ENGLISH | Summary

E-scooters and accessibility in urban environments
The experiences of people with impaired vision or impaired mobility

Main findings

- E-scooters are largely perceived as an obstacle in urban environments, especially on pavements and at the entrance to buildings
- There are also other elements in urban environments that are major obstacles for many of the respondents, including pavement signs, posts and bollards, stairs and high kerbs
- Most respondents feel unsafe when interacting with e-scooter riders, and many feel unsafe when interacting with cyclists
- Many state that e-scooters cause them to use more time on trips in urban environments. This is linked both to more cautious walking and uncertainty and to obstacles that are difficult to get around or that make you turn around
- More people avoid areas or drop trips in urban environments because of e-scooters
- Experiencing e-scooters as a major obstacle or feeling unsafe is linked to an increased chance of avoiding areas or dropping trips

Background

In recent years, the challenges that e-scooters create for others have been widely discussed, and Handikapnytt's responsible editor has stated that discrimination against the disabled is a built-in part of the business model for shared e-scooters. The media and interest organizations have discussed how e-scooters, both in terms of use and parking, can be problematic for people with impaired vision or impaired movement, but there are large knowledge gaps.

This project investigates whether, and how, e-scooters affect the sense of safety in and accessibility to the urban environment for people with impaired vision or reduced mobility.

We do this by examining:

- To what extent are parked e-scooters perceived as an obstacle in an urban environment?
- How safe do the respondents feel when interacting with e-scooter riders?
- Do the respondents change how, or how much they use the urban environment as a result of e-scooters?

This project provides a systematic mapping of obstacles for people with vision impairments or reduced mobility. The results provide important knowledge for decision-makers who must assess measures and regulations related to the use and rental of e-scooters.

Methods

We carried out two surveys: a telephone survey among members of the Norwegian Association of the Blind and Partially Sighted (NBF) and an online survey among members of the Norwegian Association of Disabled (NHF). The NHF also posted about the survey on social media. The response rate for the telephone interviews was 28%, while it was 3% for the e-mail invitation. We cannot calculate response rates for social media.

We analysed open-ended questions by manually reading through and categorizing the content of the answers. Answers to closed questions are mainly presented descriptively, and main questions were examined statistically with logistic regressions. As the samples were of limited size, we used separate models to examine different independent variables.

Results

Almost four in ten of the NBF sample and almost half of the NHF sample, stated that they experience e-scooters as an obstacle to a large or very large extent when moving in urban environments. In particular, e-scooters hinder their accessibility on pavements, followed by at the entrance to buildings.

Other common elements in urban areas are also considered major obstacles by many, and it's clear that e-scooters are not the only obstacle the respondents encounter. In the NHF sample, high kerbs are experienced as a major obstacle to by slightly more respondents than e-scooters. Stairs are also a major obstacle. In addition to e-scooters or infrastructure or other objects each presenting challenges on their own, the combination can create a situation where it's impossible to get around a parked e-scooter. Among the respondents from the NFB, parked e-scooters are perceived as an obstacle to the greatest extent. However, almost as many perceive signs on pavements as major obstacles. Posts and bollards are also obstacles for many.

Almost two-thirds of both samples feel unsafe when interacting with e-scooter riders, compared to just under half who feel unsafe when interacting with cyclists. In both
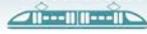
samples, the majority thinks that cyclists and pedestrians sharing the same space is not working well. Even more think that sharing space with e-scooter riders doesn't work well.

16% (NBF sample) and 13% (NHF sample) say that they have experienced falling over a parked e-scooter. Over half of the NBF sample, and two-thirds of the NHF sample say they have experienced almost being hit by an e-scooter rider, and 4% and 17%, respectively, have been hit.

We have carried out multivariate analyses where we control for age and having a condition that makes it even more important to avoid falling. In these analyses, there is no connection between how one usually moves in an urban environment (NHF sample) or degree of vision (NBF sample) and perceived safety or avoiding areas or skipping trips. There is a tendency, which is not statistically significant, where a larger share of those who mainly use a wheelchair than those who mainly walk report that they need more time on trips in urban environments due to e-scooter. Those who experience e-scooters as an obstacle and who have experienced almost being hit by an e-scooter are more likely to feel unsafe. Feeling unsafe when interacting with e-scooters and experiencing e-scooters as an obstacle is associated with a greater likelihood of more time use on trips, and of avoiding areas or dropping trips. We found no difference between Oslo versus other locations when it comes to needing more time for trips due to e-scooters, but for both samples we saw that people in Oslo have a lower probability of avoiding areas or abandoning trips because of e-scooters.

In analyses where we don't control for other factors, we see tendencies that more blind and severely visually impaired people than visually impaired people have experienced falling over parked e-scooters, and more people who mainly use wheelchairs have been forced to turn around or go into the roadway due to parked e-scooters. For different age groups, the differences vary slightly between questions and the selections. There is a tendency where a smaller proportion of the older respondents have been obstructed by or fallen over parked e-scooters, and a smaller proportion of the younger respondents feel unsafe.

The open answers show that uncertainty and fear are the main reasons for abandoning trips for people with impaired vision. For these people, fear and cautious walking are the main reason why they take longer, even if difficulties with actual orientation and needing more time to pay attention are also mentioned often. For people with reduced mobility, the main problems are related to e-scooters as an obstacle, which leads to detours and which in turn leads to increased trip duration and frustration. Perceived safety is also important for this group.

The pavement problem

Norway differs from many countries in that bicycles and e-scooters can be used and parked on pavements, pedestrian streets and the like. Most of our respondents think it's not working well that cyclists and e-scooter riders share space with pedestrians. Previous research has also found that pedestrians feel unsafe and frustrated when interacting with both cyclists and e-scooter riders, and that high speed and close overtakings are important reasons for this.
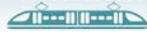
E-scooters can be parked in pedestrian areas if they are not an unnecessary obstacle or inconvenience, but the rules don't specify what constitutes an obstacle. Previous research has found clear differences between users' and non-users' perceptions of whether e-scooters are an obstacle, and whether they are parked well. Specific guidelines for parking may reduce differences in the perception of users and non-users about what constitutes good parking and thus reduce the problem.

Problems associated with blocked roads or increased difficulty in orientation, in addition to feeling unsafe are important reasons for why e-scooters make it more difficult for people with reduced mobility and impaired vision to move in the urban environment. Although e-scooters are not the only problematic aspect of moving around in the urban environment, it's important to find better solutions for e-scooters than what we have today - especially on pavements and at entrances to public buildings, shops and similar.