

# **In-depth study of characteristics and profiles of severe moped crashes in built-up areas - Summary**



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De Ceunynck, T., Slotmans, F., & Daniels, S. (2017). *Diepteanalyse van de karakteristieken van ernstige bromfietsongevallen binnen de bebouwde kom*. Brussel, België: Vias institute – Kenniscentrum Verkeersveiligheid.

De Ceunynck, T., Slotmans, F., & Daniels, S. (2018) *Analyse approfondie des caractéristiques et profils d'accidents graves impliquant un cyclomoteur en agglomération*. Bruxelles, Belgique: l'institut Vias – Centre de Connaissance Sécurité Routière

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# Summary

## *Aim and methodology*

Mopeds are over-represented in serious accidents, but until now, they have been given little attention in scientific literature. For that reason, little is still known about the characteristics and causes of accidents involving mopeds. To overcome this knowledge gap, this in-depth study analyses 167 serious moped accidents that occurred in built-up areas in Belgium in 2013. The study provides an overview of the characteristics of the accidents and identifies a number of frequently occurring accident profiles and features.

## *Main results*

In the sample of accidents we examined, the distribution between class A mopeds (maximum speed 25 km/h; no driving licence required) and class B mopeds (maximum speed 45 km/h; driving licence required) was approximately 50-50, which appears to imply an over-representation of class A mopeds in relation to their share of the overall number of vehicles. The average age of moped drivers is 33; three-quarters of them are male.

Human factors are far and away the largest category of the accident factors identified. Factors related to the infrastructure and environment play a moderate role in these accidents, while vehicle-related factors only play a very limited role. The main subcategories of human factors are psychological factors and mistakes made in assessing danger. However, it is important to note here that these factors are often recorded for the other involved party (i.e. the person not riding a moped) involved in the accident. The most important non-human factors are obstructions to line of sight caused by elements of infrastructure or by other vehicles.

The accidents were grouped into a number of accident profiles. The following profiles were identified:

- A vehicle turning collides with a moped that wants to go straight ahead (18%)
- The risky behaviour of the moped rider causes an accident (17%)
- The accident is a collision between two vulnerable road-users (13%)
- Accidents caused by the entering or exiting of vehicles along the road (12%)
- Accidents at crossroads (other than with a turning vehicle) (11%)
- Single-vehicle accidents in which the moped rider loses control over the vehicle (9%)
- Accidents caused by a mistake made during overtaking (8%)
- Rear-end collisions (3%)
- Other (9%)

Class B mopeds are significantly over-represented in accidents with another vulnerable road-users, compared with other accident profiles. Moped riders who are involved in accidents caused by an error made while overtaking are significantly younger than the moped riders in the other accident profiles.

## *Main recommendations*

Further research into the characteristics and causes of moped accidents remains necessary. The use of other research methods, such as in-depth investigations including site visits to the accident location, and the observation of near-accidents involving mopeds, are very promising ways by which the results of this research could be supplemented and strengthened.

We were able to group the large majority (91%) of the accidents surveyed into a limited number (eight) of accident profiles with strongly similar characteristics. For each type of accident, targeted measures or specific areas of attention may help to reduce the frequency of these accidents. The report sets out the main recommendations in terms of infrastructure, regulations, education and management.

In terms of infrastructure, avoiding obstacles that obstruct lines of sight is an important area of attention for reducing the number of serious moped accidents. Paying attention to design details and minor defects is another area in view of the fact that this can make a significant (and underestimated) contribution to the cause of one-vehicle accidents with mopeds. Road safety audits and inspections – and specifically from the viewpoint of the moped rider – appear to be a promising measure for at least helping to prevent some of these accidents.

Incorrectly assessing danger is a very common factor with virtually all types of accident. Awareness campaigns and/or education can also make a contribution towards reducing various types of accident. Given that these factors were often also found in the other party involved (i.e. the person not riding a moped) in the accident, we need to focus not only on moped riders, but also on other drivers. Measures such as these are promising – particularly for reducing accidents that occur when overtaking (profile 7) and for accidents caused by the moped rider's own risky driving behaviour (profile 2).

An appreciable proportion of serious moped accidents in built-up areas involves accidents between a moped rider and another vulnerable road user (profile 3). Class B mopeds are over-represented in this group. As a consequence, the question can be asked as to what the most desirable place is for these mopeds on the public roads. In view of the increasing variety of vehicles that use the infrastructure designed for vulnerable road users, there is in any case an urgent need to discuss the rules of conduct and the position on the road for each type of road user. It should be noted here that moped riders are not necessarily the cause of the accidents. On the contrary, in fact: the majority of behavioural factors, such as assessing danger incorrectly, distraction and traffic offences, were recorded with the other party involved within this accident profile.

