

A Study on the Use of Car Occupant Restraint in Selangor

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Summary

A survey was conducted in December 1995 to study car occupant restraint usage in Selangor. A total of 1082 car occupants were observed in 536 cars. The results of the study shows that only 57.3% of the car occupants observed were protected by any form of restraints. Most of the cars (99.8%) examined had front seat belts but only 44.2% had rear seat belts. Only 0.6% of the cars were found to have child restraints in the cars. 80.2% of drivers used restraints and only 65.4% of front seat passengers used any forms of restraints. In the case of the rear seat passengers, only 0.42% used an available restraint. More people in the urban areas (84.42%) than in the rural areas (66.51%) used seat belts. Usage of seat belts by car drivers influenced the use of seat belts by front seat passengers. Type of seat belts fitted was associated with usage rate. It is sad to note that 21.9% of the drivers used seat belts incorrectly.

Key Words: Car occupant restraint, Seat belts, Child restraints

Introduction

In Malaysia, motor vehicle crashes present a major health problem with a significant number of deaths and injuries among drivers and passengers of all ages. Motorcars are the most common type of vehicles involved in road crashes and accounted for 52% of the accidents. Car occupants ranked second among contributor of fatalities with 831 deaths or 17.8% deaths through traffic crashes¹.

Although motor vehicle crashes cannot be totally eliminated, the use of preventive measures such as car occupant restraints as one of the immediate protective measures can certainly help in reducing

the number of death and injury in crashes². The main types of car occupants restraints available are seat belts and child restraints. However, not all the belt systems used are similar. Initially, non-inertia reel systems were fitted in the older imported cars. Over the years, most of the new car models have been fitted with the continuous loop belt systems, each with a single emergency locking retractor (referred to as inertia reel), whereas most of the older models had separate locking retractors for the lap belt and an emergency locking retractor for the shoulder belt. A retractor is a device that allows the belt webbing to unwind from the spool and thus permit a comfortable fit for the occupant. An emergency-locking retractor (referred to as inertia

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reel), allows belted occupants to bend forward and sit comfortably in the car under normal driving conditions.

The need for the use of seat belt has been accepted and some effort is needed to ensure that they are fitted and used properly. The actual lifesaving benefits are severely limited if occupants do not wear them properly. The purpose of this study was to determine the extent of usage, misuse and the factors influencing the usage of car occupant restraint. The benefits to be derived from reducing crash-related injuries are great. No such study has been conducted before in Malaysia. We hope this study will shed new information on the usage of car occupant restraints in Selangor.

Materials and Methods

The state of Selangor was chosen for this study because in 1993 and 1994 it recorded the most number of motor vehicle accidents (i.e. 36,955 cases) and also the most number of deaths due to motor vehicle trauma in 1994, (i.e. 887 deaths)¹. Selangor is divided into 9 administrative districts. The two districts in the state of Selangor chosen for the study areas are the Petaling and Kuala Langat District. The distance from the two study areas are about 120 kilometres apart.

A cross sectional descriptive study was carried out in December 1995 for two weeks (18/12/95-24/12/95) to determine the car occupant restraint usage in the state of Selangor.

Two stretches of roads were chosen purposively to represent roads in urban and rural areas - one road from an urban area in District of Petaling and one road from a rural area in Kuala Langat. These two roads were chosen after surveying the area and consulting the police. Care was taken that the study on the urban road did not obstruct traffic flow. The car drivers and occupants using these

two roads on the said days were chosen as the study population.

With the co-operation of the police, cars were stopped based on 'time sampling' i.e. every 5-10 minutes. The study was carried out at different hours of the day (9-11 A.M., 4-6 P.M., and 7-9 P.M.) and on different days of the week. About 250 cars were studied at each site. The numbers of cars studied were distributed according to weekdays and weekends and at different hours of the day.

The questionnaire used in this survey was constructed to collect the socio-demographic data and the car occupant restraint usage by the car occupants. The knowledge of the car drivers on the usage of car occupant restraint was also assessed. The questionnaire was then translated into Bahasa Malaysia to make interviewing easier.

Before commencing on the study, the Traffic Police in Petaling Jaya and Banting were approached to obtain permission and co-operation for the study. The police agreed not to issue summons to anybody found not using seat belt during the study because of ethical issue involved.

The questionnaires were pretested before they were used in the field. The study was carried out with the help of two research assistants. They were briefed regarding the study and on the application of the questionnaire for the study. They were also trained in ways of administering the questionnaire.

At each site, observations were made on a limited number of items (type of car occupant restrained installed, type of front seat belt used, correct usage of seat belts, age, sex and location in car of all occupants, and whether or not an appropriate restraint is being used) in a standard sequence and the data were entered in a structured questionnaire. The car drivers were then

interviewed to obtain some socio-demographic data and his knowledge about car occupant restraints.

Data was entered on to a microcomputer using Dbase 5. The Epi Info 6 statistical package was used to perform the analysis. Where given, 95% confidence intervals were used and all Chi square values are quoted with the Yates correction. Stratified analysis was performed where necessary to control for possible confounding factors.

Results

Socio-demography

A total of 1082 occupants were observed in 536 cars (average 2 persons per car). Car occupants consisted of 536 drivers (49.82%) and 546 passengers (front and rear seat passengers). Of these, 86 observations were made on taxis, which

consisted of 33 drivers and 53 passengers. There were 915 males and 165 females among the car occupants. Most of the car occupants were aged between 20 to 29 (23.15%) and 30 to 39 (23.89%).

The socio-demographic characteristics of the car drivers are shown in Table I. 149 (27.8%) of the drivers belonged to the administrative and managerial groups. 120 drivers (22.4%) were in the production, transport and labourer group. 87 (16.2) drivers worked as sales workers. 45 (8.4%) were professionals. A smaller percentage of the drivers worked as service workers (16.2) or agriculture workers (3.0%) and the rest of the drivers (11.6%) were unemployed, retired, housewives or students. 46.1% of the car drivers had a total monthly family income of between RM1000 to RM3000. 26% of them had a monthly family income of less than RM1000. The rest of the drivers (28%) had a monthly family income of more than RM3000.

Table I : Socio-demographic characteristics of the car drivers

Socio-demographic Characteristics	Car Drivers		Socio-demographic Characteristics	Car Drivers	
	Number	Percentage		Number	Percentage
AGE GROUPS			ETHNIC GROUP		
17-19	20	3.73	Malay	197	36.8
20-29	133	24.81	Chinese	239	44.6
30-39	178	33.21	Indian	93	17.4
40-49	122	22.76	Others	7	1.3
50-59	54	10.07	Total	536	100.0
60-69	23	4.29	EDUCATION LEVEL		
70-79	6	1.12	No formal education	6	1.1
Total	536	100.0	Primary school	107	20.0
GENDER			Secondary school	279	52.1
Male	456	85.1	Tertiary education	144	26.9
Female	80	14.9	Total	536	100.0
Total	536	100.0			
MARITAL STATUS					
Married	394	73.5			
Single	142	26.5			
Total	536	100.0			

Table II : Seating position of car passengers according to age

AGE GROUPS (years)	Passengers Seating Position			Total
	Front Seat	Rear Seat	Front Passengers Lap	Number (%)
0-9	24	93	25	142 (26.1)
10-19	26	56	0	82 (15.1)
20-29	76	41	0	117 (21.5)
30-39	54	26	0	80 (14.7)
40-49	45	19	0	64 (11.8)
50-59	21	11	0	32 (5.9)
60-69	10	9	0	19 (3.5)
70+	6	2	0	8 (1.5)
Total	262	257	25	544 (100.0)

Notes: Age was not coded for 2 front seat passengers.

(%) refers to percentage of total car passengers.

Description of Cars

Of the 536 cars observed, 503 (93.8%) were private cars and 33 (6.2%) were taxis. Nearly half the numbers of cars observed (49.1%) were locally manufactured and the rest were imported models.

64.4% of the cars observed had engine capacity of 1000 to 1500 c.c. Another one third of the cars had an engine capacity of 1500 c.c. to 2000 c.c. Only a small percentage (3.2%) of the cars had an engine capacity of less than 1000 c.c. or more than 2000 c.c. (2.4%). Eight of the drivers did not know the engine capacity of the cars they were driving.

Most of the cars (48.3%) were below five years of age. About 30% of the cars seen were older than ten years and the rest (21.3%) were between six to ten years old.

Types of Car Occupant Restraint Fitted

A total of 535 (99.8%) of the cars observed had front seat belts installed, however only 237 cars (44.2%) had rear seat belts fitted and only 3 cars (0.6%) had a child restraint in the car.

Types of seat belt fitted here refer to whether they are inertia or non-inertia reel. Of the cars observed, 94 cars (17.5%) were fitted with non-inertia front seat belts and the rest of the 442 cars were fitted with inertia reel front seat belts.

Usage Rate of Car Occupant Restraint

Of the 1082 occupants observed, only 620 (57.30%) used some form of restraints, 462 (42.7%) wore no restraints, 619 wore seat belts and only one child was in a child seat. Most of the children observed were found to be standing behind the front seats, sitting or lying unrestrained in the rear seat, or sitting on an adult's lap.

Among the drivers, 80.20% used an available restraint. Of the of front seat passengers, 71.60% used an available restraint and only 0.42% of the rear seat passengers used an available restraint.

Factors associated with Car Occupant Restraint Usage

The overall restraint use by car drivers was 80.2%. Restraint use was highest among the 50-59 year age group. There was no significant difference on

the usage of seat belts among the different age groups (Chi Square = 1.98; p value = 0.85).

(Chi Square for linear trend = 6.176; p value = 0.01295).

There was an increase in restraint usage with increasing age among the front seat passengers

An analysis on the other factors affecting the use of restraints by front seat occupants is shown in Table III.

Table III : Factors influencing usage of seat belts by front seat occupants

Factors influencing usage of seat belts	Total number observed Used seat belts	Used seat belts			p value
		Number	Percentage of total	OR† (95% C.I.)§	
Sex					
Men	599	430	75.57	1.06	0.79
Women	254	189	74.41	(0.75-1.52)	
Road					
Urban	398	336	84.42	2.73	0.00
Rural	427	284	66.51	(1.92-3.88)	
Day of week					
Weekday	558	420	75.27	1.02	0.98
Weekend	267	200	74.91	(0.72-1.45)	
Hour of day					
9-11 A.M.	322	246	79.40	1.00	0.74
4-6 P.M.	261	196	75.10	0.93	
8-10 P.M.	242	178	73.55	0.86	
Seat Position					
Driver	536	430	80.20	2.17	0.000003
Front Passenger	289	189	65.40	(1.55-3.04)	
Total	825	620	75.15		

* Numbers may not add to totals because of missing information.

† Odd ratio

§ Confidence interval

A total of 278 and 258 cars were observed at the urban and rural road respectively.

A total of 508 people in 278 cars were surveyed on the urban road. Car occupants consisted of 278 drivers (54.72%), 119 front seat passengers (23.42%) and 97 rear seat passengers (19.09%). 15 observations were made of taxi drivers. At the urban road 336 of 508 people observed wore seat belts (66.14%). The overall restraint use by taxi occupants was 14/29 (48.28%), their use by taxi drivers was 13/15 (86.67%).

Of the 574 people in 258 cars surveyed on a rural road, 258 were drivers (44.95%), 155 front seat passengers (27.00%) and 110 rear seat passengers (19.16%). 18 observations were made of taxi drivers. On the rural road 284 of 574 car occupants observed (49.48%) wore seat belts. The overall restraint use by passengers in taxis on the rural road was 26/29 (37.68%), their use by taxi drivers was 16/18 (88.88%).

It was observed that if the driver did not wear a seat belt, passengers too were significantly less likely to wear restraints as shown in Table IV.

Table IV : Influence of car drivers on passengers usage of restraints

Use of Seat Belt by Drivers	Use of Seat Belt By Front Seat Passengers		Total
	Belted Number (%)	Unbelted Number (%)	
Belted	172 (79.6)	44 (20.4)	216 (100.0)
Unbelted	17 (35.4)	31 (64.6)	48 (100.0)
Total	189 (71.6)	75 (28.4)	264 (100.0)

Notes: Yates corrected chi-squares = 35.60;
 df = 1; p = 0.00000000
 Odds Ratio = 7.13 (95 % C.I. = 3.42, 14.98)

There was a significant difference between the inertial reel and non-inertial reel usage of seat belt types among drivers and front seat passengers. Drivers (81.9%) were more likely to wear seat belts if the seat belts fitted were of the inertial reel type compared to 72.3% of drivers belted when they used the non-inertia reel seat belt (Odd ratio = 1.73, Chi squares = 3.88, p value = 0.048). For the front seat passengers, there is a strong association between types of seat belt fitted and usage of seat belts. 74.7% of the front seat

passengers were belted when they used the inertia reel seat belt compared to only 57.4% of them belted when they were using the non-inertia reel seat belt (Odd ratio = 2.18, Chi squares = 4.81, p value = 0.028).

Respondents were asked how often they wear their seat belt (always, most of the time, occasionally, or never) and results given in Table V.

Table V : Frequency of seat belt usage by car drivers

Frequency of seat belt usage	Unbelted driver		Belted driver	
	Number	Percentage	Number	Percentage
Say always wear belt	27	25.5	358	83.3
Say often wear belt	60	56.6	62	14.4
Say sometimes wear belt	18	17.0	9	2.1
Say never wear belt	1	0.9	1	0.2
Total	106	100%	430	100%

Correct and incorrect use of seat belts

21.9% of drivers who were belted used it incorrectly. Incorrect usage includes underarm use of shoulder belts (0.2%), loosening of seat belt (16.7%), seat belt high up on the abdomen (6.5%), and unbuckled (3.3%).

The type of front seat belt fitted also influences the correct usage of seat belt. There is a

statistically significant difference between type of seat belt fitted and correct usage of seat belts. Drivers are more likely to use the seat belt correctly if the seat belts are of the inertia reel type (88.4% used them correctly compared to 23.5% if the seat belt were of the non inertia reel type, Odds ratio = 24.76, Chi squares = 137.25, p value = -0.00).

Drivers knowledge on car occupant restraints

Ten drivers in the belted group (2.3%) and one driver in the unbelted group (0.9%) did not know that use of seat belts for front seat passengers and drivers in Malaysia is required by law.

The car drivers were asked about the benefit of using seat belts and 94.0% of the drivers interviewed agreed that using seat belt is beneficial, 5.8% said that using seat belt does not give any benefit and 0.2% did not know whether using seat belt is beneficial. When the respondents were asked why they were using seat belts, only 77.7% of the drivers gave the reason that it was used as restraint saves lives. Another 21.4% said that they wore seat belts because the law requires it. The other reasons given were because everybody else uses it (0.5%). Although 94.0% of the drivers interviewed agreed that using seat belt is beneficial, however only 80.2% of the drivers in this study used seat belts.

Car drivers were asked when they should use seat belts. Most of the drivers (70.1%) knew that they should be using the seat belts at all times. 23.1% of the drivers said seat belt should be used only for long distance travel, 3.5% gave the answer that seat belt should be used on the highway. A small number answered that seat belt should only be used when there are police checks (0.4%), when they are on the main road (0.7%), or if they are speeding on the road (0.4%) and some did not know the reasons (0.4%).

22.8% of the drivers said that children should not be restrained, 6.9% said that children held by their parents are safe when travelling, 31.0% said that pregnant women should not wear seat belts. 32.5% said that there is no need for rear seat passengers to wear seat belts. Overall, the knowledge on car occupant restraints was quite satisfactory.

Reasons for not using seat belt

Reasons for not using seat belt were forgotten (41.0%), traveling a short distance only (24.8%), uncomfortable (15.2%), troublesome (4.8%), just got into the car (4.8%), in a hurry (3.8%), no benefits of using seat belt (2.9%), no police check (1.9%), not required to do so (1.0%).

13.6% of the car drivers interviewed said that they would not wear a seat belt if given a choice. The reasons given were that wearing seat belt is uncomfortable, troublesome to wear a seat belt, they are only travelling short distance, and not speeding.

Discussion

The overall use of restraints by car drivers (80.2%) can be regarded as encouraging. Unfortunately, usage of restraints by front seat passengers was only moderate (65.4%) and the usage by rear seat passengers was poor (0.42%). The study indicates that a substantial number of people are still travelling in cars without being appropriately restrained. The finding of less than 1% seat belt usage among rear seat passengers illustrates the fact that efforts have to be made towards car passengers to increase the use of seat belt.

When compared to other countries like Australia which has a car occupant restraints usage rate of 90-95%³ and UK which has a restraint usage rate of 93-94%⁴, the usage rate in Selangor is relatively low (80.2%). Although the usage rate cannot be generalised for the whole of Malaysia, it does give a rough indication of the usage in the country. The experience of other countries should motivate us to increase the use of restraints in our country and this may help contribute to save lives.

Drivers and front seat passengers had a high wearing rate, 75.2%. This is because Malaysia law only covers front seat occupants. In UK, Wyatt⁴

revealed that with the introduction of seat belt legislation, the rates of use for drivers were 98%, for front passengers it was 96% and for rear seat passengers with available belts was 53%. Before the use of rear seat belt became compulsory in UK, only 3% of rear seat occupants were restrained⁵. This is similar to Malaysia at the moment.

There may be an element of bias in interpreting the extent of seat belt usage by car occupants as they would put on their seat belts as soon as they saw the police (not wearing seat belts for front seat occupants is an offence and a summons can be issued for this). This may mean that the number of unrestrained car occupants may be more than observed.

It was noted that when the driver was not wearing a seat belt, the passengers were significantly less likely to wear restraints. This suggests that we need to impress on drivers that they can play a role in ensuring that passengers of all ages are properly secured. This problem was also seen in New South Wales, Australia³. In USA, the National Transportation Safety Board had recommended that the driver be made responsible for the safety of the child, except when the child's parent or legal guardian is present in the vehicle.

Nearly all (99.58%) rear seat passengers were unrestrained. In order to interpret the study findings it is important to remember that there is no legislation requiring mandatory usage of rear seat belts. Only 44.2% of the cars observed had rear seat belt fitted. For this reason most of the rear seat passengers seen during the study were not using the rear seat belt.

32.5% of the drivers interviewed said that there is no need for rear seat passengers to wear seat belts, the reasons given being that the impact to rear seat occupants are less and rear seat passengers are protected by the front seat during

an accident. This has been proven wrong by the study done by Bodiwala⁵ who found that the type of impact was generally similar for both the front seat as well as for the back seat occupants, except for the rollover impact, which are commoner among rear seat passengers. In the same study⁵, it was noted that most injuries to rear seat passengers were due to contact with the front seat, with glazing materials, or with other parts of the car.

Nearly all the children travelling in the cars were not restrained. The reasons for this may be due to lack of awareness among parents on the importance of using child restraints. In addition to that the usage of child restraints is not compulsory and it is also expensive. In this study, it was found that 23% of the car drivers are of the opinion that children should not be restrained and 7% of them said that it is safe to hold the child on an adult's lap while travelling. Studies from other countries^{6,7} indicate that this is not so. Research done by Volvo's Traffic Accident Research in Sweden⁷ showed that even in a relatively minor accident at low speeds, an unrestrained child could sustain serious injuries. In a crash, even a strong adult wearing a seat belt cannot hold onto that child. The youngster is torn away from the parent's arms and thrown onto the dashboard or the windshield. If that adult is not wearing a seat belt, both he and the child will fly forward. The child will probably be crushed between the adult and dashboard⁶.

In a survey by Frank Small & Associates published in Star newspaper on 13th April 1996, it was reported that 23% of those married with children own a child restraints in Malaysia. 77% of married adults with children who are car owners are aware of child restraints but have not bought one. The reasons given are that it is not necessary as their children are still too young or are seldom taken out (33%), or are held by adults while driving, so seat restraints are not necessary (27%), the child safety seat is too expensive (13%), claim to be a

careful driver, and will not jeopardise their child's life (7%) and it is a nuisance to install and remove the seat (4%). Programmes that enhance the motivation in the use of child restraints, should also provide restraints for children, and educate parents regarding the importance in the proper use of child restraints. Although the cost of child restraints can be expensive for some families, the advantages of using child restraints in providing certain amount of protection should be emphasised.

21.9% of car drivers were observed to use their seat belts incorrectly in the study. To be effective, seat belts should be worn over the shoulder, across the chest, and low on the lap. Unfortunately, car passengers frequently wear seat belts wrongly, such as placing under the arm, behind the back, or across the stomach. This study shows that incorrect usage among our car drivers is rather high compared to the study by Reinfurt⁸ which showed a 6% misuse of the shoulder belt.

A survey of car crashes in Japan was conducted to assess the effects of seat belts and injuries resulting from improper use. The findings correlated the crash deaths or serious injuries of belted occupants with their incorrect use⁹. Another group of researchers presented case reports of six persons whose fatal injuries were caused by wearing a shoulder belt under the arm during a crash—all six crashes were determined to be "otherwise survivable"¹⁰. This emphasised the importance of using the seat belts correctly to achieve maximum protection and to avoid further injuries or deaths due to misuse.

Possible reasons for misuse of seat belts are due to ignorance, discomfort or irritation to the wearer¹⁰. Underarm use of shoulder belts is a means of relieving neck irritation and other complaints from shoulder belts. Also, underarm positioning of the belt gives the appearance of belt usage in order to avoid apprehension by police.

The study shows that there was a statistically significant difference in the usage of seat belts among rural drivers (66.51%) compared to urban drivers (84.42%). In a study by Ryan in 1992¹¹, it was noted that lack of seat belt usage was one of the major problems among motor vehicle crashes in rural roads in Australia. More crashes with severe or fatal injuries were reported among the rural crashes. In Malaysia, according to the police statistics, rural traffic crashes accounted for about 45% of deaths and injuries. High speeds on rural roads contributed to higher casualty crashes. Lower usage of seat belts in rural roads may further aggravate the problem.

Most of the drivers (97.9%) interviewed knew about the law on usage of seat belt in Malaysia. However, only 80.2% of the drivers used seat belts in this study. Of these, about 20% of the car drivers interviewed said that they used seat belts because the law requires them to do so. Another 14% say that they will not wear seat belt if given a choice. It is obvious that in addition to encouraging seat belt and child restraints use, laws and enforcement are needed to ensure maximum usage of restraints.

Sociological studies indicate that about 30% of the population should be using a safety device or at least be convinced about the need for safety device before it's use is legislated. The public in Malaysia has currently heard about child restraints and rear seat belts through media messages from the Road Safety Council. Hence it is time to strengthen educational campaigns to promote use of these devices.

Ninety four percent of the drivers in the survey agreed that using seat belt is beneficial. However, as mentioned earlier, not all the drivers used seat belts. This may be because not all drivers know the real benefit of using seat belts. The other reason is that knowledge alone is not enough to ensure practise or change of behaviour. The drivers' attitudes and beliefs may also influence

his usage of seat belts. These factors were not assessed in this study.

Certain aspects of the drivers' knowledge on when to use seat belts were still lacking. 23% of the drivers said that seat belt should be used for long distance travel, 3.5% said that seat belt should be used on the highway and a small percentage said seat belt should only be used when they are on the main road or only when they are speeding. However, motor vehicle crashes happen when you least expect them - even close to home, at slow speeds, on dry roads.

When asked whether pregnant women should wear seat belts, 31% of the drivers said no. The reasons given were that it may cause discomfort to the mother or it may harm the fetus. This is a common misconception that must be corrected. Pregnant mothers and their foetuses are especially susceptible to injuries in the event of crashes. Seat belt use in pregnant women has been recommended by the American College of Obstetricians and Gynaecologists¹². All pregnant women should wear seat belts (and wear them correctly - with the shoulder belt across the chest and the lap belt under the abdomen).

A survey of the drivers not wearing seat belts found that 41% of the drivers reported that the reason for not wearing a seat belt was because they had forgotten to wear them, or could not be bothered. This indicates that for these drivers seat belt use is currently not an important issue. Use of automatic seat belt system can help overcome the problem of forgetting and may help in increasing rates of seat belt use.

25% of the drivers surveyed stated that the reason for not wearing a seat belt was because they were on a short trip. Lack of knowledge maybe a possible explanation where 23% of the drivers interviewed said that seat belts should be used only for long distance travel. A substantial proportion of people were unaware of the risks

for collision associated with short distance travel. The reasons given by the drivers in this study were similar to the reasons given by other drivers in other studies in USA and Australia^{13, 3}. This means that the experience from other countries can be adapted to our country in order to increase restraints usage.

It has been proven that seat belts save lives. Even though Malaysia has laws which make it compulsory to wear the front seat belts when driving, many motorists and passengers do not wear seat belts. Few of the drivers (1%) interviewed in this study believe that there is no benefit in using seat belts and feel that it may even cause harm to the driver in term of entrapment during accidents. Many people believe it is safer to be thrown out of the car during a crash. But the chances of being killed are four times greater if you are thrown out of the car than if you are held in by a seat belt¹². Seat belts do not trap people, instead those wearing them are more likely to be alive and this improves the chances of getting free and helping other passengers.

Conclusions

In conclusion, occupant restraint use rates are still not high enough. This research provides important insights into the nature of restraint use namely,

- incorrect use of seat belts by adults and,
- most of the cars are not equipped with car occupant restraints such as rear seat belts and child restraints.

Based on this study, it is recommended it is recommended that public education and information activities be strengthened to create awareness on the benefits of using car occupant restraints, and dangers of riding unprotected in the car and also in dispelling myths regarding seat

belt usage. Organisations which should be involved in providing health education are the mass media, National Road Safety Council, health care providers, schools and driving schools. It is also recommended that the law should be extended to cover rear seat passengers and children. Law on utilisation of automatic seat belts in all new cars should be introduced soon as this may help increase the usage of seat belts. To ensure good compliance rates, stiffer fine and demerit system should be imposed on those not wearing a seat belt (front and rear). Manufacturers of car restraints can design better seat belts which provide comfort, ease of use and minimises misuse. Seat belt with 'blip system' when not in use and the utilisation of automatic seat belts should become an essential part of a car. Manufacturers and vehicle workshop can fit older models of car with rear seat belt. In order to encourage restraint usage among children age 0-14, restraints should be made easily available and economical. Outlets for child restraint rental can be set up nation-wide for examples in supermarkets or shopping complexes. Safety

seats can then be lent to parents for a small deposit and/or a minimal rental fee. These programmes should be targeted particularly at low-income parents unable to purchase a safety seat. The automobile industry should market cars with readily installed child restraints. Finally, data being collected by the police on seat belt usage should be disseminated to other agencies like the National Road Safety Council and mass media who can then highlight the problem of non-compliance in the usage of car occupant restraints.

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