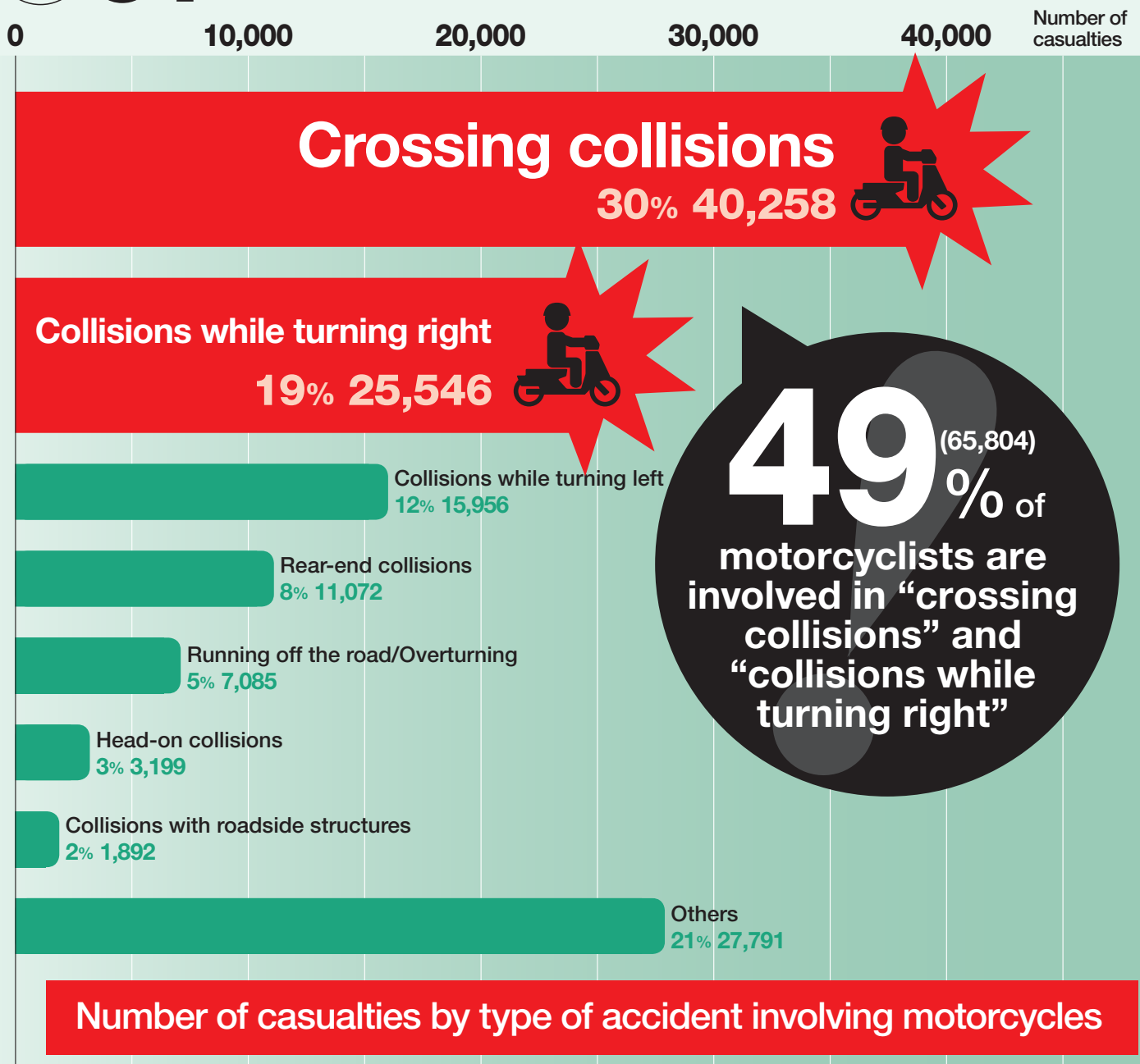


### ITARDA INFORMATION

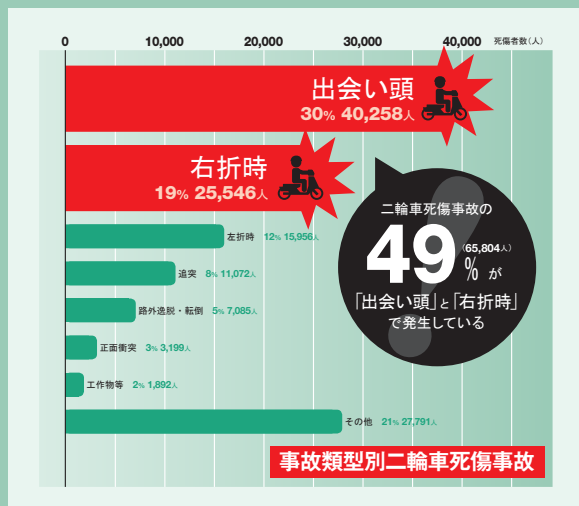
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NOVEMBER



Special feature

## Characteristics of motorcycle accidents

—Beware of overlooking motorcycles—



## Special feature

# Characteristics of motorcycle accidents

—Beware of overlooking motorcycles—

The number of people involved in traffic accidents has been decreasing year by year, but even so, as many as 56,391 people were killed or severely injured in 2010. Among the victims, 16,500, or about one third, were riding a motorcycle. In this issue of ITARDA Information, we focus on traffic accidents involving motorcycles and discuss the characteristics of this type of accident.

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- 1 Introduction
- 2 Characteristics of motorcycle accidents
- 3 Examples of accidents
- 4 Summary

SECTION

1

# Introduction

The total number of traffic accident fatalities (death occurring within 24 hours following the accident; hereafter the same) has been on a steady decline, from 8,747 in 2001 to 4,863 in 2010, marking a 45% reduction. Almost the same downward trend can be seen in the number of fatalities involving people riding a motorcycle, from 1,566 to 871 (Fig. 1). Indeed,

the ones most frequently involved in fatal accidents in 2010 were pedestrians (1,714; 35%), followed by car drivers (1,602; 33%), motorcycle riders (871; 18%), and bicycle riders (658; 14%) (Fig. 2), suggesting that motorcycles do not seem to pose a higher risk of death than other means of transportation.

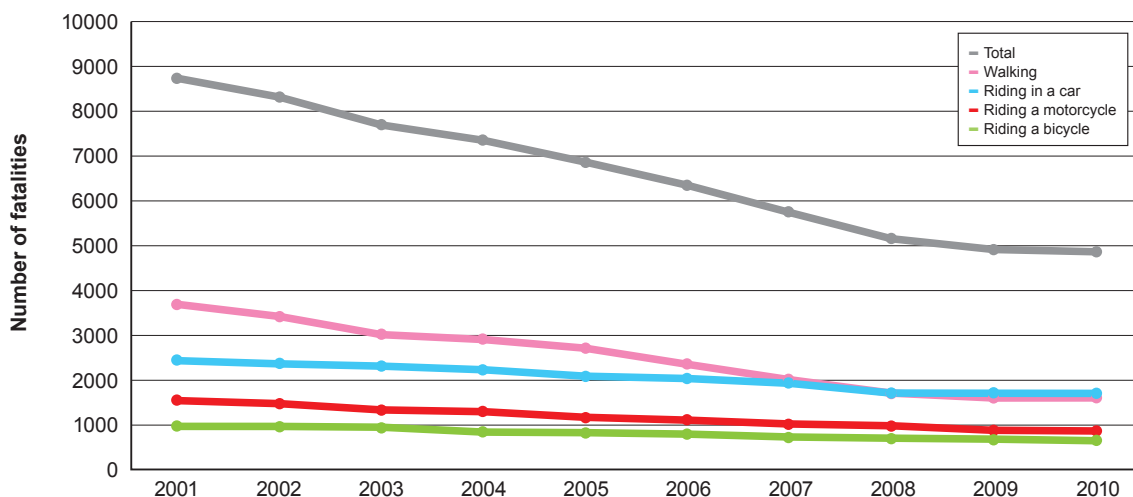


Fig. 1: Changes in the number of fatalities by means of transportation (2001–2010)

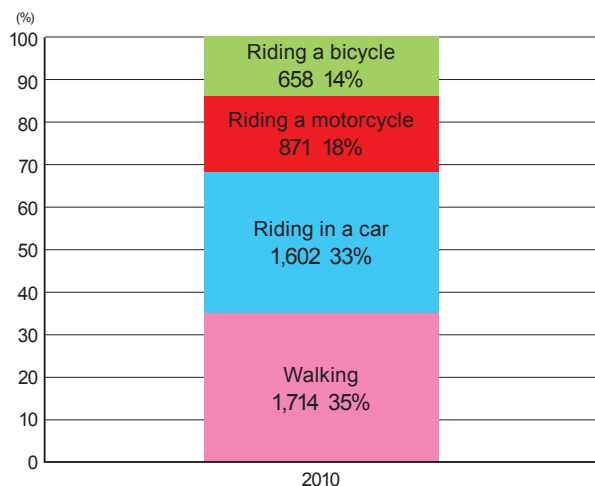


Fig. 2: Number of fatalities by means of transportation (2010)

Looking at the severity of injury, however, this is not the case. Despite the 37% reduction from 24,814 in 2001 to 15,629 in 2010, the number of people severely injured in accidents while riding a motorcycle has outweighed that of any other means of transportation since 2005 (Fig. 3). In

2010, the ones most likely to sustain severe injury were motorcycle riders (15,629; 30%), followed by car drivers (14,524; 28%), bicycle riders (11,317; 22%), and pedestrians (998; 19%) (Fig. 4).

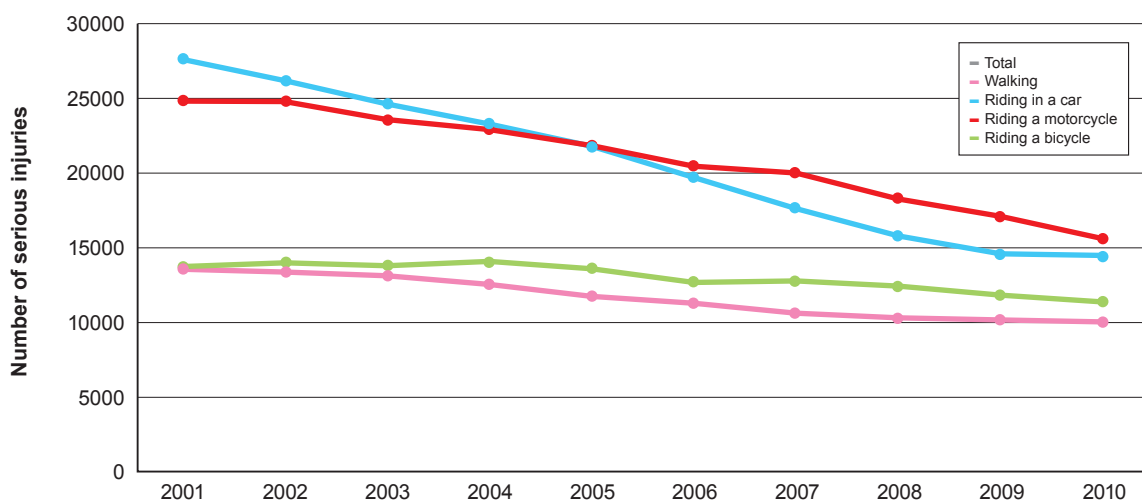


Fig. 3: Changes in the number of serious injuries by means of transportation (2001–2010)

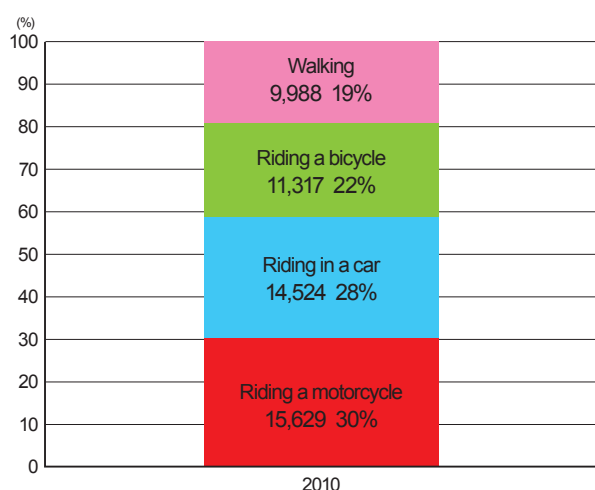


Fig. 4: Number of serious injuries by means of transportation in 2010

# Characteristics of motorcycle accidents

## (1) 70% of motorcyclists are the secondary party

For fatal and injury accidents involving motorcycles and cars, Fig. 5 shows whether they were the primary or secondary party in the accident, in percentage terms. “Primary party” is the most negligent of those first involved in a traffic accident, or, if the level of negligence is almost the same, the least injured party.

“Secondary party” is the less negligent of those first involved in a traffic accident, or, if the level of negligence is almost the same, the more injured party. Motorcycles are more likely than cars to be the secondary party, constituting 70%. In other words, motorcycle riders are exposed to a higher risk of being a victim in an accident.

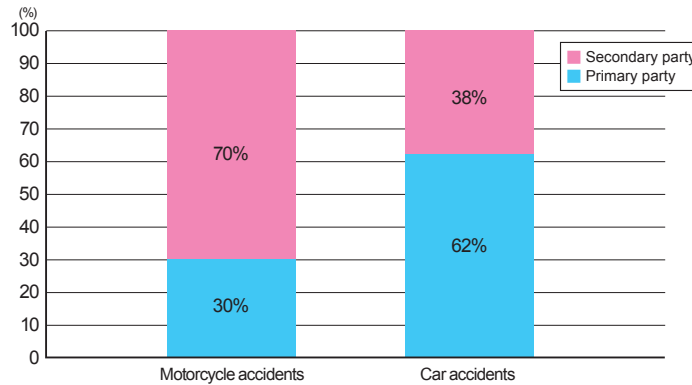


Fig. 5: Percentage of primary/secondary parties in fatal and injury accidents (2010)

## (2) More frequently involved in crossing collisions and collisions while turning right

To examine motorcycle accidents more closely, the number of fatal and injury accidents involving a motorcycle is broken down according to the type of accident in Fig. 6, and that involving a car in Fig. 7 for comparison. While rear-end collisions and then crossing collisions are the two largest groups in the case

of car accidents, motorcycle riders are most likely to be involved in crossing collisions, followed by collisions while turning right. Here, 72% and 87% of motorcycles in crossing collisions and collisions while turning right, respectively, are the secondary party, suggesting again that motorcycle riders are exposed to a higher risk of being a victim in these types of accident.

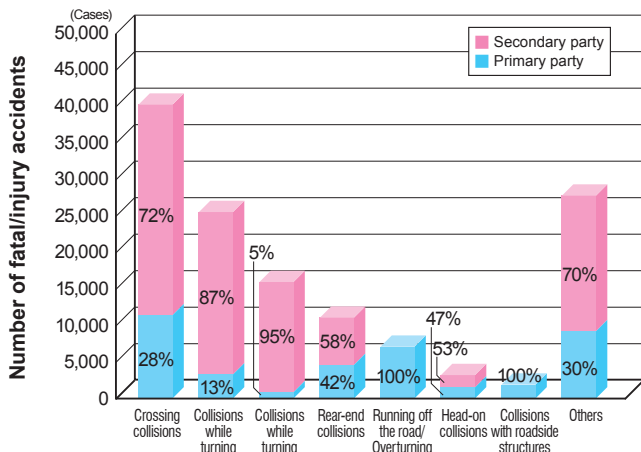


Fig. 6: Number of fatal and injury motorcycle accidents by type of accident (2010)

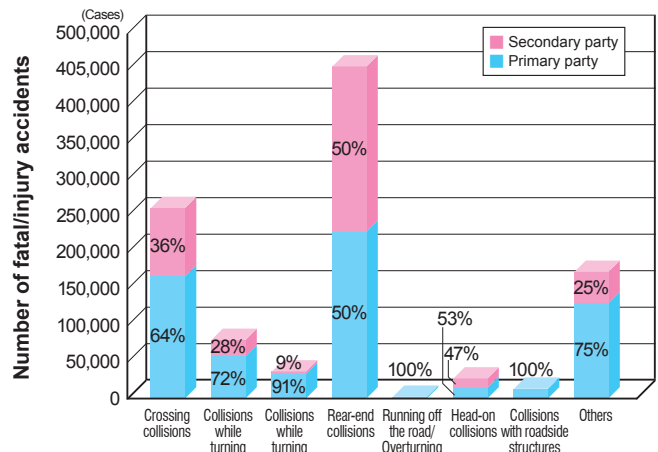


Fig. 7: Number of fatal and injury car accidents by type of accident (2010)

**(3) 90% of motorcycles as the secondary party collide with a car**

As shown in Fig. 8, several different parties are involved in accidents in which the motorcycle is the primary party, whereas the motorcycle as the secondary party almost always, or in nine cases

out of ten, collides with a car. The reason why motorcycle riders as the secondary party are more severely injured may be that around 90% of the other parties are cars, which are heavier than motorcycles.

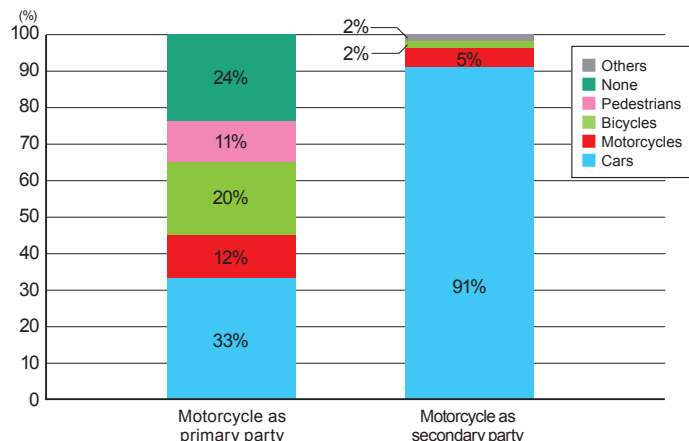


Fig. 8: Percentage of other parties in fatal and injury motorcycle accidents (2010)

**(4) Over 80% of the causes of crossing collisions and collisions while turning right are delays in noticing the motorcycle**

Let's look at the causes of the two major types of motorcycle accidents, namely crossing collisions and collisions while turning right. According to Fig. 9 which shows the human errors committed by the primary party in accidents in which motorcycles are the secondary party, "Delay in noticing motorcycle" accounts for more than 80% of the total. Looking into this error in detail, as shown in Fig. 10, nearly 70% of these delays are

caused by an insufficient check on the traffic. The delay in noticing a motorcycle even after checking the road safety may be caused by the tendency of car drivers to overlook motorcycles more easily than cars. A motorcycle accident analysis conducted in the UK reported that it is not easy for other road users to notice motorcycles. This also indicates the need for motorcycle drivers to be aware of the risk of being overlooked by car drivers and to always drive safely.

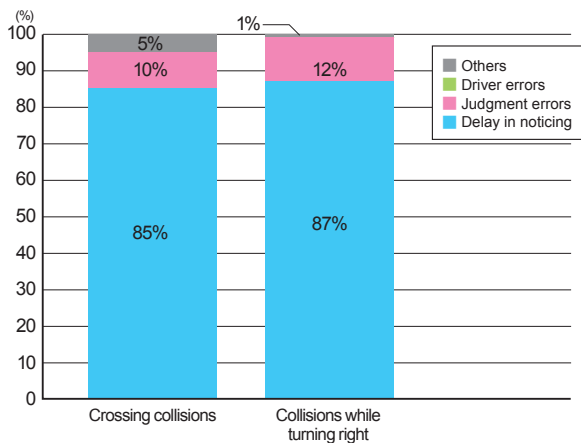


Fig. 9: Human errors causing crossing collisions and collisions while turning right involving motorcycles (2010) (committed by the primary party with the motorcycle as the secondary party)

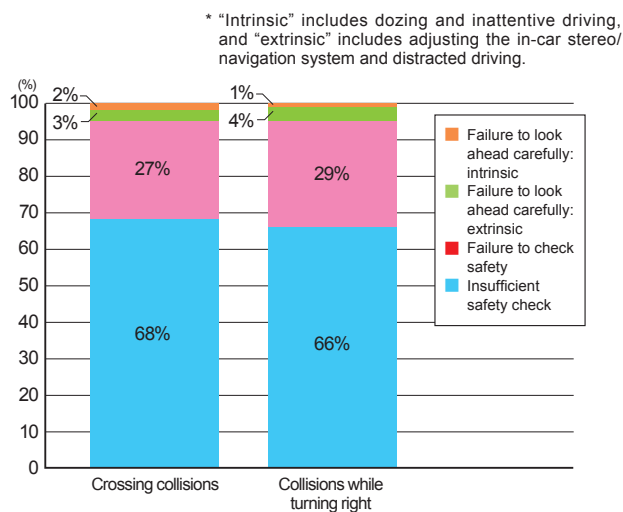


Fig. 10: Breakdown of the error "Delay in noticing motorcycle" (2010) (committed by the primary party with the motorcycle as the secondary party)

(5) More frequently involved in crossing collisions during daytime hours and collisions while turning right during nighttime hours

With regard to the time of day when traffic accidents occur, as shown in Fig. 11, the ratio of daytime accidents to nighttime accidents is

almost the same, or roughly 7:3 for both motorcycles and cars. As shown in Fig. 12, the type of motorcycle accident most frequently seen is crossing collisions during daytime hours and collisions while turning right during nighttime hours.

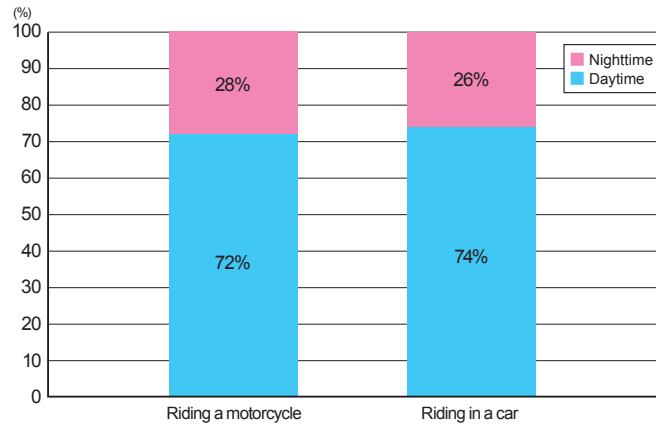


Fig. 11: Percentage of daytime/nighttime fatal and injury accidents involving cars (2010)

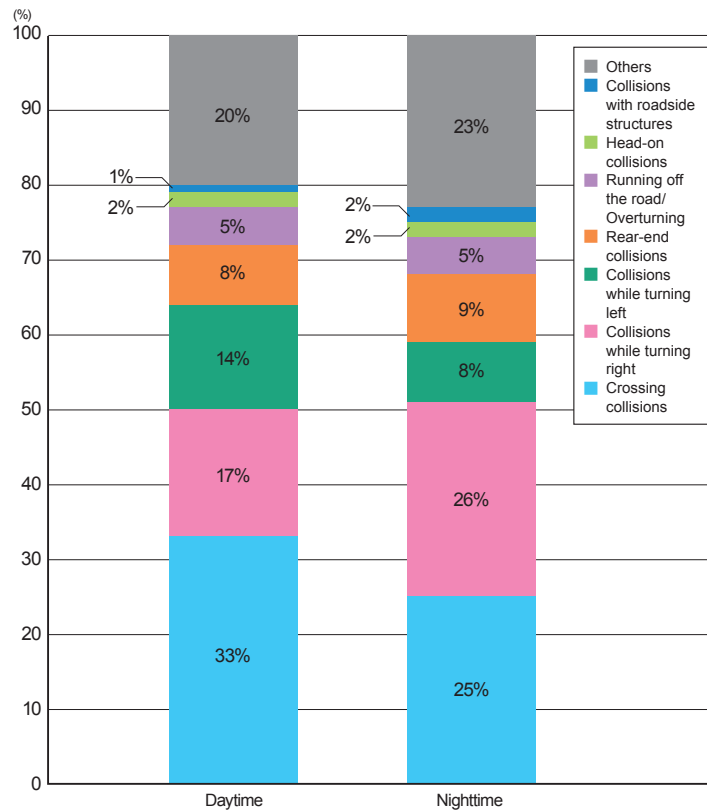


Fig. 12: Types of fatal and injury accidents by time of day (2010)

(6) Mopeds more frequently involved in crossing collisions, and small/mini motorcycles in crossing collisions and collisions while turning right

With regard to the effect of the type of motorcycle on accidents, as shown in Fig. 13, small-sized (over 250 cc) and mini-sized (over

125 cc and up to 250 cc) motorcycles are more frequently involved in crossing collisions and collisions while turning right, and for Class 2 mopeds (over 50 cc and up to 125 cc) and Class 1 mopeds (up to 50 cc), crossing collisions are more prevalent.

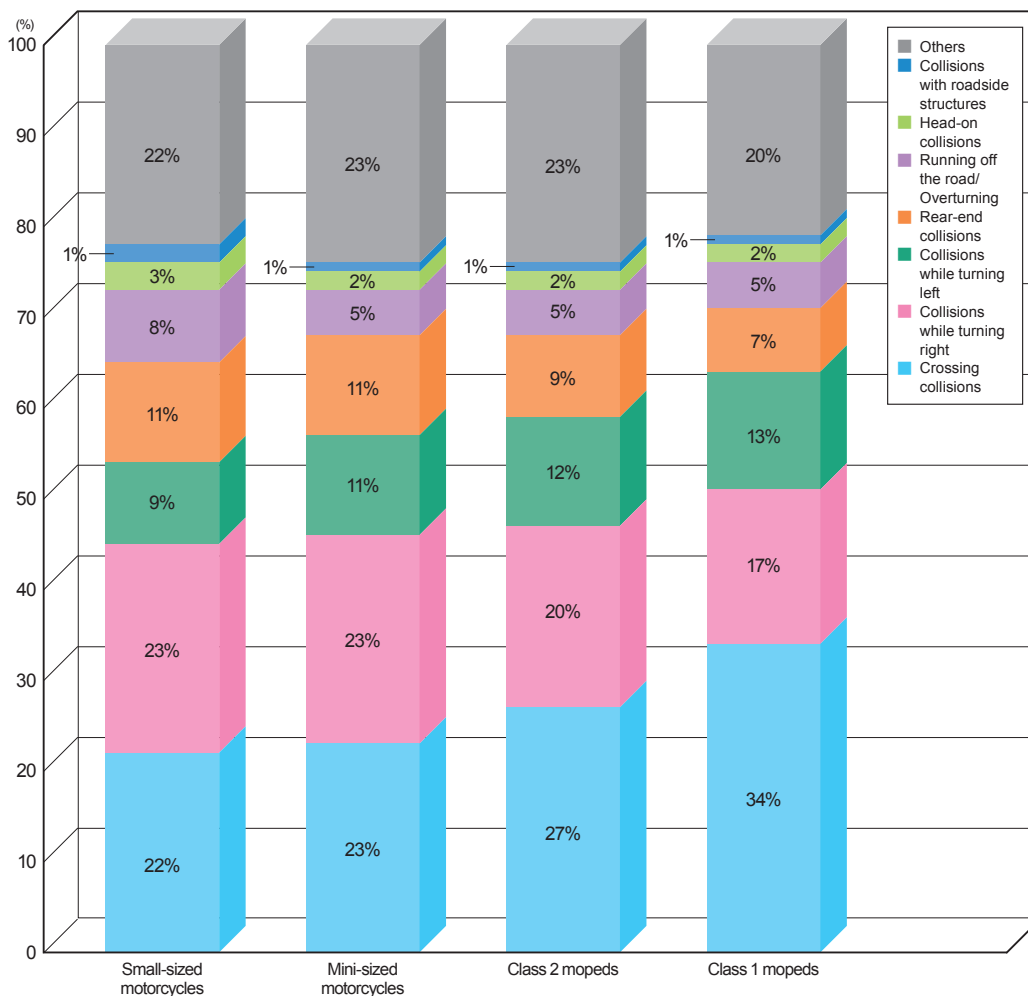


Fig. 13: Types of fatal and injury accidents by type of motorcycle (2010)



**(7) “Daytime running lamps” can reduce crossing collisions**

Motorcycle “daytime running lamps” became mandatory in 1998 to improve the conspicuity of motorcycles in the daytime with the objective of reducing traffic accidents. Based on Fig. 14, there is almost no difference in the number of collisions while turning right regardless of whether or not the headlamps are used, but in the case of crossing collisions, the figure is

slightly lower when the headlamps are turned on. From this, the use of headlamps may reduce the risk of crossing collisions.

Looking at the use/non-use of headlamps in the total accidents, as shown in Fig. 15, 36% of motorcycle riders involved did not turn on the headlamps. It is considered that ensuring the use of headlamps in the daytime may reduce the risk of traffic accidents.

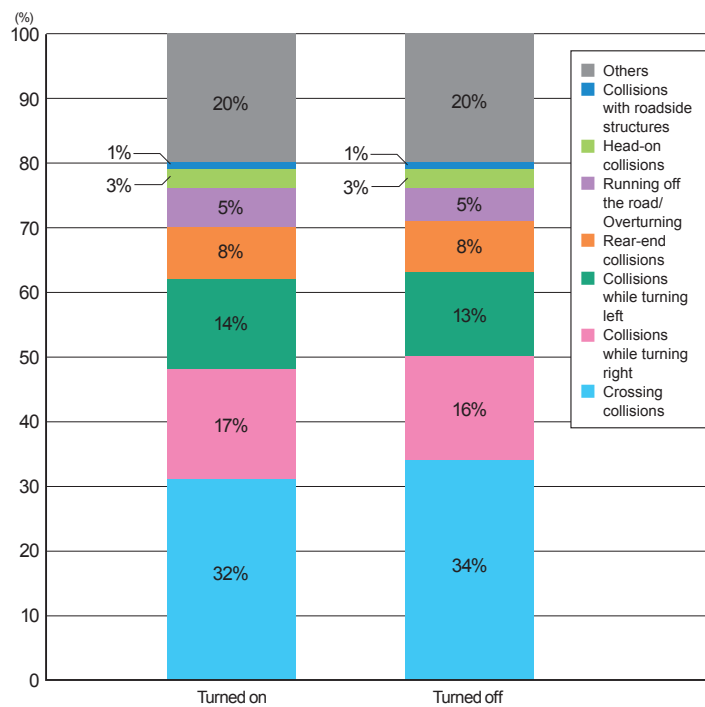


Fig. 14: Types of fatal and injury accidents involving motorcycles by use/non-use of headlamps in the daytime (2010)

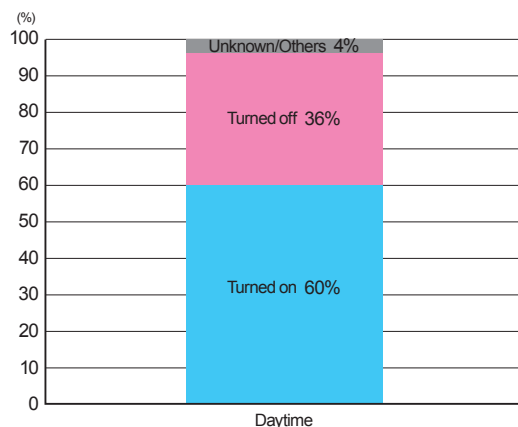


Fig. 15: Percentage of use/non-use of headlamps in fatal and injury accidents involving motorcycles (2010)

## SECTION

## 3

# Examples of accidents

## Case 1: Crossing collision

### [Situation]

At around 9 a.m., a standard-sized passenger car (A, driven by a 55-year-old man) was slowly entering a two-lane road from a parking lot by making a right turn. The driver glanced to the right and saw no vehicles, so he began to turn right without stopping. As the car proceeded to the point where its front end was on the road, he noticed a Class 2 moped (B, driven by a 75-year-old man) coming from the right at about 40 km/h. He immediately stopped the car, but the moped crashed into the front right side of the car which blocked the moped's way.

### [Injuries]

The driver of the moped escaped head injuries thanks to wearing a proper helmet, but his chest hit the road and he suffered serious rib fractures.

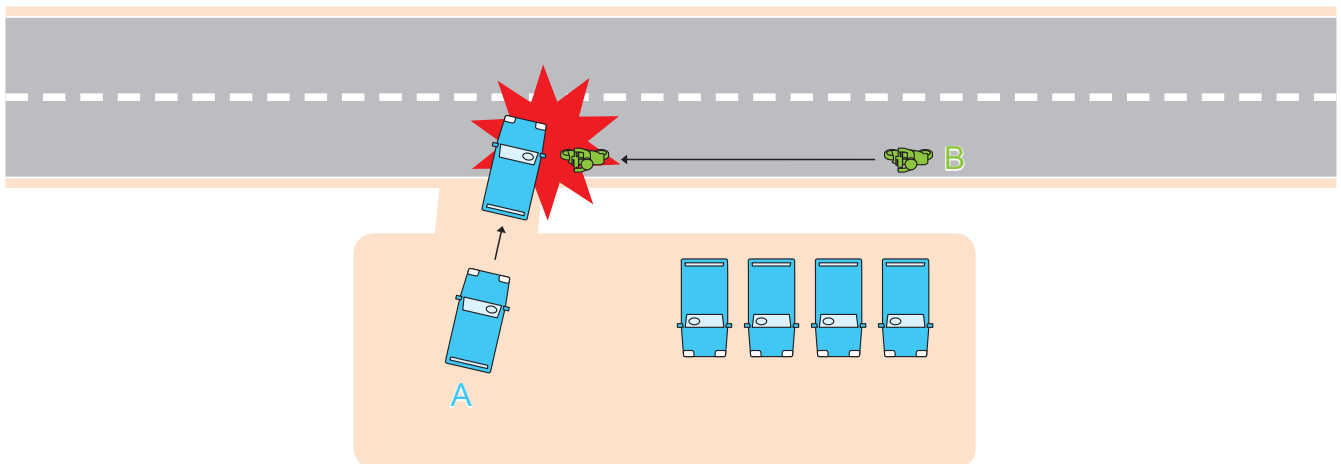
### [Causes]

The driver of the car overlooked the moped because he did not fully check the traffic, and probably because he did not stop his car at that point. Another cause may be the moped driver's failure to turn on the headlamps.

### [Countermeasures]

When entering a road, it is important for car drivers to always stop and look both ways carefully. It is also important to turn on the motorcycle headlamps in the daytime so as not to be overlooked.

## Diagram of the crash



## Case 2: Collision while turning right

### [Situation]

At around 6 a.m., a mini-sized passenger car (A, driven by a 30-year-old man) was about to make a right turn at a T-junction on a four-lane road. He turned on the right turn signal and slowed down; he looked at the oncoming lane and saw no vehicles except a large truck parked in the rightmost lane (seen from the car) on the far side of the junction. As he began to turn right, the passenger in his car yelled, "Watch out!" just as a mini-sized motorcycle (B, driven by a 41-year-old man) coming from the opposite lane at about 40 km/h crashed into the car.

### [Injuries]

The driver of the motorcycle was wearing a helmet at the time of the accident, but he died two days later.

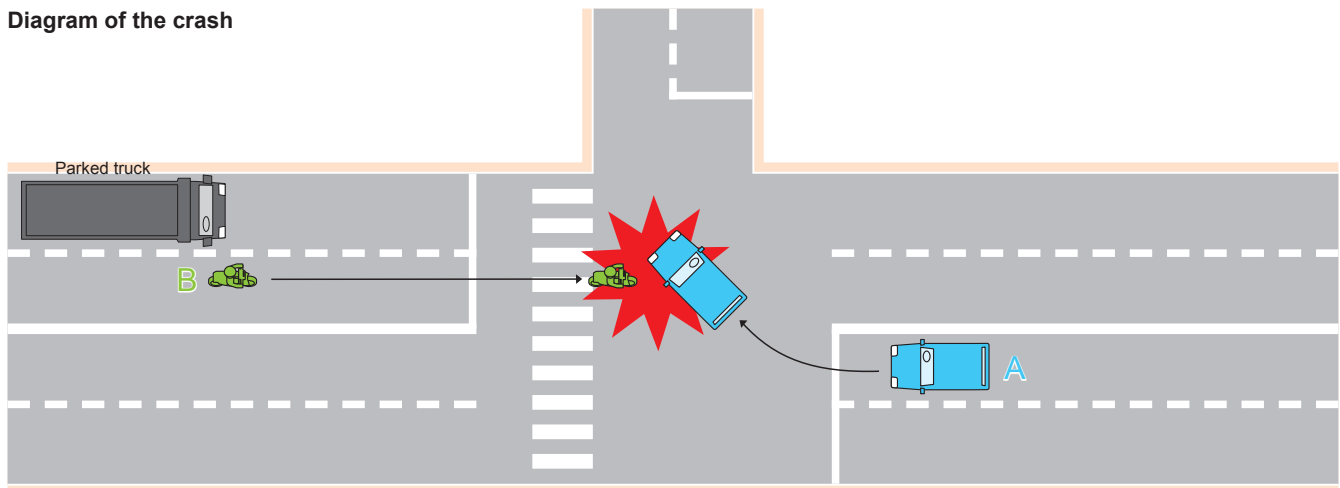
### [Causes]

The driver of the car overlooked the motorcycle because he did not fully check the traffic. Another cause may be that the car driver's attention was drawn to the parked truck or to vehicles that might be coming from the road on the right.

### [Countermeasures]

When turning right, car drivers must stop and carefully check that there are no oncoming vehicles in the opposite lane. Also, motorcycle riders must be more careful, and assume they may be overlooked.

Diagram of the crash



## SECTION

## 4

## Summary

## [Characteristics of motorcycle accidents]

- 1 70% of motorcycle riders involved in traffic accidents are the secondary party.
- 2 Crossing collisions and collisions while turning right are typical types of accidents involving motorcycles.
- 3 When the motorcycle is the secondary party, the other party is a car 90% of the time.
- 4 Over 80% of the causes of crossing collisions and collisions while turning right are a delay in noticing the motorcycle.  
\* Nearly 70% of the causes of this delay are an insufficient check on the traffic.
- 5 Crossing collisions occur more frequently during daytime hours, and collisions while turning right during nighttime hours.
- 6 Mopeds are more frequently involved in crossing collisions, and small- and mini-sized motorcycles in crossing collisions and collisions while turning right.
- 7 Motorcycle “daytime running lamps” can reduce crossing collisions.

## Precautions for motorcycle riders:

- (1) Motorcycles are known to be overlooked more easily than cars. Riders must always pay attention to safe driving near the entrance of parking lots or intersections, on the assumption of being overlooked by cars.
- (2) Turn on the headlamps in the daytime.

## Precautions for car drivers:

- (1) Always try to stop before turning right and be sure to check for vehicles in the opposite lane. Also pay attention to a motorcycle that might come out from behind a car or from the shoulder of the road.
- (2) Always try to stop near the entrance of a parking lot or intersection and be sure to check the safety of the area. Drivers can notice motorcycles, despite their low conspicuity, by stopping the car and carefully checking the traffic.



## 事務局

## つくば交通事故調査事務所