

The European Commission requests its member states to provide the number of serious road injuries, according to MAIS 3 + =Maximum AIS 3+, where AIS = Abbreviated Injury Scale. This challenges in all countries the issue of under-reporting of road injuries in the official police data and the issue of using a medical trauma scale.

Methods

In France, as in most countries, police data provide the frequency of road casualties, but they suffer from large under-reporting and strong selection bias (on severity, mode of transport, etc). In the Rhone county (pop 1.6 M inhabitants). Other data are available: a road trauma registry has been set up in 1996. It covers fatalities, hospitalized, and those attending the Emergency departments only. All injuries are directly coded into the Abbreviated Injury Scale, by the registry physician. At the Rhône county level, both databases are linked. Annually, on the 2006–2012 period, the police reports 2800 casualties, the road trauma registry 7400 by the registry and 1700 are identified as common to both sources. A capture-recapture approach is then used, so that we can estimate the real number of road casualties (in the Rhône). More importantly the correction factors between the police data and the estimated real subgroup of road casualties in the Rhône. In particular, to account for some conditions for applying capture-recapture, a multivariate model is used, including the variables that are associated with lower probability of reporting by the police: type of police, road network, severity measured by hospitalised (yes/no), MAIS3+, road user type (pedestrian, cyclist, car occupant...), whether the crash involved a crash opponent or not, etc. The police correction factors are finally applied to the national police data with the assumption that police recording practices are rather homogenous across France, by type of police force, and type of road casualties, This corresponds to indirect standardization, not on age and sex as usual but on the characteristics influencing police reporting.

Results

The national number of injured road casualties, respectively for all severity, and for MAIS3+, are estimated at 285,000 and 24,000 resp. in 2015. The 2015 frequency of sMAIS3+ roadusers consists of 6850 motorized two-wheel users, 6500 car occupants, 3550 cyclists, 3500 pedestrians and 800 others (van, bus, truck users). This confirms the heavy burden suffered by Motorized two-wheel users. Moreover, they only account for 2% of traveled kilometers whereas car occupants account for 70% of traveled kilometers. Also, these results show a different pattern than the number of fatalities, where it is the number of killed car occupants that is the highest.

Conclusions

The frequency of injured road users, all severities, has been confirmed by other sources, namely: the French national Travel Survey, and by the annual firemen data (they provide first aid on crash scene). Concerning the number of seriously injured road users, the ratio of the number of MAIS3+ casualties divided by the number of fatalities enables country to country comparison.