

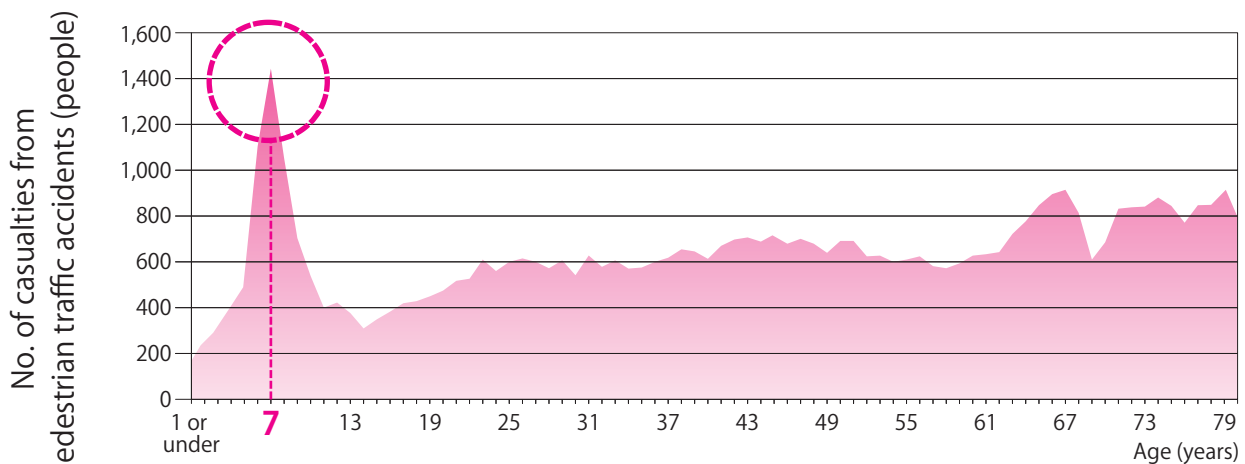
ITARDA INFORMATION

交通事故分析レポート No.116

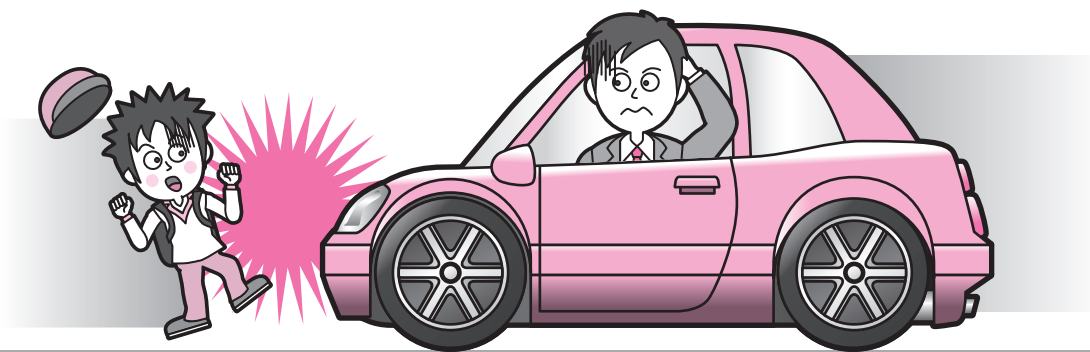
Special
feature

Traffic accidents involving child pedestrians

~A surge in child pedestrian accidents around the time children start elementary school necessitates thorough safety guidance up until they start school~



No. of casualties from pedestrian traffic accidents (2015)



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1 Introduction

The number of fatalities from pedestrian traffic accidents that occurred in 2015 came to 1,534, and when the number of injuries is added to this the number of total casualties comes to 56,962. The graph in Fig. 1 shows the composition rate for the number of fatalities and casualties by age group, with elderly people aged 65 or over accounting for 70% of the fatalities and 32% of the casualties. As a result, there is a widespread understanding of the importance of safety measures for the elderly. Conversely, looking at people aged 19 or under reveals that while their rate of fatalities is relatively small at 3%, they account for 18% of the number of casualties, which is six-times greater than their rate of fatalities. Table 1 lists the number of fatalities and casualties in five-year increments, indicating that the age group with the highest number of casualties is not the elderly, but rather children aged 5 - 9 with 4,853 casualties.

If we were to look at age with even greater granularity by viewing casualties in one-year increments, then one characteristic comes into even sharper focus. While adult casualties come to around 600, and for people 65 or over this is a step higher in that they hover around 800, this is in contrast with the conspicuously higher number of casualties among seven-year-old children, which is at approximately 1,400 (see the figure on the cover).

Therefore, in this issue of ITARDA INFORMATION we would like to focus on traffic accidents involving child pedestrians. We will take a look at these in comparison with other age groups to see what sorts of characteristics they have, and examine why this phenomenon peaks with seven-year-old children.

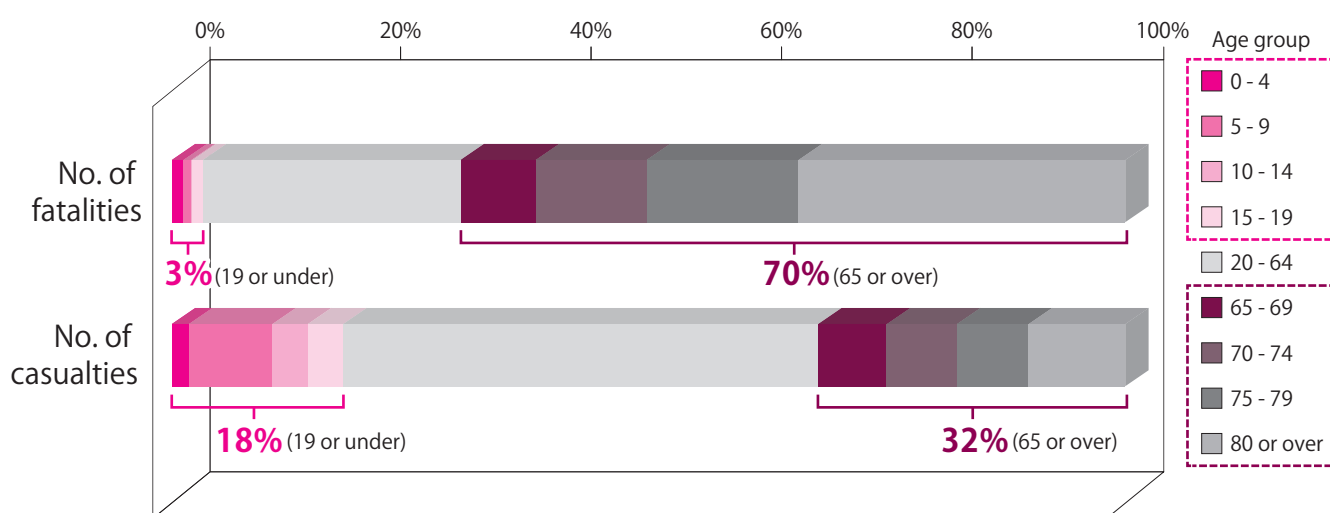


Fig. 1. Composition rate for the no. of fatalities and casualties from pedestrian traffic accidents by age group (2015)

Table 1. No. of fatalities and casualties from pedestrian traffic accidents (2015)

Age group	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44
No. of fatalities (people)	19	13	3	16	25	28	33	27	41
No. of casualties (people)	1,132	4,853	2,155	2,027	2,729	3,009	2,961	3,115	3,440

Age group	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 - 74	75 - 79	80 - 84	85 or over
No. of fatalities (people)	51	58	60	90	121	179	244	287	239
No. of casualties (people)	3,468	3,263	3,010	3,443	4,137	4,149	4,290	3,412	2,369

2 Number of casualties from pedestrian traffic accidents by age

Fig. 2 graphs the number of casualties from pedestrian traffic accidents by age between the years of 2011 and 2015. While it is not apparent from the composition rate with the five-year increments from Fig. 1, breaking the number of casualties down by one-year increments reveals that a significant peak appears at age seven out of all the ages. Yet while this peak among seven-year-old children declines year by year, this reveals that it is not a special tendency among a random age. The figures for 2015, which were the lowest out of the past five years, reveals that the number of casualties among seven-year-old children exceeded 1,462, whereas for people aged 20 to about 60 this number was around 600, and for people aged 65 or over it hovered around approximately 800. As such, the number of casualties among seven-year-old children is 2.5 times greater than that for adults and roughly two times greater than that for elderly people aged 65 or over.

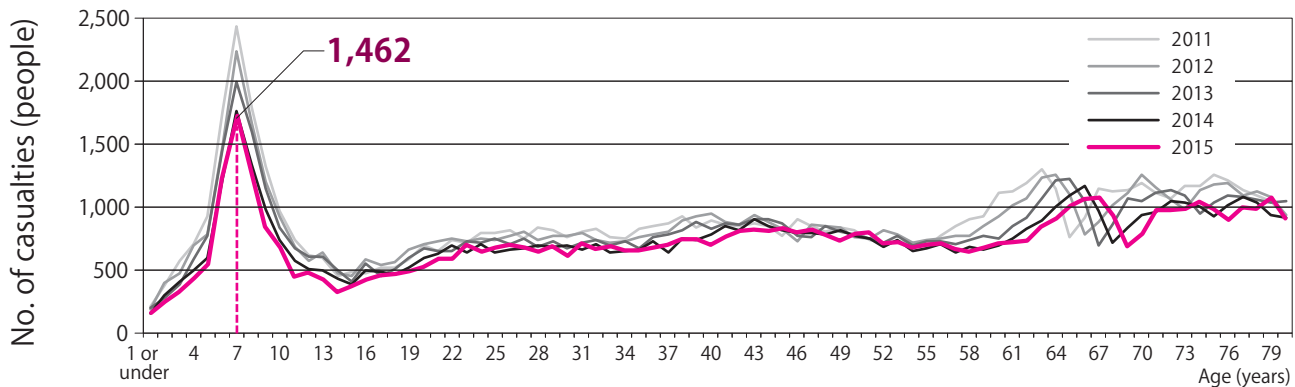


Fig. 2. No. of casualties from pedestrian traffic accidents (2011 - 2015)

Next, we would like to consider the impact from the age distribution of Japan's total population. Fig. 3 shows the age distribution in 2014 announced by the Statistics Bureau of the Ministry of Internal Affairs and Communications. Using this data, we calculated the number of casualties per a total population of 100,000 people, as shown in the graph in Fig. 4. Even when considering the age distribution of the total population, the peak for seven-year-old children is clearly manifested. The number of casualties per a total population of 100,000 people is 140, which is roughly three times that of the figure calculated for all ages of 46. Since the total population of people around the age of seven is smaller than that for other age groups, this proves that the number of casualties among seven-year-old children is increasing due to factors other than that for the age distribution of the total population.

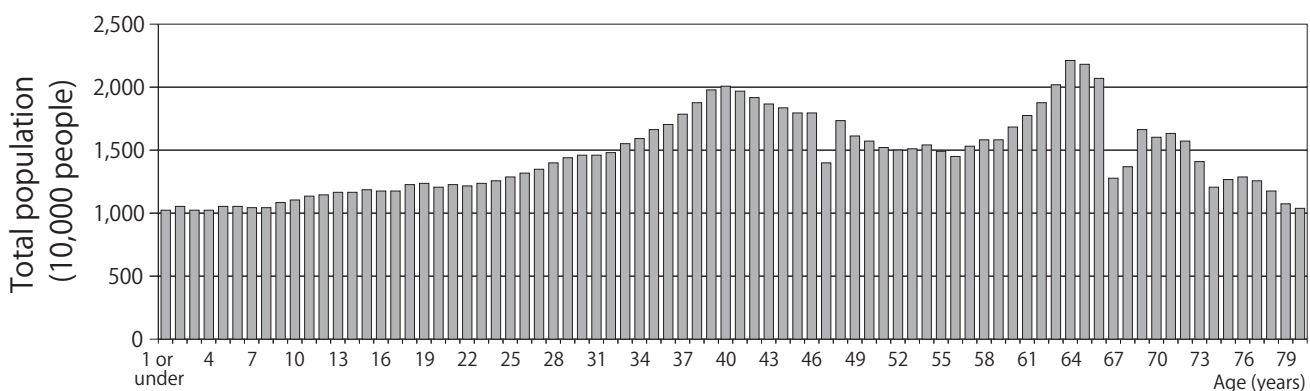


Fig. 3. [Reference] Age distribution of the total population in Japan (2014)

Source: Statistical data from the Statistics Bureau, Ministry of Internal Affairs and Communications

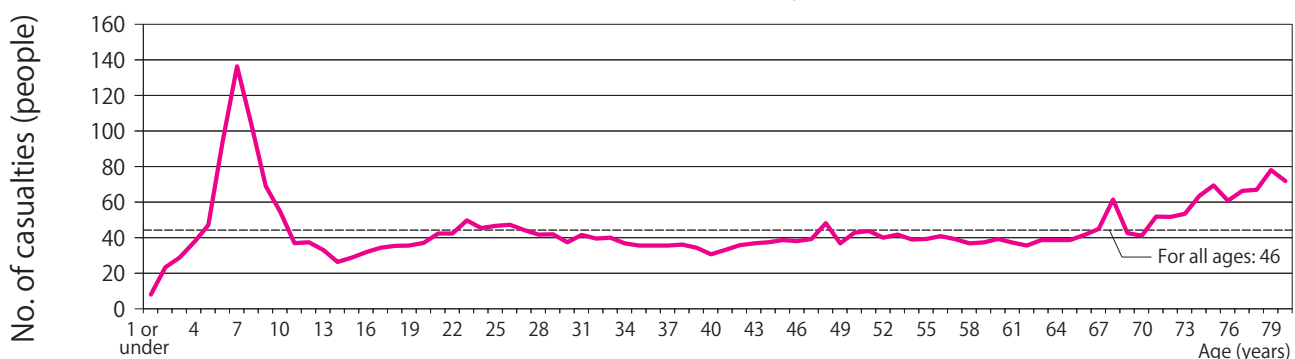


Fig. 4. No. of casualties from pedestrian traffic accidents per a population of 100,000 people (2015)

③ Characteristics of traffic accidents involving child pedestrians

So then why is there a peak of casualties among seven-year-old children? Let's take a look at the characteristics of traffic accidents involving child pedestrians by comparing them with other age groups.

■ 93% of the accidents occur during the daytime or at dusk

Let's start by looking at the times in which pedestrian traffic accidents occur by breaking this down into dawn, daytime, dusk, and nighttime.

As indicated in Fig. 5, most of the accidents occur in the daytime up until about age 13, while after age 13 the number of accidents at nighttime gradually increase. The number of accidents during the daytime and the nighttime are roughly the same between the ages of about 16 and 60, but beyond the age 60 the number of casualties from accidents during the daytime begins to increase once more. The fact that the time periods at which people are active outside differs by age group is thought to have a major impact on this.

Fig. 6 is a graph showing the time periods when traffic accidents involving seven-year-old child pedestrians occur. 73% of these accidents occur during the daytime, with this rising to 93% when combined with accidents that occur at dusk right around the time the sun sets.

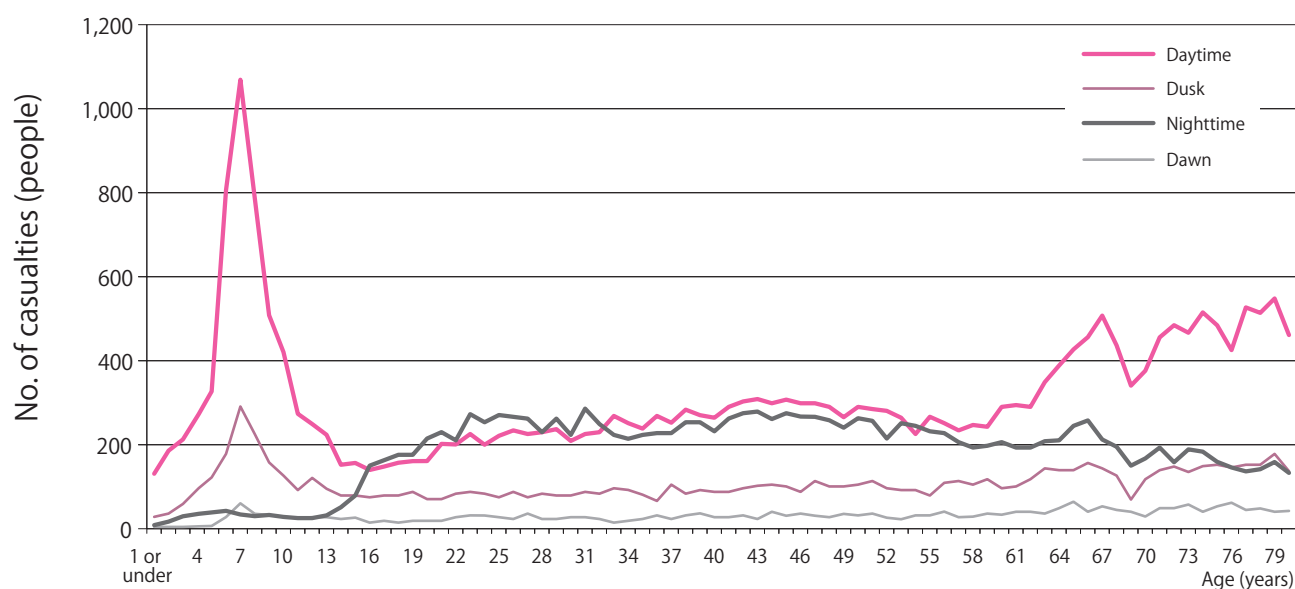


Fig. 5. No. of casualties from pedestrian traffic accidents by time of day (2015)

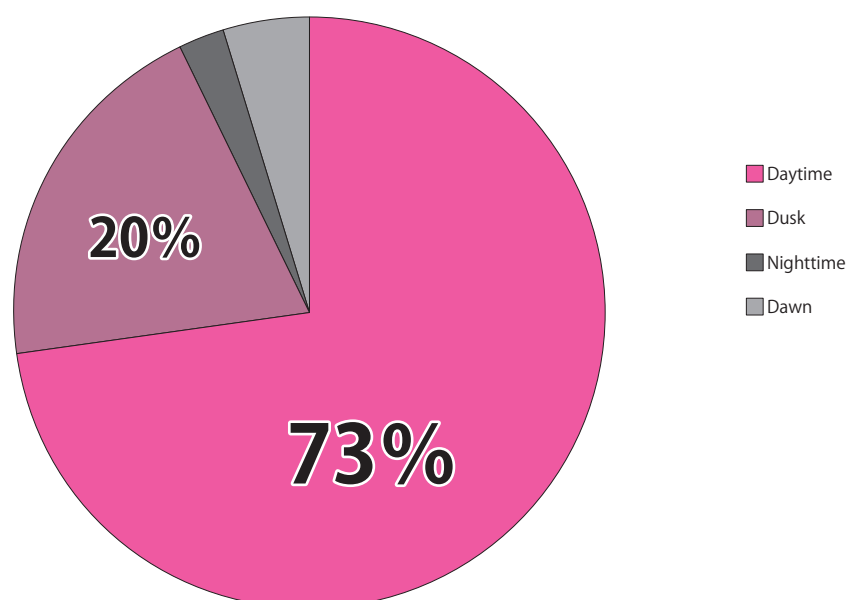


Fig. 6. No. of casualties from traffic accidents involving seven-year-old child pedestrians by time of day (2015)

■ The number of casualties on weekdays is roughly 2.5 times greater than that on Sundays!

Next we'll see the trends with the number of casualties by day of the week. Fig. 7 is a graph showing the number of casualties by day of the week. The number of casualties is lowest on Sundays compared to the other days across all ages, and the peak for seven-year-old children is not all that conspicuous. This is somewhat low for Saturdays as well compared to the other days, though not as low as it is for Sundays. The number of casualties for seven-year-old children by day of the week has been graphed in Fig. 8. The number of casualties on weekdays hovers around 250, which is roughly two times that of Saturdays and roughly 2.5 times that of Sundays.

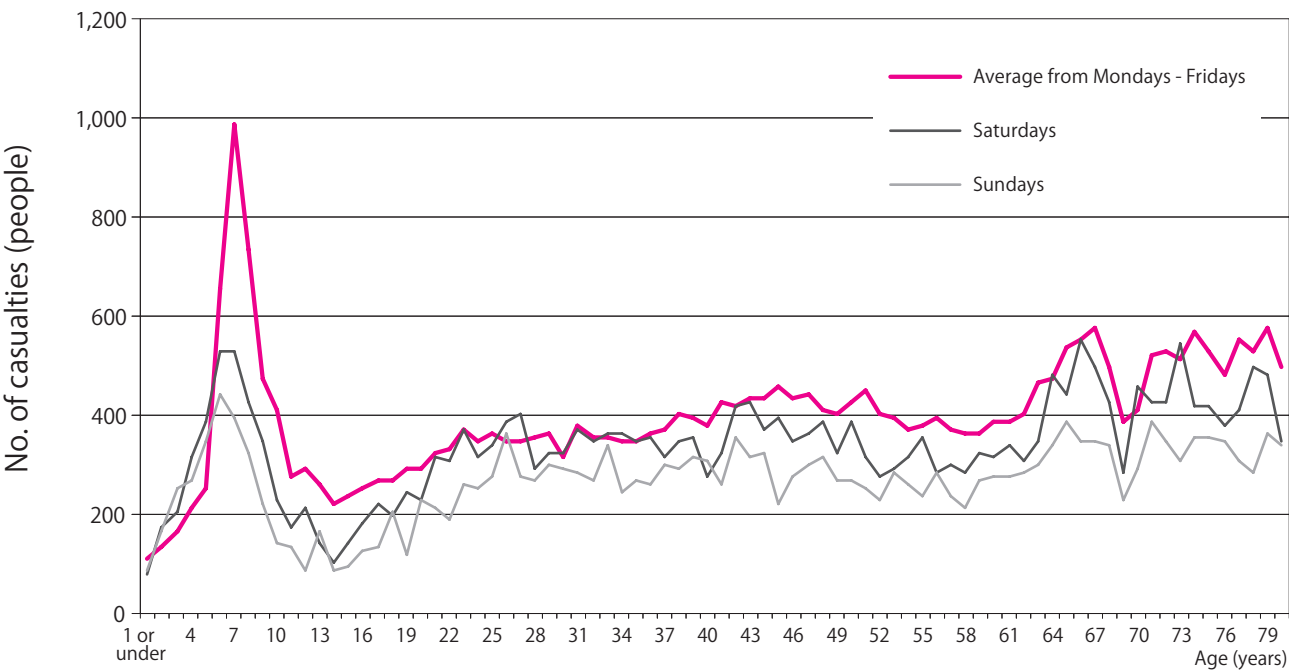


Fig. 7. No. of casualties from pedestrian traffic accidents by day of the week (2015)

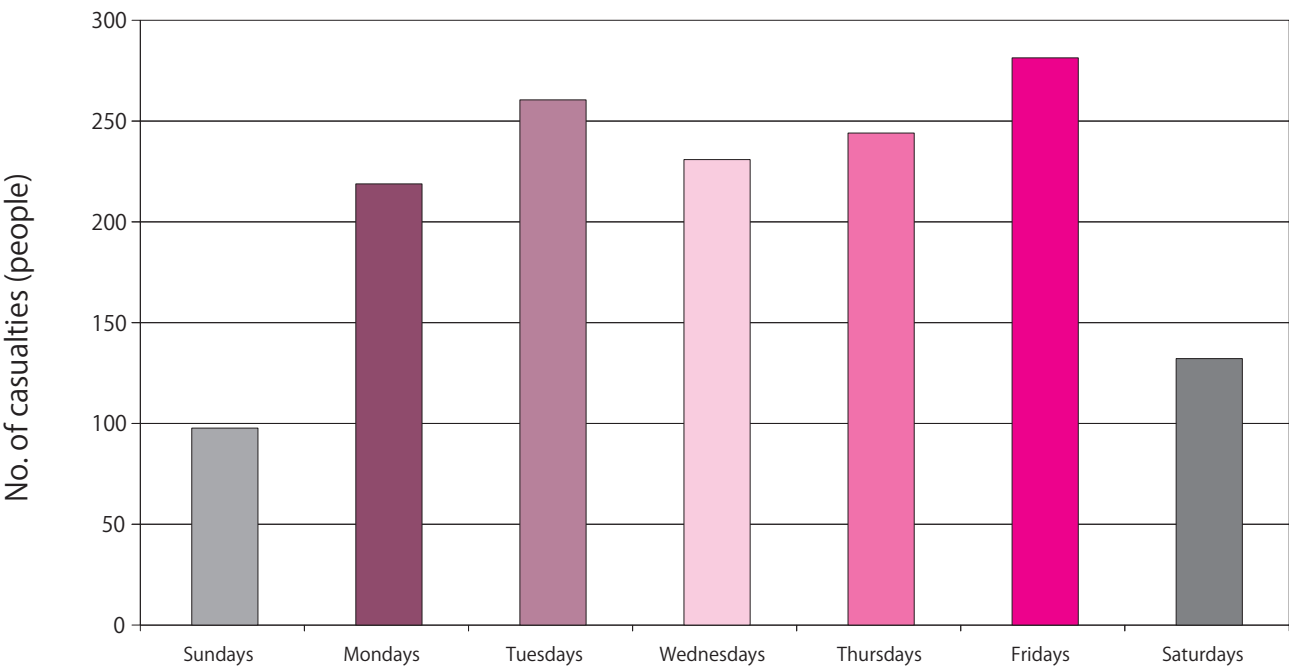


Fig. 8. No. of casualties from traffic accidents involving seven-year-old child pedestrians by day of the week (2015)

■ The number of casualties among seven-year-old children is highest even for trip purposes other than commuting to and from school!

Next we will look at the trip purposes for pedestrians when accidents occurred.

Fig. 9 graphs the number of casualties for children between the ages of 0 and 15 by trip purpose. Since children start elementary school from age six, the number of accidents while commuting to and from school surges. Furthermore, while playing and visiting ^{Note 1)} are not as high as commuting to and from school, these also surge starting from age six and are 1.8 times higher than the number of casualties from five-year-old children. For each trip purpose, the number of casualties peaks at age seven before declining. It is believed that adults oftentimes drop off and pick up children when going to kindergarten and nursery school, and children often travel together with adults after these have finished for the day. Conversely, once they become elementary school students children commute to and from school on their own, and their opportunities to head out to play by themselves after elementary school is over, also increases. As mentioned above, the fact that the majority of traffic accidents involving child pedestrians occur during the daytime on weekdays is entirely plausible when you consider that accidents increase when children are acting on their own.

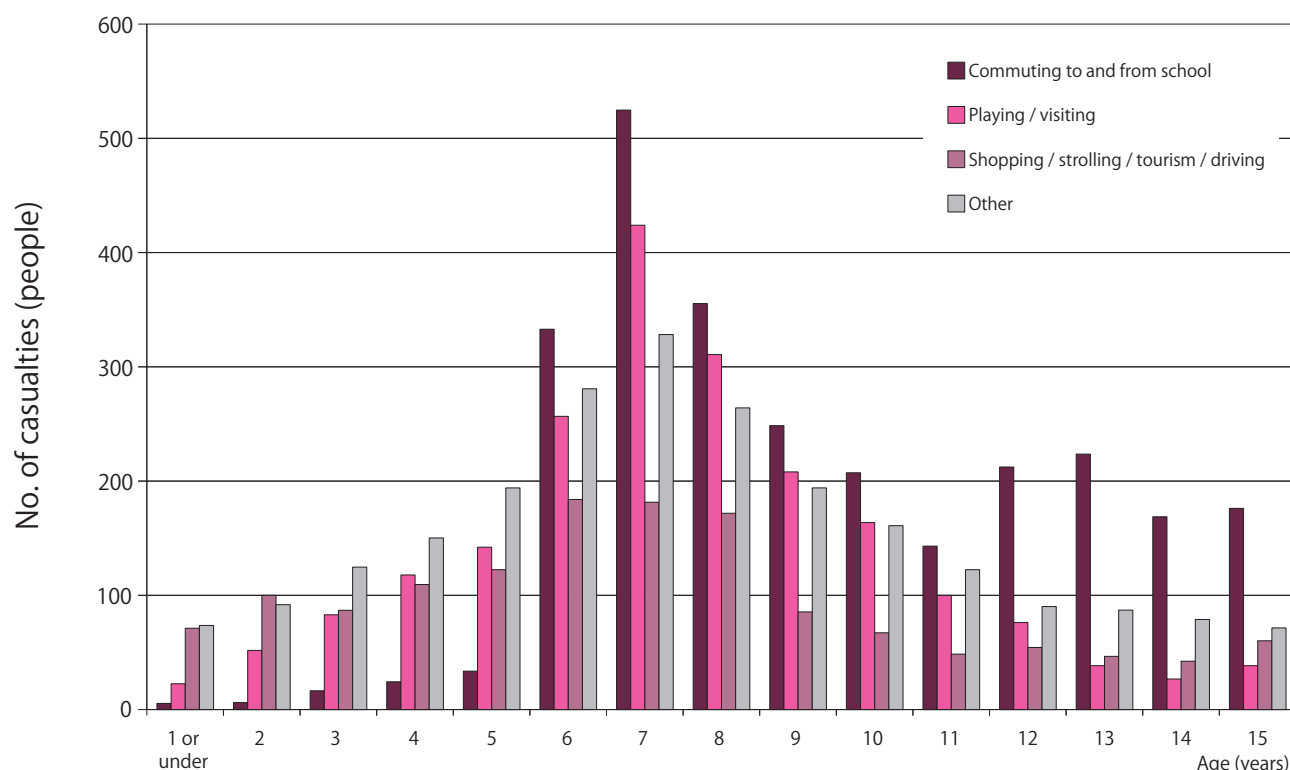


Fig. 9. No. of casualties from pedestrian traffic accidents by trip purpose (2015)

Note 1) Playing refers to cases where accidents occurred while pedestrians were playing in the street, such as by tossing a ball. Visiting refers to cases where accidents occurred while traveling for the purpose of visiting the homes of relatives or friends, etc.

■ The number of casualties among boys is roughly double that for girls!

Lastly, we would like to look at the characteristics for the different genders.

Fig. 10 graphs the proportion of males to females among the casualties from pedestrian traffic accidents. The proportion of males out of Japan's total population ^{Note 2)} is listed alongside it for reference. For the number of casualties from pedestrian traffic accidents, the proportion of boys around age seven is over two times greater than that for girls, and is higher than that of boys among other ages. After passing age seven the proportion of males declines, until around age 17 this comes in at one-to-one at which point there are more casualties among women. Thereafter, this gradually increases until about age 30 where it hovers around 1.5 times for a while. Then starting from about age 50 it gradually decreases until it once again comes in at one-to-one starting from around age 60, at which point there are more casualties among women.

When you consider the proportion of men in the total population, the fact that casualties among women surpass those of men at age 65 and over, is slightly impacted by the higher proportion of women in the total population. But since it hovers around one-to-one until about age 60, it appears that there is almost no impact from the total population on the proportion of men among the casualties of people aged 60 or under.

Is the fact that the number of casualties among boys is roughly twice that of girls, most likely due to the increased opportunities for boys to go outside? The number of casualties by trip purpose is shown once more in Fig. 11 by gender. Regardless of trip purpose, boys surpass girls by two times or more. For example, boys get into accidents while commuting to and from school at twice the rate of girls, but there is no difference between boys and girls in terms of frequency or distance in their school commutes. Therefore, this could potentially be because boys have a greater tendency to engage in risky behavior. Moreover, with regard to playing / visiting, the rate for boys was even higher at roughly 2.5 times that of girls, which is possibly because boys have more opportunities to go outside and play relative to girls.

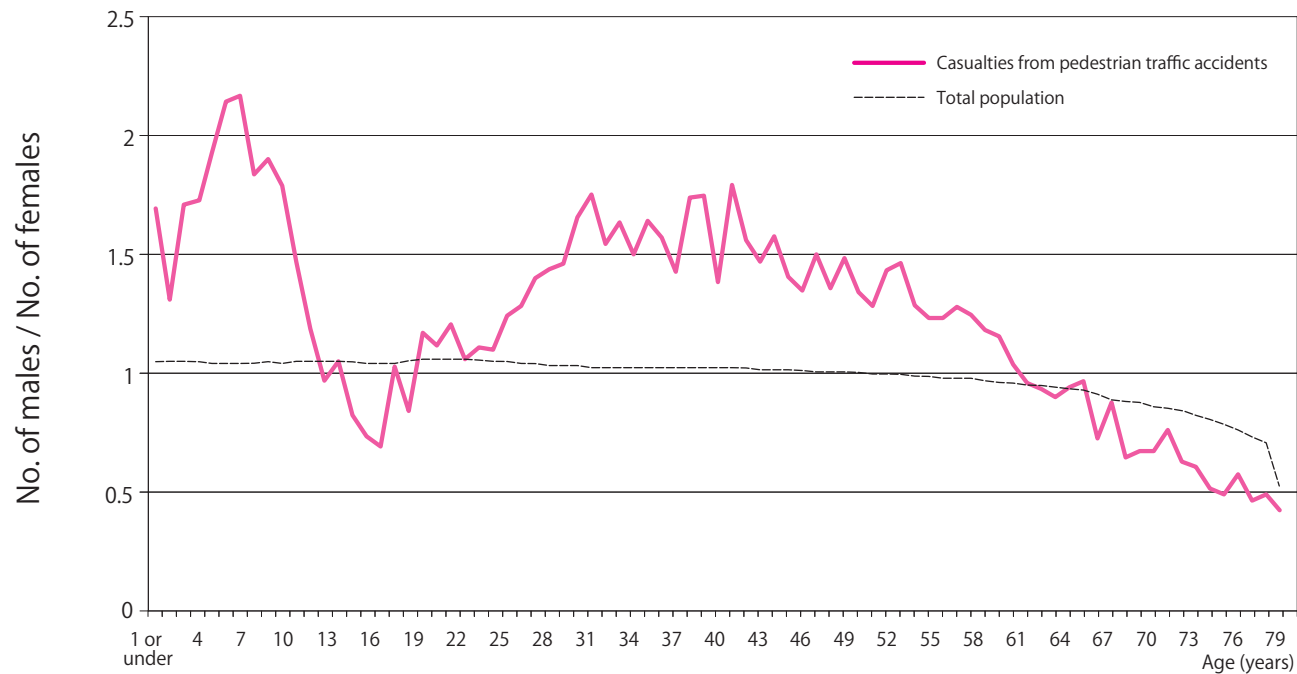


Fig. 10. Proportion of males among the no. of casualties from pedestrian traffic accidents (2015)

Note 2) The proportion of males out of Japan’s total population was calculated from the population as of October 1, 2014 from the Statistics Bureau, Ministry of Internal Affairs and Communications.

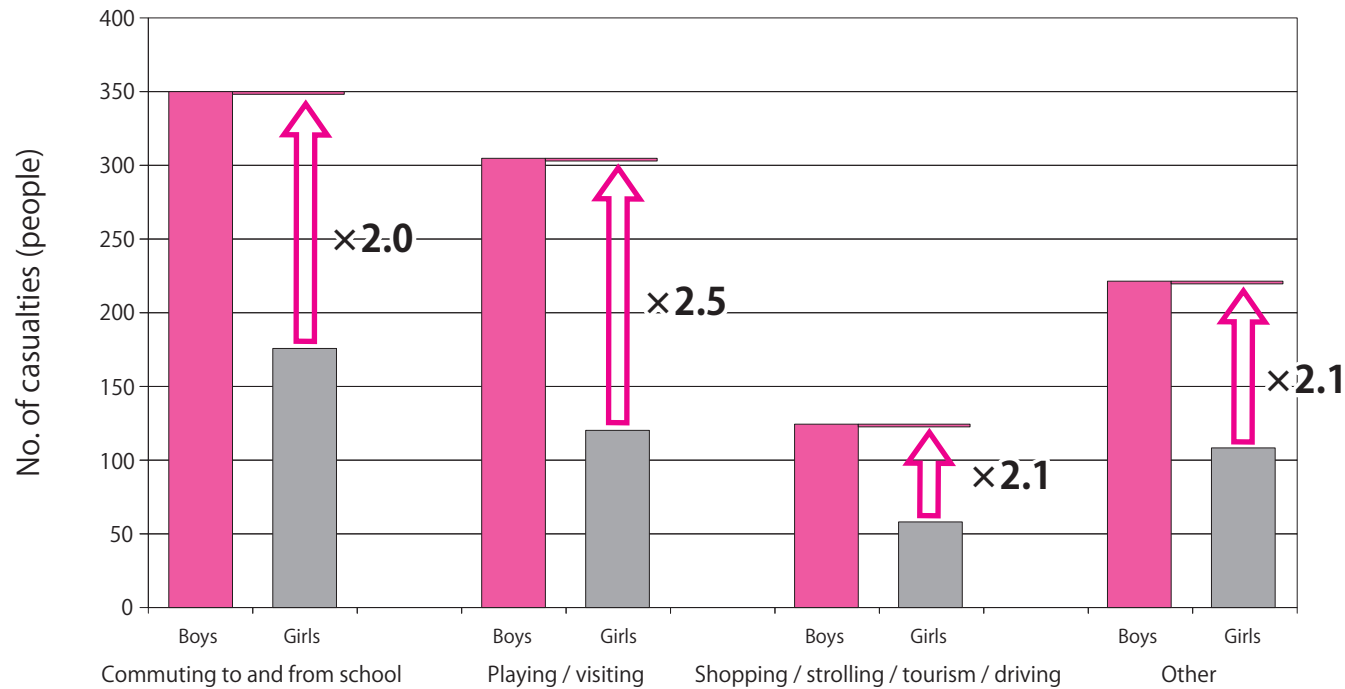


Fig. 11. No. of casualties from traffic accidents involving seven-year-old child pedestrians by gender and trip purpose (2015)

4 Conclusion

As we have seen thus far, there is a significant peak in the number of casualties from traffic accidents among seven-year-old child pedestrians, with the figures for such children conspicuously larger than those for other age groups at anywhere from roughly two to 2.5 times greater.

The characteristics of accidents involving seven-year-old child pedestrians can be summarized as follows:

- 73% occur during the daytime, and when this is combined with those at dusk 93% occur during the daytime or at dusk.
- The number of casualties on weekdays is roughly twice those on Saturdays and about 2.5 times those on Sundays.
- Accidents while commuting to and from school increase starting from age six, when elementary school starts, but seven-year-old children also get into the most accidents for other types of trip purposes besides commuting to and from school, including while playing or visiting.
- The number of casualties among boys is roughly twice that of girls, which is estimated to be because boys have a greater tendency to engage in risky behavior.

Upon examining these characteristics, the fact that a peak occurs with seven-year-old children is not because of the simple reason that accidents while commuting to and from school increase on account of the start of elementary school. One point that warrants attention here is that it is not the case that the number of casualties suddenly increases at age seven and then stays that way. Instead, this soon falls back down. It is hard to imagine that activities to safeguard children while they are commuting to and from school in local communities and other activities like traffic safety education and campaigns only show significant results with children who are older than seven. Therefore, there must be another reason for the decline in the number of casualties after children past age seven.

That the number of casualties increases at age seven conversely implies that there were numerous other dangerous situations that failed to result in accidents. Moreover, the number of casualties decreases after age seven even though there is no change in the frequency with which children commute to and from school or in their opportunities to play outside. The fact that the number of casualties decreases here is possibly due to children personally encountering dangerous situations and learning what sorts of behaviors are dangerous through these experiences.

But if this hypothesis is correct, then surely it would indicate that we must do a better job of properly preparing children to act safely on their own prior to going to elementary school. For example, parents should walk together with children who are preparing to attend elementary school the following year while being aware of whether or not the children can travel safely on their own as they go. These walks should include routes like the course they will take to the elementary school they are scheduled to attend, as well as the routes to parks and convenience stores located within the child's range of activities. With children around this age, it is difficult to get them to translate things they understand intellectually into their behavior, so we feel that repeated guidance will be necessary. Instead of waiting until children start elementary school, parents should take as much time as possible up until they start elementary school to repeatedly provide them with traffic safety guidance. Doing so will most likely allow us to reduce the peak seen with seven-year-old children in the number of casualties from pedestrian traffic accidents.

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