Can providing feedback on driving behavior and training on parental vigilant care affect male teen drivers and their parents?

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Highlights

- Young novice male drivers' driving behavior during first year is investigated.
- •Driving behavior was evaluated using data collected by in-vehicle data recorders.
- Impact of various feedback forms and guidance to parents' monitoring were examined.
- Feedback exposed to parents and parental training is most effective in reducing young drivers' event rates.
- The intervention also improved the parents' driving behavior.

Abstract:

This study focuses on investigating the driving behavior of young novice male drivers during the first year of driving (three months of accompanied driving and the following nine months of solo driving). The study's objective is to examine the potential of various feedback forms on driving to affect young drivers' behavior and to mitigate the transition from accompanied to solo driving. The study examines also the utility of providing parents with guidance on how to exercise vigilant care regarding their teens' driving. Driving behavior was evaluated using data collected by In-Vehicle Data Recorders (IVDR), which document events of extreme g-forces measured in the vehicles.

IVDR systems were installed in 242 cars of the families of young male drivers, however, only 217 families of young drivers aged 17–22 (M = 17.5; SD = 0.8) completed the one year period. The families were randomly allocated into 4 groups:
(1) *Family feedback:* In which all the members of the family were exposed to feedback on their own driving and on that of the other family members;
(2) *Parental training:* in which in addition to the family feedback, parents received personal guidance on ways to enhance vigilant care regarding their sons' driving; (3) *Individual feedback:* In which family members received feedback only on their own driving behavior (and were not exposed to the data on other family members); (4) *Control:* Group that received no feedback at all.

The feedback was provided to the different groups starting from the solo period, thus, the feedback was not provided during the supervised period.

The data collected by the IVDRs was first analyzed using analysis of variance in order to compare the groups with respect to their monthly event rates. Events' rates are defined as the number of events in a trip divided by its duration. This was followed by the development and estimation of random effect negative binomial models that explain the monthly event rates of young drivers and their parents. The study showed that: (1) the *Parental training* group recorded significantly lower events rates (−29%) compared to the *Control* group during the solo period; (2) although directed mainly at the novice drivers, the intervention positively affected also the behavior of parents, with both fathers and mothers in the *Parental training* group improving their driving (by −23% for both fathers and mothers) and mothers improving it also in the *Family feedback* group (by −30%). Thus, the intervention has broader impact effect beside the targeted population.
It can be concluded that providing feedback on driving behavior and parental training in vigilant care significantly improves the driving behavior of young novice male drivers.

Future research directions could include applying the intervention to a broader population, with larger diversity with respect to their driving records, culture, and behaviors. The challenge is to reach wide dissemination of IVDR for young drivers accompanied by parents' involvement, and to find the suitable incentives for its sustainability.