

ITARDA INFORMATION

交通事故分析レポート

No.132

Special feature

Rental car accidents caused by foreign visitors to Japan

~ Particular attention is needed for right turn-straight on collision accidents and crossing collision accidents! ~

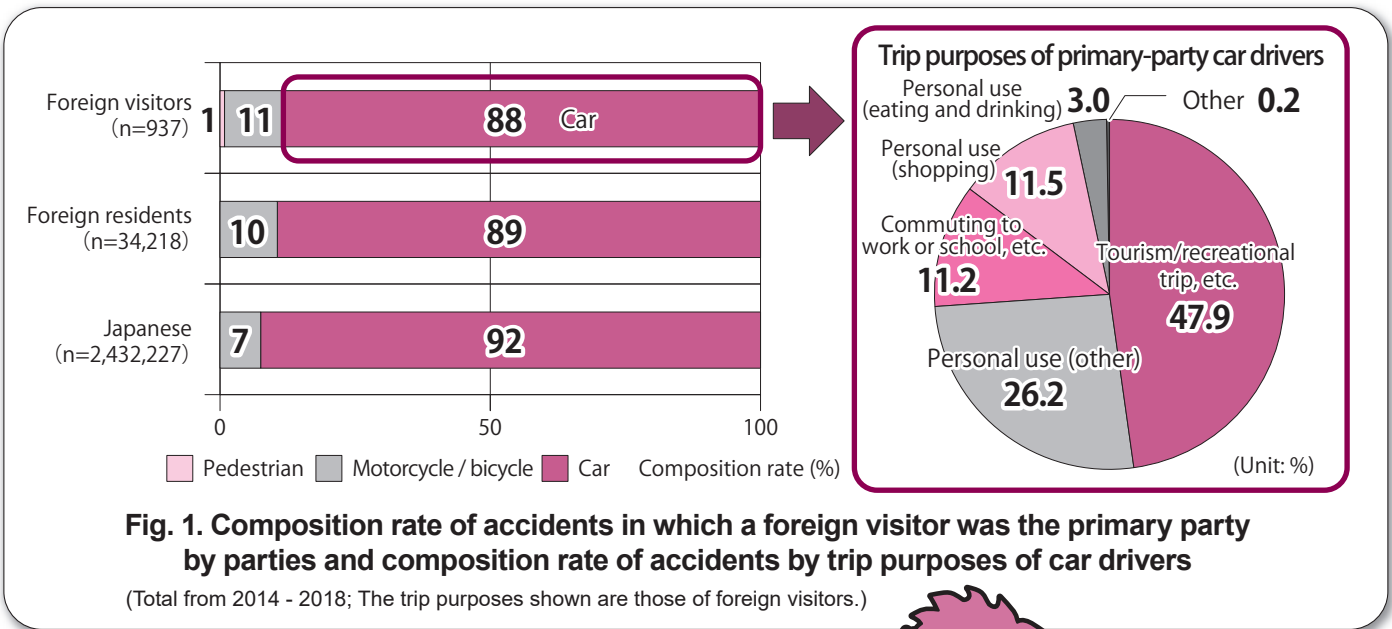


Fig. 1. Composition rate of accidents in which a foreign visitor was the primary party by parties and composition rate of accidents by trip purposes of car drivers

(Total from 2014 - 2018; The trip purposes shown are those of foreign visitors.)



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1 Introduction

■ Increase in foreign tourists

In recent years, due to factors such as government policies to expand the receiving of foreign tourists, there has been a remarkable increase in the number of foreign tourists visiting Japan. According to the Japan National Tourism Organization (JNTO), the number of foreign visitors to Japan (estimate) surpassed 31.19 million in 2018, and among these visitors, the number of foreign tourists whose purpose of visiting Japan was “sightseeing” amounted to 27 million. Also, since the Olympic and Paralympic Games is set to be held in Tokyo in 2020, the number of foreign tourists visiting Tokyo and other parts of Japan is expected to increase even more going forward.

■ Characteristics of traffic accidents involving foreigners visiting Japan

In order to understand the characteristics of traffic accidents involving foreigners visiting Japan, the accidents of three groups also including “Japanese” and “foreign residents,” which were targeted for comparison as shown in Table 1, were analyzed using the Road Traffic Accident Statistics. For the analysis, the data regarding the five years of 2014 to 2018 were used, and accidents in which the persons of these groups were the primary party (accident party that was the most at fault) were targeted.

Table 1. Classifications of analysis targets (1)

Analysis target	Definition of analysis target (based on items in the Road Traffic Accident Statistics)
Japanese	Persons of Japanese nationality
Foreign visitors	Persons of foreign nationality (excluding persons associated with the United States military), not a resident of Japan.
(In rental car accidents referred to from Fig. 3 onward)	Foreign visitors whose driving qualification is “international driver’s license, etc.” and whose trip purpose is “tourism/recreational trip, etc.”
Foreign residents	Persons of foreign nationality (excluding persons associated with the United States military), a resident of Japan.

* “Persons associated with the United States military” refers to United States military personnel, civilian employees of the United States military, and family members of such. “International driver’s license, etc.” includes the foreign driver’s licenses stipulated in the Road Traffic Act.

Fig. 1 on the cover page shows nationwide traffic accidents by type of primary party and analysis target. In traffic accidents caused by foreign visitors, as was the case with Japanese, the primary party was “car” about 90%, and the trip purpose of primary-party foreign visitors driving a car was “tourism/recreational trip” about 50% (note 1). In the case of primary-party Japanese and foreign residents driving a car, the trip purpose during the accident was “tourism/recreational trip” less than 10%, so it appears that getting into an accident when driving a car for the purpose of “tourism/recreational trip” is more common among foreign visitors.

Note 1) The trip purpose “tourism/recreational trip” refers to “tourism/recreational trip, etc.” including driving and walking (and including riding a bicycle).

Furthermore, looking at the composition rate of accidents involving primary-party foreign visitors driving for tourism/recreational trip by “application of car” in order to investigate the types of cars being used during the accidents, as is shown in Fig. 2, a rental car (medium or kei-passenger car) was being used 86%.

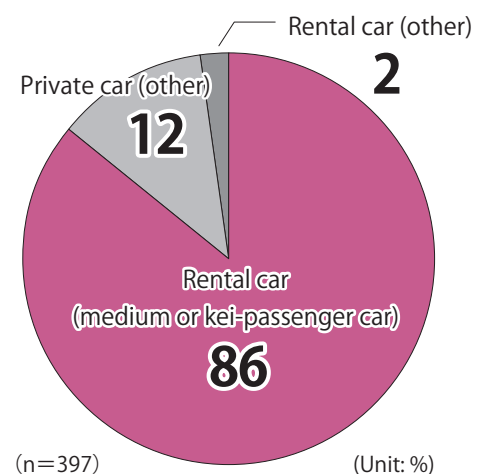


Fig. 2. Composition rate of accidents involving primary-party foreign visitors driving for tourism/recreational trip by “application of car”

(Total from 2014 - 2018)

Looking at the trend in the number of casualty accidents caused by foreign visitors driving a rental car as is shown in Fig. 3, this has increased approximately four-fold during the period from 2014 to 2018, and it is expected that going forward the number of accidents caused by rental cars used for tourism/recreational trip by foreign visitors will continue to increase as the number of foreign tourists further rises.

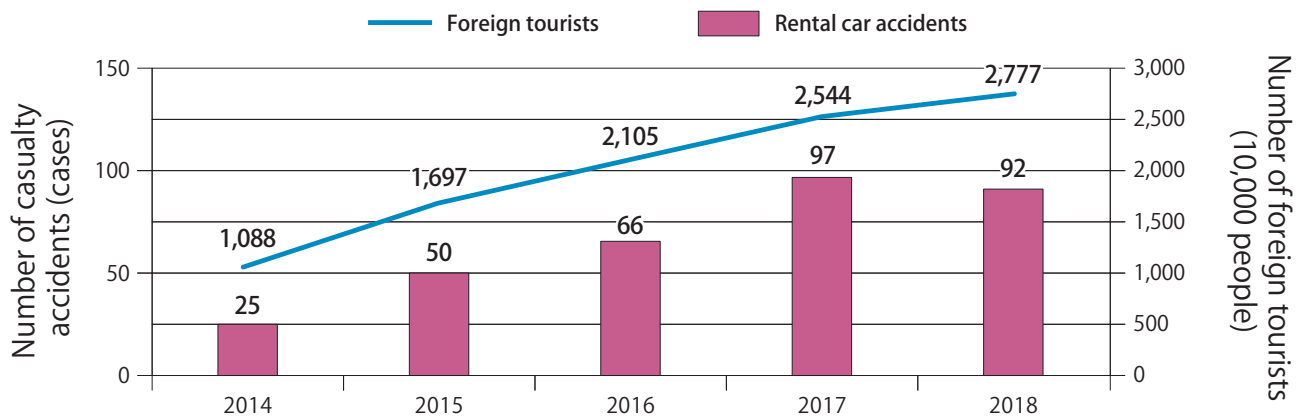


Fig. 3. Trends in number of rental car accidents involving foreign visitors and the number of foreign tourists*

(2014 - 2018; primary-party rental car (medium or kei-passenger car); trip purpose: tourism/recreational trip, etc.; driving qualification: international driver's license, etc.)

* The "number of foreign tourists" is the figure for the number of visitors whose purpose for visiting Japan was "tourism" according to the "Japan Tourism Statistics" website of the Japan National Tourism Organization (JNTO).

In this installment of ITARDA Information, the characteristics of accidents nationwide will be introduced with a focus on rental car accidents involving foreign visitors, and then the results of analysis of Road Traffic Accident Statistics will be introduced incorporating comparisons with Japanese, etc. regarding the effects of regional differences targeting Okinawa and Hokkaido where rental car accidents involving foreign visitors are concentrated.

② Characteristics of rental car accidents caused by foreign visitors nationwide

■ Accident risk during rental car driving among foreign visitors

Fig. 4 shows the "relative accident rates" in order to quantitatively discuss the accident risk during rental car driving by "foreign visitors," "foreign residents," and "Japanese." While the relative accident rate for Japanese is 2.5, it is notably higher for foreign visitors at 13.8, and as such, the primary-party accident risk regarding rental-car driving accidents appears to be relatively higher for foreign visitors than for Japanese.

"Relative accident rate" is an indicator for discussing accident risk that takes into consideration road usage frequency, and it corresponds to the rate of accidents in light of the volume of traffic exposure. The relative accident rate of a given group of drivers (or vehicles; hereinafter the same) during a set period of time is calculated with the following formula.

$$\text{Relative accident rate} = \text{number of primary parties in traffic accidents} / \text{number of no-fault secondary parties}$$

The rate of a given group of drivers becoming a no-fault secondary party, which is not influenced by driving method, is proportional to that group's road usage frequency. Thus, if the ratio of the numbers of no-fault secondary parties of Group A and Group B is 2 to 3, it can be supposed that the ratio of their road usage frequencies is also 2 to 3, and this makes it possible to discuss the accident risk of multiple groups in relative terms.

Generally, when discussing accident risk, accident rate in light of a parameter indicating "the level of risk of road traffic accidents" per vehicle-traveler kilometer, etc. is used. Nevertheless, as is the case with the analysis on this occasion, it is sometimes difficult to acquire the road traffic exposure volumes of driver groups regarding which detailed conditions have been set. As such, here the number of "secondary parties that have not violated laws and regulations in accidents between vehicles (no-fault secondary parties)" has been used as the parameter for accident rate, as an alternative indicator.

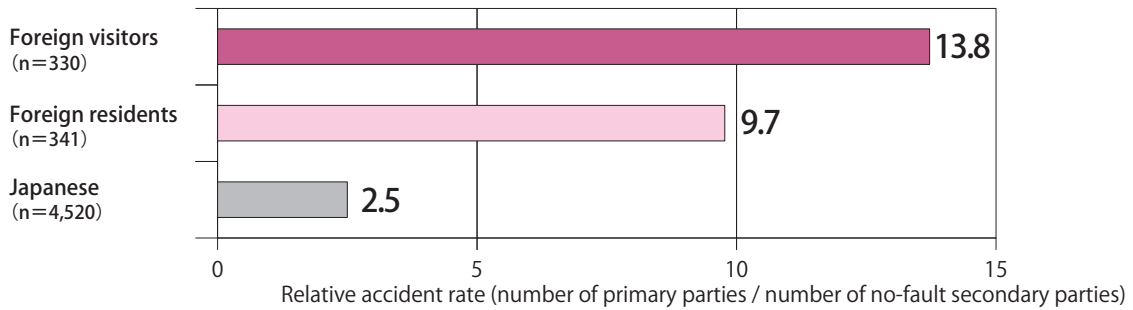


Fig. 4. Relative accident rates for rental cars used for tourism/recreational trip

(Total from 2014 - 2018; primary-party rental car (medium or kei-passenger car))

Particularly frequent occurrences of “right turn-straight on collision accidents” and “crossing collision accidents”

The composition rates of the types of accidents that occurred during rental car driving by foreign visitors, etc. for tourism/recreational trip are shown in Fig. 5 in order to understand the types of accidents that are common among rental car accidents caused by foreign visitors. Among foreign visitors, the composition rate of “crossing collisions (note 2)” was 25% and that of “right turn-straight on collisions (note 3)” was 22%, and these were higher compared with those for foreign residents and Japanese. Meanwhile, although the composition rate of “rear-end collision with a stopped/parked vehicle (note 4)” among foreign visitors was about the same as that for the aforementioned types of accidents at 24%, this was lower compared with the rates of this type of accident for foreign residents (26%) and Japanese (40%).

Thus, it appears that accidents during rental car driving involving foreign visitors not only have the quantitative characteristic of a high relative accident rate, but also the qualitative characteristic of higher rates of right turn-straight on collision accidents and crossing collision accidents compared to those for foreign residents and Japanese.

Note 2) “Crossing collisions” are types of accidents in which vehicles progressing in a crossing direction collide when they cross each other.

Note 3) “Right turn-straight on collisions” are types of accidents in which the vehicle of a party turning right collides with the vehicle of another party moving straight on.

Note 4) “Rear-end collisions with a stopped/parked vehicle” are types of accidents in which a vehicle that has stopped in order to wait at a signal or pick someone up, etc. is hit in the rear by a vehicle approaching from the rear.

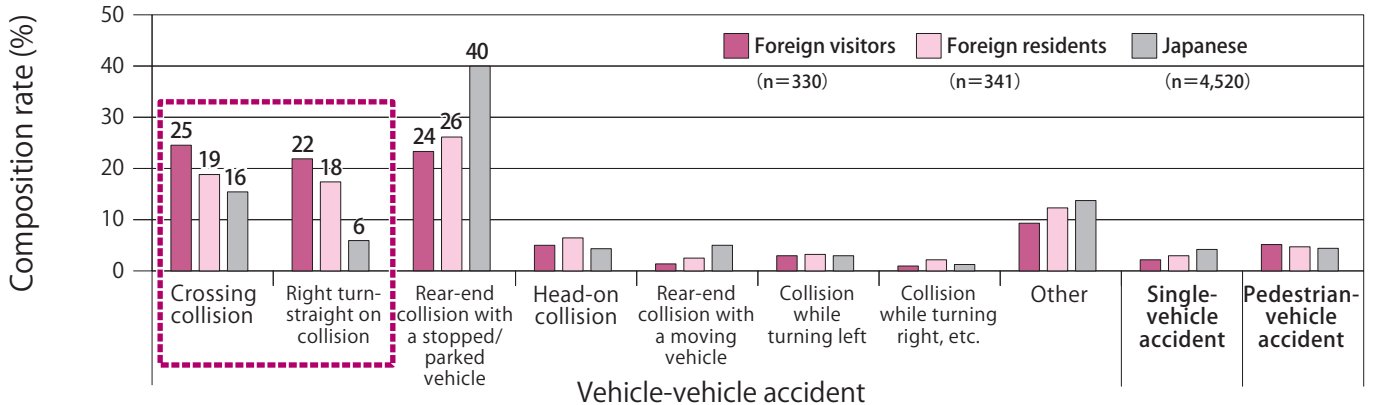


Fig. 5. Composition rates of types of accidents involving rental cars used for tourism/recreational trip

(Total from 2014 - 2018; primary-party rental car (medium or kei-passenger car))

Right turn-straight on collision accidents involving a rental car among foreign visitors

Fig. 6 shows the composition rates of the places of occurrence of right turn-straight on collision accidents caused by rental cars used for tourism/recreational trip accidents by foreign visitors, etc. Among all the drivers, the accidents occurred at a “signalized intersection” more than 80%.

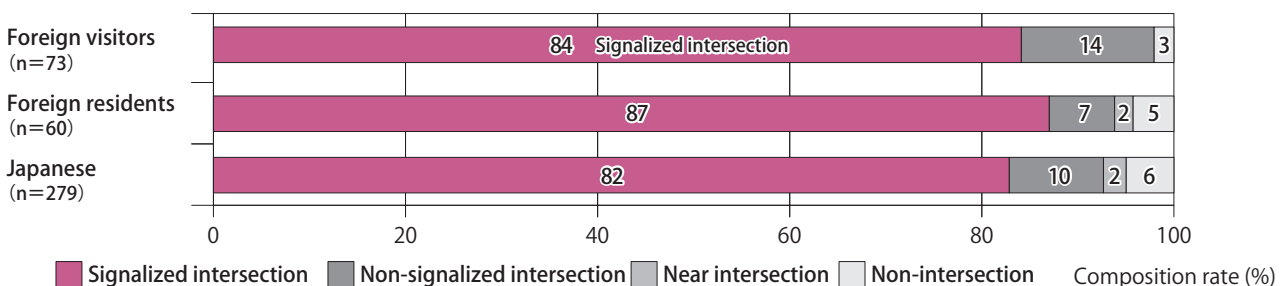


Fig. 6. Composition rates of places of occurrence of right turn-straight on collision accidents involving rental cars used for tourism/recreational trip

(Total from 2014 - 2018; primary-party rental car (medium or kei-passenger car))

In order to investigate the types of vehicles being collided with in right turn-straight on collision accidents at signalized intersections caused by rental cars used for tourism/recreational trip, the composition rates of the other parties in right turn-straight on collision accidents are shown in Fig. 7. In the case of foreign visitors, the other party was a four-wheel vehicle about 70%, and was a motorcycle about 30%, and this was not significantly different from the situation regarding Japanese.

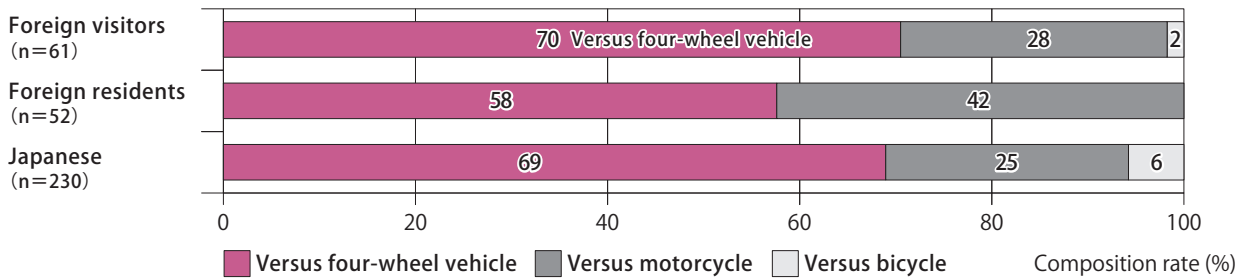


Fig. 7. Composition rates of other parties in right turn-straight on collision accidents at signalized intersections caused by rental cars used for tourism/recreational trip
(Total from 2014 - 2018; primary-party rental car (medium or kei-passenger car))

Fig. 8 shows the composition rates of human factors for right turn-straight on collision accidents at signalized intersections caused by rental cars used for tourism/recreational trip. Among all the drivers, “failure to confirm safety factors (no confirmation or insufficient confirmation)” was the human factor 70% to 80%. Nevertheless, in the case of foreign visitors, while the results were not statistically significant, “no confirmation” in which no action was performed, had a rate of 30%, which was higher than that for Japanese (23%).

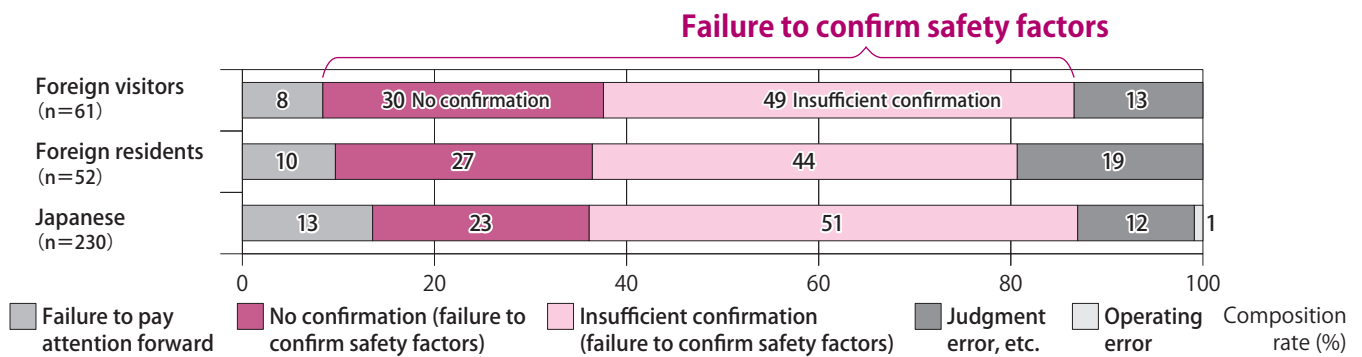


Fig. 8. Composition rates of human factors for right turn-straight on collision accidents at signalized intersections caused by rental cars used for tourism/recreational trip
(Total from 2014 - 2018; primary-party rental car (medium or kei-passenger car))

Many foreign visitors are visiting from countries with right-hand traffic and are accustomed to traffic rules that are fundamentally different from those of Japan. Thus, there seems to be a possibility that the safety-confirmation awareness and methods of foreign visitors, including what direction to pay attention to when making a right turn, are different from those of drivers who are Japanese. As such, even though foreign visitors may have a low probability of encountering accidents when making right turns without paying attention to opposing traffic in their own countries, it appears that in Japan they need to be encouraged to unflinchingly perform safety confirmations regarding opposing traffic traveling straight on when executing right turns.

■ Crossing collision accidents involving a rental car among foreign visitors

Fig. 9 shows the composition rates of places of occurrence of crossing collision accidents caused by rental cars used for tourism/recreational trip by foreign visitors, etc. The rate of “non-signalized intersections” was 77% for foreign visitors, and was higher than that for Japanese (61%).

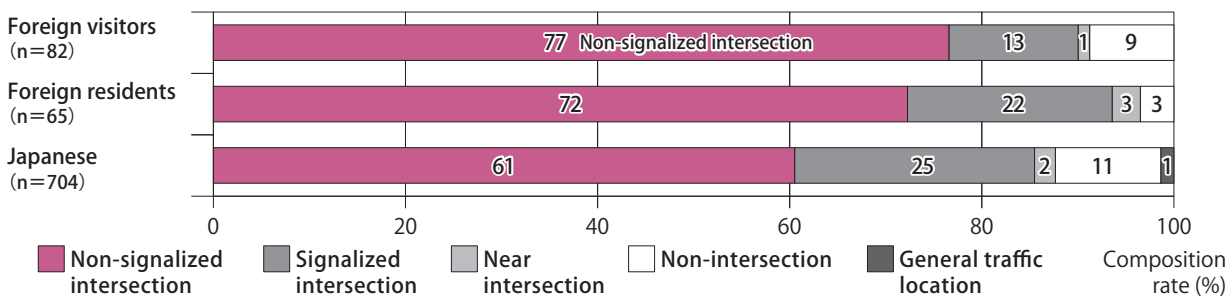
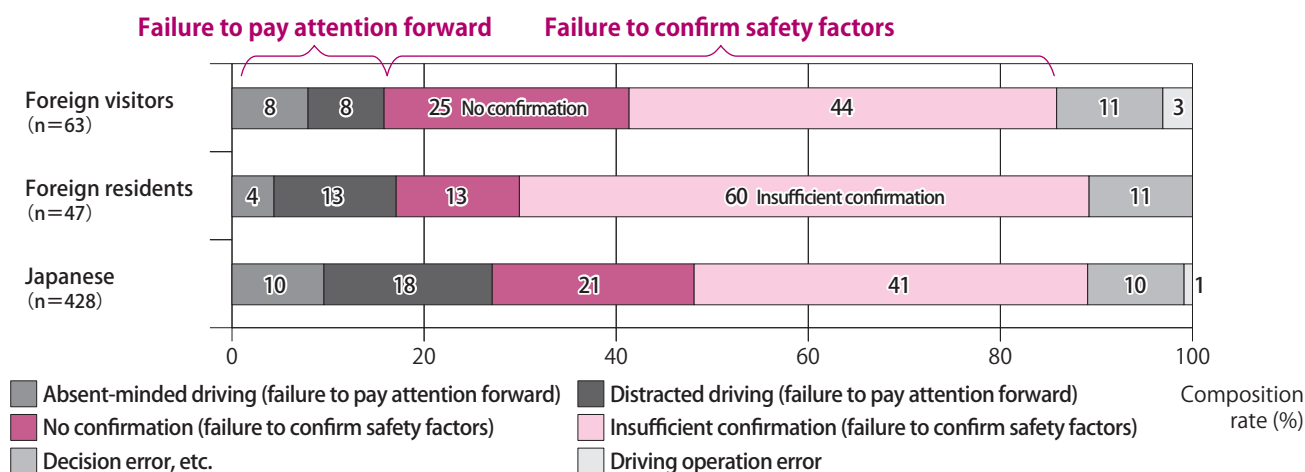


Fig. 9. Composition rates of places of occurrence of crossing collision accidents caused by rental cars used for tourism/recreational trip
(Total from 2014 - 2018; primary-party rental car (medium or kei-passenger car))

Fig. 10 shows the composition rates of human factors for crossing collision accidents at non-signalized intersections caused by rental cars used for tourism/recreational trip. The rate of “failure to pay attention forward,” which is shown on the left side and consists of absent-minded driving (failure to pay attention forward) and distracted driving (failure to pay attention forward), was 16% among foreign visitors and lower than that for Japanese (27%). Since the rate of “failure to pay attention forward” is low among foreign visitors, it seems that these drivers are being especially careful since they are driving in an area that is unfamiliar to them. Nevertheless, the rate of accidents due to “failure to confirm safety factors” is high among foreign visitors, so there appears to be a tendency to fail to perform safety confirmation on the crossing road side among these drivers.

At non-signalized intersections, there are no traffic regulations based on traffic signals, so when passing through non-signalized intersections, carefully performing safety confirmation is even more important than usual. In such cases, drivers need to not only raise their level of attention, but also have an order of priority regarding what to pay attention to and how, in line with differences in traffic behavior and safety consciousness and differences in traffic culture in countries, such as whether to look at pedestrians or bicycles, whether to first look right and then left, and so on. As is the case with right turn-straight on collision accidents, it is essential for safety confirmation to be sufficiently carried out in order to prevent crossing collision accidents.



<The percentages are rounded to the nearest whole number, so do not necessarily add up to 100.>

Fig. 10. Composition rates of human factors for crossing collision accidents at non-signalized intersections caused by rental cars used for tourism/recreational trip

(Total from 2014 - 2018; primary-party rental car (medium or kei-passenger car))

3 Characteristics of rental car accidents caused by foreign visitors in Okinawa and Hokkaido

Table 2 shows composition rates, etc. regarding the prefectures in Japan where rental car accidents caused by foreign visitors most frequently occurred. The prefecture with the highest percentage of such accidents was Okinawa with 57.3% and this was followed by Hokkaido with 21.8%. Thus, many such accidents occurred in regions highly popular as tourist spots among sightseeing foreign visitors, and the two aforementioned regions accounted for about 80% of all such accidents. It seems that the numbers of rental car accidents caused by foreign visitors are high in these two regions largely due to the level of public transportation service used in the regions.

Thus, in light of Table 2, it appears that the characteristics of rental car accidents caused by foreign visitors in Japan shown in Fig. 5 were largely based on the accidents that occurred in the regions of Okinawa and Hokkaido. Meanwhile, it seems that the characteristics of accidents caused by Japanese were largely based on accidents that occurred in regions other than Okinawa and Hokkaido as well. As such, the results of analysis on rental car accidents targeting Okinawa and Hokkaido will be introduced, in order to make a comparison of foreign visitors and Japanese taking into consideration the influence of regions.

Table 2. Numbers of rental car accidents caused by foreign visitors in the Top 5 prefectures

(Total from 2014 - 2018; primary-party rental car (medium or kei-passenger car))

Ranking	Prefecture	Foreign visitors		Japanese		Ranking	Prefecture	Foreign visitors		Japanese	
		Number of accidents	%	Number of accidents	%			Number of accidents	%	Number of accidents	%
1	Okinawa	189	57.3	435	9.6	4	Osaka	6	1.8	173	3.8
2	Hokkaido	72	21.8	709	15.7	5	Nagano	5	1.5	86	1.9
3	Kyoto	11	3.3	119	2.6		Nationwide	330	100.0	4,520	100.0

■ Influence of level of understanding regarding local traffic environment

It seems that occurrences of traffic accidents are influenced by the levels of understanding of road traffic environments and driving methods of drivers in a given region. As such, foreign visitors and Japanese were compared, focusing on whether or not the driver was a resident of the accident region, and as shown in Table 3, the drivers were divided into “area-resident private-car drivers,” who are very familiar with the local road traffic environment, and “non-area-resident rental-car drivers” who are most likely not familiar with the local road traffic environment.

Table 3. Categories of analysis targets in specified regions (2) (based on items in the Road Traffic Accident Statistics)

Analysis target	Nationality, etc.	Trip purpose	Analysis target
Foreign-visitor rental-car drivers	Persons of foreign nationality (excluding persons associated with the United States military), not a resident of Japan.	Tourism/recreational trip, etc.	Rental car (medium or kei-passenger car)
Area-resident Japanese private-car drivers	Japanese whose place of residence is in the prefecture or district targeted for analysis	Tourism/recreational trip, etc.	Private car other than a rental car (medium or kei-passenger car)
Non-area-resident Japanese rental-car drivers	Japanese whose place of residence is outside the prefecture or district targeted for analysis	Tourism/recreational trip, etc.	Rental car (medium or kei-passenger car)

Fig. 11 and Fig. 12 show the composition rates of types of accidents that occurred during car driving for tourism/recreational trip in Okinawa and Hokkaido, respectively, by analysis targets.

In both Okinawa and Hokkaido, the rates of “crossing collisions” and “right turn-straight on collisions” were higher among foreign-visitor rental-car drivers than among area-resident private-car drivers, and this is similar to what was shown to be a characteristic of foreign visitors in Fig. 5. Nevertheless, while the rate of “right turn-straight on collision accidents” appears to be especially high among foreign-visitor rental-car drivers in Okinawa, at 27% (Fig. 11), the rate of “crossing collision accidents” is higher than that of “right turn-straight on collision accidents” among foreign-visitor rental-car drivers in Hokkaido (Fig. 12). Furthermore, in Hokkaido, the rate of “rear-end collision with a stopped/parked vehicle” accidents caused by foreign-visitor rental-car drivers is particularly high, at 33%.

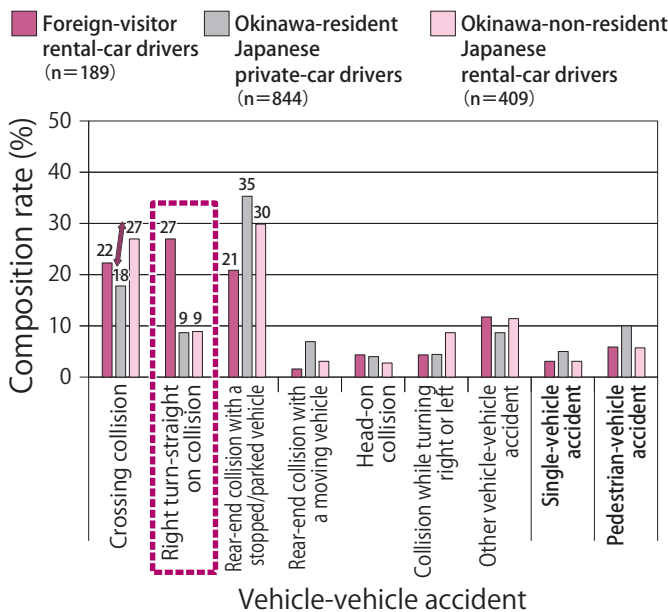


Fig. 11. Composition rates of types of accidents during driving for tourism/recreational trip purpose in Okinawa

(Total from 2014 - 2018; primary-party private car (medium or kei-passenger car))

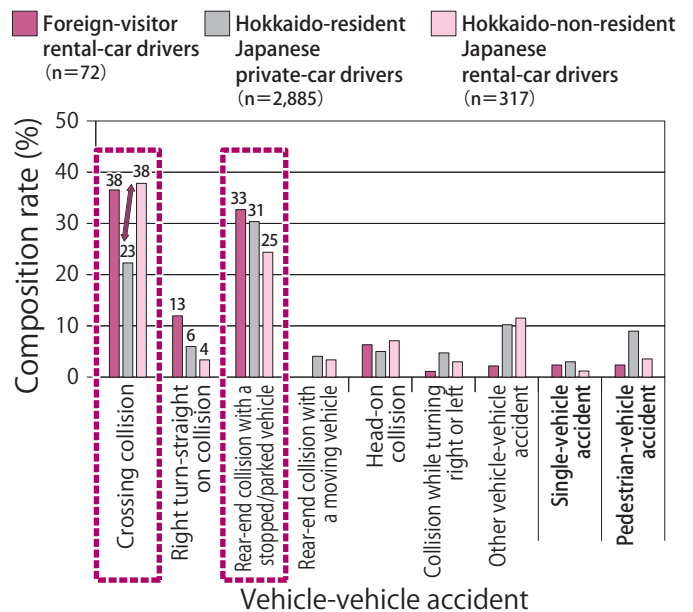


Fig. 12. Composition rates of types of accidents during driving for tourism/recreational trip purpose in Hokkaido

(Total from 2014 - 2018; primary-party private car (medium or kei-passenger car))

Meanwhile, looking at Japanese drivers, who were targeted for comparison with foreign-visitor rental-car drivers, in both Okinawa (Fig. 11) and Hokkaido (Fig. 12), non-area-resident Japanese rental-car drivers had a higher rate of “crossing collision accidents” than area-resident Japanese private-car drivers, and this trend was similar to that among foreign-visitor rental-car drivers. Thus, it appears that even in the case of Japanese, non-area-resident rental-car drivers are more prone to becoming primary parties in crossing collision accidents because, like foreign visitors, they are usually unfamiliar with local traffic conditions and so on.

There is a possibility that as foreign visitors increase going forward, rental car accidents may rise not only in Okinawa and Hokkaido, but other regions as well. In light of this situation, it may be possible to prevent rental car accidents among both Japanese and foreign visitors by using car navigation systems and so on to provide both with detailed information on rental car accident prevention for the specific region (Okinawa, Hokkaido, and other regions), based on referring to analysis regarding rental car accidents among out-of-prefecture Japanese.

4 Conclusion

The results of two types of analysis targeting rental car accidents caused by foreign visitors have revealed following characteristics of such accidents. A simple summary of the analysis results and concepts for measures against such accidents based on these results is shown below.

■ Analysis of rental car accidents caused by foreign visitors nationwide

- Accident risk during rental car driving taking into consideration the volume of traffic exposure is notably higher for foreign visitors than for Japanese. (Fig. 4)
- As for the types of rental car accidents, the composition rates of “right turn-straight on collision accidents” and “crossing collision accidents” are higher among foreign visitors than among Japanese and foreign residents. (Fig. 5)
- Among foreign visitors, “right turn-straight on collision accidents” frequently occur at signalized intersections, and it is possible that the cause of such accidents is “no safety confirmation” regarding opposing traffic. (Fig. 8)
- Among foreign visitors, “crossing collision accidents” frequently occur at non-signalized intersections, and it is possible that the cause of such accidents is “no safety confirmation” on the intersecting road. (Fig. 10)

■ Analysis of rental car accidents caused by foreign visitors in Okinawa and Hokkaido

- Accidents caused by foreign visitor car drivers are concentrated in Okinawa and Hokkaido, and these two regions account for about 80% of such accidents. (Table 2)
- Okinawa and Hokkaido have notably different composition rates of types of accidents caused by foreign visitor rental car drivers. While “right turn-straight on collision accidents” are common in Okinawa, “crossing collision accidents” and “rear-end collision” accidents are common in Hokkaido. (Fig. 11 and Fig. 12) While accident risk is lower for out-of-prefecture Japanese rental car drivers than for foreign visitors, there appears to be a similar trend regarding the distribution of types of accidents caused by these drivers.

■ Concept for measures against rental car accidents caused by foreign visitors

It is possible that accidents among drivers who are foreign visitors are being caused not only by attributes of being a foreigner (inability to read Japanese, and differences regarding traffic behavior and safety consciousness, traffic culture) but also factors related to being unfamiliar with the local road traffic environment, road traffic conditions, and so on. Therefore, accident prevention in this regard needs to be examined and implemented taking into consideration such characteristics.

- Comparing foreign visitors with Japanese, there is a quantitative characteristic that accident risk is notably higher, and a qualitative characteristic that the rates of “right turn-straight on collision accidents” and “crossing collision accidents” are higher. As such, public information and awareness-raising activities for the prevention of accidents should be implemented taking into consideration these characteristics.
- Detailed measures based on the status of accidents in regions should be examined. For example, when loaning out rental cars, it may be possible to prevent rental car accidents caused by foreign visitors by using car navigation systems and so on to provide drivers with detailed information on rental car accident prevention for the specific region in multiple languages.

Additional note: The content introduced here is a summary of part of the “Research on traffic accidents during leisure activities” that the Institute for Traffic Accident Research and Data Analysis implemented together with the Japan Research Center for Transport Policy as joint research in FY2018.

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