

Detailed Description of Bicycle and Passenger Car Collisions Based on Insurance Claims

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ABSTRACT

Today, cyclists constitute the highest percentage of severely injured road users in Sweden [1]. Collisions between bicycles and motor vehicles often have the most serious outcome. In order to mitigate the severity of the outcome or even to avoid these collisions, it is of great importance to investigate the circumstances and contributing factors as to *why* these collisions occur. As it is well known that bicycle accidents are underreported in official data bases [2] and information regarding accident details is very limited, the aim of the study presented here is to gain more detailed information about bicycle-passenger car collisions based on motor insurance claims. Motor insurance claims which are based on the third party liability insurance [3] include bicycle and passenger car collisions at all levels of crash severity and describe the situations in detail, often both from the driver and cyclist. For analysis, a data set of a total of 882 collisions between bicycles and passenger cars in Sweden (2005-2012) was used.

First results showed that above 75% of all collisions were situations in which the bicycle and passenger car crossed each other's paths. Collisions in which the cyclist and car driver went in the same or opposite direction were less frequent (11%) but here the injury severity was on average higher. With regard to the crossing situations, it was found that in just over 53% of the collisions the cyclist crossed the roadway while coming out from the bicycle path. In about half of these collisions the car driver stated that he/she didn't see the cyclist before the collision. Analysis based on this novel data will contribute to better understand bicycle-passenger car collisions in real road traffic situations which cannot be found in other data sources. It also drives forward the development of assistance systems and traffic planning to support bicycle safety for both car manufactures and road planners.

Keywords: bicycle-car collision, accident scenarios, insurance claims, crossing situation.

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