

Exposure to traffic and risk of hospitalization due to injuries

M. Seguí-Gómez, F.J. López-Valdés, F. Guillen-Grima, E. Smyth, J. Llorca, J. Irala

Abstract— Research on the risk of motor vehicle injuries and their relationship with the amount of travel has been only partially analyzed. The few individual exposure assessments are related to very specific subsets of the driving and traveling populations. This study analyzes the relationship between kilometers traveled and hospitalization due to motor vehicle injuries. Twelve thousand three hundred and sixty nine Spanish university graduates from the Seguimiento Universidad de Navarra multipurpose cohort study were evaluated. They had not been hospitalized due to motor vehicle injuries at baseline and were followed up to eight years. Biannual questionnaires allowed for self-reporting of kilometers traveled in motor vehicles, together with incidence of hospitalization. Covariates in the Cox regression models included age and gender and baseline use of safety belt while driving, driving a vehicle with driver-side airbag, driving a motorcycle, and drinking and driving. There were 49,766 participant-years with an average yearly travel of 7,828 km per person-year. Thirty-six subjects reported a first hospitalization event during this time. The adjusted hazard ratio per additional kilometer traveled was 1.00005 (95% confidence interval 1.000013 to 1.000086). Even the smallest of reductions in the amount of kilometers traveled (from an average of 3,250 km per year to 1,000) has a statistically significant protective effect on the likelihood of sustaining hospitalization due to motor vehicle injury (aHR 0.9, 95% CI 0.78 to 0.98). In light of current policies aimed to reduce motorized traffic due to environmental concerns, it may be appropriate to consider the additional health benefit related to reductions in injuries.

Index Terms— Hospitalization; injuries; longitudinal studies; motor vehicle crashes; risk

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