

Use of Seatbelts by Vehicle Occupants in University College Hospital, (U.C.H) Ibadan, Nigeria

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SUMMARY

Road traffic accidents are a major cause of death and disability worldwide. A number of mechanisms have been put in place to reduce the ensuing injuries, one of which is the use of seatbelts. This observational study was carried out to determine seatbelt use by vehicle occupants in University College Hospital (U.C.H). Trained research assistants observed drivers and other vehicle occupants as they drove into the only fuel station within the hospital premises between 8.30a.m and 6.00 p.m. over a six-day period. Data on vehicle occupant characteristics, presence and use of installed seat belts was documented using a modified version of the FIA foundation sample seatbelt wearing observation form. A total of 570 occupants in 402 vehicles were observed. There were 402 drivers and 117 and 50 front and rear seat occupants respectively. The only child observed was unrestrained and seated on an adults lap in the front. Seat belt use by the drivers, front and rear seat passengers were 76 (18.9%), 16 (13.7%) and 2 (4%) respectively. A higher proportion 29 (29.9%) of all female drivers compared with male drivers 47 (15.4%) were restrained ($X^2 = 9.152$, $p = 0.02$). Overall seat belt use observed was 16.5% and driver use was only 18.9% in spite of the existence of a law mandating use of seatbelt by drivers. Better enforcement of the current law is necessary and it should be extended to cover

other vehicle occupants. The hospital environment presents a good opportunity to educate the public on the importance of seatbelt use utilizing various health education methods.

Keywords: Seat belt use, vehicle occupants, road traffic injury, Nigeria

INTRODUCTION

Injuries have been identified as a global problem with the greater proportion of the burden falling on developing countries. It has been estimated that approximately 300,000 people die and 10-15 million are injured each year in traffic crashes throughout the world [1]. According to estimates made by Murray and Lopez for the WHO and World Bank, 1, 170, 694 people died of road traffic injuries worldwide in 1998 [2]. The global burden of disease due to road traffic injuries is expected to move from ninth position in 1990 to third position in 2020 mainly as a result of the increasing incidence of road traffic crashes in low and middle income countries[3]. According to estimates made by the Federal Road Safety Commission (FRSC) which is the establishment charged with responsibilities for policymaking, organization and administration of road safety in Nigeria[4], in 2002, there were a total 14, 544 accidents in which 22, 112 people were injured and 7, 407 were killed [5]. Several measures have been introduced to reduce the incidence of RTA and the severity of injuries when they occur, one of which is the use of seat belt. While it does not prevent the occurrence of accidents, it has been proven to be effective in reducing the severity of injury to vehicle occupants involved in a collision. Research has shown that lap and shoulder belts, when used, re-

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duces the risk of death and serious injury in a crash by 45% to 60% and serious injury to the head, chest and extremities by 50% to 83% [6, 7, 8, 9, 10, 11, 12].

In spite of its proven effectiveness, compliance with seat belt laws is not 100%. Several methods have been put in place in different countries to help increase rates of use and these include health education campaigns, enactment and enforcement of laws, and the use of incentives [13]. In 1970, the state of Australia enacted the first safety belt use law and since then many countries have enacted laws which make the use of seat belt by front and rear seat passengers mandatory [14]. A law mandating use of seatbelts by motorists and prescribing fines of up to 800 Naira for non-compliance, was passed in Nigeria in January 2003 [15, 16].

This observational study was carried out in November, 2004 to determine the rate of use of seatbelts by vehicle occupants within the premises of the University College Hospital, Ibadan in order to provide information to develop appropriate measures which can be used to improve use within the hospital premises and ultimately the city of Ibadan and the country as a whole.

METHODS

An observational cross-sectional study was carried out within the premises of the University College Hospital, Ibadan. The 800-bed hospital is a tertiary centre established in 1957 and provides specialist as well as general medical services. In addition it is a centre for research and training of various cadres of health care personnel at undergraduate and postgraduate levels. Patients are referred to the UCH from several healthcare facilities both within and outside Nigeria. The hospital consists of clinical buildings, laboratories, administrative blocks, lecture rooms, students' halls of residence, staff quarters, mini-markets, water and sewage treatment plants, commercial banks and a filling station.

The only petrol station located within the hospital was used as an observation point. The site was chosen because it allowed vehicle occupants to be observed in their everyday state while they slowed down to a halt to purchase fuel. This gave the observers enough time to take note of and record

the findings without being unduly conspicuous.

Trained research assistants recorded their observations between 8.30 a.m and 6 p.m over a six consecutive days (Monday through Saturday) using a modified version of the FIA foundation sample seatbelt wearing observation form [17]. Information on vehicle occupant characteristics, the presence and use of installed seat belts and car make were documented. The data obtained was cleaned, entered into computer and analysed using the SPSS version 11.0 software package. A descriptive analysis of the data was performed and chi-square test was used to determine the association between driver seat belt use and selected variables.

RESULTS

A total of 570 occupants in 402 vehicles were observed. There were 402 drivers and 117 and 50 front and rear seat occupants respectively (table 1). The only child observed was unrestrained and seated on an adults lap in the front.

Driver Characteristics

Of the drivers, 305 (75.9%) were male and majority 324 (80.6%) were estimated to be in the 30–59 year age group. Restraint Use among Vehicle Occupants (Table 1).

Driver

Only 76 (18.9%) of the drivers used their seatbelts though driver belts were installed in 394 (98.0%) of vehicles. A higher proportion 29 (29.9%) of female drivers used their belts compared with 47 (15.4%) male drivers. Of the 76 drivers restrained, 60 (78.9%) were in the 30–59 year age group.

Front seat passengers

There were 117 front seat passengers, majority 62 (53%) of whom were female. Only 16 (13.7%) front seat passengers, were restrained although front seat belts were installed in 112 (95.7%) of vehicles. A slightly higher proportion 8 (14.5%) of all the males seated in front were restrained compared with 8 (12.9%) of the females and 11 (68.8%) of the 16 front seat passengers who were restrained were in the 30–59 year age group.

TABLE 1: Seatbelt use by vehicle occupants

	Seatbelt Used n (%)	Seatbelt not used n (%)	Total n (%)
Driver			
<i>Sex</i> Male	47 (15.4)	258 (84.6)	305 (100)
Female	29 (29.9)	68 (70.1)	97 (100)
<i>Age range (estimated)</i>			
18 – 29 years	15 (20.3)	59 (79.7)	74 (100)
30 – 59 years	60 (18.5)	264 (81.5)	324 (100)
60+	1 (25)	3 (75)	4 (100)
Front seat passengers			
<i>Sex</i> Male	8 (14.5)	47 (85.5)	55 (100)
Female	8 (12.9)	54 (87.1)	62(100)
<i>Age range (estimated)</i>			
18 – 29 years	5 (10)	45 (90)	50 (100)
30 – 59 years	11 (16.4)	56 (83.6)	67 (100)
Rear seat passengers			
<i>Sex</i> Male	2 (8.3)	22 (91.7)	24 (100)
Female	0	26 (100)	26 (100)
<i>Age range (estimated)</i>			
18 – 29 years	1(5.3)	18 (94.7)	19 (100)
30 – 59 years	1(3.8)	25 (96.2)	26(100)
60+	0		

compared with 15.4% of male drivers were restrained ($X^2 = 9.152, p = 0.02$) (Table 2)

Association between seat belt use by driver and use by other passengers

More 10 (62.5%) front seat passengers whose

drivers were not restrained used their seat belts compared with only 6 (37.5%) whose drivers used their seatbelts. Also the drivers of the 2 rear seat passengers who used their seat belts were not belted.

TABLE 2: Association between driver's gender and seat belt use

	Seat belt Use			X ²	p
	Yes	No	Total		
	n (%)	n (%)	n (%)		
<i>Sex</i>					
Male	47 (15.4)	258 (84.6)	305 (100)		
Female	29 (29.9)	68 (70.1)	97 (100)	9.152	0.002

Rear seat passengers

There were 50 passengers seated in the rear 26 (52%) of whom were female. Two (4%) of the 50 rear seat passengers, both males were restrained.

Association between gender and driver belt use

Seat belt use by drivers was significantly associated with being a female, 29.9% of female drivers compared with 15.4% of male drivers were restrained ($X^2 = 9.152, p = 0.02$) (Table 2).

Association between seat belt use by driver and use by other passengers

More 10 (62.5%) front seat passengers whose drivers were not restrained used their seat belts compared with only 6 (37.5%) whose drivers used their seatbelts. Also the drivers of the 2 rear seat passengers who used their seat belts were not belted.

DISCUSSION

Majority of the drivers were male and this is similar to observations from many surveys which have observed vehicle drivers and they have also been shown to be at higher risk than females for motor vehicle crashes[18, 19, 20, 21]. Restraint use was 16.5% (all vehicle occupants) and 18.9% among the drivers. This is comparable with national rates of 11% obtained in USA in 1980 [22] but much lower than pre-legislation rates of 30% observed in Europe [23] and post-legislation rates of 48.0% obtained in the Ibadan metropolis[24]. Higher rates of 90.1% and 80.9% were also obtained among drivers and front seat passengers in Oman, however only 1.4% of back seat passengers observed in Oman

wore a seat belt [25]. The low rates observed in this study might have been due to the absence of enforcement agents within the hospital premises or to a general feeling of immunity to serious crashes experienced by the drivers as they were driving within an enclosed premise. This attitude needs to be discouraged as seatbelts have been found to be particularly effective in frontal and roll over crashes as well as lower speed collisions[21, 26].

Rear seat use was only 4% and this gives cause for concern. Not only are rear seat passengers at a higher risk of being injured when they are not restrained, but they pose a serious threat to any unrestrained person seated directly in front of them as they hit the front seat and anyone in it with a force between 30 to 60 times their own weight[26, 27, 28]. Thus their actions have a considerable impact on the number of casualties and on the severity of injuries in an accident.

This study showed a significantly higher rate of use among female (29.9%) than male drivers (15.4%), $X^2 = 9.152, p = 0.002$. It has been documented that young male drivers use their seat belts less often than other groups and are more likely to be involved in crashes[20, 21, 23].

In this study, more front seat passengers whose drivers were not restrained used their seatbelts. The same occurred for rear seat passengers as the 2 who used their seat belts in the rear were driven by unrestrained drivers.

The findings of this study imply that there might be an overall deficiency in the vehicle occupants' knowledge of the importance of seat belt use especially as seatbelts were installed in the front in

over 95% of vehicles. This issue needs to be tackled urgently in view of the immense disease burden caused by road traffic injuries. In addition, further research is necessary to explore the reasons for non-use of safety belts within the hospital premises.

LIMITATION

Only one child was observed in the study and the child was not restrained thus the study could not report on restraint use by children.

CONCLUSIONS/IMPLICATIONS FOR PREVENTION

Overall seat belt use observed in this study was 16.5%. Driver belt use observed in this study was also very low, 18.9%, especially as a law mandating use by drivers already exists. As reported in other studies, restraint use was higher among female drivers. The hospital community is a conducive environment to educate the public on the importance of seatbelt use. Motor vehicle injury prevention education should be presented in the context of other major health problems e.g. heart disease and cancer prevention using health education tools like billboards, posters and information handbills. Better enforcement of the current law is necessary and it should also be extended to cover other vehicle occupants in view of the proven effectiveness of seatbelts.

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