



CyWalk – a new smart tool to register and locate pedestrian, bicycle and e-scooter accidents

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1 Introduction

Underreporting of bicycle accidents in the official statistics is a well-known problem [1, 2]. Most bicycle and e-scooter accidents are single accidents, and usually not registered by the police and hence not included in the official statistics. Data from Oslo Emergency Ward shows that the number of cyclists injured in road traffic accidents is twenty times higher than what is recorded officially, and e-scooter accidents are even less reported [3]. Pedestrian falls is another accident type that is not included in the official road accident statistics in most countries, since they are not defined as traffic accidents. However, they constitute most pedestrian accidents [4]. Oslo Emergency Ward records sixty times more pedestrian accidents than what is recorded in the official road accident statistics. Hence to improve safety for vulnerable road users we need better knowledge of these accidents. This has been requested for several years by traffic safety researchers [5, 6], and this is the major aim of the CyWalk project.

2. Research methodology

"The ReCyCLIST project (Recording Cyclist Crashes and Long-term Injury Consequences by new Smart Tools), which is the precursor to the CyWalk project, developed a new digital accident registration tool that is currently being used in several counties in Norway [7]. From 1st of June 2022, accidents with bicycles, e-scooters and other micro mobility devices are registered at hospitals and emergency wards in Agder county in the south of Norway. The registrations are predominantly carried out by the patients themselves. When coming to the hospital / emergency ward they are informed about the project and asked to register their accident by scanning a QR-code found on posters and leaflets on the premises.

The QR code gives access to a digital questionnaire with questions about the vehicle, the accident type, and different characteristics of the accident including to locate the accident site through Google Maps and Street View. From 1st of May 2024, the registrations have been expanded to include pedestrians, and to cover more cities/counties including the largest Norwegian cities, Oslo and Bergen.

3. Results

In Agder, a total of 623 accidents with bicycles, e-scooters and other micro mobility vehicles were registered in Agder county in the period from 1st of June 2022 to 30th of April 2024. Single accidents constitute the majority (78 %) followed by collisions (13 %) and falls due to near misses (9 %). Ordinary bicycles are most often used (49 %), followed by e-bikes (22 %), e-scooters (13 %) and other small vehicles. All age groups are represented, with peaks among children and teenagers (0-12 and 13-17) and adults and elderly (45-65+). There is a clear association between age groups and vehicle types; the middle-aged and elderly have accidents



on e-bikes and ordinary bicycles, whereas the young have accidents on e-scooters in addition to ordinary bicycles.

Overall, men are victim in 60 % of accidents, and they dominate among ordinary bicycle accidents. However, women have more e-scooter accidents than men, and there are no gender differences for e-bike accidents. Men are more often involved in collisions and conflicts than women, and less victim to accidents because of infrastructure elements. The infrastructure elements most often contributing to bicycle and e-scooter accidents are kerbs and items in the road.

Several accident hot spots have been identified, and inspections and video recordings have been carried out at the sites to identify accident mechanisms and possible mitigating measures. Both infrastructure elements and road user interaction problems have been identified as contributing accident mechanisms. Local road authorities have introduced measures that are currently evaluated, and results will be presented at the conference. The registrations in CyWalk, that started on 1st of May 2024. They also include pedestrians and accidents from Oslo, Bergen and more cities. These data will provide an even broader knowledge of VRU accidents. Preliminary results from the CyWalk registrations will be presented at the conference.

4. Conclusions

The CyWalk project is a unique initiative that will provide increased knowledge about accidents involving vulnerable road users such as pedestrians, cyclists, and e-scooter riders. The accidents are also recorded geographically with Google aps and Street View, allowing for the identification of accident hotspots, so that authorities can implement preventive measures.

References

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