

The effect of legislation on injuries sustained by rear seat car passengers

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SUMMARY

A study of 206 injured rear seat passengers was undertaken over two 4-month periods before and after the introduction of legislation enforcing use of rear seat-belts on 1 July 1991. The proportion of both adults and children using rear seat-belts increased after the law. Those wearing belts were less likely to suffer serious injury. The majority of passengers comply with the law but many rear seat passengers remain unrestrained because cars are not fitted with belts.

Key words: injury, legislation, rear seat passenger, seat-belts.

INTRODUCTION

A previous study from this department¹ demonstrated that most injuries to unrestrained rear seat passengers were due to contact with the front seat, glazing materials or other parts of the car. It was concluded that many of these injuries would be prevented if rear seat passengers used suitable restraining systems. The effectiveness of seat-belts in reducing ejection² and injury to rear seat passengers has been documented elsewhere.³

Legislation enforcing front seat-belt use in the UK on 1 February 1983 was an immediate success in increasing seat-belt use and reducing the number of fatal and serious injuries to front seat occupants in those complying with the new law.^{4–7}

Use of appropriate rear seat restraint, where fitted and available, has been required by law in children (under the age of 14) since September 1989. A law passed on 1 July 1991 required, in addition, compulsory use of rear seat-belts, where fitted, by adults (those over 14 years).

We wished to observe the effect of the new law on injuries presenting to our accident and emergency (A&E) department. We also attempt to answer why many rear seat passengers remain unrestrained.

METHODS

All rear seat car occupants involved in road traffic accidents (RTAs) and attending the A&E department of the Leicester Royal Infirmary between 1 March 1991 and 31 October 1991 were identified and the A&E and hospital notes together with the pre-hospital record of those who had arrived by ambulance were examined. In those cases where no seat-belt was worn patients were sent a postal questionnaire in which the respondent could be identified by number only. The questionnaire asked if a belt was worn, the type of belt used, and the reason for not wearing a restraint device.

RESULTS

A total of 2339 people were seen and treated in the A&E department as a result of RTAs during the study period. Injuries sustained in cars accounted for 1398 attendances and of these 242 were rear seat passengers. Thirty-six rear seat passengers had to be excluded because of insufficient data on seat-belt use, leaving 206 for study.

Use of restraint

Of the 206 patients under study a total of 86 wore restraints, 120 did not. Average rate of use of belts in those attending the department was 30% before the law was introduced and 53% after. A monthly breakdown of adult belt use is shown in Fig. 1. Eighty-two patients were under the age of 14 (40%). The use of restraints by children was higher than in adults both before and after legislation (see Table 1).

Reasons for not wearing a belt

Results from the postal questionnaire are shown in Table 2. In the majority of cases amongst the replies received, cars were not fitted with belts:

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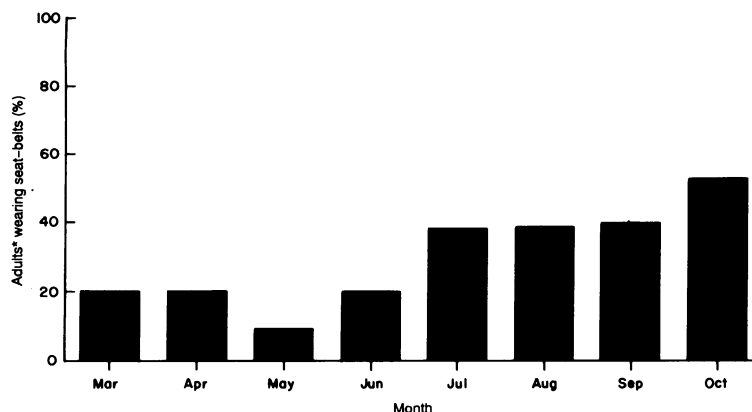


Fig. 1. Percentage of adults (*14 years+) wearing seat-belts (law introduced 1 July 1991).

Table 1. Use of restraints by rear seat passengers

	Restrained (%)	Total
Before law (child)	18 (49%)	37
Before law (adult)	11 (18%)	61
After law (child)	30 (67%)	45
After law (adult)	27 (43%)	63

Types of injury

The types of injury recorded, and the disposal of the patients from the Department are shown in Table 3.

Injury distribution

Table 4 shows the injury distribution for those wearing belts or not wearing belts in further detail.

Table 2. Reasons for not wearing belts

Reason	Number
Belt not fitted in car	67
Forgot	5
Dislike	3
Exempt	2
Other	4
No reply received	39
Total	120

DISCUSSION

This small study demonstrates that restrained rear seat passengers are less likely to suffer injury or death than those who did not wear belts. Legislation enforcing the use of the rear belts appears to have been successful in increasing belt use, but an unacceptably high proportion of rear seat passengers remain unrestrained. This appears to be because belts are not fitted in older cars.

Cars sold in the UK after October 1986 have

	No belt worn (Total 120 patients)	Belt worn (Total 86 patients)
No injury found	5 (4%)	17 (20%)
Admitted to hospital	14 (12%)	8 (9%)
Deaths after admission	3	1
Internal injuries	4	1
Discharged no follow up in hospital	87 (73%)	76 (88%)
Number of wounds	29	29
Number of fractures	20	5
Number of soft tissue injuries	98	88

Table 3. Summary of injuries and disposal.

Site of injury	No belt (120 patients)	%	Belt worn (86 patients)	%
Head	63	52.5	50	58.1
Neck	17	14.2	22	25.6
Upper limb	26	21.7	10	11.6
Chest	3	2.5	9	10.5
Trunk	8	6.7	5	5.8
Lower limb	30	30	9	10.5

Table 4. Injuries by site

been fitted with rear seat-belts at manufacture. Rear seat-belt anchor points have been installed in all UK cars at production since 1982. Legislation demanding the fitting of suitable restraints for all rear seat passengers might further reduce the number and severity of injuries sustained. Publicity promoting use of rear seat-belts might be better aimed at those who drive cars with no suitable restraints fitted in the rear seat. They could be easily identified at the yearly MOT testing already required in older cars.

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