

Factors contributing to pedelec crashes in the Netherlands

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1. Introduction

In the Netherlands, five percent of the people own a pedelec (PEDal ELEctric Cycle), with a relatively high ownership rate and mileage among women and people aged 60 and over (Van Boggelen et al., 2013). The pedelec market can be broken down into two categories: “pedelecs” and “speed pedelecs”. Unfortunately, neither research nor safety data distinguish between these two types of pedelecs so that the effects of potentially higher speed and of modal shifts on road safety are yet unclear.

Although a steady decline in bicyclist fatality rates can be seen, the number of seriously injured bicyclists has been increasing in the Netherlands in last 10 years, with the most serious injuries occurring among the older age groups (SWOV, 2013). About one third of bicycle accidents in which no motorized vehicle was involved happened on a pedelec (Davidse et al., 2014a, b). Research should indicate whether the increasing number of injuries can be explained by individual factors (e.g., more and more older people riding a bicycle nowadays), by vehicle factors (e.g., mechanical differences between conventional bicycles and pedelecs), or by the third traffic pillar: infrastructure (e.g., bicycle lane widths).

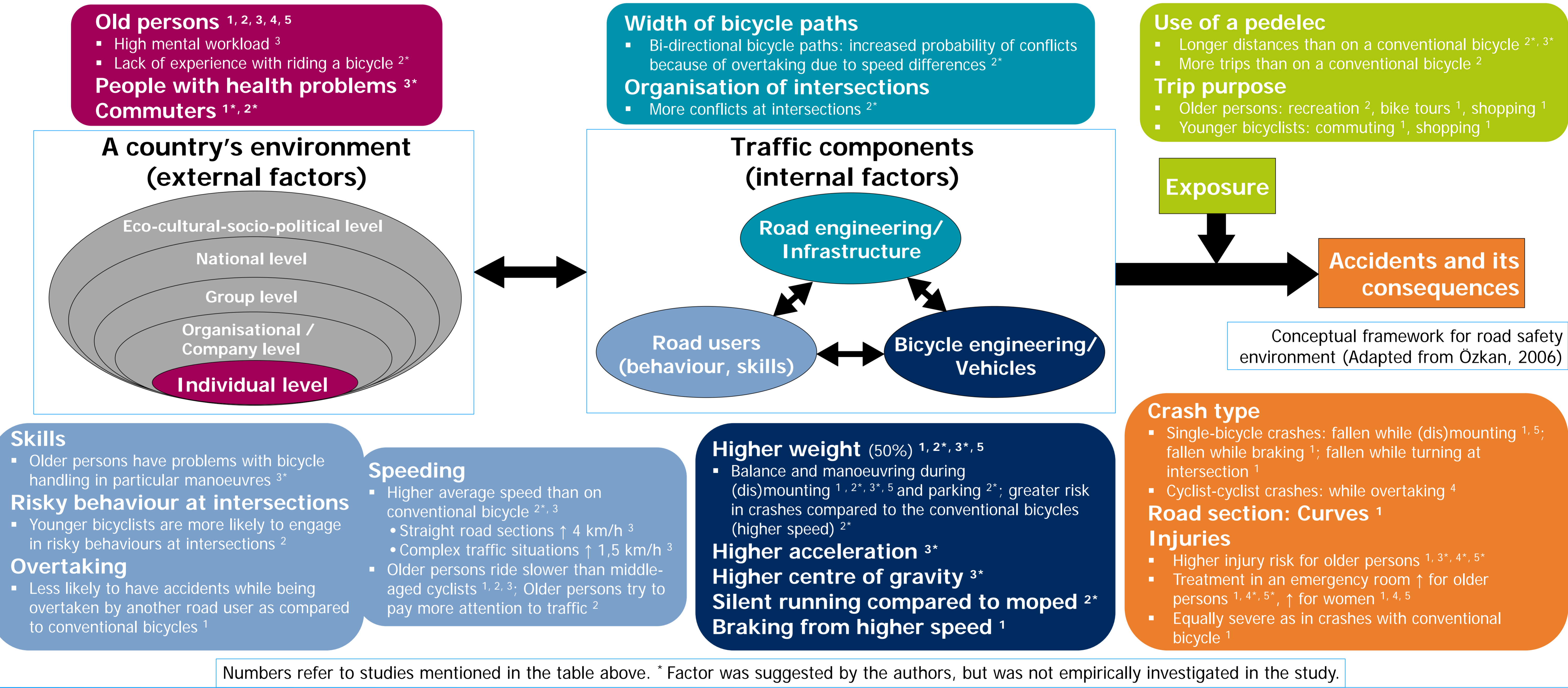
2. Objective

This poster categorizes contributing factors of pedelec crashes based on results of previous studies in the Netherlands. We use a framework of multilevel sociocultural and technical environment of road traffic (Özkan, 2006).

3. Studies of pedelec crashes

A literature search was conducted to retrieve Dutch research studies that aimed for insight into i) ownership of a pedelec and ii) the safety of pedelecs. Of 12 reviewed research studies, 5 papers were chosen based on sample size, methodology, and studied factors. These studies serve as a starting point for the categorization of factors that contribute to the likelihood of pedelec accidents.

4. Factors



5. Pedelec research priorities

- Registration of pedelec accidents as a separate category in crash reports
- Examination of modal shifts and their impact on road safety
- Investigation of the mechanical stability of pedelecs
- Improvement of pedelec-handling skills among older persons
- Investigation of commuters' risky behaviour
- Motivations for buying a (speed) pedelec: comfort and/or speed gain

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