Traffic Injury Prevention, vol.27, no.Suppl. 1, pp.S120-S130, October, 2026.

Missed Prevention: Global Gaps in Seat Belt Policy, Monitoring, and Road Traffic Mortality

E. Jokubaityte; G. Casas Martínez; M. Seguí Gómez

Abstract-

Objective

Seat belts are among the most effective interventions for reducing vehicle occupant fatalities, yet their global life-saving potential depends on their availability and use. This study documents and quantifies global gaps in seat belt governance and estimates the burden of preventable road traffic deaths associated with incomplete implementation. The analysis examines how the presence and maturity of seat belt laws and associated monitoring systems relate to population-level road traffic mortality.

Methods

Data from the World Health Organization’s Global Status Report on Road Safety (2013, 2018, 2023) were combined with Global Health Estimates mortality data (2010, 2015, 2021). One hundred and eighty-three countries were classified according to the availability and standards of seat belts in vehicles, the scope and maturity of mandatory seat belt use legislation for drivers, front-seat occupants, and rear-seat occupants, and monitoring capacity. The relation between these and four-wheeler fatality rates was assessed in bivariate analyses. A counterfactual modelling framework estimated preventable deaths between 2011 and 2021 under two scenarios: (1) countries without long-standing comprehensive legislation achieving the seat belt wear rates observed in countries with more mature legislation, and (2) universal seat belt use globally. Sensitivity analyses varied seat belt effectiveness and vehicle occupancy distributions.

Results

Between 2011 and 2021, approximately 12.8 million road traffic deaths occurred globally. As of 2021, sixty-seven countries – encompassing about one quarter of the global population – did not legally require seat belt use in all seating positions. Increasing seat belt use in countries lacking mature legislation to the levels observed in countries with long-standing comprehensive laws could have prevented about 96,000 deaths over the study period (≈0.8% of global road traffic fatalities). Universal seat belt use could have prevented 557,000-1,140,000 deaths globally (≈4.3-8.9%). Monitoring capacity was limited: while ninety-nine countries (55% of the population) consistently reported the distribution of road traffic fatalities by user type, only 10 countries (4% of the population) consistently reported seat belt wear rates for all occupants.

Conclusions

Large disparities in seat belt legislation, equipment standards, and monitoring systems continue to limit the global effectiveness of this well-established safety intervention nearly 60 years after its development. Addressing these gaps rapidly is essential to advance the global road safety aspiration of eliminating these deaths.

Index Terms- Seat belts, Seat belt legislation, Road traffic fatalities, Road safety monitoring, Global road safety, Counterfactual modelling

Due to copyright restriction we cannot distribute this content on the web. However, clicking on the next link, authors will be able to distribute to you the full version of the paper:
Request full paper to the authors

If you institution has a electronic subscription to Traffic Injury Prevention, you can download the paper from the journal website:
Access to the Journal website

Citation:
Jokubaityte, E.; Casas Martínez, G.; Seguí-Gómez, M. "Missed Prevention: Global Gaps in Seat Belt Policy, Monitoring, and Road Traffic Mortality", Traffic Injury Prevention, vol.27, no.Suppl. 1, pp.S120-S130, October, 2026.