

Powered Two-wheeler Riders' Risk of Crashes Associated with Filtering on Urban Roads

Abstract

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Introduction

This study investigated the risk of motorcycle crashes while lane-filtering compared with the crash risk associated with motorcycling while not lane-filtering. From video recordings of commute-hour traffic along specific sections of fourteen urban arterials in the Marseilles, researchers calculated the vehicle kilometers traveled (VKT) by lane-splitting and non-lane-splitting motorcyclists.

Method

Using travel data from existing traffic loops along those same sections of roadway, the researchers calculated motorcycle-travel percentages for all roadway sections video-recorded. Finally, using police-reported crash data (for three earlier years) that happened along the same road-sections, investigators were able to calculate relative-risk estimates for motorcyclists who were injured while lane-splitting and for those who were injured while riding in normal travel lanes.

The study was conducted along 14 sections of urban roads in Marseille, France (comprising 18 km of roadway), and employed direct observations of motorcycle traffic in order to estimate kilometers of motorcycle travel-both while filtering and while traveling within an existing travel lane - of total measured VKT.

Results

The results showed that motorcycle travel while lane-filtering accounted for roughly one-fifth of all motorcycle kilometers traveled on the road sections observed. Results also showed that lane-filtering carries a nearly four-fold increase (Relative Risk 3.94, Confidence Interval 2.93-5.89) in crash risk compared to non-filtering motorcycle travel (i.e., riding within the designated traffic lanes).

This excess risk occurred for all powered two-wheeler categories. Furthermore, no space appears to be safer than the others for filtering. Riders filtering forward along the axis of the carriageway, along bus lanes or between traffic lanes (lane-splitting) all have a crash risk greater than the risk of those who do not filter.

Conclusions

All measures limiting the practice of filtering by powered two-wheelers on urban roads would probably contribute to improving the safety of their users.