

**Macrocategoria:** Geometria e Sicurezza.

**Titolo articolo:** Analysis of contributory factors of fatal pedestrian crashes by mixed logit model and association rules.

**Autori:** Rella Riccardi, M., Mauriello, F., Scarano, A., Montella, A.

**Nome rivista:** International Journal of Injury Control and Safety Promotion.

**Anno di pubblicazione:** 2022.

**DOI:** <https://doi.org/10.1080/17457300.2022.2116647>

**Abstract:** Pedestrians are the most vulnerable road users and pedestrian crashes are a major concern both for their number and their severity. In Italy, pedestrians account for 34% of the road fatalities in urban area. To improve pedestrian safety, this study is aimed at analysing the roadway, environmental, vehicle, driver and pedestrian-related factors that are associated with fatal pedestrian crashes in Italy and providing insights for the development of effective countermeasures. This study used an econometric model, the mixed logit model, and a machine learning algorithm, the association rules, to analyse 101,032 pedestrian crashes that occurred in Italy. Study results identified several factors associated with fatal pedestrian crashes. The mixed logit identified 46 significant indicator variables (1 with random parameter), and the association rules provided 119 valid rules. F-measure and G-mean showed higher prediction performance of the mixed logit over the association rules. Study results recommend using both models as complementary approaches since their combination is effective in providing meaningful insights about pedestrian crash contributory factors and their interdependencies. To address the contributory factors identified by the study, behavioural/engineering pedestrian safety countermeasures are recommended. The findings provided new insights for transportation agencies to develop effective countermeasures for pedestrian safety improvement.

**Keywords:** Pedestrian safety; random parameters logit model; association rules; performance metrics; safety countermeasures.

**Link:** <https://www.tandfonline.com/eprint/PJFNSMUNGGPGWS3BKUXT/full?target=10.1080/17457300.2022.2116647>

**Note:** il link è utilizzabile 50 volte per scaricare gratuitamente l'articolo.