

EVIDENCE BRIEF

The **Social Sciences and Humanities Research Council** in collaboration with **Infrastructure Canada**

SSHRC's Imagining Canada's Future initiative mobilizes social sciences and humanities research to address emerging economic, societal and knowledge needs for Canada, and help guide decision-making across all sectors toward a better future. This evidence brief addresses the Future Challenge Area of: **Mobility and Public Transit**

Informing the development of inclusive pedal-assist e-bike policy and infrastructure

About the project

E-bike use is increasing across Canada; however, policies and infrastructure to support this modal shift are lagging. In Canada, e-bikes can provide assistance up to a speed of 32km/hour. They include pedal-assist style bicycles as well as throttle-assist e-bikes that do not require additional rider effort. The focus of this work was on pedal-assist e-bikes.

Pedal-assist e-bikes are a form of active transportation associated with health and environmental benefits.

Considering the commitment of municipalities, provinces and Canada as a whole to reduce carbon emissions and create healthy, age-friendly, barrier-free communities, the use of pedal-assist e-bikes as a form of transportation must be supported. Thus, the purpose of this work was to review the available evidence to inform the development of inclusive and accessible programs, policies and infrastructure to promote the use of pedal-assist e-bikes across Canada.

Key findings

- There is significant ambiguity with regard to the definition of e-bikes. Definitions vary across countries, making it challenging to differentiate and interpret research on pedal-assisted e-bikes.
 - Use of pedal-assist e-bikes at a self-selected intensity is considered moderate to vigorous intensity physical activity, and is thus associated with significant health benefits.
 - Access to pedal-assist e-bikes leads to a reduction in use of a personal vehicle; and use of a pedal-assist e-bike significantly reduces greenhouse gas emissions.
 - Traffic conflict, injuries, accidents and helmet-use are generally similar between those riding conventional bicycles and those riding pedal-assist e-bikes.
- Of note, perceptions of drivers with regard to the speed of approaching pedal-assist e-bikes is poor, and thus poses an increased risk.
- The average speed at which pedal-assist e-cyclists ride is well below 20 km/hour.
 - Bikeshare programs can increase pedal-assist e-bike use and reduce reliance on cars. They are used by local residents as well as tourists.
 - There are many perceived benefits to pedal-assist e-bike use for daily commuting as well as recreation. Barriers pertain to cost, infrastructure and e-bike features.
 - There were differences in benefits and barriers noted when comparing gender, age and income levels.

Policy implications

Pedal-assist e-bikes need to be clearly defined, and regulation should be similar to that of a conventional bicycle. To support the uptake of pedal-assist e-bikes for commuting, policies and programs that include cost subsidies, improved infrastructure and supportive policies that shift away from being car-centric are urgently needed. This will aid with the attainment of goals pertaining to greenhouse gas emissions (Net Zero); age-friendly, healthy, barrier-free communities; and injury/accident-free communities (Vision Zero).

To increase uptake across diverse groups in our communities, we must increase access and awareness of pedal-assist e-bikes through e-bike sharing or rental programs and through public awareness campaigns. This is critical for ensuring awareness among drivers and improving safety for cyclists.

An integrated approach to transportation is necessary as pedal-assist e-bikes emerge as a key component of the transportation ecosystem. Integration with public transportation, road planning and policies will be critical to ensure a safe and smooth transition to multi-modal transportation.

An age-friendly and accessibility lens that considers diverse sociodemographic characteristics, such as gender and race, must be applied when working on policies and infrastructure related to pedal-assist e-bikes. The current state is creating a system that continues to privilege the privileged.

CONTACT THE RESEARCHER

Shilpa Dogra, associate professor, Faculty of Health Sciences (Kinesiology), University of Ontario Institute of Technology: Shilpa.Dogra@uoit.ca

Meghann Lloyd, associate professor, Faculty of Health Sciences (Kinesiology), University of Ontario Institute of Technology: Meghann.Lloyd@uoit.ca

Daniel Hoorweg, associate professor, Faculty of Energy Systems and Nuclear Science, University of Ontario Institute of Technology: Daniel.Hoorweg@uoit.ca

FURTHER INFORMATION

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