Unfallforschung der Versicherer GDV

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INTERNATIONAL CYCLING CONFERENCE
bridging the gap between research and practice

Accident analysis and comparison of bicycles and pedelecs

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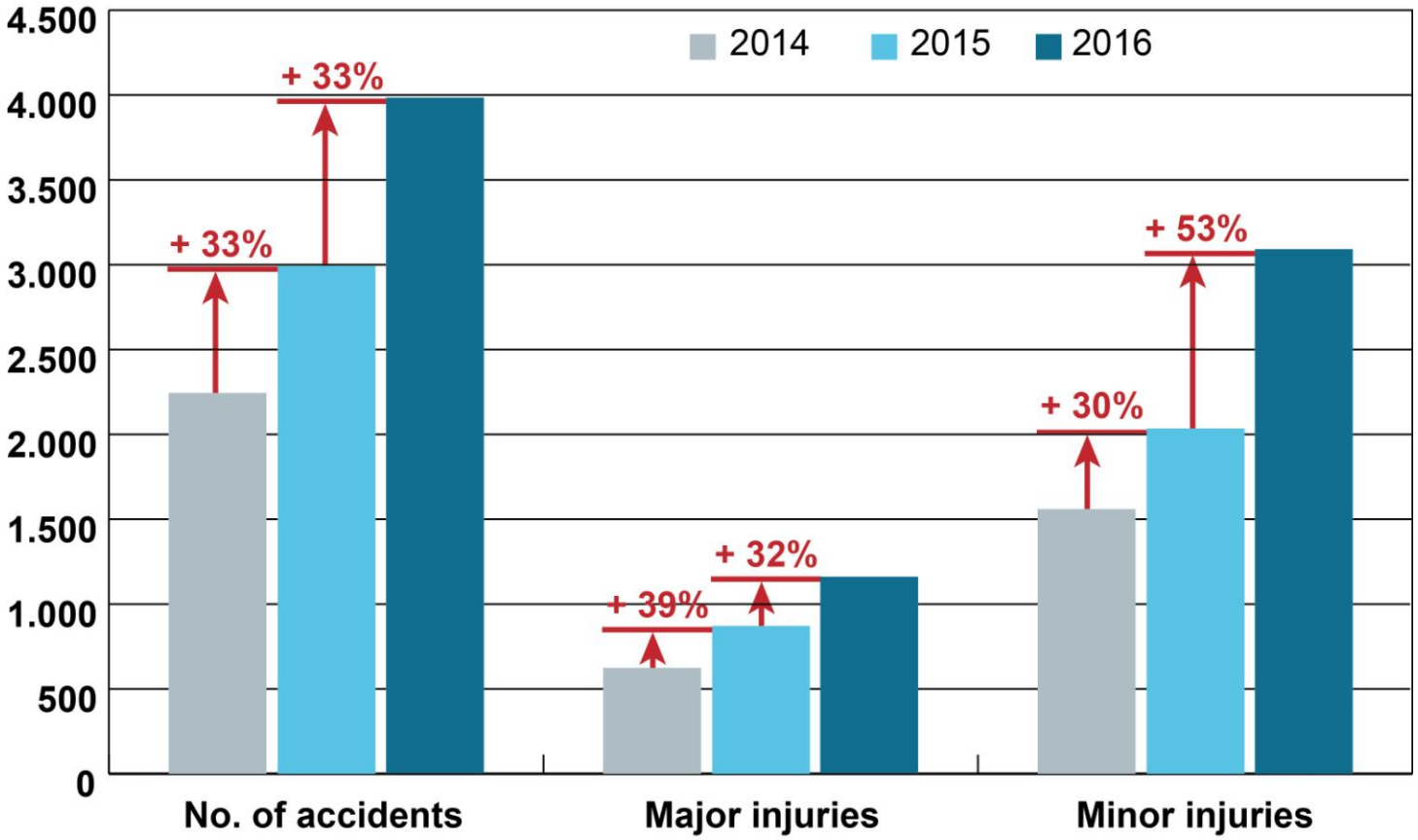
Introduction

Pedelec accidents in Germany over time



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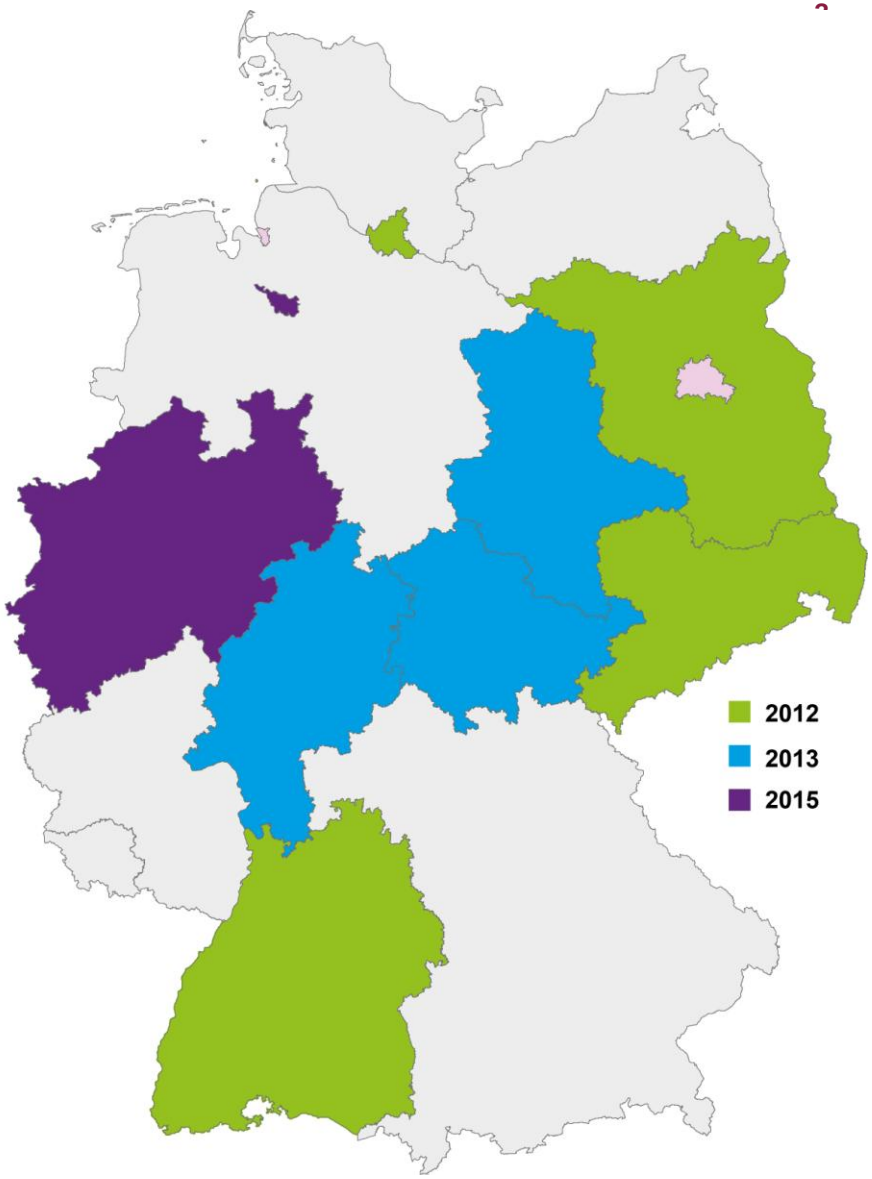
Methods

Sample of police-reported accidents

Federal state	Data since	Pedelec accidents	Bicycle accidents
Baden-Württemberg	Jan12	1,592	31,129
Brandenburg	Feb12	71	5,801
Saxony	March12	187	17,250
Hamburg	Sep12	152	5,664
Saxony-Anhalt	March13	43	6,770
Hesse	Apr13	335	10,918
Thuringia	Jul13	19	2,697
Bremen	Jan15	48	1,455
North Rhine-Westphalia (Münster)	Jan15	11	487
No. of accidents		**2,458**	**82,171**



Caution!

- per accident up to 3 persons involved
- at person level *N* = **2,495** pedelec cyclists and **87,800** bicyclists

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Summary of results

Pedelec cyclists involved in an accident …

- Share similar accident characteristics as bicyclists (e.g. mostly in urban areas, mostly hit by car etc.)

But:

- ✓ are **older** than bicyclists,
- ✓ have a higher share of fatalities and severe **injuries**,
- ✓ have their accidents more often on the **weekend**,
- ✓ have a higher share of accident in **rural areas**,
- ✓ Higher share of accidents occur **downhill**.
- ✓ have more **driving accidents / single accidents** where they lose control over the vehicle, e.g. falls,
- ✓ the second most frequent cause of accident is **inappropriate speed** without exceeding the speed limit.

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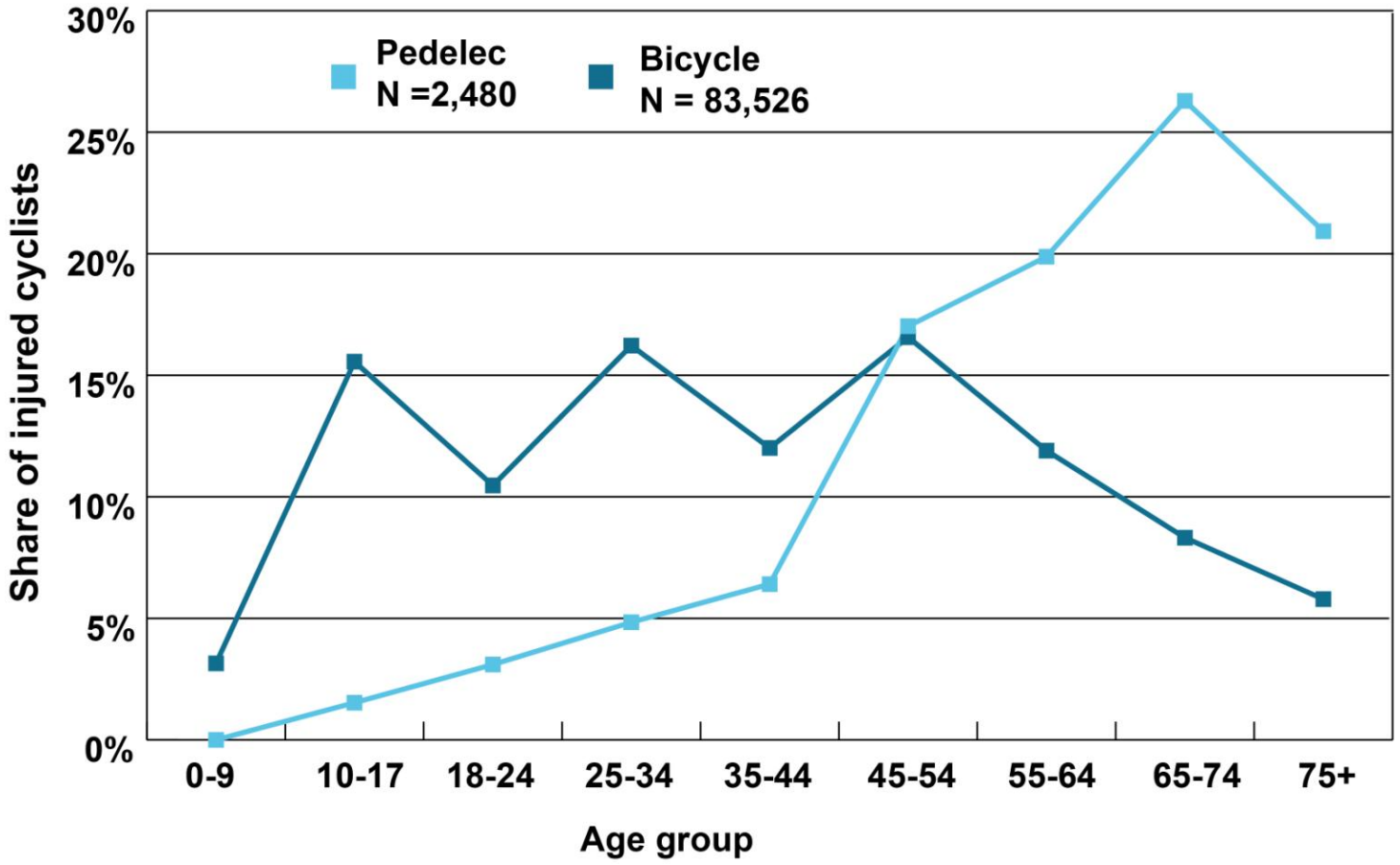
Results

Age distribution



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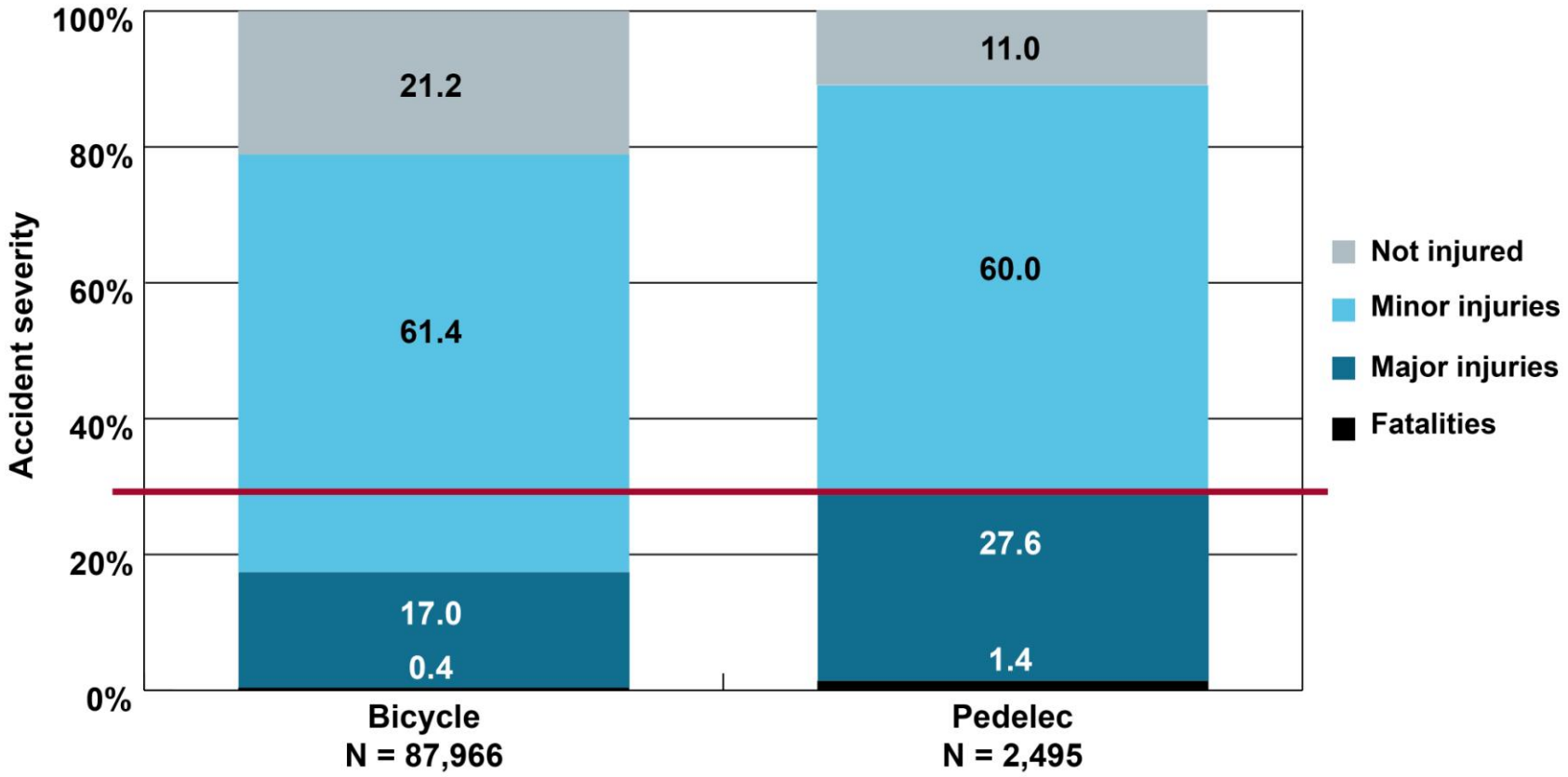
Results

Accident severity (%)



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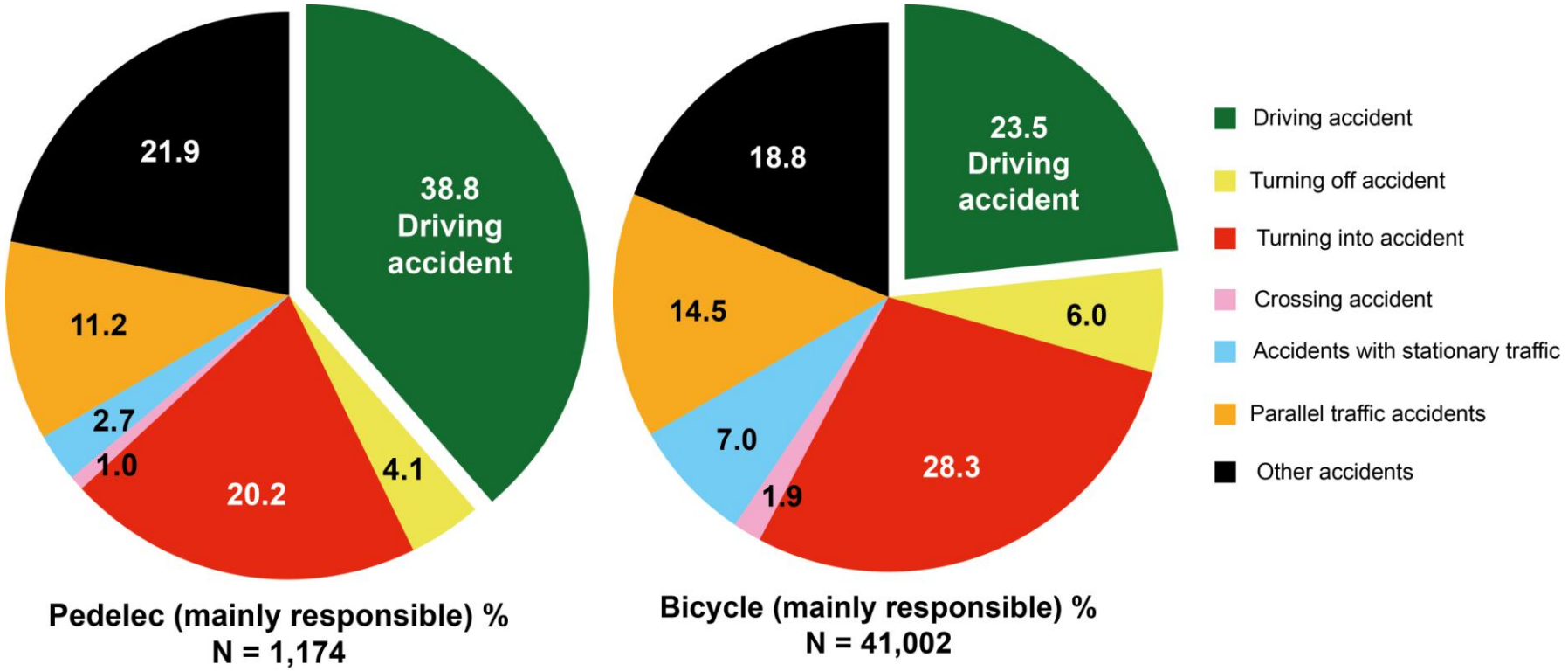
Results

Accident type by person mainly responsible



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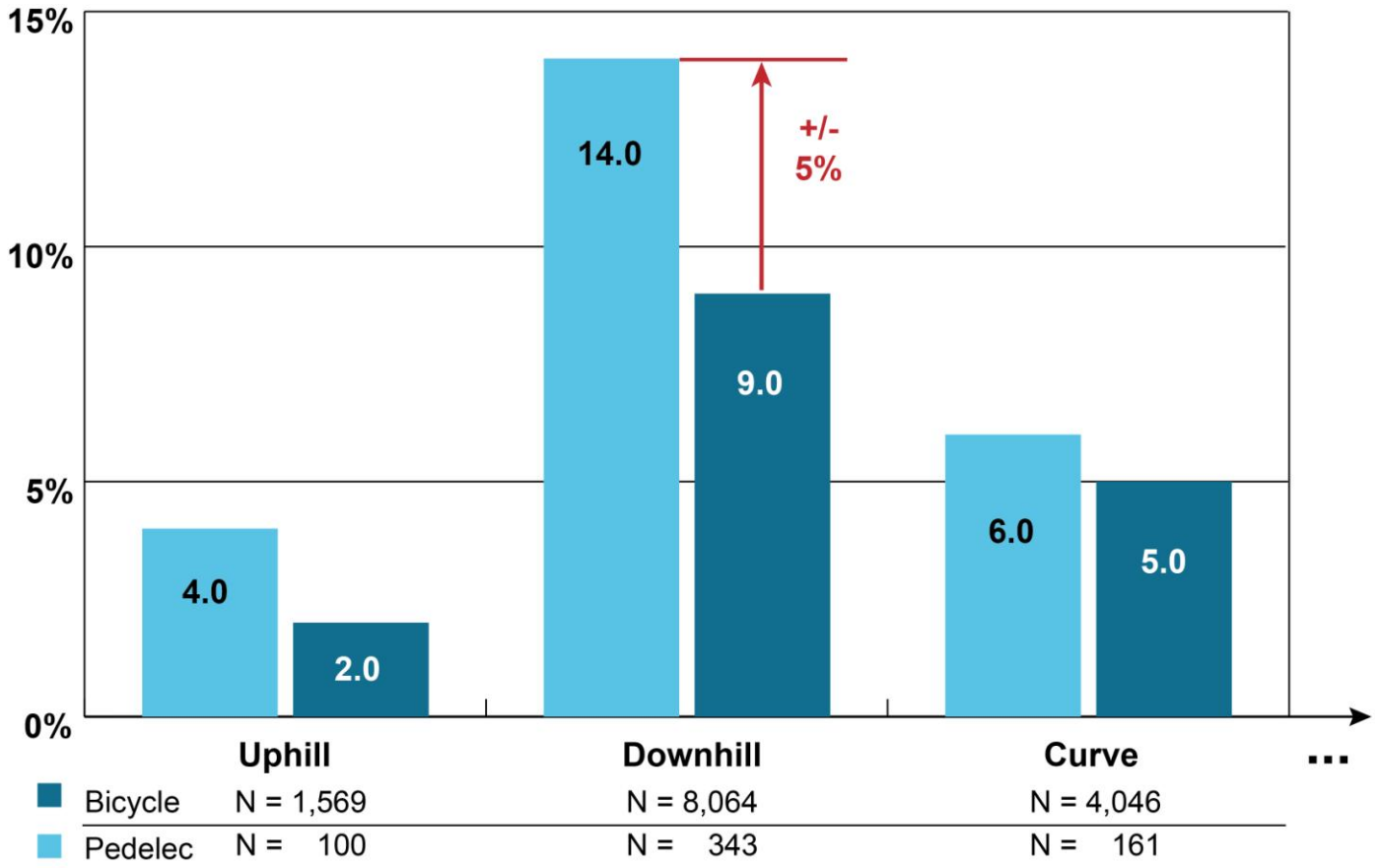
Results

Accident site characteristics



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Conclusions

- Pedelec accidents are expected to further increase
- Controlling a pedelec might be more difficult than a bicycle
- Pedelec riders may cycle too fast given their ability to control the pedelec, especially the elderly

- ➢ Elderly pedelec cyclists are at risk
- ➢ There needs to be special pedelec training
- ➢ Self-protection is highly recommended (e.g. by wearing a helmet)
- ➢ Representative travel behaviour data is needed to calculate accidents risks

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Statements

- **Bridging the gap between research and practice**
  - Provides evidence for developing countermeasures:
    - areas of concern, e.g. pedelec cycling dynamics
    - target groups, e.g. elderly
  - Highlights research needs:
    - representative travel behaviour data

- **Knowledge transfer to other countries to make cycling safer**
  - Accident monitoring and analysis allows for evidence-based accident prevention measures
  - Do not wait until the problem appears in the accidents statistics
  - Observing new trends in travel behaviour and vehicle technology may help to identify traffic safety issues earlier on

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