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Are they safer yet? Development of accident risk and risk behaviour among young e-scooter users in Norway over time

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E-scooters have rapidly transformed the urban and suburban traffic environments and are now found almost everywhere. Although shared e-scooters services target adults, teenagers under 18 frequently use both public and private e-scooters. This trend has raised safety concerns due to increases in accident rates and risky behaviours among e-scooter users in Norway. Previous research has typically concentrated on adult e-scooter users, leaving a gap in understanding of the risk behaviours and perceptions of younger riders.

A Norwegian study highlighted that the accident risk for young e-scooter users was seven times higher than that for cyclists (measured as accidents per 1000 hours ridden). Interestingly, this study also found that girls were at higher risk of accidents than boys, suggesting that the novelty of e-scooters might contribute to these elevated risk (Fyhri, Karlsen & Bjørnskau, 2021). Other research has identified common risky behaviours among young e-scooter users, such as speeding on sidewalks alongside other vulnerable road users, riding with multiple riders on a single scooter, and not wearing helmets (Milch, Ellis, Fyhri & Karlsen, 2022; Milch, Ellis, Karlsen & Fyhri, 2022).

To address the safety concerns, the Oslo municipality introduced new e-scooter regulations in September 2021, which included limiting the number of e-scooters available for rental and imposing night-time usage restrictions. In 2022, the Norwegian government expanded these measures to mandate helmet use for children under 15 and introduced a general blood alcohol limit for riders.

In the present study, we aim to investigate the development of accident risk and risky behaviour among young e-scooter users over time, assessing whether the development of accident risk and evaluating the impact of the imposed regulations on these factors.

Method

This study uses survey data collected in the years 2021-2024 to compare accident risk and explore associated risk factors among teenage e-scooter users. The first dataset was collected in the fall of 2021 and spring of 2022 from teenagers aged 13-22 across nine Norwegian counties (n = 3738 and n = 1199, respectively). The second dataset is from a large youth and mobility survey conducted in Viken county during the fall of 2023 (n = 16 780), with data collection ongoing into the spring of 2024.

Participants were recruited through schools and the national population register for the initial surveys, and solely through schools for the later surveys. The surveys consistently included questions about e-scooter use, risk behaviours, and accidents. Data was weighted by age and gender to adjust for sampling differences. Exposure was quantified using a travel diary method, where participants recorded their travel from the day prior to the survey, with these data extrapolated to estimate annual exposure levels. Risk levels were calculated by dividing the total number of accidents by the aggregated exposure for each group, with accidents classified by severity, including injuries and those requiring medical visits.

Results

Initial findings indicate a significant decrease in e-scooter usage under the influence of alcohol among 16-18-year-olds, dropping from 33% in 2021 to 21% in 2023, suggesting the effectiveness of the new regulations. The average duration of e-scooter use increased from 1.3 minutes per ride in 2021 to 1.6 minutes in 2023, with boys consistently reporting higher usage than girls (2.1 minutes in versus 1.1 minutes in 2023).

Gender differences in accident rates remained small in 2023; girls reported an average of 0.19 accidents, while boys reported 0.24. For accidents involving injuries, the figures were 0.11 for girls and 0.14 for boys, and accidents requiring a doctor visit, 0.02 for girls and 0.03 for boys. These patterns were consistent with those observed in 2021. The overall average number of accidents increased slightly from 0.2 to 0.22. Further analysis is necessary to determine if this increase represents a rise in risk, considering ongoing data collection and sampling adjustments.

Discussion and conclusions

This study provides insights into e-scooter use and accident mechanisms among Norwegian youth. While girls reported slightly more minor accidents, boys experienced more accidents resulting in injuries. The introduction of new regulations appears to have mitigated some risky behaviours, particularly riding under the influence. However, the slight increase in overall accidents suggests that the rise in e-scooter use may offset some of these safety gains. Detailed analysis will be presented at the conference to thoroughly evaluate the impacts of these regulatory changes.

References

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