

Summary:

The visibility of motorcycles and mopeds

Compared to cars, motorcycles and mopeds are overinvolved in accident in intersections. A possible explanation for this overinvolvement is that car drivers fail to notice two-wheeled vehicles.

This hypothesis has been tested by analyses of accident data. An Australian study identified causes for collisions between cars and motorcycles and found that for 21% of the collisions the car drivers had failed to notice the motorcycle for no apparent reason. In another Australian study it was argued that an eventual difference in conspicuity would show up in day time but not in night time because the use of lights in the dark hours would equalize the conspicuity. It was hypothesised that the ratio of day time risk to night time risk was higher for motorcycles than for cars. Analyses of accident and exposure data did not confirm this hypothesis and it was concluded that conspicuity was of minor importance for motorcycle accidents.

Another line of analyses focuses on who is the guilty party in collisions between cars and motorcycles. For intersection accidents, several foreign studies have shown that car drivers are overrepresented as the guilty party. The same tendency is seen in Norwegian accident data. This overrepresentation is seen as support for the hypothesis that drivers sometimes fail to notice motorcycles. However, other explanations have been offered.

- Riders are more vulnerable than drivers, and may be more careful when entering or leaving an intersection. For that reason they are more often the innocent than the guilty party.
- Motorcycles are smaller than cars and may more easily be hidden behind obstructions. However, studies that take this possibility into account, still find that drivers failed to notice the motorcycle in a considerable proportion of accidents.
- Drivers may underestimate speed and overestimate distance to motorcycles and for that reason enter into too small gaps in the traffic when the approaching vehicle is a motorcycle.

Although these alternative explanations seem plausible, they are not supported by empirical evidence. Hence, failure to notice two-wheeled vehicles should not be excluded as a possible explanation for collisions between two-wheeled vehicles and cars in intersections.

When drivers fail to notice two-wheeled vehicles it is not because they are unable to sense these vehicles (below sensory threshold values). A more likely explanation is that these vehicles have an appearance (shape, colour and pattern) that make them blend with the background (camouflage). Another possible explanation is that

drivers because they have met cars far more frequently than two-wheelers in intersections, have established a visual set for what-to-look-for (cars) and for that reason fail to notice two-wheeled vehicles.

The noticeability of two-wheelers may be improved by increasing their conspicuity. Studies indicate that the conspicuity of two-wheelers can be improved by using extra running lights and/or fluorescent colour on vehicle, dress and helmet.

Another way of improving the noticeability of two-wheelers is to change car drivers' visual set. This may be achieved by making drivers aware of their tendency to ignore two-wheelers and pointing to the fact that a collision with a two-wheeler usually has far more serious consequences than a collision with another car.