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## Accident Analysis & Prevention

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# Evaluating the impact of Heavy Goods Vehicle driver monitoring and coaching to reduce risky behaviour

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### Highlights

- Monitoring and coaching Heavy Goods Vehicle (HGV) drivers significantly reduces their harsh braking and over speeding incidents.
- The number of harsh braking and harsh cornering incidents decrease more by monitoring and coaching than just monitoring without coaching.

their risky behaviours.

## Abstract

Determining the impact of driver-monitoring technologies to improve risky driving behaviours allows stakeholders to understand which aspects of onboard sensors and feedback need enhancement to promote road safety and education. This study investigates the influence of camera monitoring on Heavy Goods Vehicle (HGV) drivers' risky behaviours. We also assess whether monitoring affects individual driving events further when coupled with safe driving practices coaching. We evaluate the outcome of those practices on three telematics incidents heavily reliant on driving errors and violations, i.e., the number of vehicle harsh braking, harsh cornering and over speeding incidents. The objective is to understand how frequently individual incidents caused by risky driving behaviour occur (a) without camera monitoring and without any coaching; (b) after camera installation; and (c) after camera installation and coaching. We investigate two commercial HGV companies (Company 1 and Company 2) with 263 and 269 vehicles, respectively, over a 16 months period, from which the first 8 months contain data collected before the installation of cameras (baseline) and the rest of the dataset contains incident counts after the installation of cameras (intervention). Company 1 provides coaching during the intervention phase while Company 2 does not offer coaching. Our analysis considers the baseline and the intervention phases during the same seasons to eliminate any possible bias due to the influence of weather on driving behaviour. Results show an overall significant reduction in the mean frequency of harsh braking incidents from baseline to intervention by 16.82% in Company 1 and 4.62% in Company 2, and a significant reduction in the mean frequency of over speeding incidents from baseline to intervention by 34.29% in Company 1 and 28.13% in Company 2. Furthermore, the effect of coaching has a significant difference in reducing the frequency of harsh braking ( $p=.011$ ) and harsh cornering ( $p<.001$ ) compared to just camera monitoring. These results suggest that coaching interventions are more effective in reducing driving errors while monitoring reduces both driving errors and violations.

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