRA3 dataset revealed several critical trends. Self-reported speeding behaviours were prevalent, with younger drivers and males reporting higher rates of speeding across all road types and regions. Notably, driving too fast for road or traffic conditions was less frequently reported than exceeding speed limits in built-up areas. Gender differences were consistent, with females demonstrating lower rates of speeding and higher perceptions of risk associated with this behaviour. The acceptability of speeding was generally low, but respondents believed others were more likely to consider it acceptable, reflecting potential social norm

conflicts. Encouragingly, a majority of respondents expressed intentions to respect speed limits in the near future, although self-efficacy in managing high speeds varied by region, with lower confidence reported in Asia-Oceania.

To further explore these findings, advanced analyses using Generalized Linear Mixed Models (GLMMs) were conducted. These models included random intercepts for countries to account for regional variations and identified significant predictors of self-declared speeding behaviours and intentions to comply with speed limits. The analyses revealed that individuals who perceived speeding as socially or personally acceptable were more likely to engage in it. Younger drivers and males were also more inclined to report speeding, whereas those with stronger intentions to respect speed limits or who supported stricter enforcement measures were less likely to engage in such behaviour.

The role of risk perception and attitudes was particularly noteworthy. Respondents who believed speeding was a frequent cause of road crashes were more likely to intend to respect speed limits, indicating the importance of effective risk communication in shaping behaviours. Conversely, individuals who viewed respecting speed limits as unnecessary or dull were less inclined to comply, underscoring the need for educational campaigns that highlight the safety benefits and social responsibility associated with adherence to speed limits.

Discussion and Conclusions

The findings of this study highlight the critical need for multifaceted interventions to address speeding. Communication strategies should focus on changing perceptions and attitudes, particularly among younger drivers and males. Policy measures, including stricter speed limits, increased enforcement, and infrastructure improvements, are essential to creating a road environment that discourages speeding. Tailored interventions that account for regional and cultural differences are also crucial, as demonstrated by the variations observed in self-efficacy and perceived enforcement likelihood across countries.

This research provides valuable insights for policymakers and road safety stakeholders, emphasizing the importance of integrating behavioural, attitudinal, and environmental factors into road safety strategies. By leveraging the comprehensive dataset of the ESRA3 survey and advanced statistical analyses, this study contributes to the evidence base needed to design effective interventions aimed at reducing speeding-related crashes and fatalities. With speeding identified as a key factor in the “Global Plan – Decade of Action for Road Safety,” achieving meaningful progress requires a sustained commitment to addressing this pervasive issue through legislation, enforcement, education, and innovation. The ESRA3 findings offer a roadmap for achieving this goal, reinforcing the urgent need for global collaboration and evidence-based policymaking in road safety.

References

- European Commission. (2018). *Speed and Speed Management*. European Commission, Directorate General for Transport. <https://road-safety.transport.ec.europa.eu/system/files/2021-07/ersosynthesis2018-speedspeedmanagement.pdf>
- European Commission. (2024). *Road safety thematic report – Main factors causing fatal crashes*. European Road Safety Observatory. Brussels, European Commission, Directorate General for

Transport. https://road-safety.transport.ec.europa.eu/document/download/a7428369-8eaf-4032-806e-ea08b46028c0_en?filename=ERSO-TR-MainCauses.pdf

NHTSA. (2023). *Traffic Safety Facts - 2021 Data: Speeding*. NHTSA's National Center for Statistics and Analysis. <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/813473>

WHO. (2023a). *Global status report on road safety* (Licence: CC BY-NC-SA 3.0 IGO.). World Health Organization. <https://iris.who.int/bitstream/handle/10665/375016/9789240086517-eng.pdf?sequence=1>

WHO. (2023b). *Road traffic injuries*. World Health Organization. <https://www.who.int/news-room/fact-sheets/detail/road-traffic-injuries>

Keywords

Road Safety, Speeding Behaviors, Risk Perception, GLMM Analysis, Traffic Policy Support