

ITARDA INFORMATION

交通事故分析レポート

No.98

Special
feature

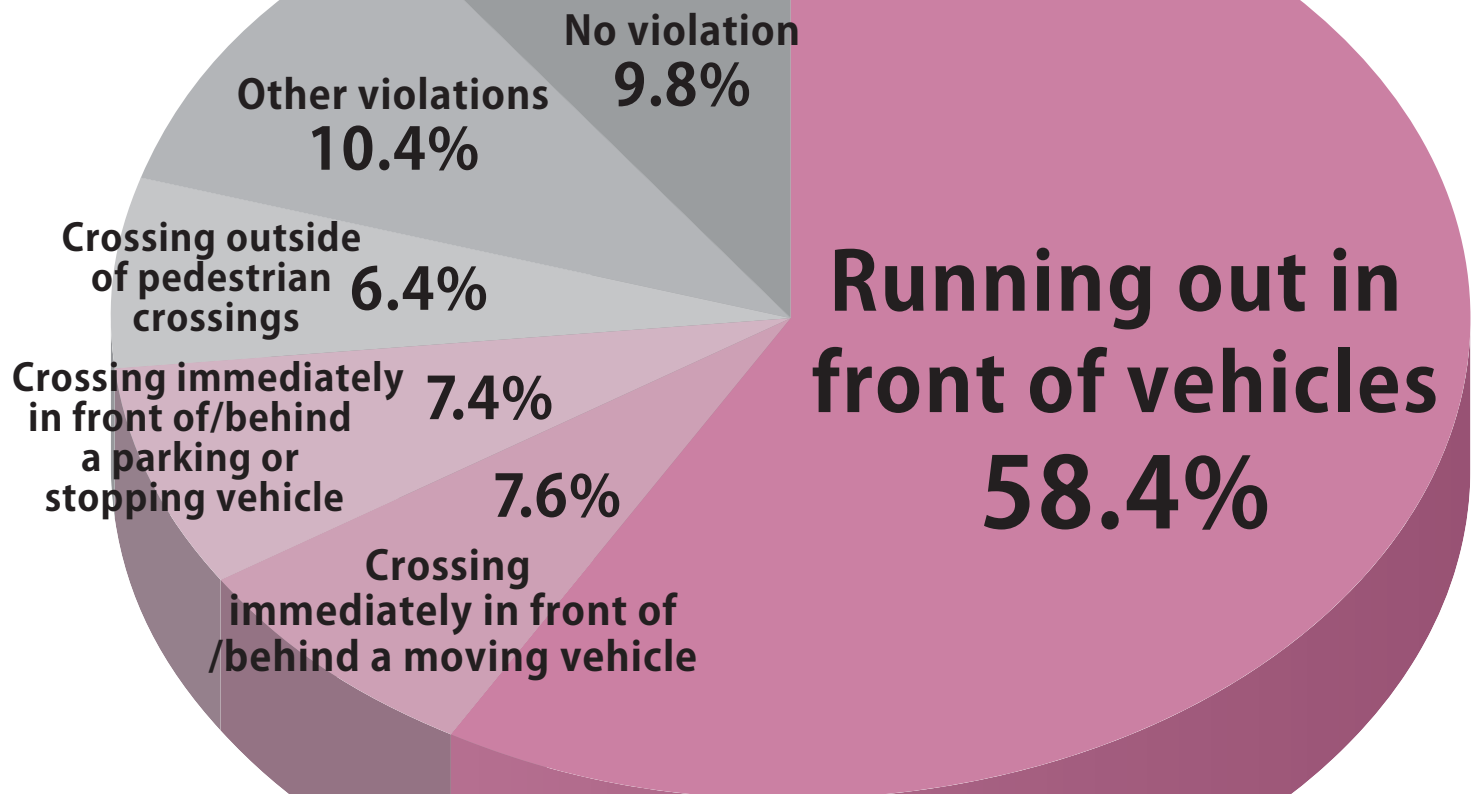
Characteristics of pedestrian accidents on community roads

-Watch out for children crossing roads and running out in front of vehicles-

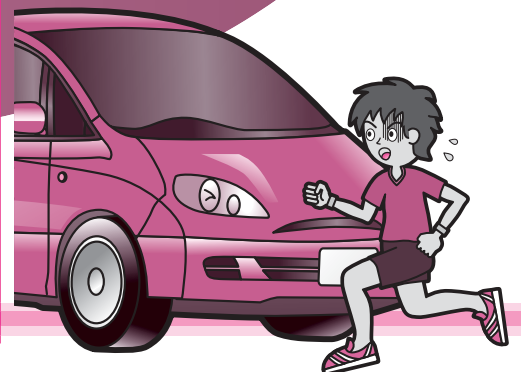
5,854 injury accidents between 2007-2011

〈Breakdown of injury accidents by legal violations attributable to pedestrians〉

(Vehicle and pedestrian (under 13) accidents by crossing outside the crosswalks of single-lane community roads)



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1 Introduction

Since 2008, pedestrian fatalities have overtaken cyclist fatalities to become the largest group of fatalities caused by traffic accidents. Of the 4,612 traffic accident fatalities occurring in Japan in 2011, approximately one-third were pedestrian traffic accident fatalities, standing at 1,686; countermeasures to reduce pedestrian accidents have thus become an issue of the utmost importance for reducing traffic accident casualties as a whole. In particular, a large number of pedestrian accidents involving local children occur in the relatively narrow roads surrounding drivers' residences which we make use of on a day-to-day basis, known as "community roads." Furthermore, although traffic accidents in general have been decreasing in recent years, there has been only a relatively small decrease in the number of accidents occurring on these community roads compared with other road types.

This issue will discuss pedestrian accidents on community roads, clarify the characteristics of and causes behind such accidents, and consider some points which will help both pedestrians and drivers to prevent such accidents from occurring.

■ What are "community roads"?

The term "community roads" refers to small streets of narrow width which form "the roads which persons living in a given district use for journeys within said district and for journeys to arterial roads (roads which transport through-traffic, primarily national roads and prefectural roads)." *1. For the purposes of this issue's analysis, "community roads" are defined as comprising uninterrupted road stretches with a width of 5.5m or under (hereinafter "single-lane roads (less than 5.5m wide)") and intersections in which both roads have a width of less than 5.5m wide (hereinafter "narrow-to-narrow intersections (less than 5.5m wide)"), based on analysis of traffic accident data, as shown in Fig. 1. This definition makes no distinction based on road category, and therefore may sometimes include national roads and prefectural roads etc.

*1 Citation: Manual of Countermeasures for Neighborhood Street Zones, Japan Society of Traffic Engineers, 2011

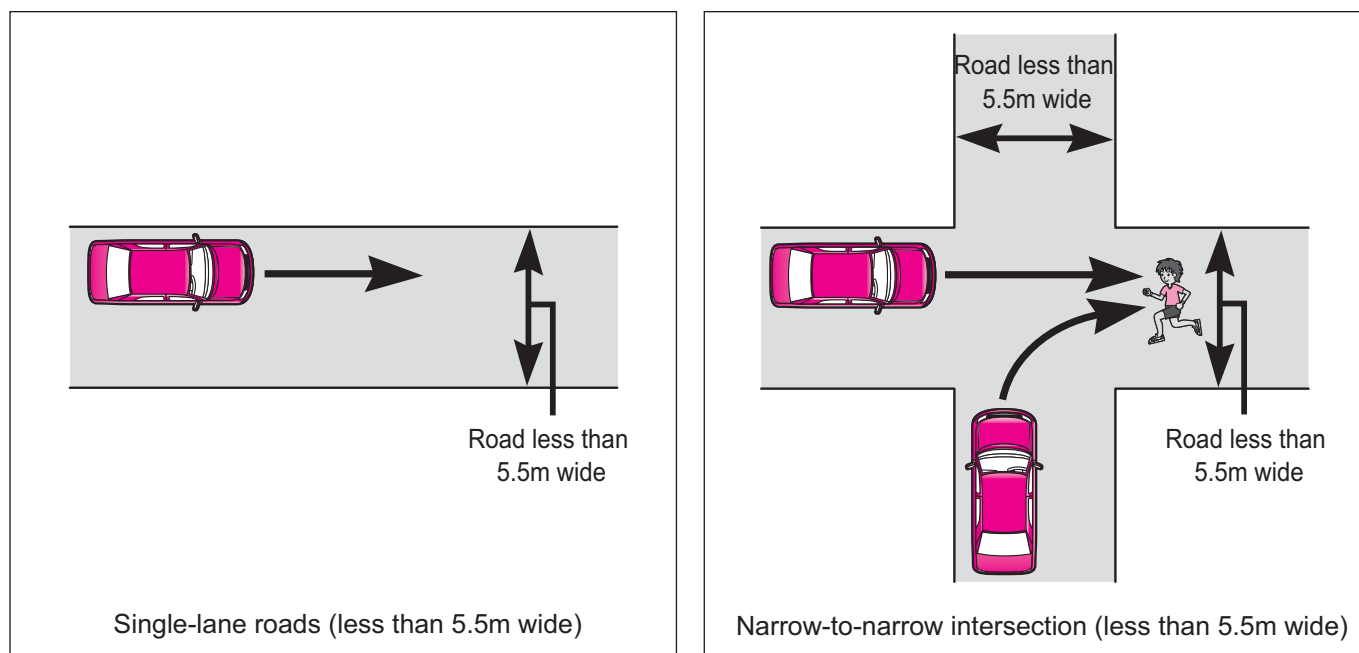


Fig. 1: Definition of community roads in the report

2 Background to injury accidents on community roads

■ Trend of injury accidents on community roads

Fig. 2 shows the trends in the numbers of injury accidents between 2007 and 2011, broken down by road width. The absolute number of injury accidents on community roads is not large compared with other roads; however, such accidents tended to decrease by only a relatively small margin during these years compared to the overall decrease seen in injury accidents during the same period. While overall injury accidents decreased by 16.9% over this period, accidents on single-lane community roads have decreased by only 15.4% and those at neighborhood intersections by only 10.6%. This indicates that we need to focus on community roads as a place where accidents are occurring.

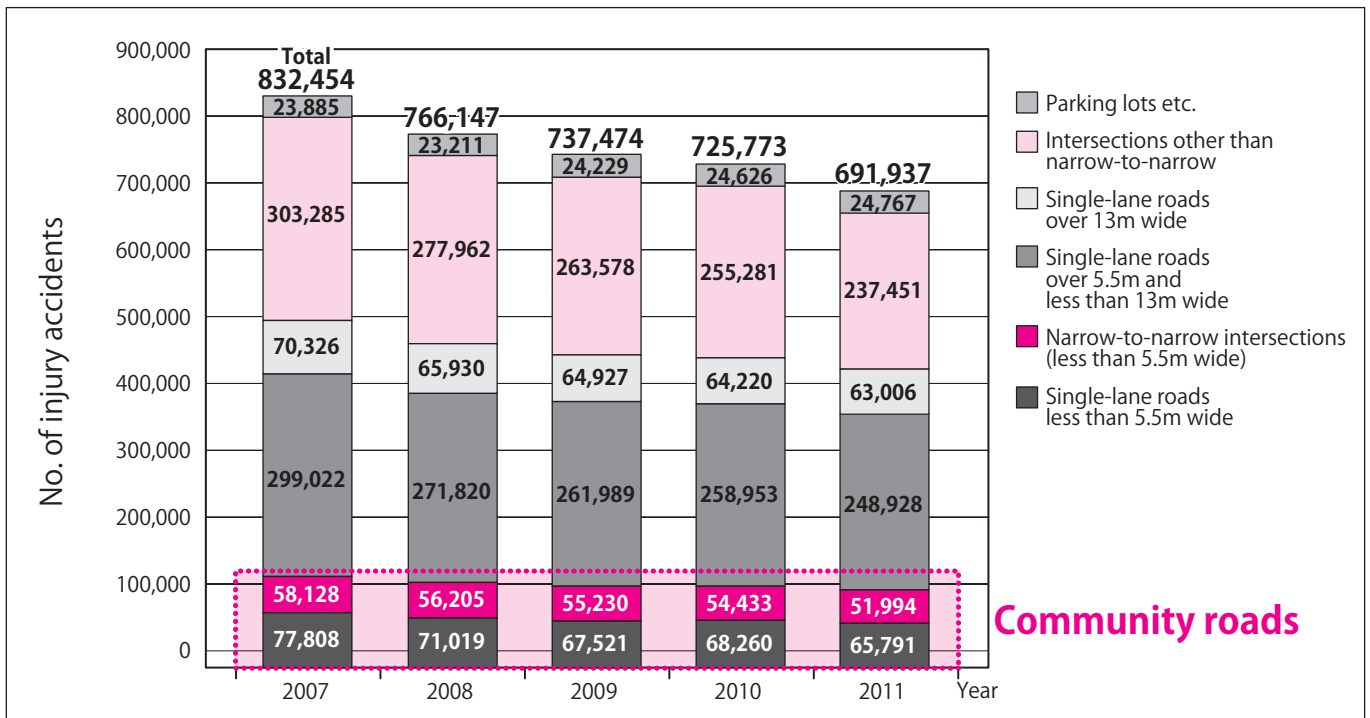


Fig. 2: Trends in no. of injury accidents by road width (2007-2011)

■ Types of accidents that occur on community roads

Fig. 3 shows the composition ratio of injury accidents on community roads in 2011, broken down by accident type. Of accidents on single-lane community roads less than 5.5m wide, accidents between two four-wheeled vehicles were the commonest type at 46.8%. Accidents between a four-wheeled vehicle and a pedestrian made up 11.6% of accidents in these locations.

Of accidents on narrow-to-narrow community road intersections (less than 5.5m wide), accidents between a four-wheeled vehicle and a bicycle were the commonest type at 35.2%. Accidents between a four-wheeled vehicle and a pedestrian made up 6.4% of accidents in these locations.

Accidents on community roads between four-wheeled vehicles and pedestrians do not occur in large numbers either on uninterrupted road sections or at intersections; however, whereas accidents between four-wheeled vehicles and pedestrians make up only 8.0% of accidents on roads in general, they make up 11.6% of all accidents on single-lane community roads, a relatively high percentage (although at community road intersections only 6.4% of accidents are between a four-wheeled vehicle and a pedestrian, a similar percentage as for roads in general). We can infer from this that pedestrian accidents on community roads tend to result from distinctive causes, connected with the fact that these are narrow roads.

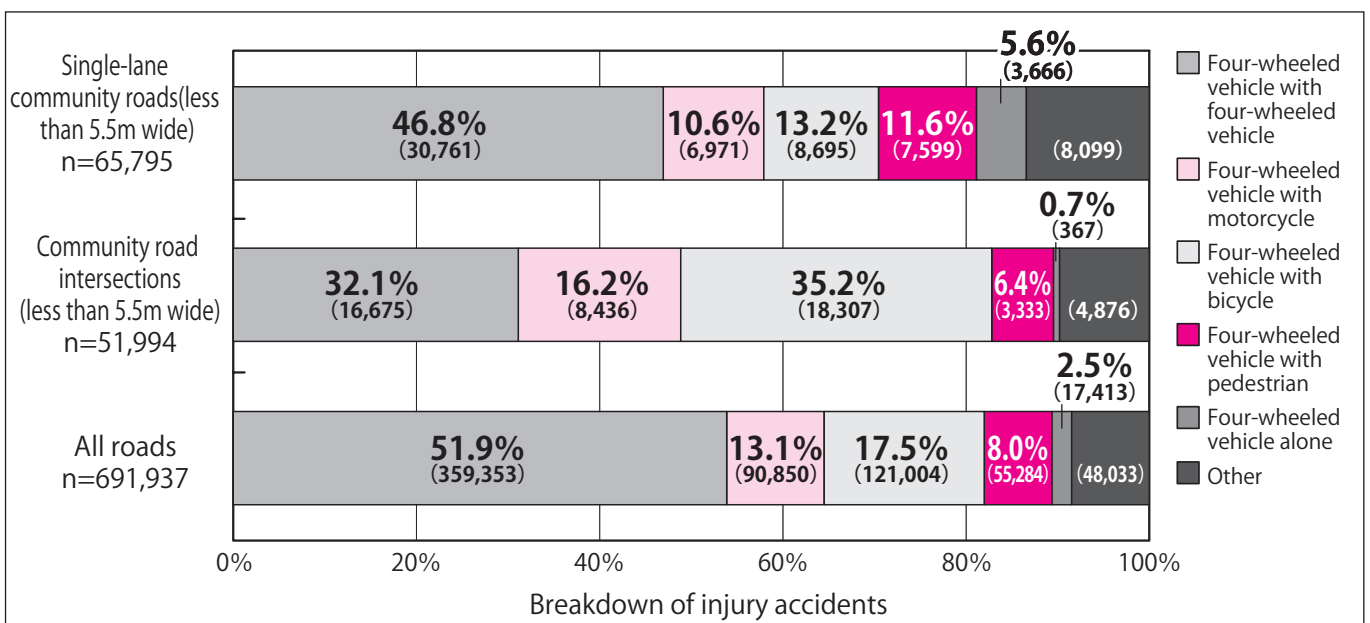


Fig. 3: Breakdown of injury accidents by type (2011)

3 Pedestrian accidents on community roads

What kind of situations tend to give rise to pedestrian accidents on community roads? We investigated the characteristics of such accidents, focusing on accidents between four-wheeled vehicles and pedestrians.

■ Characteristics of times when accidents occur

Pedestrian accidents on community roads are commonest during the daytime

Fig. 4 is a graph showing a breakdown by time slot of accidents between four-wheeled vehicles and pedestrians on community roads resulting in casualties. It is evident that accidents between four-wheeled vehicles and pedestrians on community roads are commonest during the daytime, **and particularly in the evening time slot of 15:00-18:00**. These accidents are occurring most frequently in the time slots when people are at their most active in their daily activities.

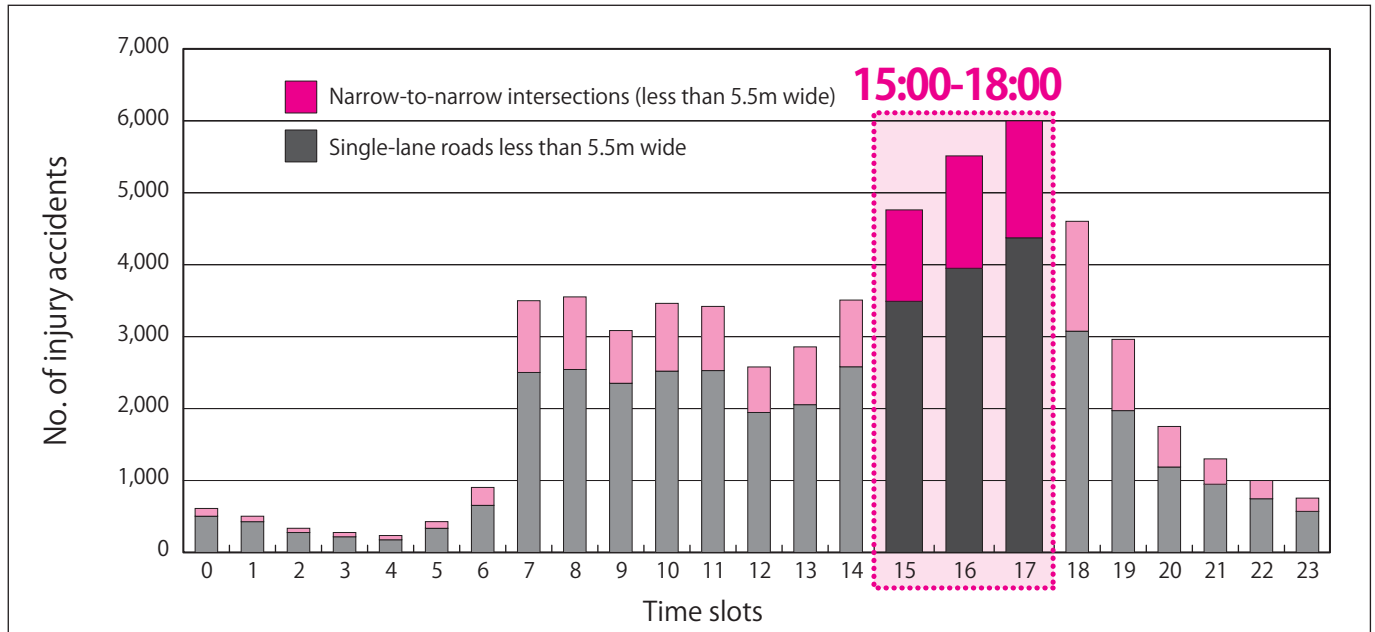


Fig. 4: Breakdown of injury accidents by time slot (Four-wheeled vehicles and pedestrians on community roads/2007-2011 total figures)

■ Characteristics of pedestrians involved in accidents

Children under 13 make up the largest group of pedestrians involved in accidents

Fig. 5 shows the pedestrians involved in accidents by age group. Children under 13 make up a very large percentage of pedestrians involved in accidents with four-wheeled vehicles on community roads; 27% of all such pedestrians fall into this age group.

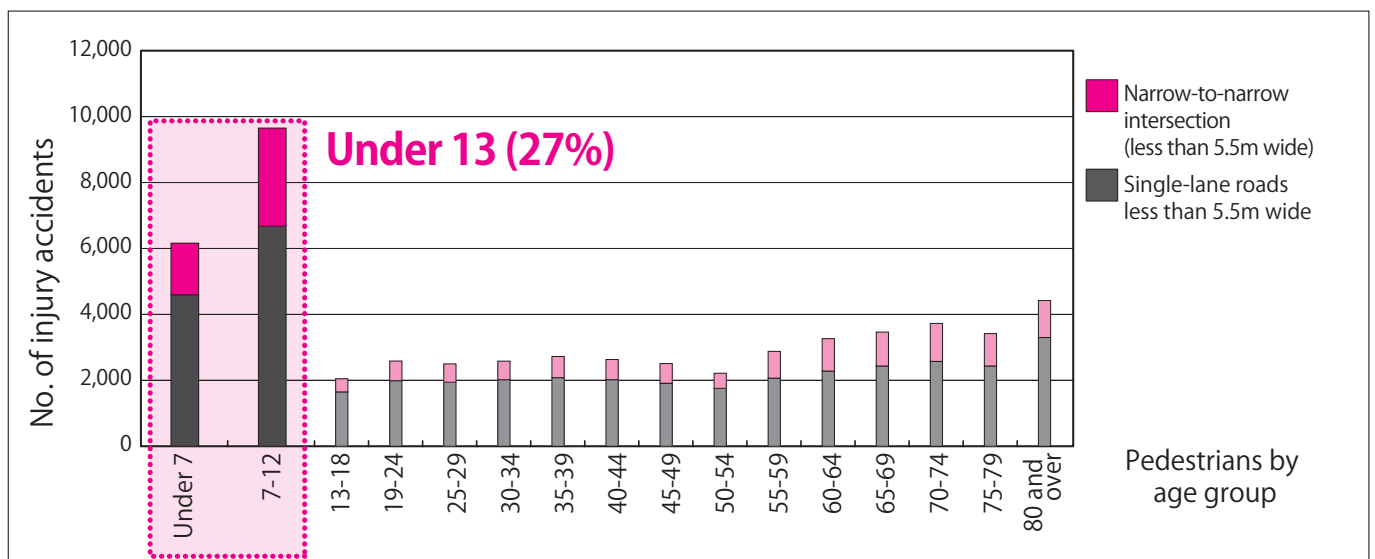


Fig. 5: Breakdown of injury accidents by age group (Four-wheeled vehicles and pedestrians on community roads/2007-2011 total figures)

Accidents with child pedestrians under 13 occur while they are playing on the street, and arriving at/leaving school

Table 1 shows the road use purposes of child pedestrians under 13 who were involved in accidents. Child pedestrians who were using the road for **playing** made up the largest group, followed by **arriving at/leaving school**. Together, these groups comprised more than half the total.

Road use purpose		Playing	Leaving school	Arriving at school	Visiting	Shopping	Other	Total
No. of injury accidents	Single-lane roads (less than 5.5m wide)	29.0% (3,239)	12.4% (1,396)	10.4% (1,161)	9.4% (1,056)	6.4% (711)	32.4% (3,622)	11,175
	Narrow-to-narrow intersection (less than 5.5m wide)	29.3% (1,348)	15.1% (692)	10.8% (496)	9.1% (420)	4.5% (206)	32.1% (1,432)	4,594
	Total for community roads	29.1% (4,587)	13.2% (2,078)	10.5% (1,657)	9.4% (1,476)	5.8% (917)	32.1% (5,054)	15,769

Table 1: Injury accidents by road use purpose(Four-wheeled vehicles and pedestrians (under 13)on community roads/2007-2011 total figures)

4 Causes of accidents with child pedestrians under 13

What factors cause pedestrian accidents involving children under 13 on community roads? Let us investigate the causes based on the traffic accident data.

■ Situations where accidents occur

Around half such accidents occur when children cross roads outside of pedestrian crossings

Fig. 6 shows a breakdown of injury accidents between child pedestrians under 13 and four-wheeled vehicles, by type of accident. As the figure indicates, **more than half of all such accidents occur when children cross roads outside of pedestrian crossings**, for both accidents on single-lane community roads and accidents at intersections. We believe that the fact that these are community roads means that there are many places without pedestrian crossings. Furthermore, **the percentage of accidents caused when pedestrians were playing on the street or proceeding towards the vehicle from the front/rear tends to be higher** for community roads than for roads in general, indicating that this is a particular characteristic of accidents on roads that are narrow in width. Let us now examine what kind of causes lie behind these accidents which occur when pedestrians are crossing outside of pedestrian crossings, which make up such a high percentage of accidents.

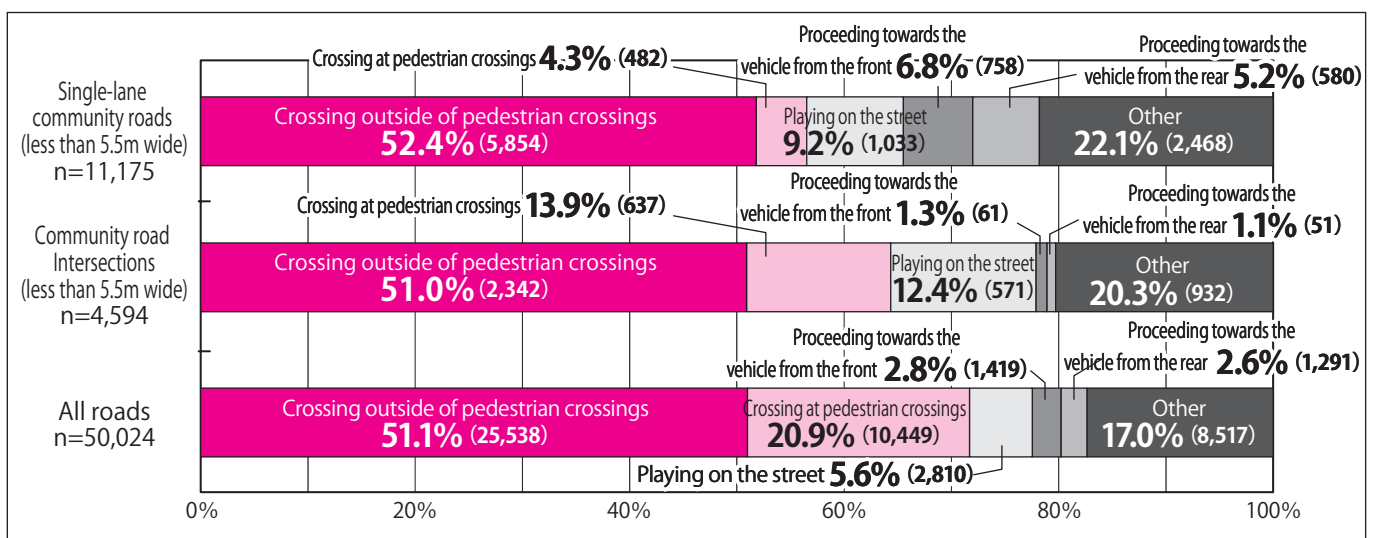


Fig. 6: Breakdown of injury accidents by type (Four-wheeled vehicles and pedestrians (under 13)/2007-2011 total figures)

■ Legal violations behind accidents

Causes attributable to four-wheeled vehicle drivers: failure to confirm safety or violation of safe-speed limits

First, let us investigate the kind of legal violations that are attributable to four-wheeled vehicle drivers. As shown in Fig. 7, the commonest legal violation attributable to drivers for accidents on community roads is **failure to confirm safety, standing at nearly 40%**. Let us now further break down accidents on community roads into those on single-lane roads and those at intersections. It is evident that **violation of safe-speed limits and failure to watch traffic movements** were the commonest violations, while at intersections the commonest violations were **violation of go-slow rules and violation of mandatory safety measures when advancing through intersections**. Together, these causes lie behind a high percentage of accidents on community roads as a whole. It appears, therefore, that accident causes attributable to drivers are careless driving in terms of observing safe speeds and go-slow zone rules, and failure to confirm safety and failure to watch the movements of pedestrians.

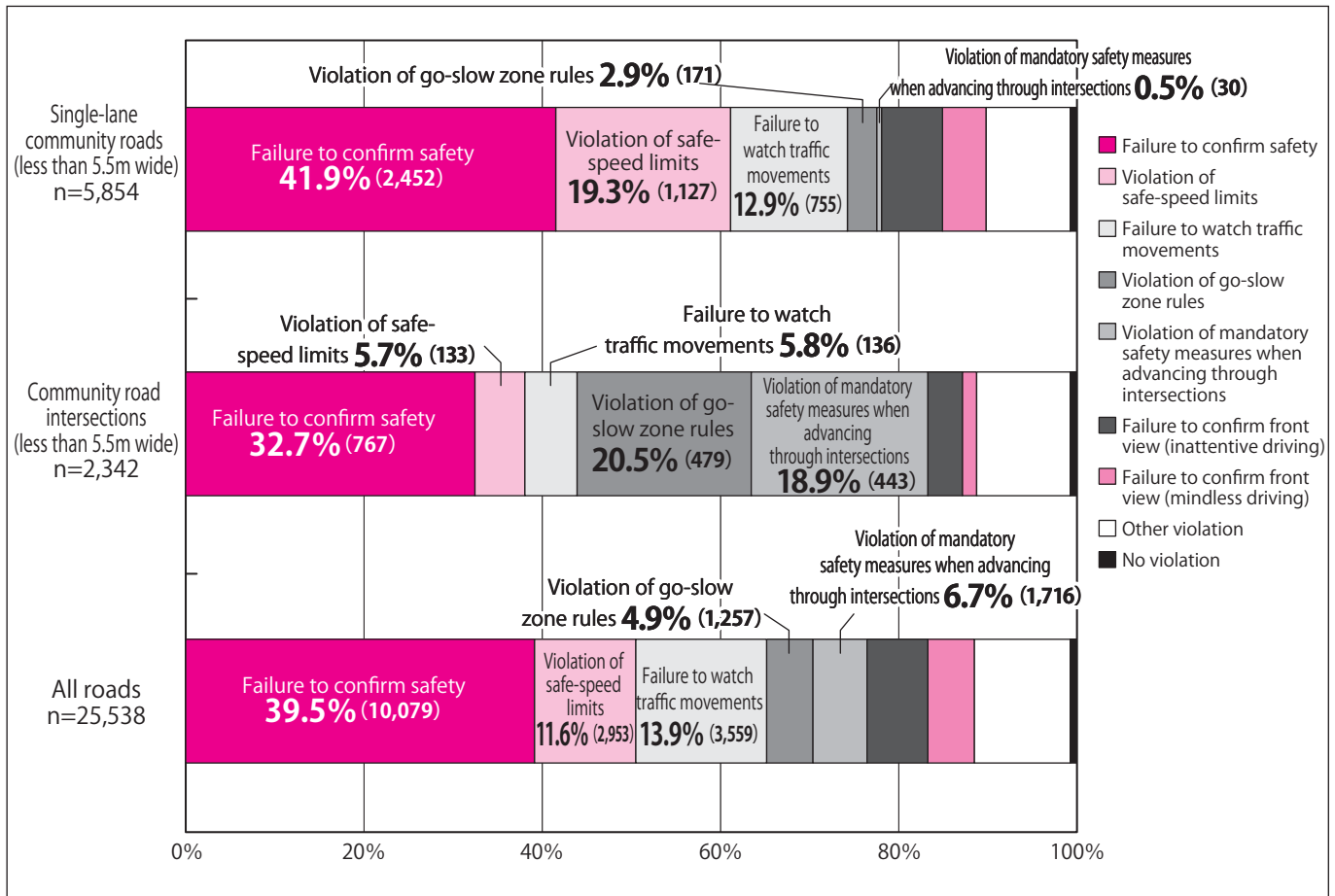


Fig. 7: Breakdown of injury accidents by legal violations attributable to drivers (Accidents between four-wheeled vehicles and pedestrians (under 13) crossing outside of pedestrian crossings /Total figures from 2007-2011)

Causes attributable to pedestrians: children running out in front of vehicles or committing crossing violations

Meanwhile, legal violations attributable to child pedestrians are shown in Fig. 8. The figure indicates that for accidents on both single-lane roads and at community road intersections, **accidents caused by children running out in front of vehicles comprise nearly 60% of the total**. It is evident that running-out-in-front accidents tend to be commoner on this type of road than for roads in general. We believe that one factor behind this is the fact that the narrowness of such roads makes it difficult for drivers to slow down or avoid children when they run out in front of vehicles. The figure also shows that **nearly 20% of such accidents are with pedestrians who are crossing immediately in front of/behind a moving vehicle or crossing immediately in front of/behind a parking or stopping vehicle**. We believe that causes attributable to drivers are more important as factors behind these accidents; however, children's actions—running out in front of vehicles or crossing the road from behind vehicles where drivers cannot see them—often serve as the immediate triggers for such collisions. To ensure that children stay safe, it is important that children watch out for cars passing through their neighborhoods, and take care at all times not to run out in front of vehicles or commit crossing violations, even in their own neighborhood areas.

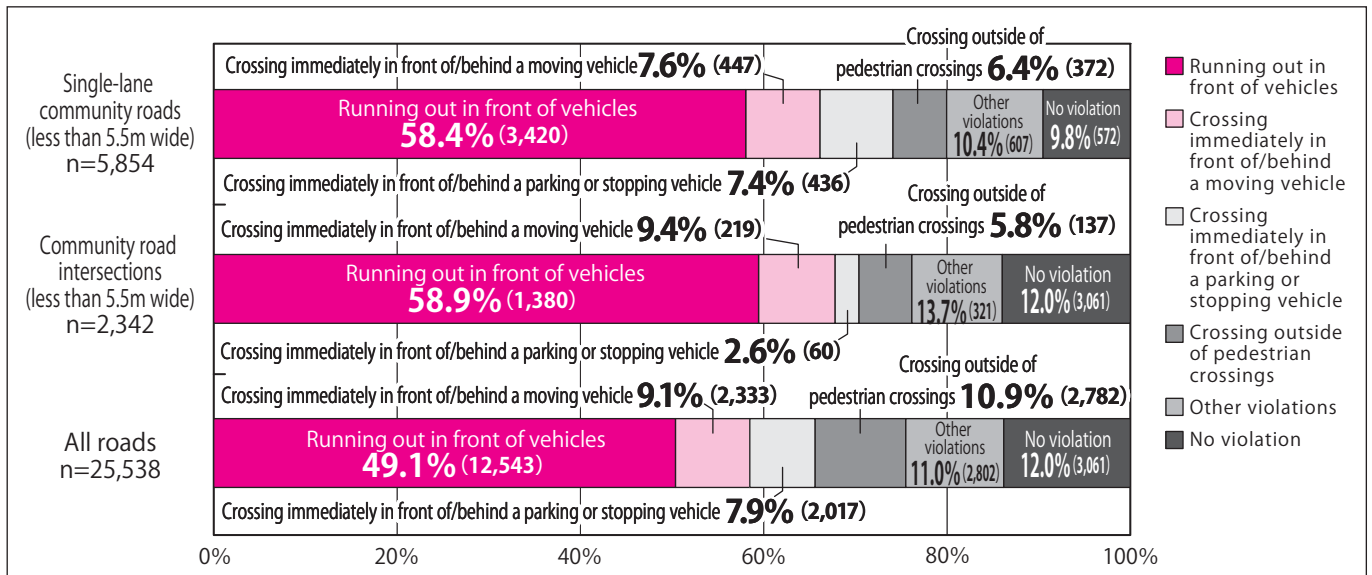


Fig 8: Breakdown of injury accidents by pedestrians' legal violations (Four-wheeled vehicles and pedestrians (under 13)/2007-2011 total figures)

■ Speed of four-wheeled vehicles on community roads

Driving too fast is dangerous

From the analysis we have undertaken thus far, it is evident that while it is important that drivers of four-wheeled vehicles keep a close eye on the movements of children they can see as they drive through community roads, it is also vital that they pay attention to the fact that a pedestrian could at any moment run out in front of their vehicle from an unseen place on either side of their vehicle as they drive. It is therefore essential, first and foremost, that drivers drive at speeds which allow them to ensure safety. Fig. 9 shows the fatal accident rate for accidents between four-wheeled vehicles and pedestrians on community roads, broken down by danger perception speed*2 for four-wheeled vehicle drivers. The fatality rate is the rate of fatal accidents as a percentage of all injury accidents. **It is evident from this graph that once vehicle speed exceeds 30km/h, the fatality rate rises rapidly.** It appears that driving too fast has a massive impact on the seriousness of accidents if they do occur. The quickest way to improve safety is for drivers to make every effort to drive at safer speeds as a precautionary measure, in order both to prevent accidents and to lessen the harm that can occur if an accident should happen.

*2 Speed of vehicle at the point when the other party was perceived as a danger

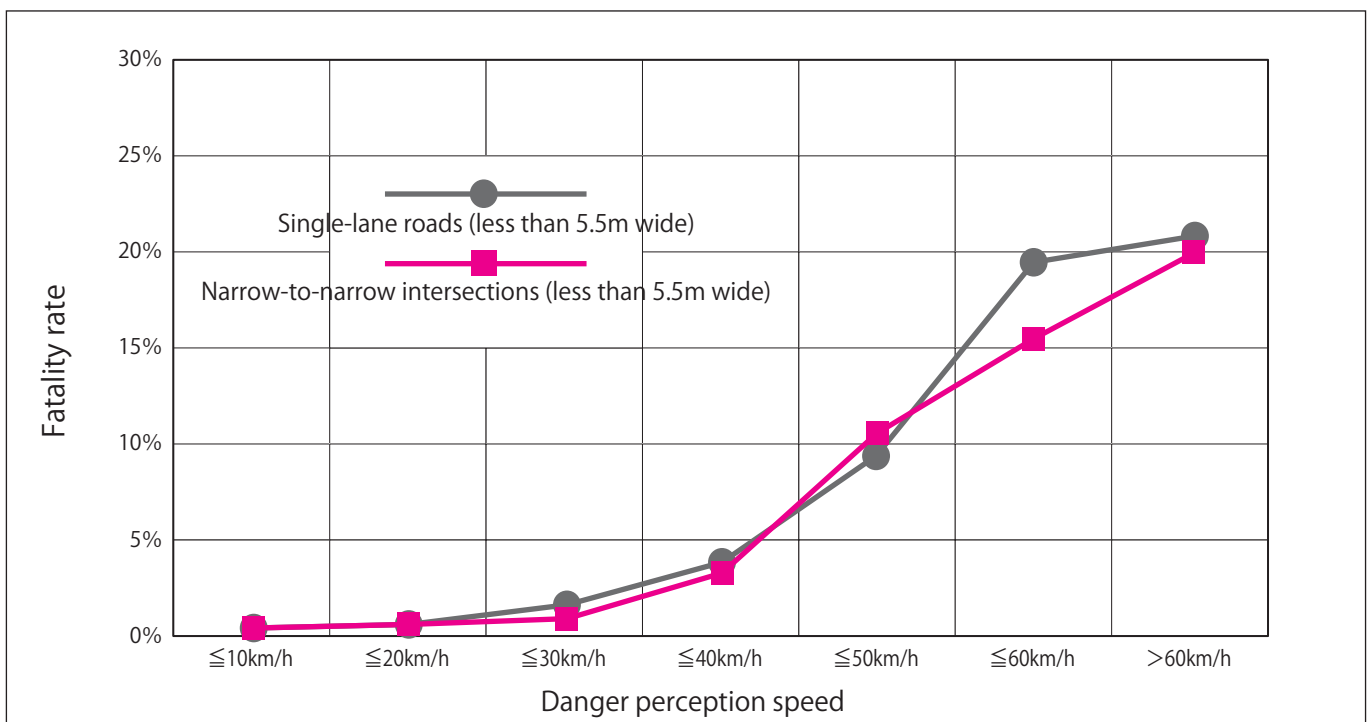


Fig 9: Fatality rate by danger perception speed (Four-wheeled vehicles and pedestrians on community roads/2007-2011 total figures)

5 Summary

Characteristics of pedestrian accidents on community roads

- Such accidents occur most frequently during the daytime hours, and particularly **during the evening hours of 15:00-18:00.**
- A large number of accidents involve four-wheeled vehicles and **child pedestrians under 13 playing or arriving at/leaving school.**
- **More than half** such accidents at both single-lane roads and intersections occur when pedestrians are **crossing outside of pedestrian crossings.**
- The commonest causes attributable to four-wheeled vehicle drivers are “**failure to confirm safety,**” “**violation of go-slow zone rules**” and “**violation of safe-speed limits.**”
- Causes attributable to child pedestrians are “**running out in front of vehicles**” and “**crossing violations.**”

Cautionary points for preventing accidents:

【Points for four-wheeled vehicles drivers】

- When driving around community roads, drivers must **drive at low speeds to ensure safety**, keeping their **speed at under 30km/h** in order to reduce risks in the event that an accident should occur.
- If drivers see children, they must take great care to ensure the children’s safety by keeping a careful eye on their movements while **dropping their speed to a level which would allow them to stop immediately if necessary.**
- Drivers must be vigilant in observing “**just-in-case driving**” based on the understanding that a child could at any moment run out in front of the vehicle from buildings to either side of the road or from unseen places behind a parking or stopping vehicle.

【Points for child pedestrians:】

- Even on community roads, child pedestrians must **confirm that they are safe from surrounding cars before crossing the road**, and avoid running out in front of vehicles or crossing from behind vehicles where drivers cannot see them.
- Parents/guardians and people in the local area must **work to raise children’s awareness about the importance of watching out for cars** when playing on the street or traveling to and from school, in order to keep children safe.

(Hiroshi Kuniyuki)

- 当センターは、平成4年(1992年)に国家公安委員会、運輸省(当時)、建設省(当時)から設立許可を受けて、公益法人として設立されました。その後平成24年(2012年)4月に公益財団法人に移行しました。我が国で唯一道路交通法の定める「交通事故調査分析センター」の指定を国家公安委員会から受けた調査研究機関であり、交通事故の防止と被害の軽減のための交通事故の調査分析を行っています。
- 当センターが行う交通事故調査は、交通事故の低減を目的とした調査・研究のためのもので、警察の捜査や保険会社の調査とは全く別のものです。
- イタルダ・インフォメーションのバックナンバーは全て下記のウェブサイトに掲載しており、自由にダウンロードできます。また他にも、無料でダウンロードできる統計資料、研究報告書もございますので、御活用下さい。

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