

ITARDA INFORMATION

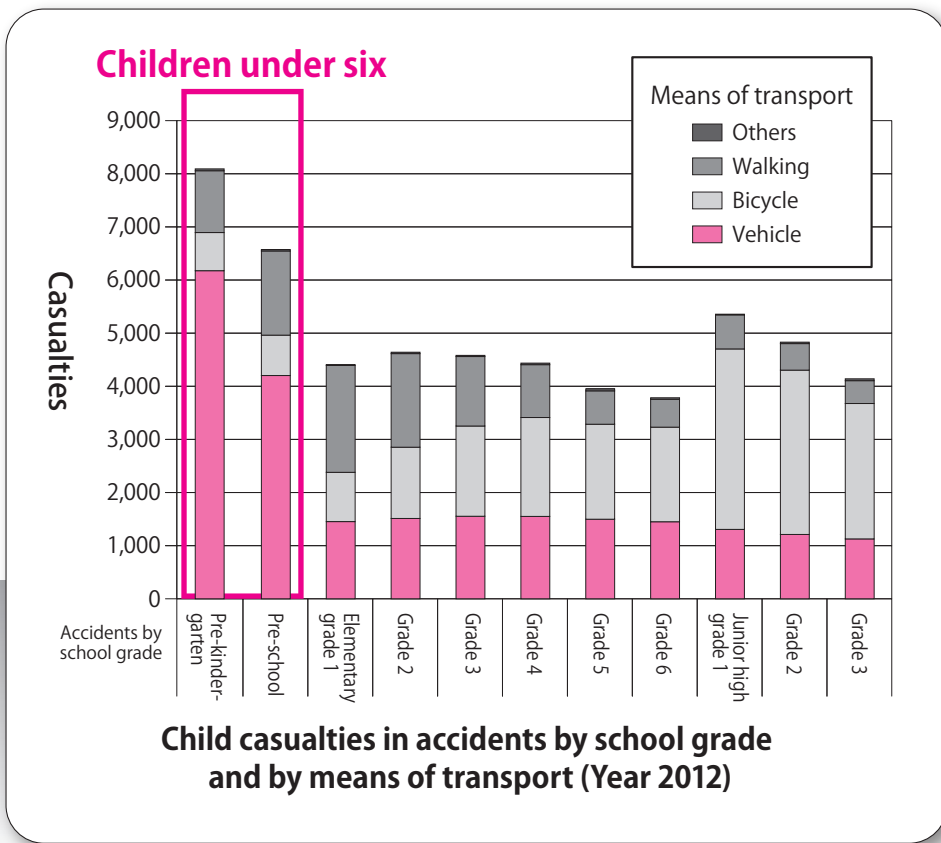
交通事故分析レポート

No.106

Special feature

Motor vehicle accidents with child passengers

~ Is your child well-protected from danger? ~



Children suffer casualties of 70% or over in vehicle accidents while occupying them



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1 Introduction

Child casualties in traffic accidents by means of transport for the year 2014 recorded respective highs at 71% for pre-school children (under six years of age) while occupying vehicles, 36% for elementary school lower grade children while walking and 62% for junior high school children while riding bicycles (see figure on cover page). Further, accident detail of pre-school children occupying vehicles reveals that many of them had not used child seats at all, while many others had used the child seats wrongly, resulting in casualties. It can be said that this is mainly the responsibility of the adults who are their guardians. Therefore in this issue we shall analyze whether these guardians had protected their pre-school children who are occupying the vehicle well from danger.

2 Situation of casualty accidents involving (pre-school) children

Casualty ratio of pre-school children while occupying motor vehicles is on the rise

Fig.1 shows the number of casualties of preschool children (hereafter “preschoolers”) while occupying motor vehicles and the casualty ratio by means of transport. Whereas the number of casualties of preschoolers while occupying motor vehicles has declined since 2003, the casualty ratio is on the rise every year and in 2012 it has reached 71%.

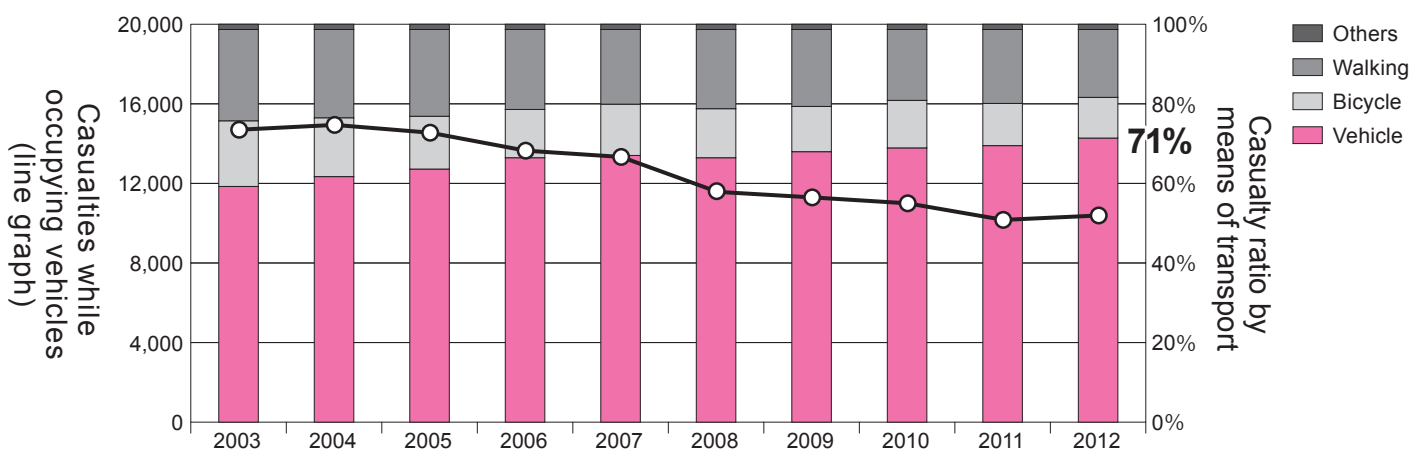


Fig.1 Preschooler casualties while occupying vehicles and trend in casualty ratio by means of transport (2003-2012)

Moreover, when we look at the category of vehicles the preschoolers were occupying when they suffered casualties (Fig.2), medium and small vehicles for personal use account for the majority at over 95%. Hereafter, let us carry out analysis with the medium and small vehicles for personal-use in focus.

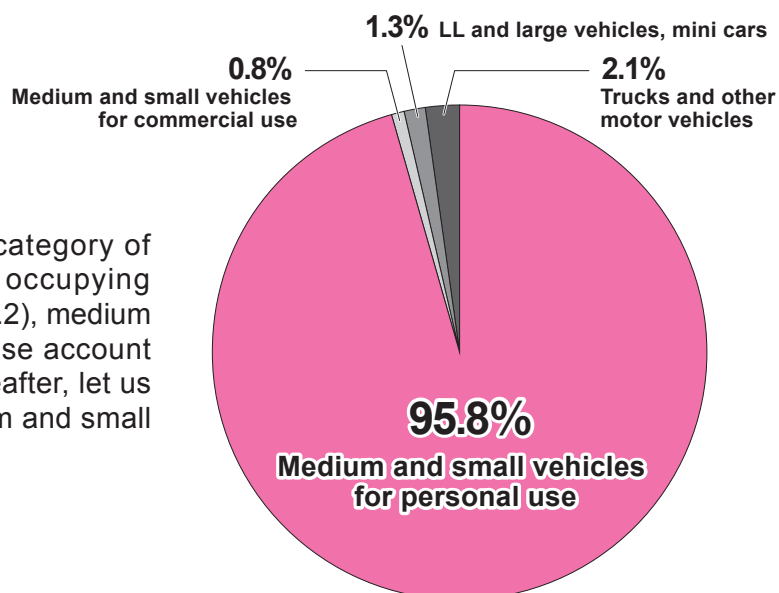


Fig.2 Occupant ratio by category of vehicles occupied by preschoolers who suffered casualties (Year 2012)

Who was driving the vehicle when the preschoolers suffered casualties?

Fig. 3 shows the breakdown of age and gender of drivers whom the preschoolers were riding together with, when the latter suffered casualties. Apparently, young women aged 25 to 39 accounted for the majority of such drivers. Further, men drivers of the same age group were also high in number. Many of these men and women drivers are assumed to be the parent of the preschoolers. Defining these drivers aged 25 to 39 as the “parent generation,” let us now look into the details of such preschooler casualties, when the former was driving the vehicle.

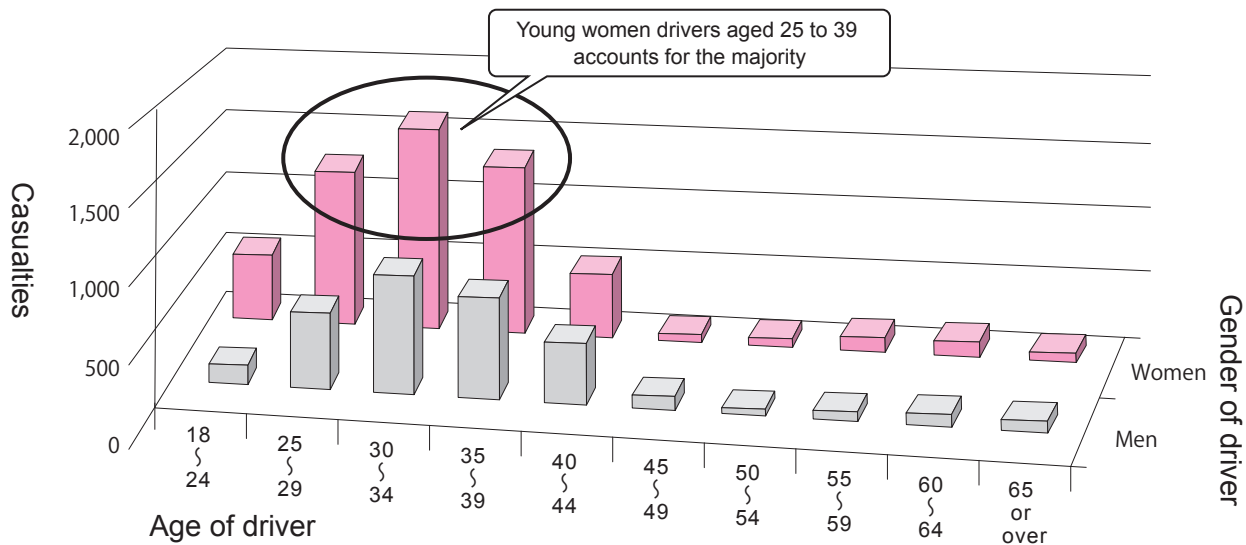


Fig.3 Age and gender of drivers when the accompanying preschooler suffered casualties (Year 2012)

Why do preschooler casualties occur more often when the parent generation is driving?

It may be because the chances of the parent generation riding the preschoolers are high. There we compared the situation of parent generation involved in accidents with all age group. Fig. 4 shows the ratio of passengers (including the uninjured) when the accident occurred by the age group and gender of the drivers, while Fig.5 shows the ratio of the preschooler passengers in accidents who suffered casualties. As Fig.4 indicates, ratio of young women drivers of age group 25-39 riding with passengers is high, and as Fig.5 indicates, the ratio of preschooler passengers suffering casualties is also high; one of the reasons for more preschooler passengers suffering casualties may be due to the fact that the chances of young women drivers riding with preschoolers are high. However, no marked trend could be seen with the men drivers of the age group of 25-39 who seem to belong to the parent generation like those of the women drivers.

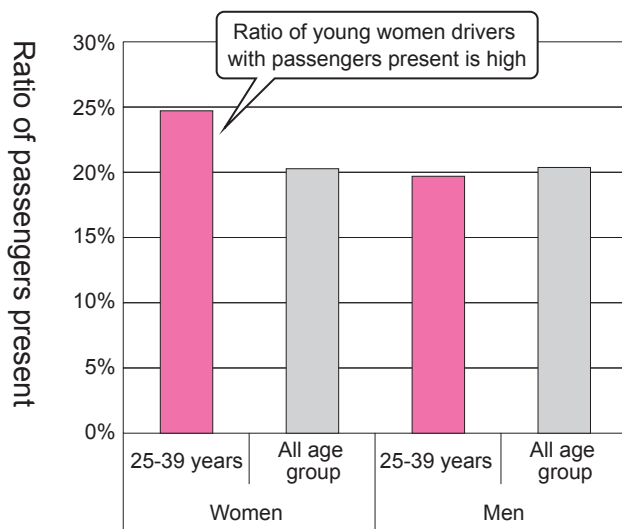


Fig.4 Ratio of passengers present in accidents by age group and gender of drivers (Year 2012)

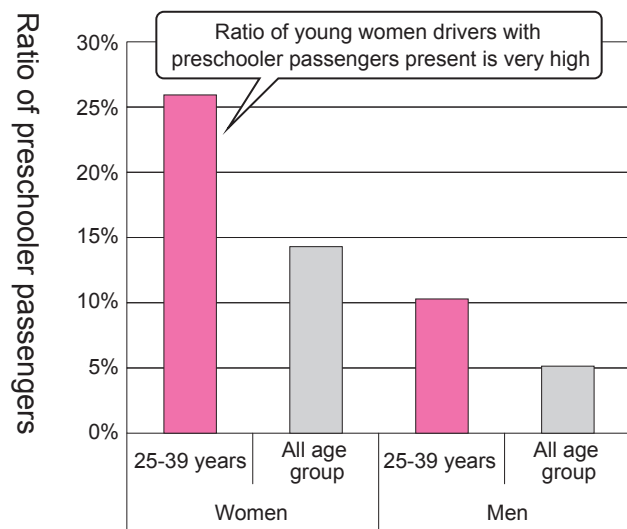


Fig.5 Ratio of preschooler passengers present (casualties only) by age group and gender of drivers (Year 2012)

3 Are you dedicated to safe driving when riding with a (pre-school) child passenger?

As an indicator for determining “whether the driver was driving safely,” let us look at the fatal and serious injury ratio (%) of drivers. As is evident from the formula, this points at the fact that the driver either died or sustained serious injuries rather than getting away with minor injuries in the accident, and lower the value, the more the driver proves to be dedicated to safe driving. Accordingly, Fig.6 shows the fatal and serious injury ratio of drivers by the age group and gender of the driver by the presence or absence of passengers (including the uninjured). On the other hand, Fig.7 shows the fatal and serious injury ratio of drivers when the preschooler passengers riding with them also suffered casualties. As Fig.6 indicates, the fatal and serious injury ratio is low when a passenger is present suggesting that the driver was driving safely. Moreover, Fig.7 which considers only the passengers in question who suffered casualties shows that the fatal and serious injury ratio is further low when the passengers riding along are preschoolers. Now, the reason why the fatal and serious injury ratio for the men and women of age group of 25-39 is on the whole lower than that of the all age group, may be mainly because of the fact that younger male and female adults are more tolerant to shock in accidents.

$$\text{Fatal and serious injury ratio of drivers (\%)} = \frac{(\text{Number of fatalities of drivers} + \text{Number of serious injuries of drivers})}{\text{Number of casualties of drivers}} \times 100$$

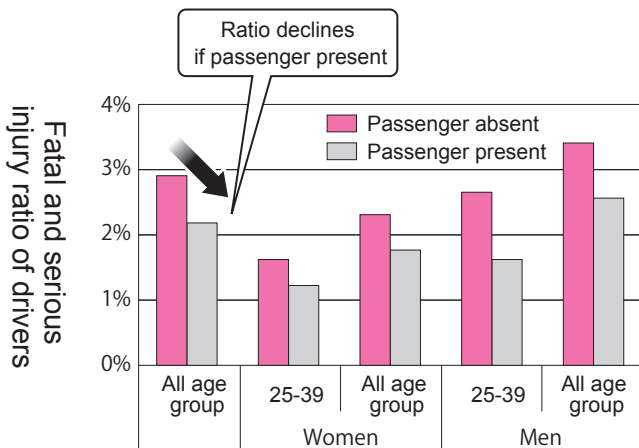


Fig.6 Fatal and serious injury ratio of drivers by their age group and gender and by the presence and absence of passengers (Cumulative total from 2003-2012)

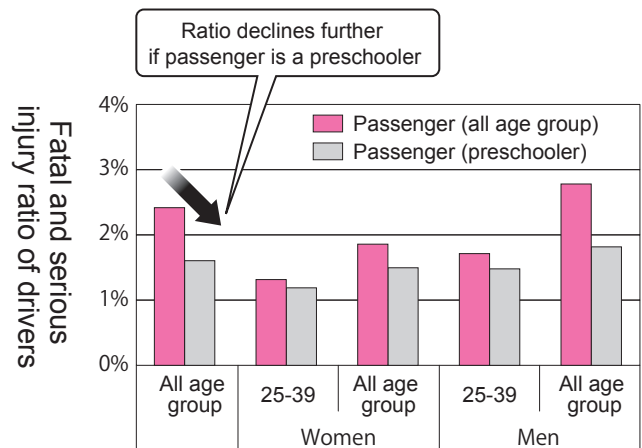


Fig.7 Fatal and serious injury ratio of drivers by their age group and gender and by whether the passengers (casualties only) present were preschoolers (Cumulative total from 2003-2012)

4 Is your child (under six) properly seated on the vehicle? ...

It is mandatory to fasten your seat belt while riding a vehicle, irrespective of your age. Nevertheless, as it is difficult for a child with relatively short stature to fasten the seat belt properly, the use of a child seat is recommended. Further, it is required by the law that children under the age of six must be seated on a child seat when riding a vehicle. Let us now see how many of the adults are properly using child seats for the children under the age of six.

How safe is a child seat?

Fig. 8 indicates the fatal and serious injury ratio of children under six who suffered casualties in accidents by the usage situation of child seats. It is known that the fatal and serious injury ratio can be reduced to one-fourth when the child seat is used properly than when it is not used. However, it is important to use the child seat properly; otherwise the aforesaid reduction cannot be achieved at all. Therefore it is essential to use the child seat properly to reap its safety benefits.

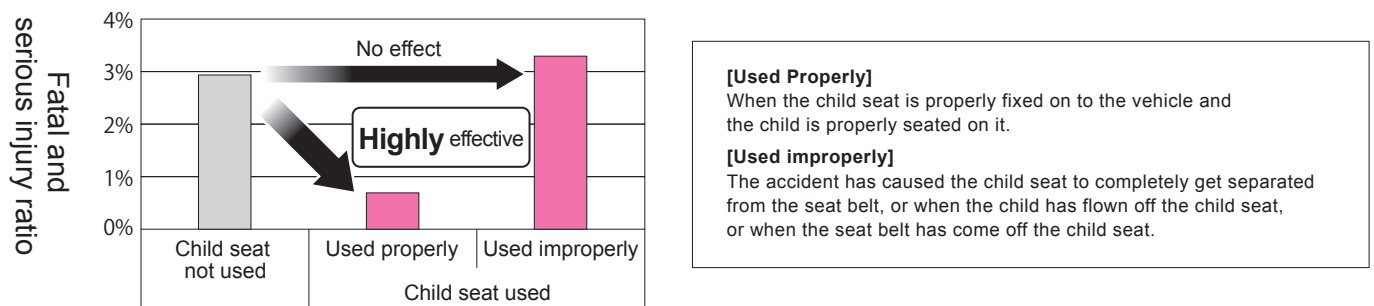


Fig.8 Fatal and serious injury ratio of children under six who suffered casualties by the usage situation of child seats (Cumulative total from 2003-2012)

How many people actually use child seats?

You may have now understood how effective child seats are in protecting the child from danger, but how many drivers use child seats properly. Fig.9 shows the situation of drivers wearing seat belts themselves, when the children under six were riding along. Apparently, the ratio is very high with 97.3% of the drivers wearing seat belts. Whereas Fig.10 shows the ratio of children under six (casualties only) using child seats when riding together at that time. Drivers who had used child seats were lesser at a ratio of 66%, as compared to fastening their seat belts themselves, whereas the ratio of using child seats properly were further less at a ratio of 58%. Moreover, as opposed to the requirement of using child seats for children under six, 11% of the adults used seat belts instead of child seats, suggesting that there are many adults with low awareness about protecting their children from potential danger. Fig.11 shows the ratio of child seat usage for children under six (casualties only) based on the ratio of drivers who themselves did not fasten their seat belts (2.2% of the total). The ratio of using child seats when the drivers did not fasten their own seat belts was at 42%, less than half of the total and the ratio of using child seats correctly was much lower at only 26%. This indicates that the drivers who did not fasten their own seat belts had a very poor usage ratio of child seats, as compared to the drivers who had fastened their own seat belts. Therefore, many of the adults who are not conscious about their own safety must admit that they are not properly protecting their children who are riding along with them.

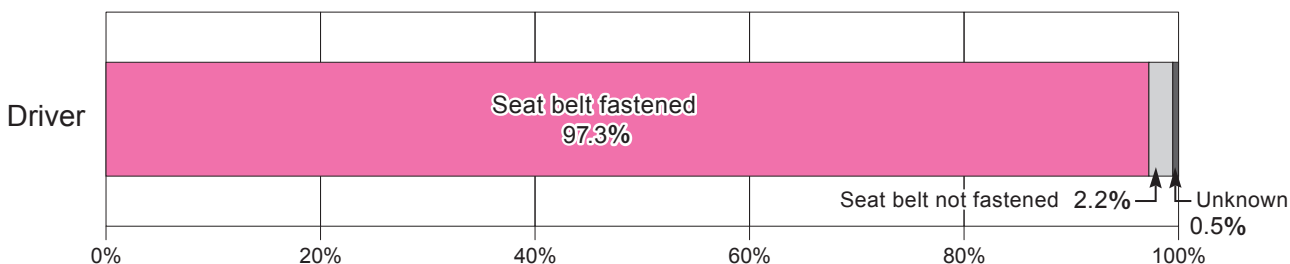


Fig.9 Seat belt usage by drivers in accidents where children under six suffered casualties (Cumulative total from 2003-2012)

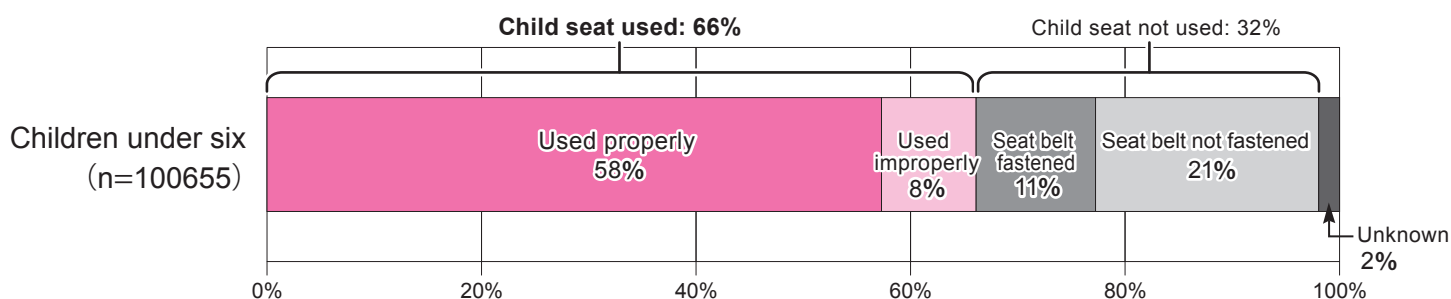


Fig.10 Child seat usage situation for children under six who suffered casualties (Cumulative total from 2003-2012)

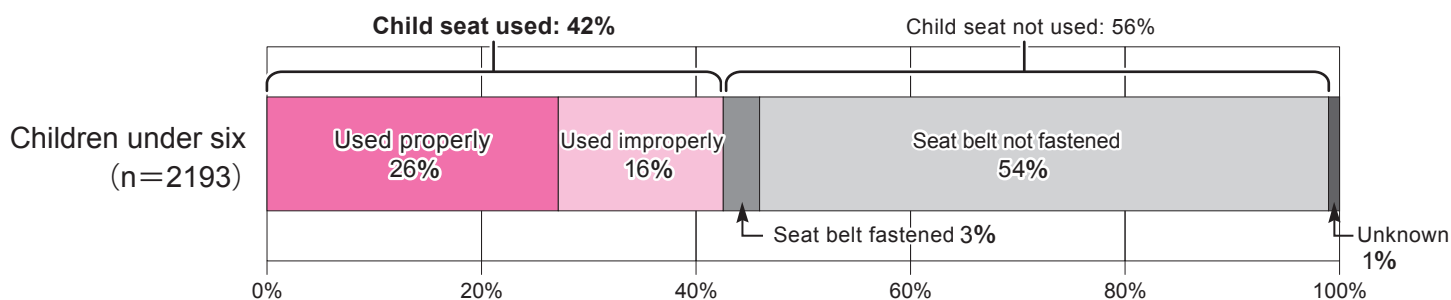


Fig.11 Child seat usage situation for children under six who suffered casualties when the drivers did not fasten their seat belts (Cumulative total from 2003-2012)

In what situations are the child seats not used?

There are various reasons for riding children on vehicles and as such the usage of child seats is expected to vary according to that very reason. Let us target the young women drivers' age group of 25-39 years where the casualties of children under six were high and study the situation of child seat usage by day of the week and the purpose of travel. Fig. 12 shows the child seat usage ratio for children under six (casualties only) by day of the week. Difference is apparent between weekdays (Monday to Friday) and weekend (Saturday and Sunday) with the usage ratio lower for weekends. Fig. 13 shows the purpose of travel of children under six (casualties only) by weekdays and weekends. Apparently, the major purposes of travel in both cases were "shopping", "visiting" and for "pick-up". Further, the graph by day of the week shows that "shopping" and "visiting" were done more during weekends whereas "pick-ups" have been reduced to less than half.

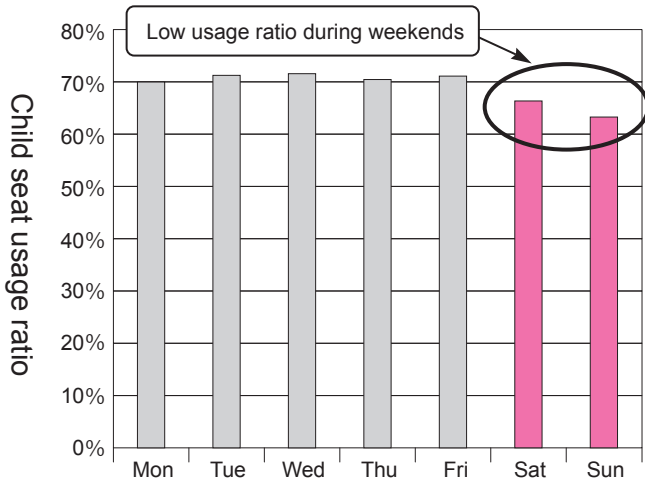


Fig.12 Child seat usage ratio for children under six (casualties only) when riding with women drivers of 25-39 years by day of week (Cumulative total from 2003-2012)

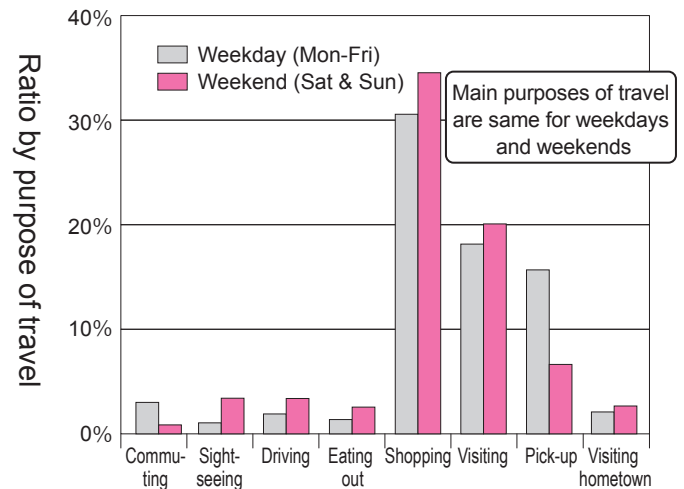


Fig.13 Ratio by purpose of travel and day of week for children under six suffering casualties when riding with women drivers of 25-39 years (Cumulative total from 2003-2012)

Fig. 14 shows the child seat usage ratio for children under six who suffered casualties, by purpose of travel and by weekday and weekend. The usage ratio for weekends is low for all other purposes except "visiting hometown." For purposes that are repeated daily on routine basis such as picking up one's child from the kindergarten, child seat usage has become a habit of many of the drivers. However, during weekends due to reasons such as the same routine work seeming a little different during weekends and feeling a bit relaxed during weekends, the usage ratio appears to be low. Also the reason may be that many drivers who are not usually used to riding children along and those who do not drive with them regularly take to the road during weekends.

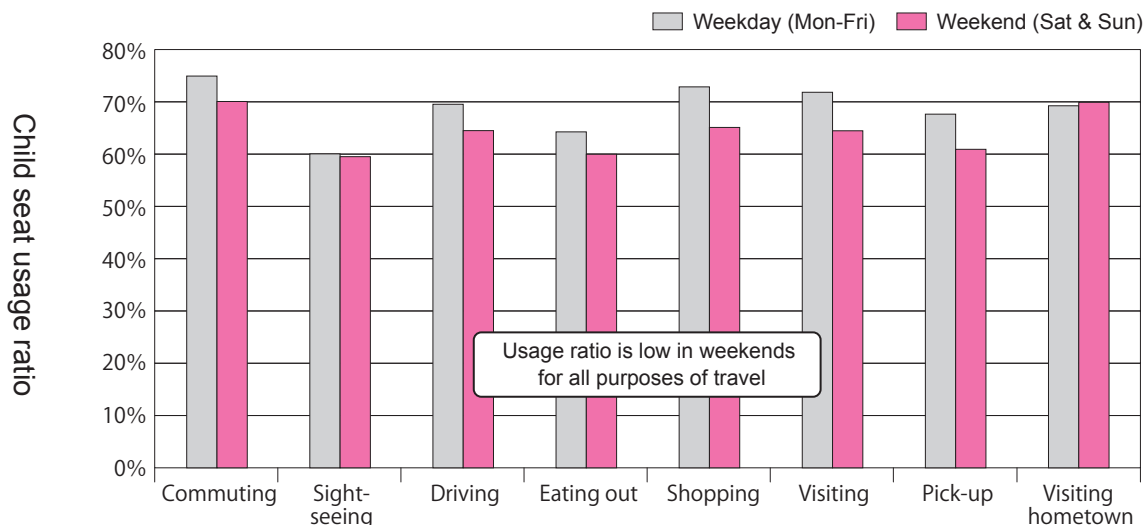


Fig. 14 Child seat usage ratio by main purposes of travel and day of week for children under six suffering casualties when riding with women drivers of 25-39 years (Cumulative total from 2003-2012)

Child seat usage situation of grandparent generation

Next, let us study the situation of child seat usage by the grandparent generation, who other than the parent generation ride the children in vehicles more often. Here, grandparent generation refers to men and women of age 55 years or more having grandchildren under the age of six. Fig.15 shows the child seat usage ratio by generation of the drivers for children under six (casualties only). Apparently, in the grandparent generation, the ratio of properly using child seats is very low at 38%, as compared to the parent generation. Therefore, it is very important to give a bit more heed to safety when riding along with your treasured grandchildren you have been entrusted with. There may be instances when you are not carrying the child seats as you do not ride with them too often. So ask for the child seat when you have been entrusted with the child and correctly fit them on to the vehicle with the help of the parents thereby paying attention to the safety of the children.

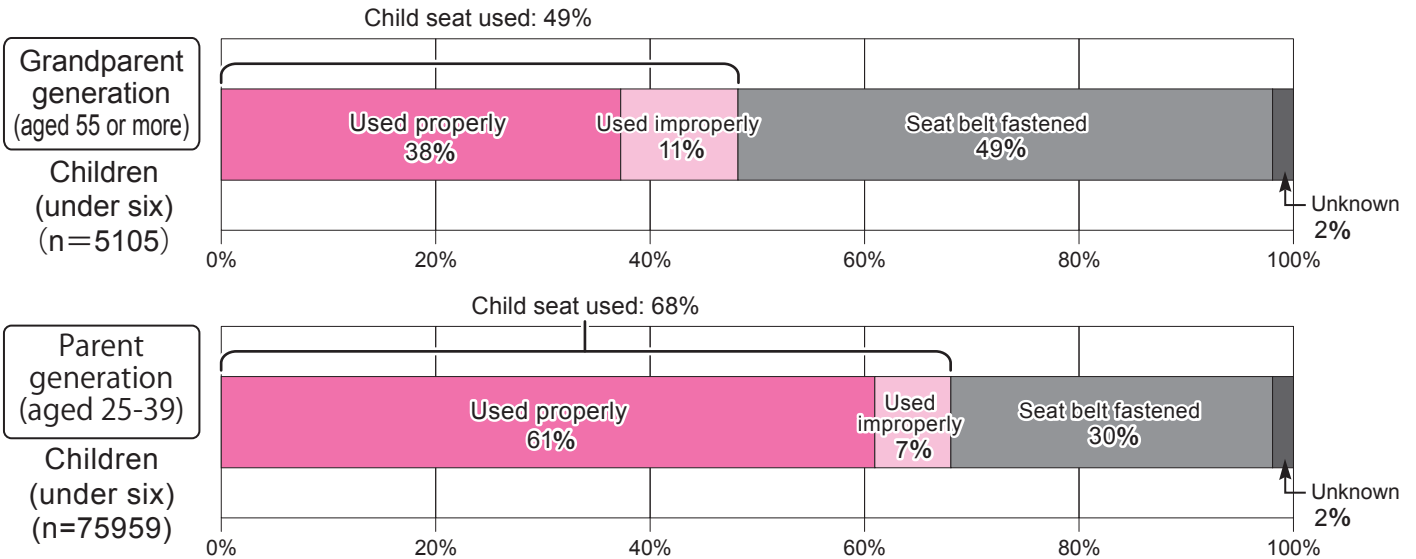


Fig.15 Child seat usage for children under six (casualties only) by generation of drivers (Cumulative total from 2003-2012)

5 Seat-belt wearing situation of vehicle occupants by generation

Thus far we have looked into the situation of children under the age of six. Let us now shift our focus to little older children. How safe are they?

Fig. 16 shows the ratio of protective equipment (seat belt and child seat) usage by generation and by position occupied in the vehicle for all the passengers who suffered casualties in accidents. The usage ratio of protective equipment in the front seat is very high irrespective of generation, but low for rear seats. Particularly, the usage ratio gears down with the increase in age up to the high schoolers but again gains momentum with adults. This may be due to the fact that children who have not acquired a driving license are not well aware of the importance of protective equipment and hence the lower usage ratio. Therefore, it is the duty of adults to let the children familiarize with protective equipment right from their childhood and thereby understand the importance of using them.

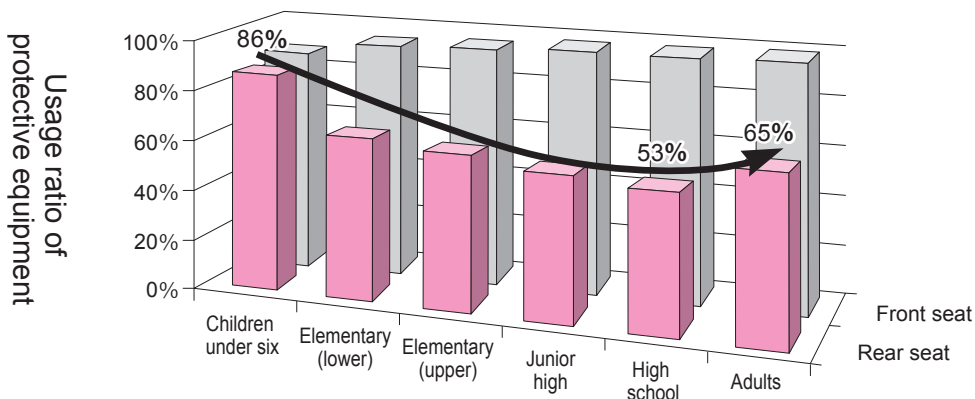


Fig. 16 Usage ratio of protective equipment for passengers suffering casualties by generation and by position occupied in vehicle (Year 2012)

⑥ Conclusion

The summary of points to be careful about when riding with children under six in general and by generation is as follows:

● General

- (1) Be sure to use child seats properly when riding children under six.
 - ⇒ Improper use of child seats will not ensure safety.
 - Further, stop using seat belts as protective equipment for children under six and use child seats instead as required by law.
- (2) Familiarize your children with the use of child seats and seat belts right from their childhood.
 - ⇒ This is the duty of the adults. It is important to imbibe right habits from childhood itself so as to also protect them when they grow up.

● Parent generation (women of age group 25-39)

- About half of the casualties of children under six have occurred when the drivers are young women in the age group of 25-39 years.
 - ⇒ Since the frequency of riding children along is more as compared to other age groups, it is important to always ensure the safety of the children.
- Since the usage ratio of child seats on weekends is low, be sure not to forget using them.

● Grandparent generation (55 years or more)

- The usage ratio of child seats is apparently a little low.
 - ⇒ Heighten your awareness to safety by borrowing child seats etc. when taking the children for a ride on the vehicle.

(Yoshizumi Ishii)

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。

お問合せ先

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