



What do accident data tell about drivers' needs for assistance?

– Ongoing BAST research –

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Accident data analysis to identify driver needs



Rationale:

For specific driving tasks:

- mismatch between drivers' capabilities and situational demands
- increased probability of driver errors
- increased risk of accidents

Expected outcome of ongoing research:

- To identify specific 'difficult' driving tasks
- Priority ranking of assistance functions considering drivers' needs with regard to safety



Accident data available from:

- Accident statistics: national statistics, international databases (e.g. IRTAD)
- Accident reports: police reports, reports included in in-depth databases
- In-depth accident databases: e.g. GIDAS (German In-Depth Accident Study)
- Interviews with drivers who caused accidents and / or persons who were involved in accidents



Ongoing project

„Assessing the safety benefits of ADAS and IVIS for elderly drivers“

Performed by:

University of Regensburg

Goal:

To identify specific needs of elderly drivers for assistance by taking a safety oriented approach

Methods:

Analysis of an in-depth accident database, interviews with drivers who caused accidents, literature review, focus groups, simulator study, field test



Step 1: Literature review

Accident risk:

- increased likelihood to be involved in an accident for drivers 60+, especially for those 75+

Critical situations for elderly drivers:

- lane changes
- crossings
- right of way
- turning
- conflicts with other road users



Reduced performance of elderly drivers:

- reaction time
- selective attention
- vision

Compensatory strategies of elderly drivers:

- avoiding driving in darkness
- avoiding driving on unfamiliar routes
- lowering speed



Step 2: Psychological aspects of traffic accidents

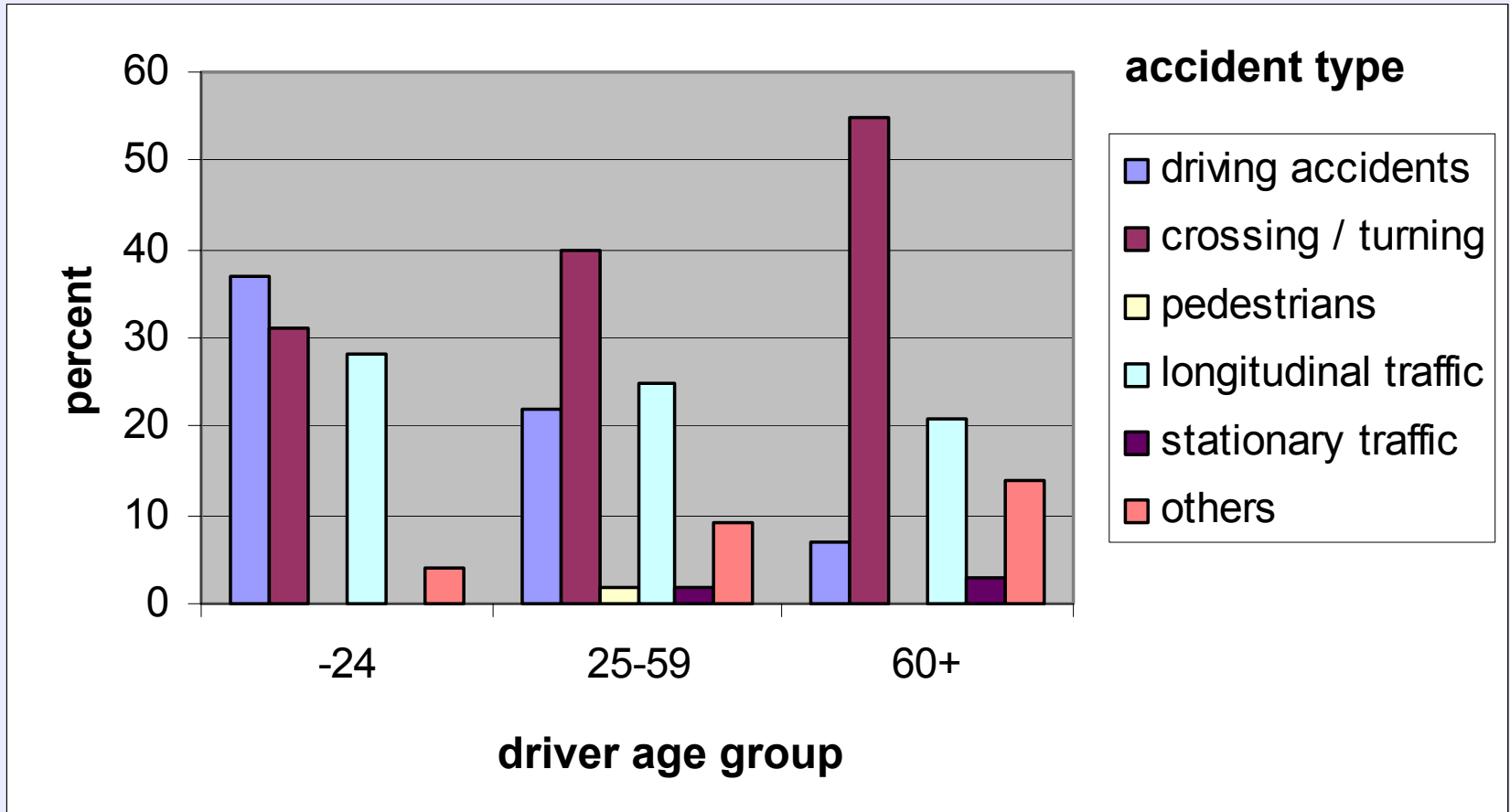
Data:

244 traffic accidents from 07/02 until 12/03 available at the Regensburg Clinical Centre

Method:

Telephone interviews with the drivers; police reports

Preliminary results



Taxonomy of Driver Errors



Mechanical error

Informational error

Diagnostic error

Error in goal setting

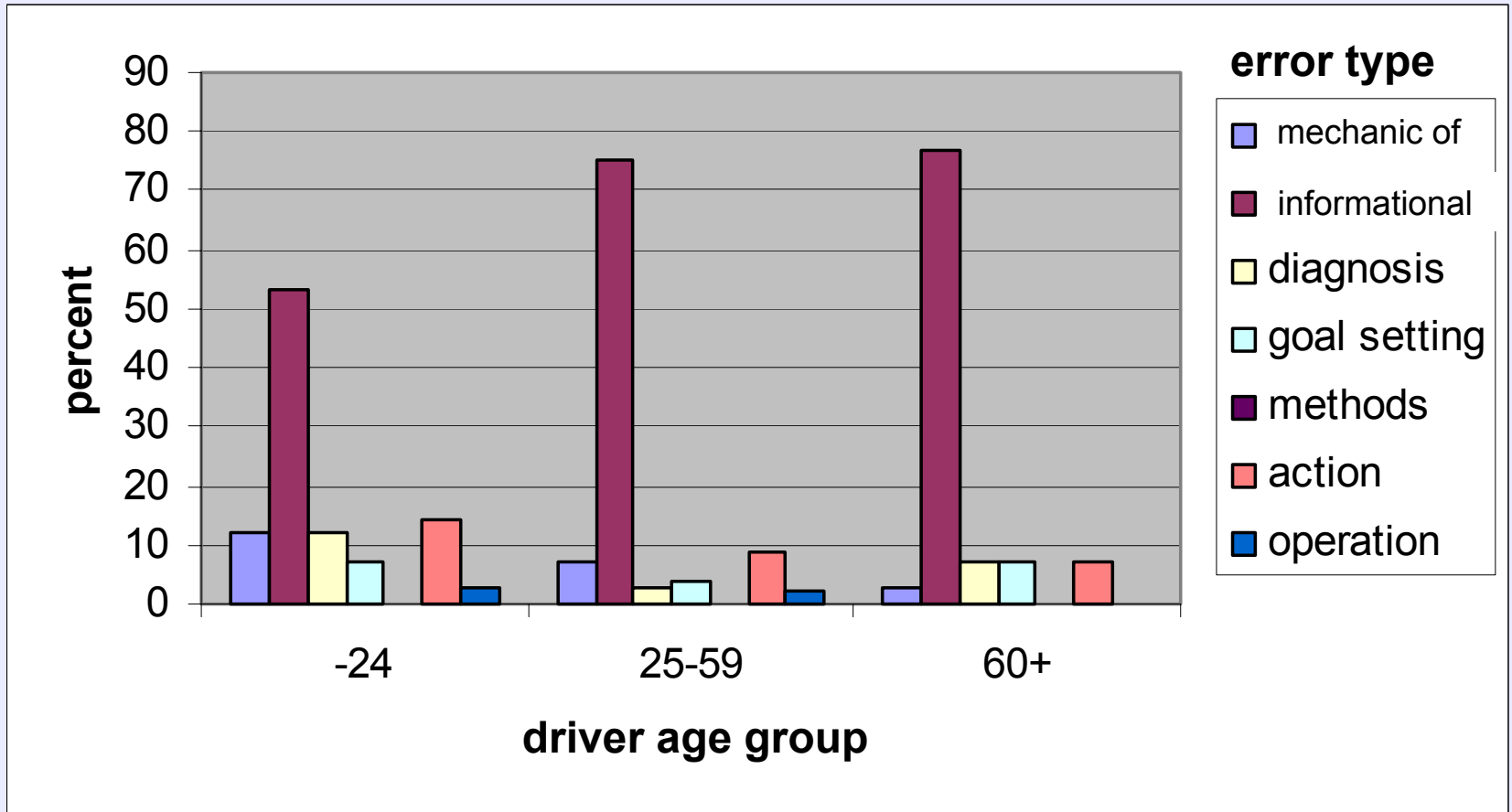
Error of methods

Error of action

Error of operation

(Zimmer, 2002)

Preliminary results



Preliminary conclusions:



- identification of specific 'problematic' driving situations seems possible
- in-depth analyses are complex and time-consuming
- statistical analysis complicated by low number of cases
- yields representative results provided that the analysed database is representative
- information coming from interviews with drivers who have caused an accident may be biased towards their personal point of view



Next steps:

Combination of the

- accident analysis method to generate hypotheses with other methods,
- simulator studies, field tests to test the hypotheses



Thank you !