



# UNDER-REPORTING OF ACCIDENTS

*Theories and research methods in traffic safety*



AALBORG UNIVERSITY  
DENMARK

Who am I?

**Katrine Rabjerg Meltofte**

Ph.d.-student: September 2014

Aalborg University Denmark



*krm@civil.aau.dk*

<https://dk.linkedin.com/in/katrinemeltofte>



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# Agenda

- Brief overview of my phd.-study
- Self-reporting
  - What do I mean by *self-reporting*?
  - Methodological concerns
  - Results from a case study
  - Futher work
- Ideas for discussion



# Facts of relevance

- In Denmark, accident data are registered by the police. The hospital and/or emergency room registers if the damage happened in a traffic accident or not – but not the location, time etc.
- Police catch rate in percentage of people registered in emergency room 2007. Results taken from (Janstrup, Hels et al. 2014):

Car		Cyclist		Pedestrian	
severe	slight	severe	slight	severe	slight
68%	25%	14%	7%	62%	23%

- For now, let us define under-reporting as “the number of accidents that we as technical specialists does not know about because they are not registered by the police”



# My ph.d.-study: "Under-reporting of accidents"

- **How do we minimize the level of under-reporting of traffic accidents and its consequences?**

1

Data from the National Patient Register (LPR)  
- How many are involved in an accident?  
- How severe are the accidents?

2

Data from ambulance services  
- Where do accidents occur?

3

Self-reported accident data  
- How did the accident happen?  
- Where did it happen?

4

InDeV:  
- App to detect motions of vulnerable road users (VRUs)  
- Socio-economic cost of traffic accidents with VRUs



# Self-reporting of accidents

What do I mean by "self-reporting"?

- Questionnaire sent out asking about an accident
- Qualitative and quantitative questiona – eg. "Describe your accident" or "What time did the accident happen?"

Consists of 3 studies:

- Almost finished: Case: Project with Flourescent Bikewear
- Next step: Self-reporting from National Patient Register
- Third step: Self-reporting in 5 countries (InDeV)

Lots of data – but is it valid?



# General methodological concerns about self-reports

- **Biased respondents?**
  - Who chooses to answer a self-report questionnaire?
- **Can the respondents give the information asked?**
  - Do they understand what they are being asked?
  - Do they possess the skills for answering (eg. locating accident on a map)
  - Memory loss and recollection of traumatic events
  - Cognitive difficulties – did respondents actually notice the answer to what was asked (for instance speed prior to accident)?
- **Will the respondents be honest?**
  - Social desirability
  - Fear of repercussions (insurance/legal issues due to culpability)



# Findings from the case-study



N=6.308

Questionnaire sent out every month for a whole year (2012-2013)

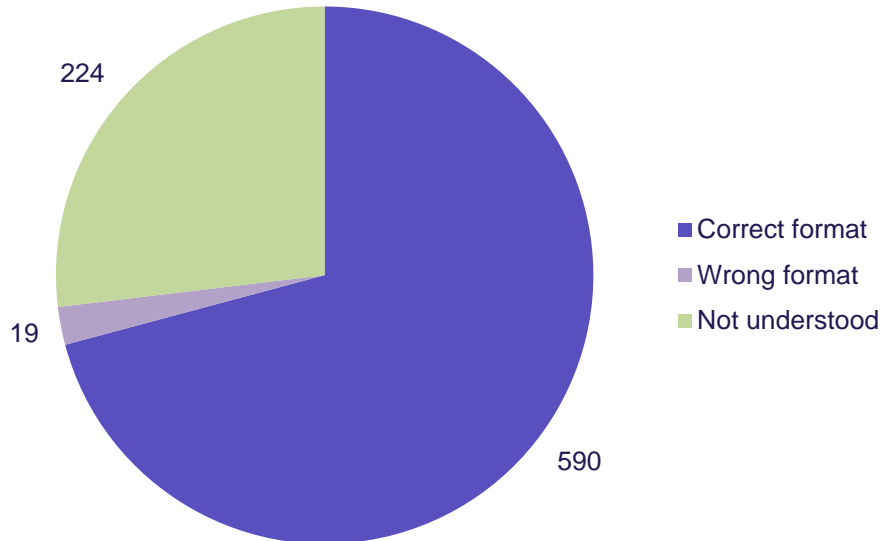
Reported 833 bicycle accidents during the test period of one year

“Dedicated participants”: A high return rate – 97,5 % of the monthly inquiries about accidents was answered by the participants



# Can they locate the place of accident?

Copy-pasting gps-coordinates into questionnaire



## Task:

- Open maps.google.dk and right-click on the accident location. Select to copy coordinates and paste them into the questionnaire

- Correct format:

XX.XXXXXX, XX.XXXXXX

- Wrong format:

+XX° XX' X.XX", +XX° XX' XX.XX

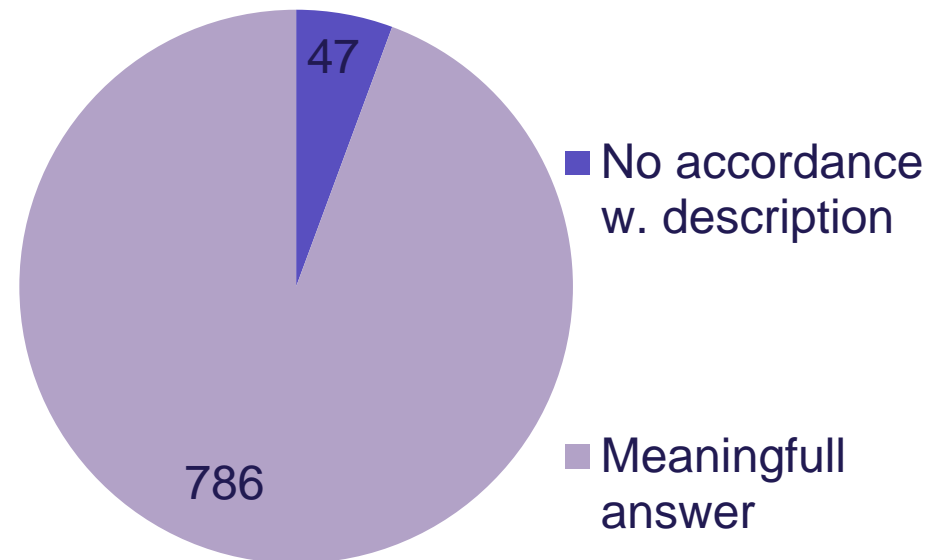
- Not understood:

Leaving field blank, writing address or pasting link to maps.google



# Do the respondents understand the questions?

- Difficult to measure!
- Expected difficulty in regards to quite theoretical terms, eg. "parties" – for instance: One car with three passengers equals one party.
- ***“How many parties were involved in the accident?”***
  - Of 833 accident reports 47 (6%) had to be corrected on the answer

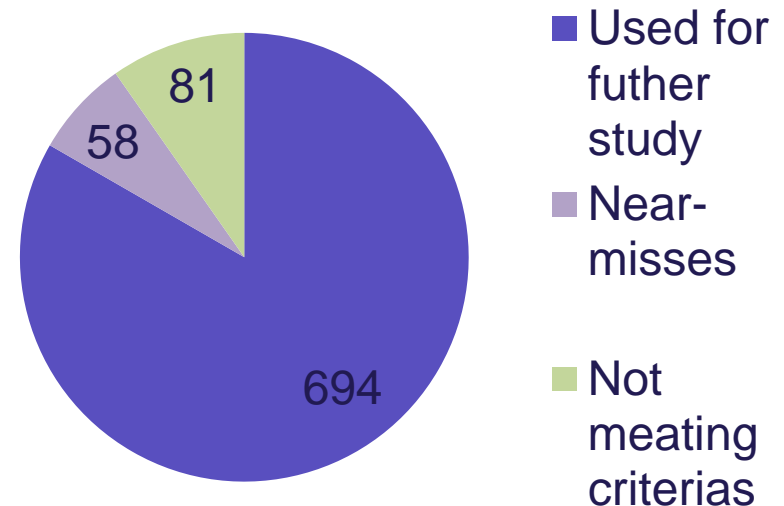


# Do they report real accidents?

... or do they make up accidents?

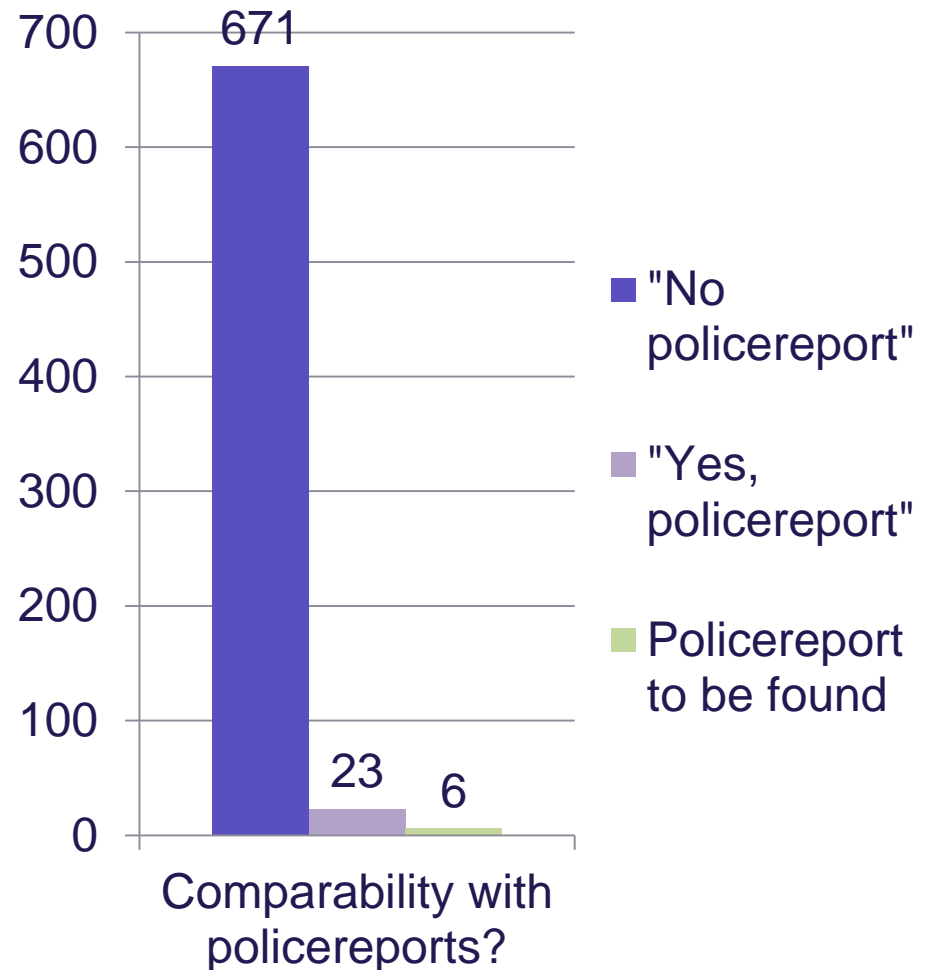
- Near misses:
  - When reading the accident description one can conclude that there wasn't any accident
- Not meeting criterias:
  - Not in Denmark
  - Not on bicycle
  - Not on public road (mountain biking)
  - Unfinished questionnaire

## Reported as accidents



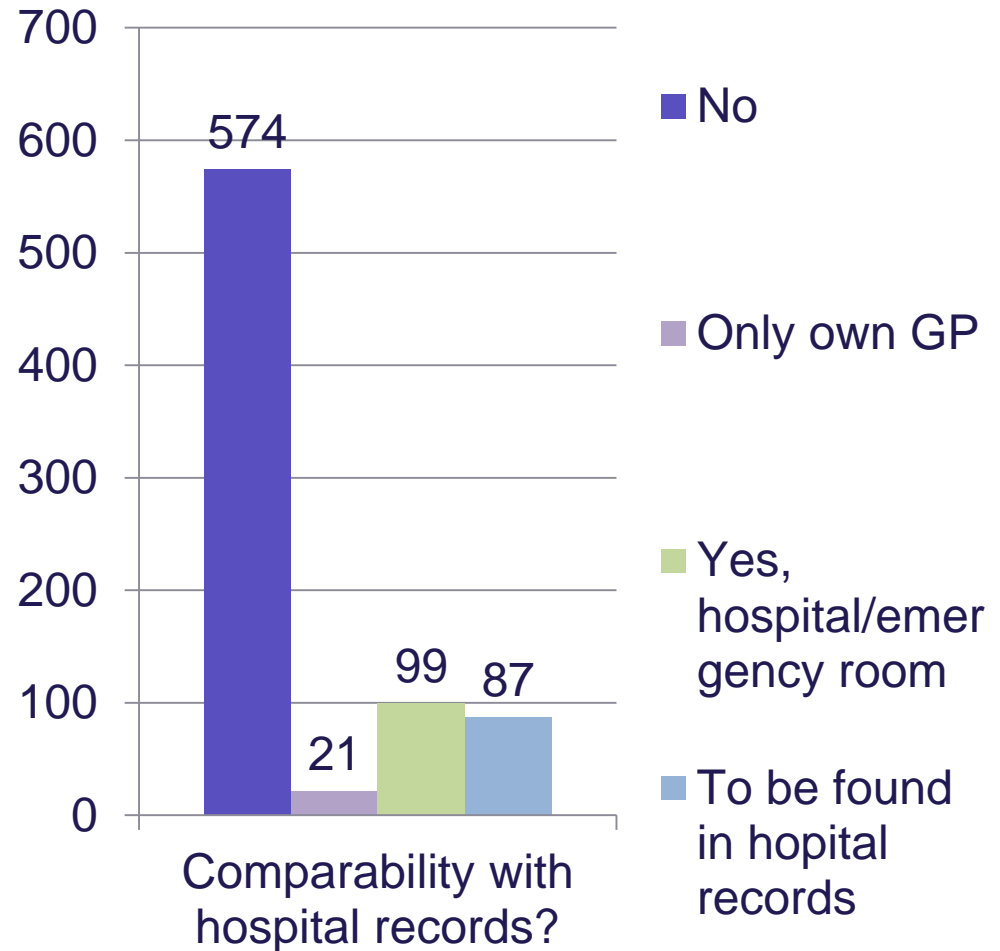
# Are self-reports in accordance with police records?

- ***"Has there been written a police report on your accident?"***
- Answering "yes": 23 out of 694
- In reality only 6 out of 694 (0,9% of total claimed accidents)



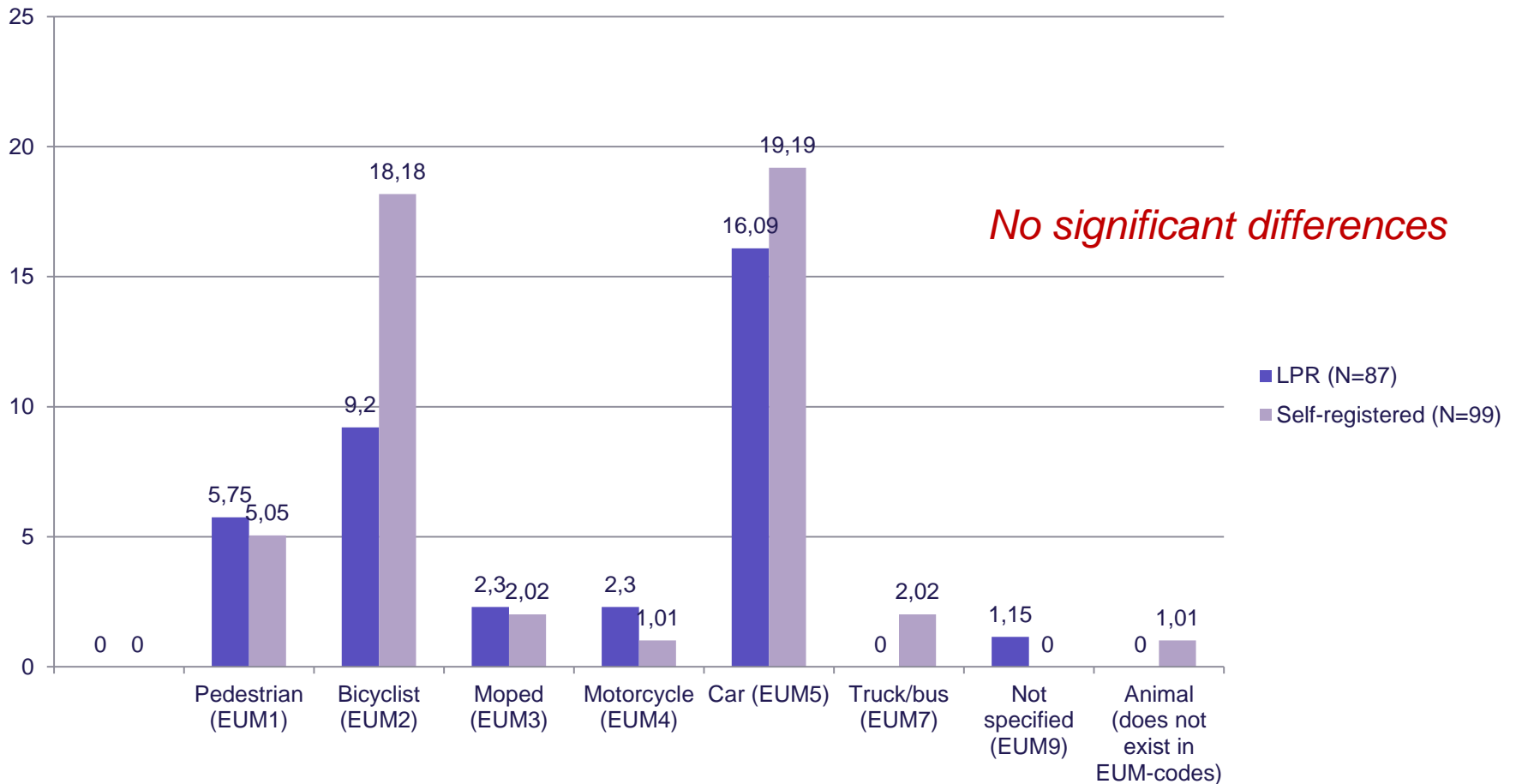
# Self-reports and hospital data - accordance?

- ***"Did you seek medical attention in relation to the accident?"***
- 99 answered that they went to the hospital and/or emergency room.
- 87 was to be found in hospital records



# Self-reports and hospital data - accordance?

## Primary counterpart (percentages)



## Conclusion based on case study

- The case-study does not show anything about the likeness between self-reports and police reports – only that very few self-reported accidents are to be found in the police database...
- Approximately 7% of reports are near-misses; important fact in designing a self-report study
- Approximately 14% claim to have visited a hospital; 13% is to be found in records.
- Self-reported facts of counterpart does not differ significantly from hospitals recordings



# Re-visiting methodological concerns...

- **Biased respondents?**
  - The participants from the case are not representative
  - Highly motivated bicyclists could explain the many near misses recorded as accidents
  - A new questionnaire sent out to people registered in the National Patient Register will shed more light on this
- **Can the respondents give the information asked?**
  - Copy-pasting coordinates is too difficult a task
  - New design of the locating technique will be tested
  - Hopefully: Testing self-reported accident location against GPS-location from Ambulance Services
  - Self-reported accident description – how to test the validity of this?
- **Will the respondents be honest?**
  - Not enough police reports to investigate this yet



# THANK YOU FOR LISTENING

Now, let's talk 😊

## Discussion

Some questions to you...

- How do we assess the validity of a self-reported accident description (*what, where and how did the accident happen*)?
  - Especially the accidents where we cannot compare the description with police reports?
- What are your greatest concerns about self-reported accident data?
- Do you think a qualitative, self-reported accident description could be beneficial for traffic safety research purposes?

