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The Trend of Seat Belt Use among Drivers in the North of Iran, 2007-2010: An Epidemiologic Study

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Abstract: Backgrounds and Objectives: Using seat belt has a considerable role in reducing human damage. The aim of this study was to compare trend of seat belt use rate during 4 years, from 2007 to 2010, in Golestan province (northern Iran). Materials and Methods: This was a population-based cross-sectional study that enrolled 3999 subjects aged 15-65 years during four years (2007 = 1000 cases, 2008 = 1000 cases, 2009 = 999 cases and 2010= 1000 cases) using stratified cluster sampling. Interviewers recorded the data using a multidimensional questionnaire including anthropometric indexes. Using seat belt in the case of sitting in the front seat of car (as a driver or passenger) of all samples was asked. SPSS 16.0 software was used for statistical data analysis. Results: The rate of seat belt use in the years 2007, 2008, 2009 and 2010 were 71%, 69.8%, 74.5 and 86.4%, respectively. Seat belt use during the four years increased up to 15.4%. Statistical differences among four years was significant (P<0.01). The increasing seat belt use rate was 19% and 14.9% in urban and rural areas, respectively. The seat belt use rate was higher in subjects with =35 years old people in proportion to 35= years old people (17.85% versus 14.3%). During the latest year of study, using seat belt was about 14.8% higher in men comparing with women (P<0.05). Conclusion: Using seat belt increased up to 3.9% per year and the trend in the rural areas was lower than in the urban areas. Seat belt used in men more than women. Using seat belt and its growing trend, will help in reducing mortality caused by accidents in Iran.

Key words: Seat belt use • Golestan province • Race • Education • Iran

INTRODUCTION

Traffic accidents is known the main cause of disability and mortality and 1.2 million persons death from it and 50 million people are injury in worldwide, annually [1]. Road traffic accidents in Iran are one of the main reasons a non-intentional injury and the lead to death of 70 people, daily [2].

Injuries resulting from traffic accidents will be the second leading cause of disability in developing countries [3] and the third cause of death and disability throughout the world by 2020 [4]. In recent years, a high rate of traffic accidents in the Persian Gulf states have been reported [5]. In developing countries such as United Arabic Emirates, mortality from motor vehicles is higher than industrialized countries [6]. In Qatar, traffic crash was the third factors of deaths and 43 percent of them were young and have not driving license [7]. Studies in the world have shown that lack of safety belt using is the main cause of death and the mandatory seat belt using law were noticeably reduced the deaths, injuries and disabilities [8,9]. In Iran, the lack of using safety belt were investigated the main factor of deaths after traffic accident [10] and set up the mandatory safety belt using law in 2007 and all drivers and front row passenger cars were required to use it.

Golestan province located in the north of Iran and over 1600000 people are living in this area and constitute a major different ethnic group such as Fars (Native), Turkmen and Sistani.

With regards to the diversity of ethnic and culture, social behaviors are different in this region. The main objective of this study is determine the status of safety belt use changing during the four years (2007 to 2010) among people aged 15 to 65 in the north of Iran.

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MATERIALS AND METHODS

This was a population-based cross-sectional study that enrolled 3999 subjects aged 15 to 65 years had been chosen by stratified and cluster sampling within five steps (2007 =1000, 2008 =1000, 2009 =999 and 2010 =1000 cases) among 11 district in Golestan province(north of Iran). Subjects were randomly chosen from 200 clusters and each cluster included 20 cases. Family code of primary health center in rural areas and postal code in urban areas were used for classification with equal proportion of age and sex. From each district, one team had been trained to complete the questionnaire. The questionnaire included demographic characteristics and residential area. SPSS 16.0 software was used for statistical data analysis. Chi-2 test were used for comparing groups and logistic regression analysis with 95% confidence interval was performed for odds ratio estimates. P.value under 0.05 included significations.

All individuals selected households that were in the age group 15-65 years were selected as samples. The subjects who were not willing to cooperate were excluded. Demographic characteristics such as residential area, economic status and educational level were recorded by verbal responses.

RESULTS

The seat belt use rate were 71%, 69.8%, 74.5% and 86.4% in the 2007, 2008, 2009 and 2010 respectively and the statistical difference was significant among four groups (P=0.01). Safety belt use rate was up to 14.8% more in men than women and it was raised 8.8% and 24.4% in men and women, during four years study, respectively. Statistical differences is significant between gender (P=0.001). (Table1).

Table 1: Comparison of relative safety belt use rates based on gender during 2007 to 2010 the north of Iran e (%)

		Years of Study				
Gender	Seat belt use	2007	2008	2009	2010	Total
Men	Never sit in the front seat	(3.2) 16	(6.6) 33	(4.8) 24	(5.0) 25	(4.9) 98
	Yes (always)	(52.8) 264	(61.8) 309	(55.3) 277	(58.3) 292	(57.0) 1142
	Yes (sometimes)	(34.6) 173	(26.2) 131	(30.7) 154	(35.5) 178	(31.8) 636
	No	(9.4) 47	(5.4) 27	(9.2) 46	(1.2) 6	(6.3) 126
	Total	(100) 500	(100) 500	(100) 501	(100) 501	(100) 2002
Women	Never sit in the front seat	(26.2) 131	(28.4) 142	(20.8)103	(15.8) 79	(22.8) 455
	Yes (always)	(31.4) 157	(36.6) 183	(41.1) 204	(41.9) 209	(37.7) 753
	Yes (sometimes)	(23.2) 116	(15.0) 75	(21.8) 108	(37.1) 185	(24.3) 484
	No	(19.2) 96	(20.0) 100	(16.3) 81	(5.2) 26	(15.2) 303
	Total	(100.0) 500	(100) 500	(100) 496	(100) 499	(100) 1995
Sum	Never sit in the front seat	(14.7) 147	(17.5) 175	(12.7) 127	(10.4) 104	(13.8) 553
	Yes (always)	(42.1) 421	(49.2) 492	(48.2) 482	50.1) 501	(47.4) 1896
	Yes (sometimes)	(28.9) 289	(20.6) 206	(26.3) 263	(36.3) 363	(28.0) 1121
	No	(14.3) 143	(12.7) 127	(12.7) 127	(3.2) 32	(10.7) 429
	Total	(100) 1000	(100) 1000	(100) 999	(100)1000	(100) 3999

Table 2: Comparison of safety belt use rates between urban and rural people during the years 2007 to 2010 in the north of Iran (%)

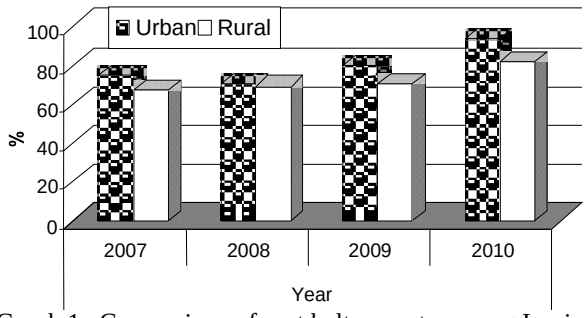
		Years of Study				
Location	Seat belt use	2007	2008	2009	2010	Total
City	Never sit in the front seat	(12.4) 57	(15.2) 55	(7.7) 29	(4.3) 15	(10.1) 156
	Yes (always)	(47.4) 218	(50.1) 181	(51.2) 194	(53.3) 184	(50.3) 777
	Yes (sometimes)	(27.8) 128	(20.5) 74	(29.3) 111	(40.9) 141	(29.4) 454
	No	(12.4) 57	(14.1) 51	(11.9) 45	(1.4) 5	(10.2) 158
	Total	(100) 460	(100) 361	(100) 379	(100) 345	(100) 1545
Village	Never sit in the front seat	(16.7) 90	(18.8) 120	(15.8) 98	(13.6) 89	(16.2) 397
	Yes (always)	(37.6) 203	(48.7) 311	(46.5) 288	(48.4) 317	(45.6) 1119
	Yes (sometimes)	(29.8) 161	(20.7) 132	(24.5) 152	(33.9) 222	(27.2) 667
	No	(15.9) 86	(11.9) 76	(13.2) 82	(4.1) 27	(11.0) 271
	Total	(100.0) 540	(100) 639	(100) 620	(100) 655	(100) 2454

Table 3: Comparison of safety belt use rate based on age group during 2007 to 2010 the north of Iran (%)

		Years of Study				
Age group (years)	Seat belt use	2007	2008	2009	2010	Total
15 to 35	Never sit in the front seat not	(14.3) 57	(14.3) 58	(13.0) 54	(8.8) 36	(12.6) 205
	Yes (always)	(38.8) 155	(51.7) 210	(44.0) 182	(52.4) 215	(46.7) 762
	Yes (sometimes)	(32.3) 129	(21.7) 88	(28.7) 119	(35.6) 146	(29.6) 482
	No	(14.8) 59	(12.3) 50	(14.3) 59	(3.2) 13	(11.1) 181
	Total	(100) 400	(100) 406	(100) 414	(100) 410	(100) 1630
35 to 65	Never sit in the front seat not	(15.0) 90	(19.7) 117	(12.5) 73	(11.5) 68	(14.7) 348
	Yes (always)	(44.3) 266	(47.5) 282	(51.3) 300	(48.5) 286	(47.9) 1134
	Yes (sometimes)	(26.7) 160	(19.9) 118	(24.6) 144	(36.8) 217	(27.0) 639
	No	(14.0) 84	(13.0) 77	(11.6) 68	(3.2) 19	(10.5) 248
	Total	(100) 600	(100) 594	(100) 585	(100) 590	(100) 2369

Table 4: Logistic regression estimate the odds ratio of adult seat belt the north of Iran (95% CI)

Variable		P P value	(Highest - lowest) Odds ratio
Gender	Woman	-	-
	Man	0.001	(5.74-4.12) 4.86
Age group (years)	15 to 35	-	-
	35 to 65	0.286	(1.26-0.94) 1.08
Location	Village	-	-
	City	0.001	(1.71-1.26) 1.47
Economic situation	Weak	-	-
	Average	0.001	(3.27-1.48) 2.20
	Good	0.001	(16.68-4.745) 8.90
Literacy	Illiterate	-	-
	Advice	0.001	(3.18-1.69) 2.32
	Diploma	0.001	(6.15-2.51) 3.93
	University	0.001	(19.65-3.86) 8.71



Graph 1: Comparison of seat belt use rate among Iranian northern adult during four yeras studies.

The increasing trend has been shown in urban and rural area, so, this ratio changed from 75.2% to 94.2% in urban area and changed from 67.4% to 82.3% in rural areas. Changing in rural area was more than urban area. (Table2).

Safety belt use in 2010 was 89% and 85.3% in under 35 years old and over 35 years old, respectively. Trends of set belt use by over 35 years old people raised up to 5.3% in each of years. (Table 3).

Multiple logistic regressions were used to identify variables that contribute to seat belt use. The odds ratio estimate was 1.47 [95% CI: 1.26, 1.71] for urban area compared to rural area; 4.86 [95% CI: 4.12, 5.74] for males compared to females; 8.71 [95% CI: 3.86, 19.65] for college educated people compared to alliterated people; 8.90 [95% CI: 4.75, 16.68] for good economic people compared to poor people (Table 4).

DISCUSSION

In this section, safety belt use trends and some associated demographic factors during four years studies (2007 to 2010) has been discussed.

On the whole, in the north of Iran, 86% of individual were using the safety belt when they are sitting in front seat car (as driver or passenger) and it was more in men than women and in urban areas more than rural areas and more in older than younger and it has an increasing trend over four years studies.

Failure to seat belt use has been consider as the most common causes of traffic crash in Iran and it was led to the head injury up to 49.8% of cases. Thereby set up the authorities of law safety belt use in 2004 in Iran by government. In which all of drivers and passengers should be use seat belt when sitting in front of vehicles [10].

Safety belt use increased when consistently apply law and fine [11]. Increasing preventive procedures and set up related law with road safety, resulted to raise of seat belt use rate up to 9.1% in US [12].

Establishment on intervention programs in the field of safety belt use, by communities and organizations response to improve health promotion, affected to increase using of it [13]. Public education through media and apply the laws by the police dramatically increased helmet use over a year [14]. In India [15] has been showed that most crash killing occur by drivers aged 18 to 37 years. Also in Spain [16] most traffic injuries occurred in the 15 to 39 years old. Most deaths from traffic accidents in Qatar [7] has been observed among the 10 to 40 years age group who lack of seat belt use. Results of mentioned studies are similar to our study. We investigated that the seat belt use was less in younger than older people. With regards to high proportion of young individual in Iran, taking an effective events and education program about traffics among them should be done. Few studies has been carried out for comparing of safety belt use between gender, but our study suggested that it is more common in men than women. Although extensive study is necessary for determine, why women unwillingness to use set belt, but it is looking that women are mostly driving in city area and therefore less feel the risk of lack of safety belt use.

Greater use of seat belts in urban areas than rural areas in our study indicates that awareness and education of individual about the benefits of using seat belt has been forceful during past years because, the most of educated people are living in urban area. A strong graded relationship between both education and literacy skills with health knowledge have consistently documentation other studies [17-19]. During a few years' studies in Iran, significant increase in safety belt use trends was indicate an effective dealings of police training and fine. A decreasing trend of death and injuries rates resulted in traffic accidents from were showed 2005 to 2008 in Iran [20]. This study announced the using seat belt as a main preventive factor in this area.

CONCLUSION

During four years studies, seat belt use increased 3.85% for each year and it was more in urban than rural area and in men more than women. Institutionalization of the seat belts use and increasing trend of it belt in the Iranian northern people is considerable.

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