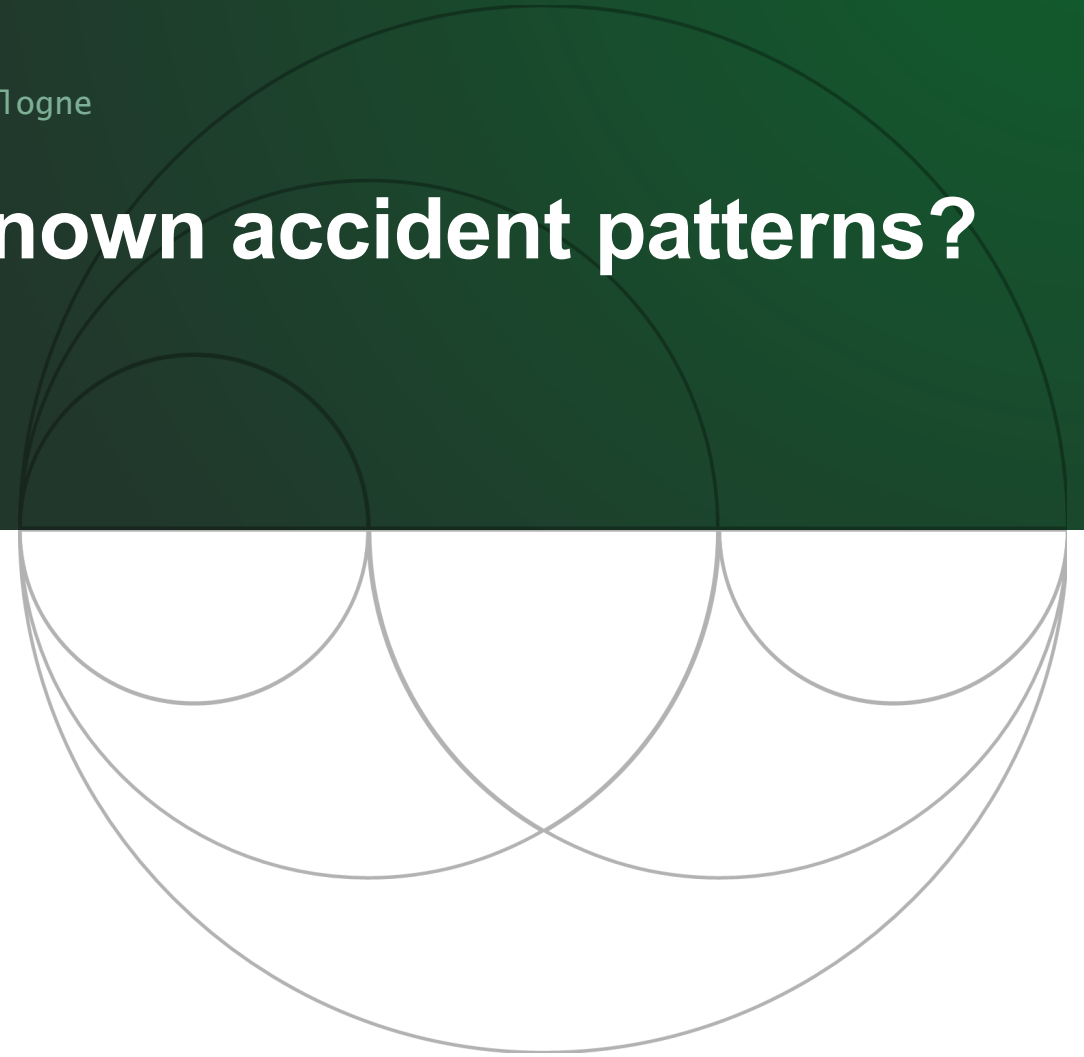


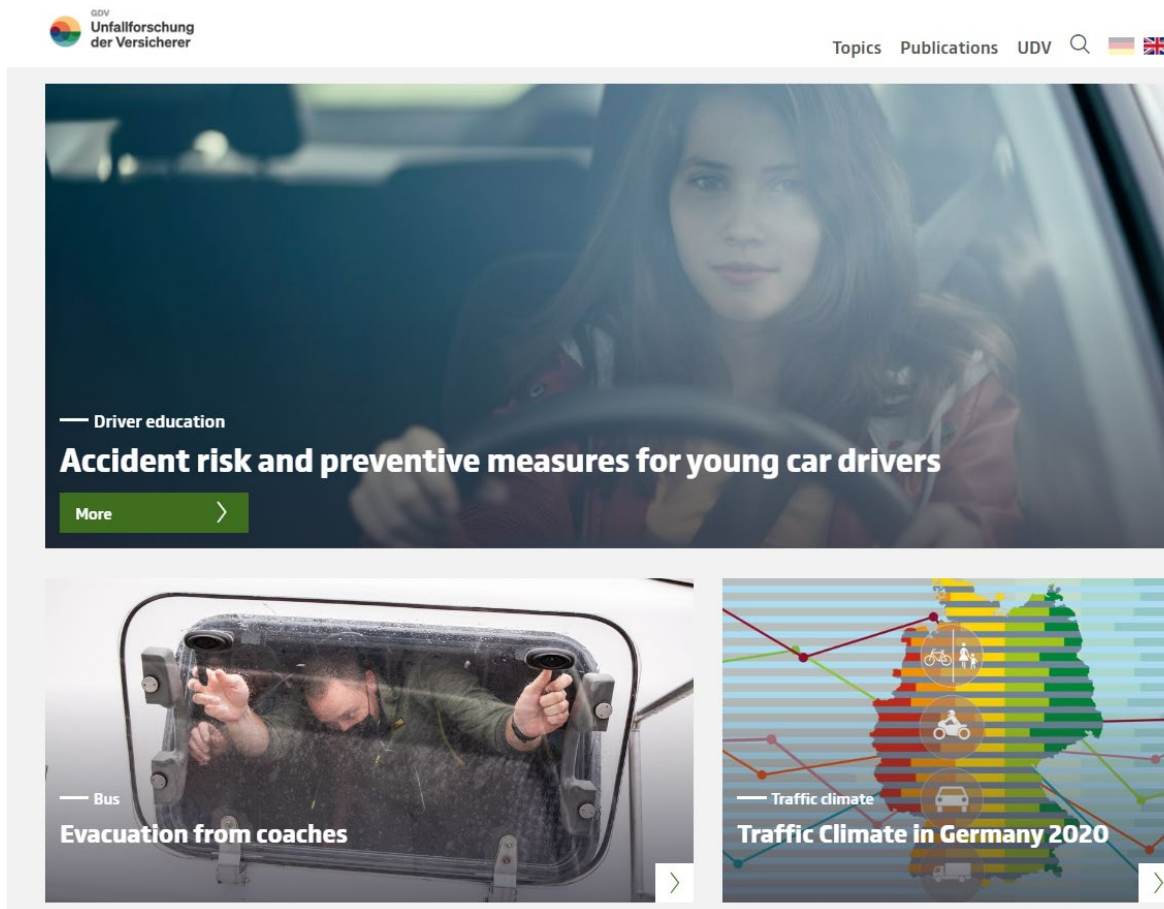
Motorcycle riding in groups - known accident patterns?

03./04. October 2022

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German Insurers Accident Research



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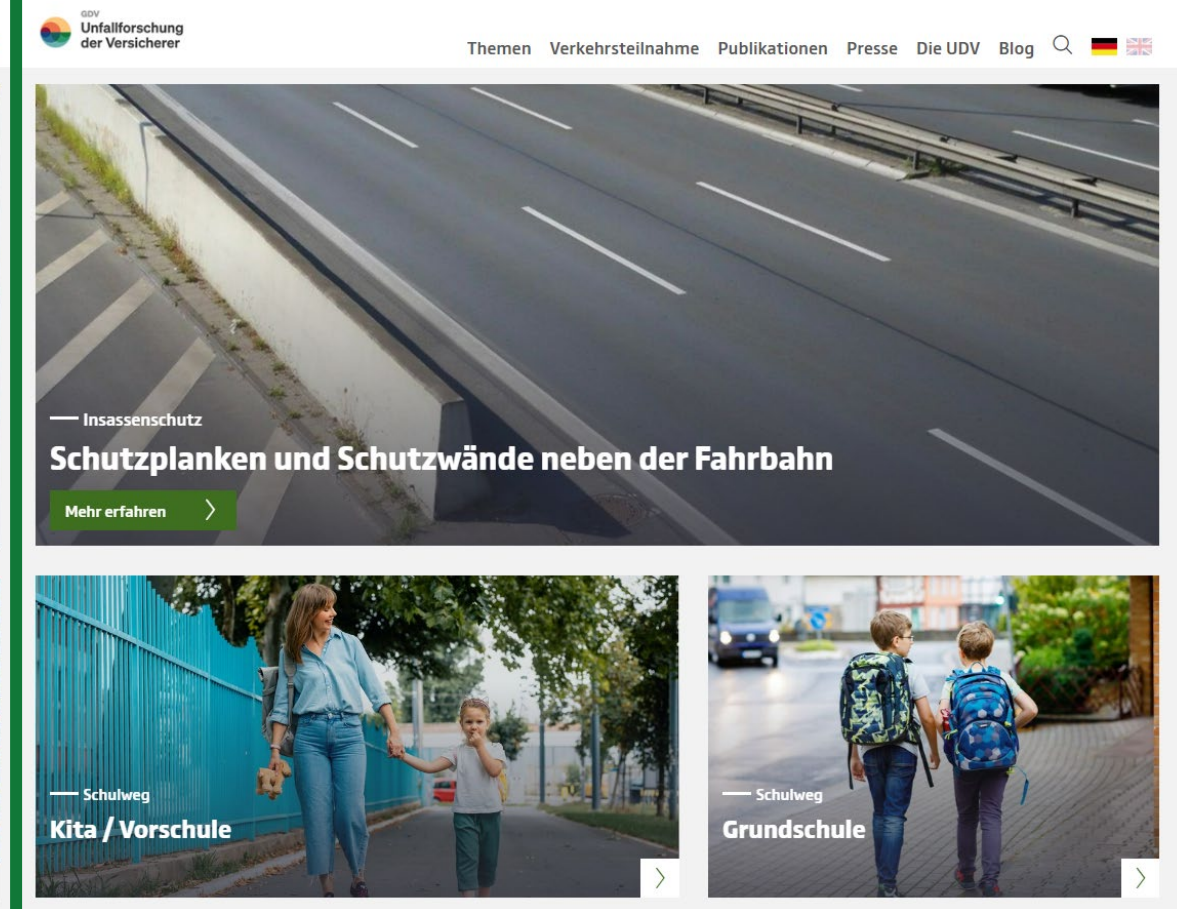
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Gesamtverband der Deutschen Versicherungswirtschaft e. V.

Unfallforschung kompakt Nr. 103

Motorradfahren in Gruppen



Introduction

Riding a motorbike in Germany is associated with a high risk.

About 20% of those killed in road accidents are drivers of motorised two-wheelers.

The risk of being killed as a motorbike rider is more than 20 times higher than that of a passenger car driver in relation to the mileage.

The aim of successful prevention is to understand all aspects of accidents involving. This also includes riding in motorcycle groups and the corresponding accident patterns.

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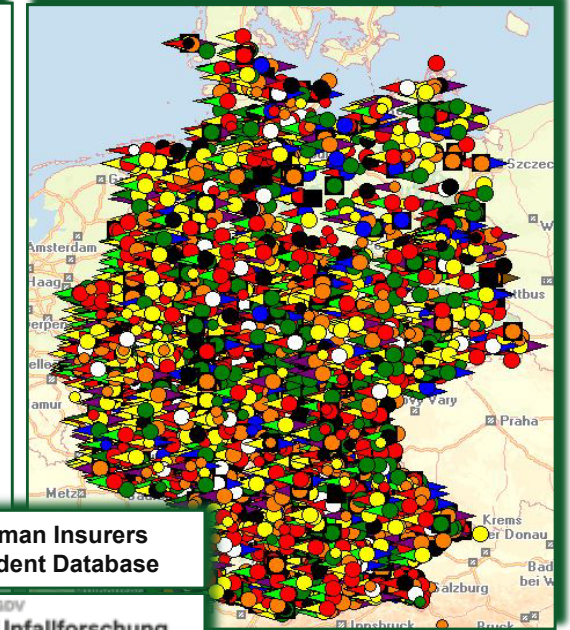
UDB

The UDB records 2,345 accidents involving motorcyclists (PTW).

These accidents were analysed in detail for the present study (already published as Uko 103).

Data Set and Representativeness

- **Accident Database UDB: representative for all third-party vehicle claims of the German Insurers**
- **Only third-party vehicle claims involving personal injury and at least 15,000 € total claim value**
- **Data set with over 10,000 cases, continuously growing**
- **Analyses of vehicle related, infrastructural and behavioural topics**



German Insurers
Accident Database



Accident occurrence

In the 2,345 accidents analysed, a total of 2,849 motorcyclists were involved. The analyses confirmed that not only motorcyclists riding alone were involved in accidents, but also motorcyclists riding together in a group.

Accidents involving motorcyclists

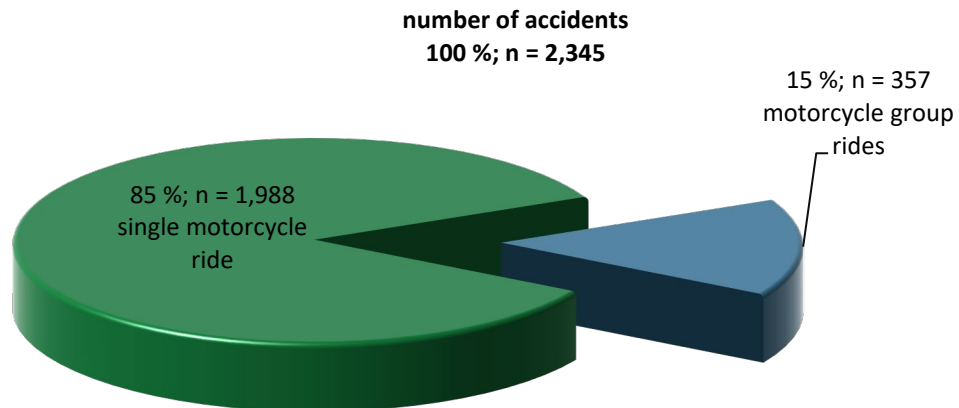


Fig. 1: Accidents involving motorcyclists

Parties involved in motorcycle accidents

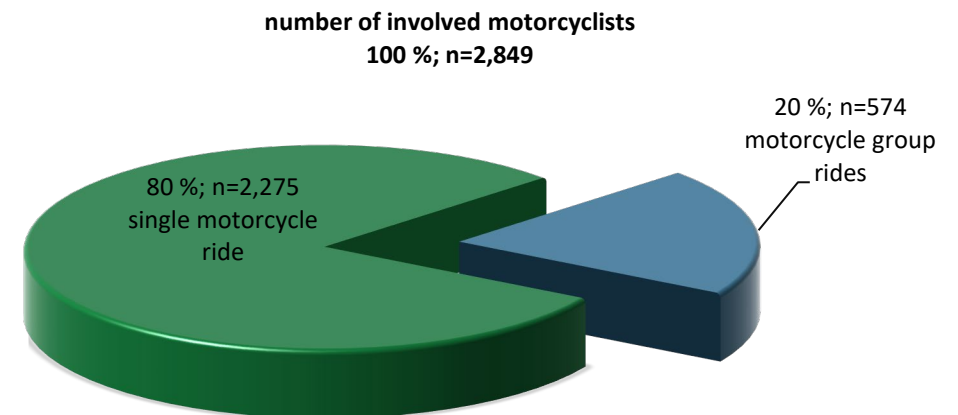


Fig. 2: Parties involved in motorcycle accidents

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Results: Location

74% of accidents involving groups of motorcyclists occurred outside built-up areas, while the proportion in the comparison group of single riders was only 44% .

Motorcycle group rides

accident location (100 %; n=357)

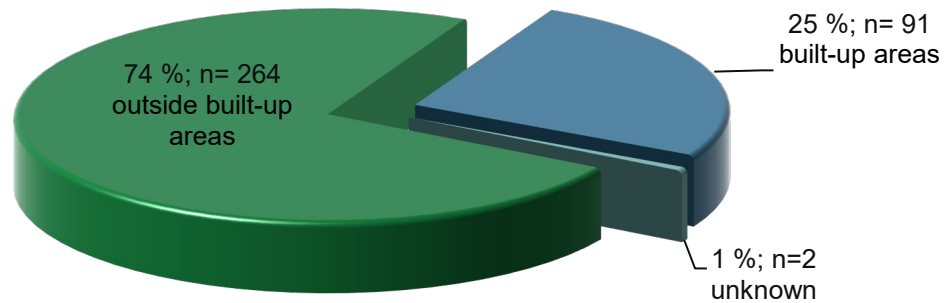


Fig. 3: Motorcycle group rides: accident location

Single motorcycle rides

accident location (100 %; n=1,988)

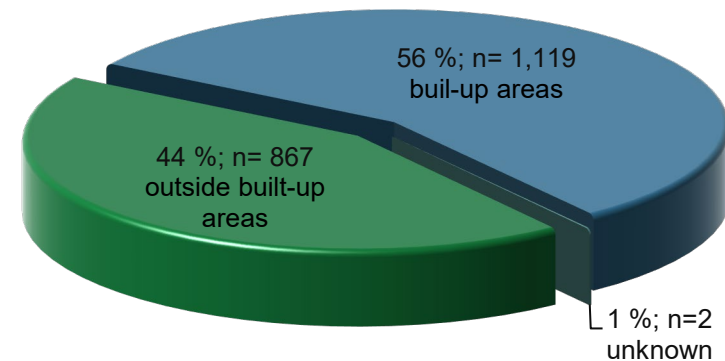


Fig. 4: Single motorcycle rides: accident location

Results: PTW models

While scooters were the most common model involved in accidents with single rides (24%), sporty motorcycles accounted for 24% of group rides. In general, a shift towards fun-oriented or larger motorbike models is noticeable here compared to the individual rides.

Motorcycle group rides vs. single rides involved PTW models

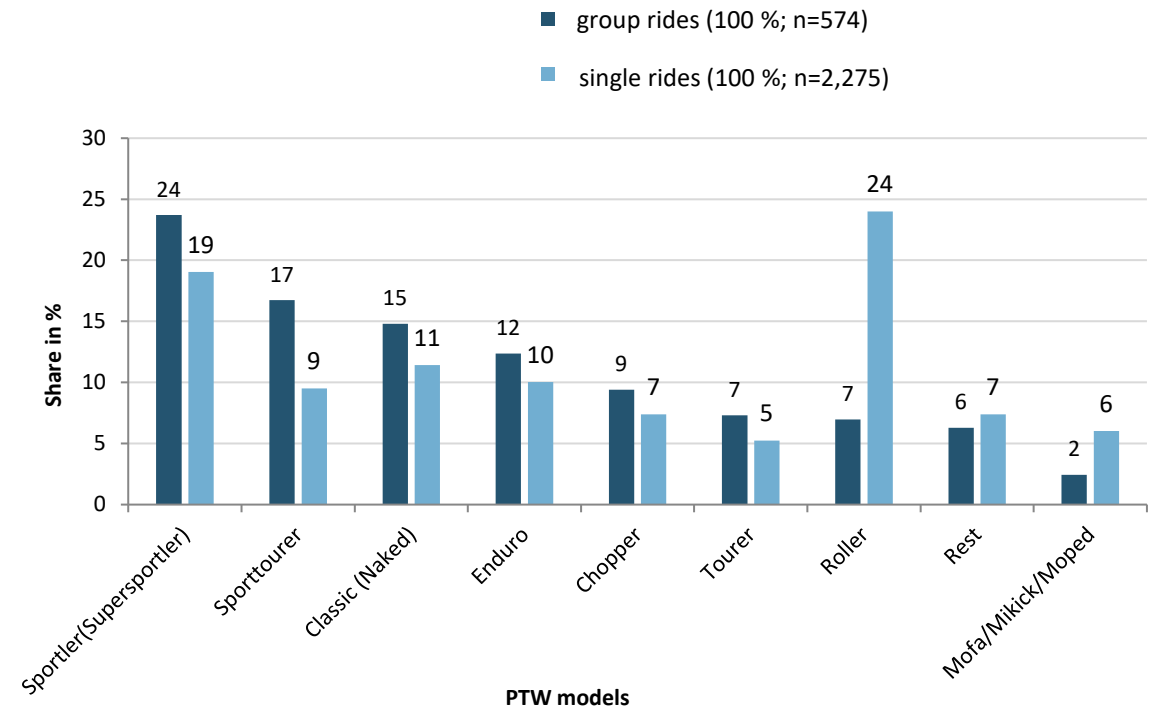


Fig. 5: Motorcycle group rides vs. single rides: PTW models involved

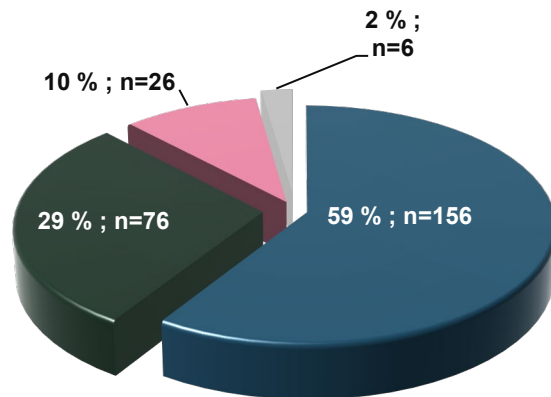
Results: Collision opponents

In the accidents involving groups of motorbikes, 59% of the collision opponents were other two-wheelers.

In comparison, in the accidents involving individual rides, 76% were multi-track vehicles (cars, trucks etc.).

Motorcycle group rides

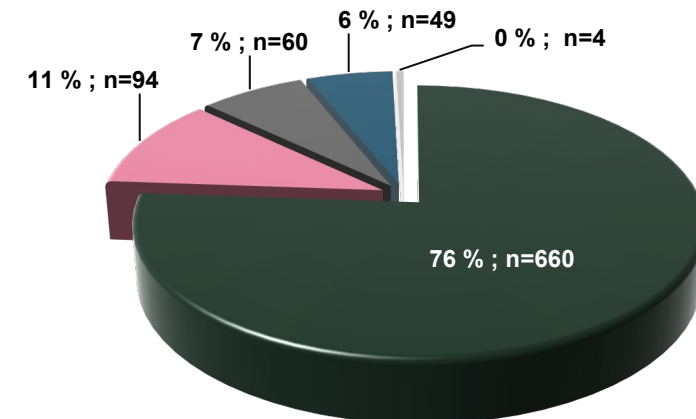
100 %; n= 264 accidents in built-up areas



- two-wheelers
- multi-track vehicles
- no collision opponent
- residual traffic participant types

Motorcycle single rides

100 %; n= 867 accidents outside built-up areas



- multi-track vehicles
- no collision opponent
- VRU
- powered two wheelers
- residual traffic participant types

Fig. 6: Comparison of motorcycle accidents: collision opponents and accident location

Result : Age distribution

Outside built-up areas, the share of 42-47 years old group riders is 21% compared to 14% of all other two-wheelers involved in single rides.

Compared to single rides, the proportion of involved older riders aged 42 and over is higher for group rides. On the other hand, the proportion of younger casualties up to 42 years of age is higher among single riders.

Assumption: Higher attractiveness of group rides as a leisure activity among older motorbike users.

Accidents outside built-up areas

Age distribution

- group rides (100 %; n= 487)
- single rides (100 %; n= 948)

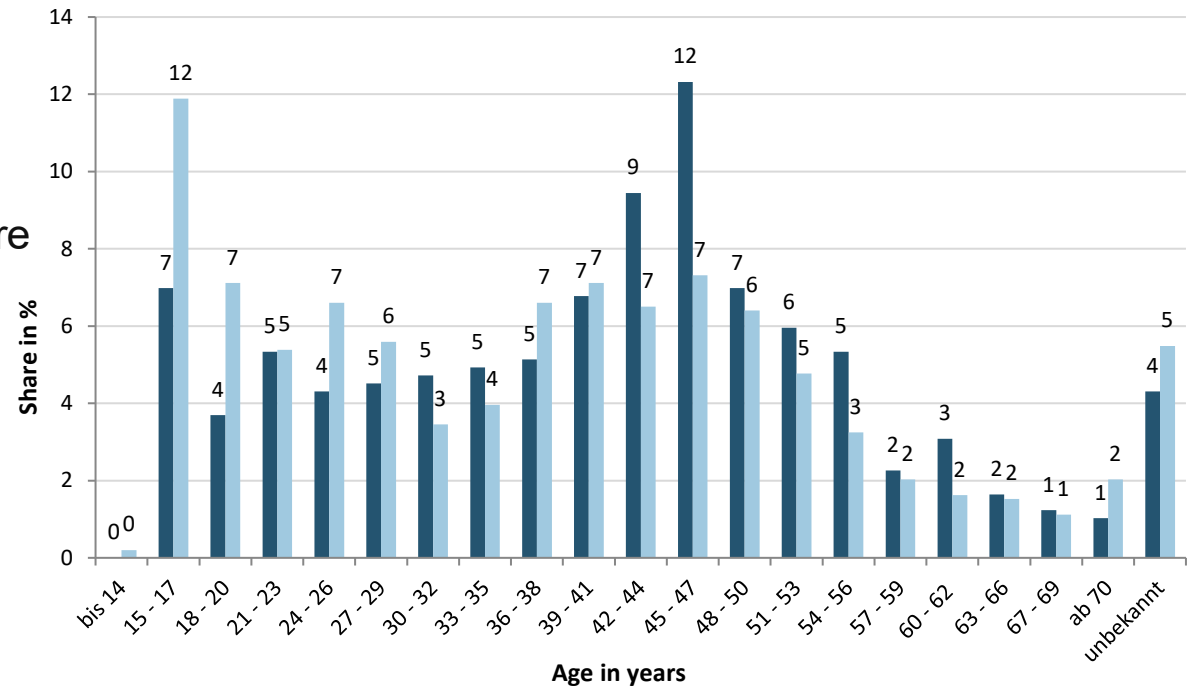


Fig. 7: Motorcycle group rides vs. single rides accidents outside built-up areas: age distribution

Result : Accident type

Group rides:

The driving accident (36%) and the longitudinal accident (32%) stand out among the group rides.

In the accidents of the three most frequent accident types (n=225), a total of 360 motorcyclists and passengers of the motorbike groups were involved in accidents.

Single rides:

Accidents during individual rides show a more even distribution of accident types, without one accident type dominating.

The proportion of accidents during turning or crossing is higher here than for group rides.

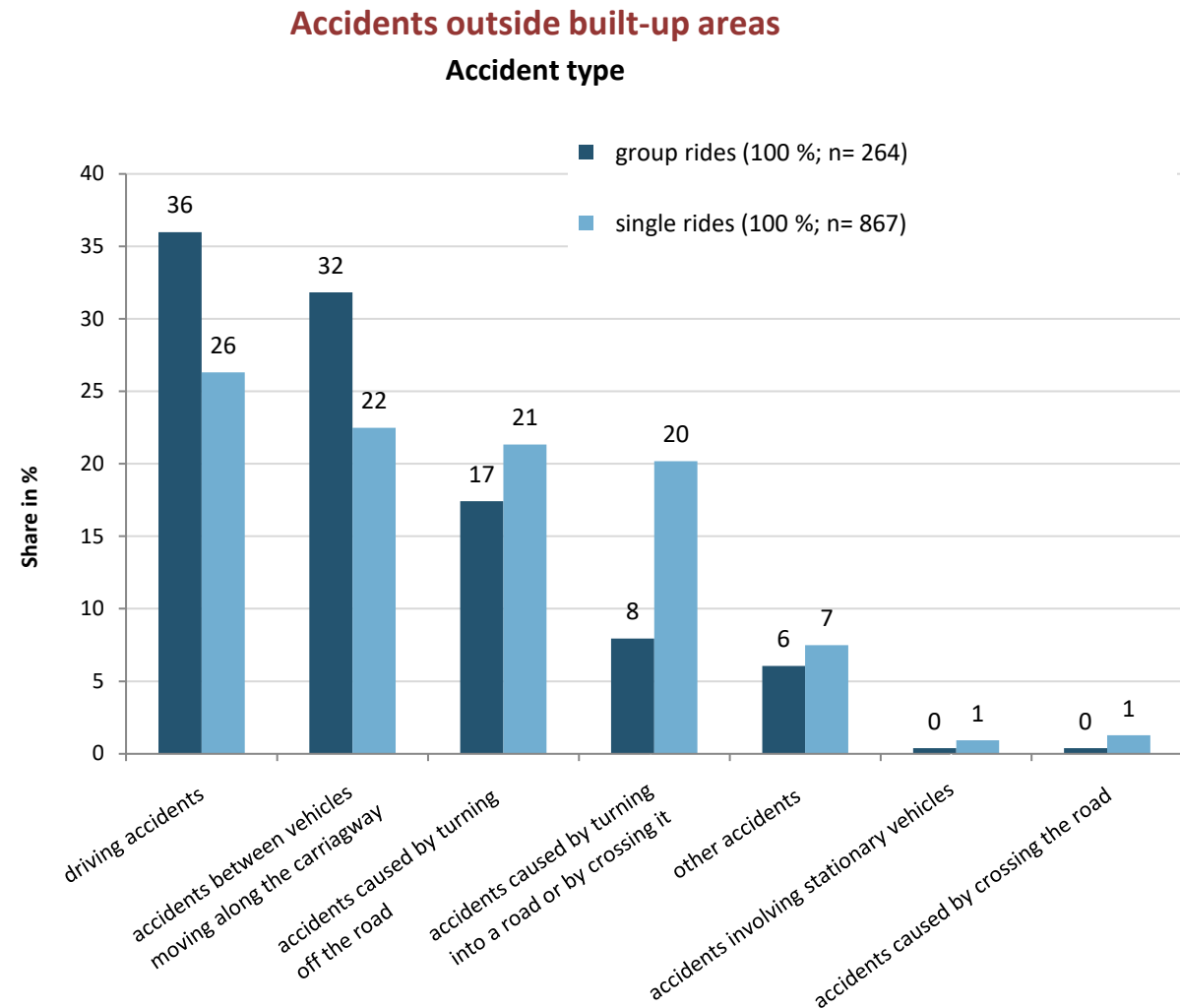


Fig. 8: Accidents outside built-up areas involving motorcycle group rides vs. single rides: accident types

Focus : “driving accident”

Driving accidents during group rides:

High proportion (61 %) of collisions with oncoming vehicles.

Driving accidents during single rides:

Proportion is 50 % of collisions with oncoming vehicles.

Comparatively higher proportion of accidents involving leaving the lane.

Accidents outside built-up areas

Focus on accident type: “driving accident”

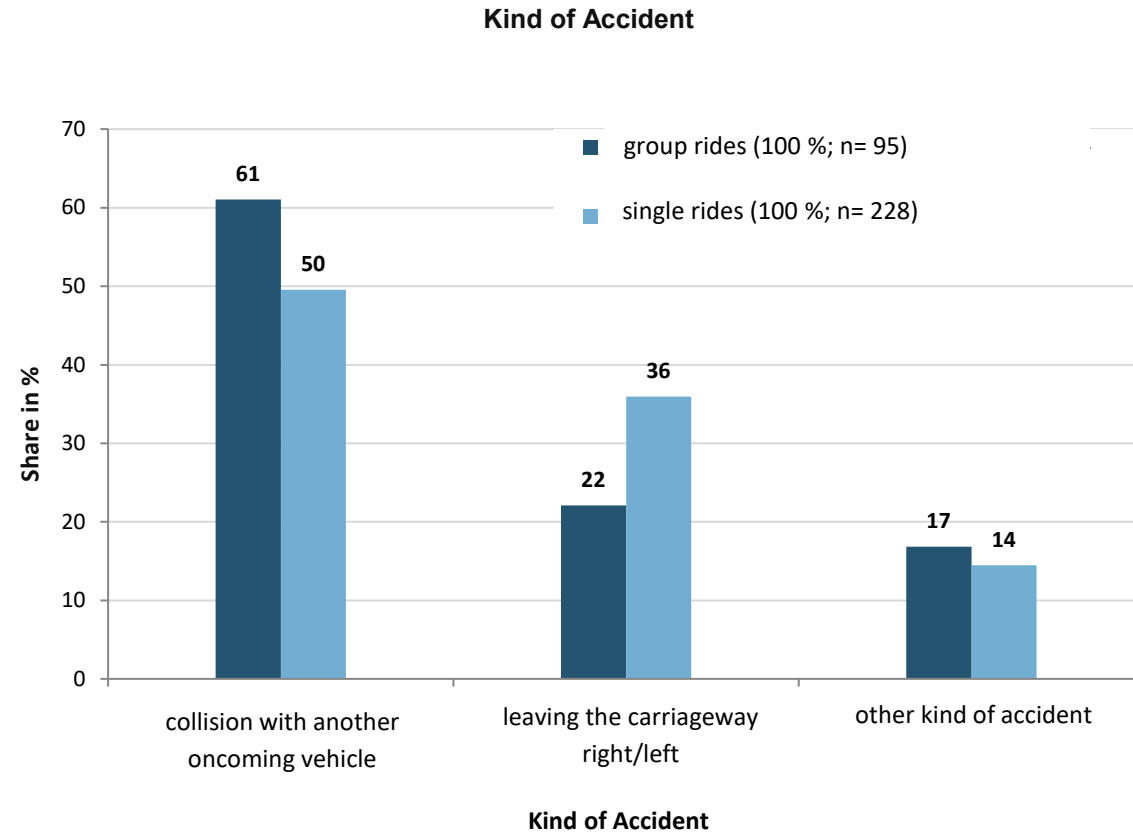


Fig. 9: Accidents outside built-up areas involving motorcycle group rides vs. single rides for the type of accident “driving accident”

Focus : “driving accident”/group rides

Driving accidents” during group rides and collision with oncoming vehicles:

Misbehaviour of riders:

- Speed
- Road use
- Overtaking

Accidents outside built-up areas: group rides

Focus on accident type: “driving accident”

Detail: collision with oncoming vehicle

Failure by the rider in relation to

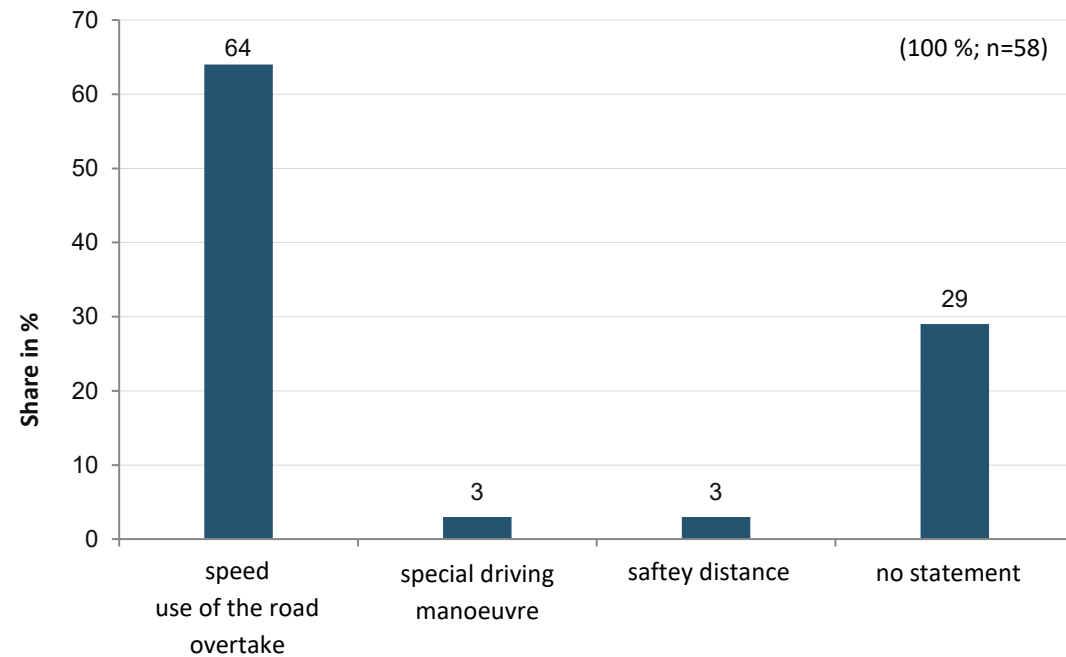


Fig. 10: Accidents in motorcycle group rides and collisions with oncoming vehicles by mistake of the rider for the accident type “driving accident”

Focus : “driving accident”/group rides

Driving accidents” during group rides in combination with lane departure.

Misbehaviour of riders:

- Speed
- Distance
- Road use

Accidents outside built-up areas: group rides

Focus on accident type: “driving accident”

Detail: leaving the lane to the left or right

Failure by the rider in relation to

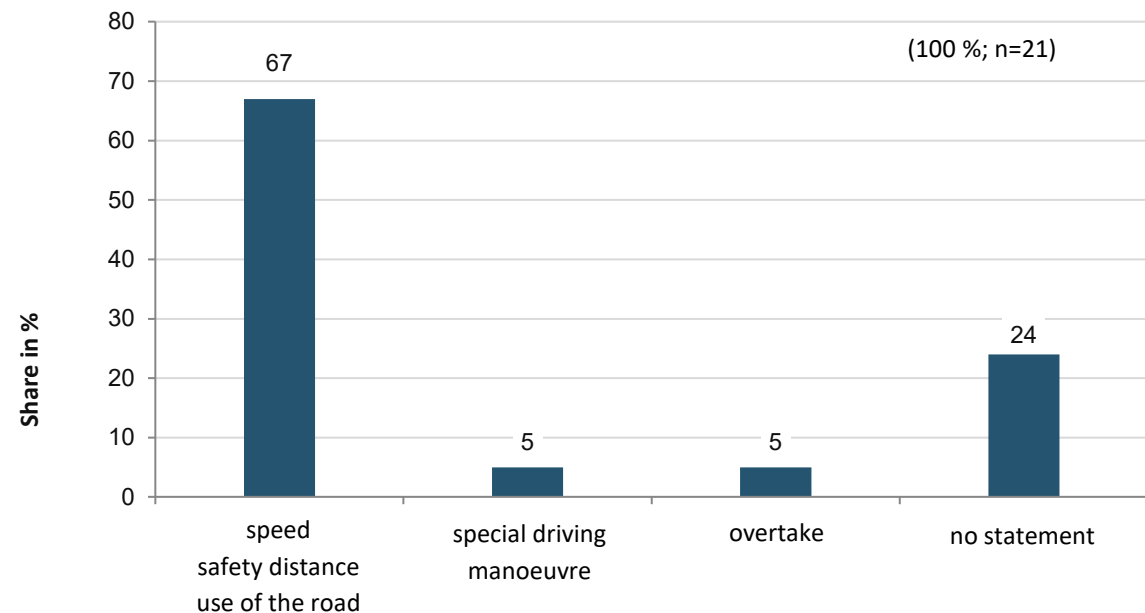


Fig. 11: Accidents in motorcycle group rides outside built-up areas involving lane departure to the right or left, broken down by mistake of the rider for the accident type “driving accident”

Focus : “driving accident”/group rides

Accidents outside built-up areas: group rides

Summary: driving accident (100 %; n = 95)

Ranking of accident patterns:

Overtaking and collision with car/truck etc.
(33%)

Overtaking and collision with oncoming PTW
riders (30%).

Group rider collides with group member (20%)

Furthermore, when overtaking own group members, the distance to the side, front and rear of the following group member is often too small.

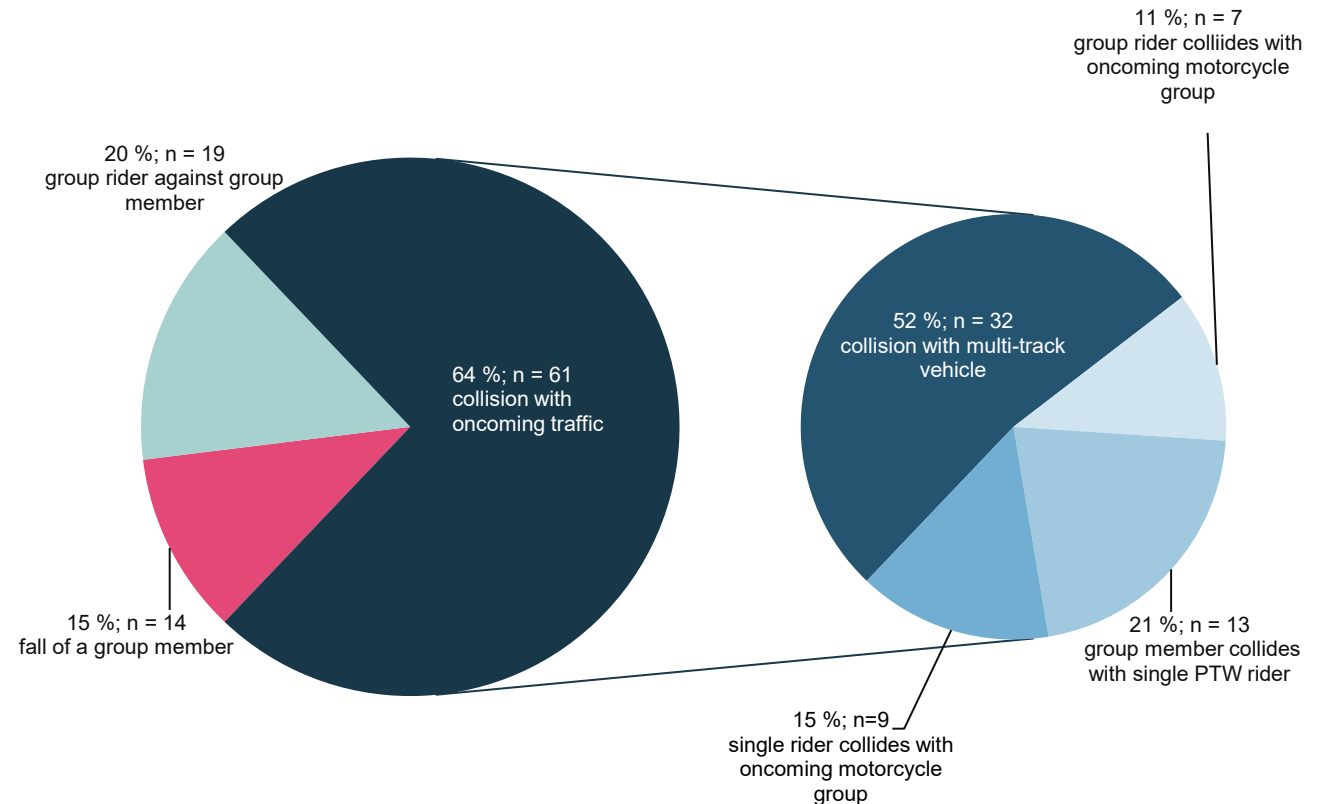


Fig. 12: Accidents of motorcycle group rides outside built-up areas: summary for the accident type “driving accident”

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Summary I

Group motorbike rides differ from the known accident patterns for individual motorbike rides.

One striking difference is the very high proportion of group members involved in accidents.

In all 225 group accidents of the three most frequent accident types, a total of 360 riding members of the motorbike groups were involved.

Summary II

Causal factors for accidents in group rides are:

Unfavourable group dynamics

The motorcyclists' misjudgment of their chosen

- Speed
- Safety distance
- Own inattention

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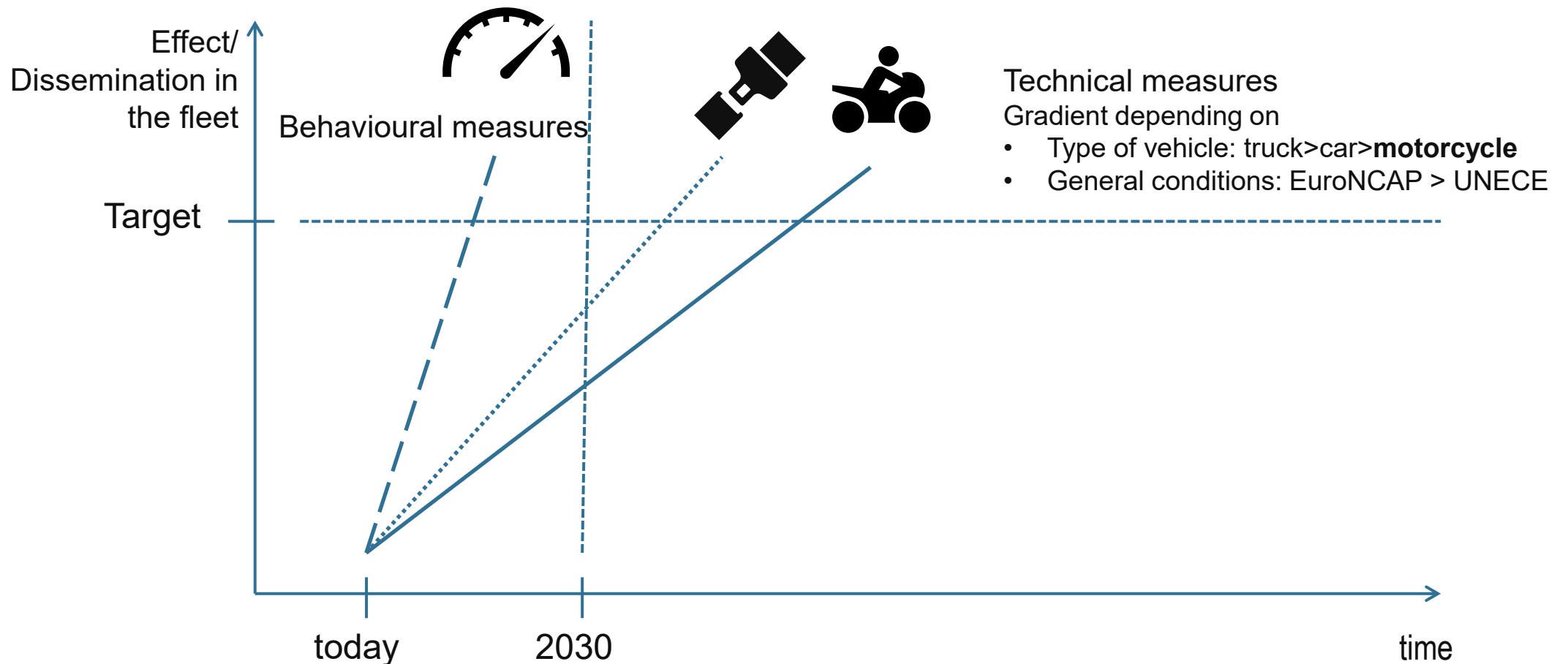
Measures and their impact on road safety

	Active Safety	Passive Safety
Vehicle	Technical measures = long-term, stable	
Human	Behavioural measures = short-term, stable with enforcement	
Environment	Infrastructural measures = mid- to long-term, stable	



Measures

Measures and their impact on road safety



Measures :

The following behavioural measures can help to reduce these accidents in short term:

Avoidance of excessive and inappropriate speeds.

Keeping a safe distance from the group members in front.

Avoid side-by-side driving by group members.

Only initiate overtaking manoeuvres if the traffic situation allows it.

Better and unambiguous coordination between group members.

Are there technical measures which can help?

Thank you for your attention. Do you have questions?

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