

Seat Belt Use Behavior among Teen Students: The Role of Their Demographic Characteristics and Family Members' Behaviors

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Abstract

Background and Objectives: The lack of seat belt use is considered as one of the most common behavioral factors encountering the life of a driver or an occupant to traffic injury risk. The aim of this study was to determine the relationship between seat belt-wearing behavior among school students and their demographic characteristics and family members' behaviors. **Methods:** In this cross-sectional study, 942 students (497 girls and 445 boys) were included and randomly selected from junior high schools in Tabriz, Iran. A questionnaire on the seat belt-wearing behavior of students and their parents was used to collect data, followed by applying a generalized estimating equation approach to identify the correlation of pupils' traffic behaviors to account for intra-cluster correlation. **Results:** The results revealed that seat belt-wearing behaviors among male students were significantly more frequent compared to female students ($P < 0.0001$). The mother's occupation, the father's age, and the student's educational level had a significant impact on seat belt wearing among the students ($P < 0.01$). In addition, student's adherence to traffic rules was correlated with their seat belt-wearing behavior. Finally, the seat belt-wearing behavior of parents and siblings had a significant positive effect on students' behaviors ($P < 0.01$). **Conclusion:** Male students further demonstrated risky behaviors compared to their female peers, and family has an important role in improving the seat belt-wearing behavior of their children. Therefore, involving adolescents' families including their parents and sibling can be important and helpful in developing preventive programs for promoting the use of seat belts among adolescents.

Keywords: Adolescent, health promotion, injury prevention, parents, safe behavior, seat belt wearing

INTRODUCTION

Road traffic injuries (RTIs) are the cause of death or disability of nearly 10 million children worldwide. Most RTI-related deaths occur in low- and middle-income countries.^[1,2] In addition, RTIs impose considerable expenses on governments, individuals, and their families. Iran has one of the highest rates of RTIs in the world. Based on a report, 16946 and 347307 people died and were injured due to RTIs in 2019, respectively.^[3] According to mortality statistics of Iran, RTIs are reported as one of the main reasons for mortality.^[4]

The nonusing of seat belts of teen drivers or occupants is one of the main reasons for road traffic fatality and severe injuries.^[5-7]

Previous studies have reported that the use of seat belts could reduce severe RTIs and deaths in addition to decreasing fatality rates by approximately 50%.^[8-10]

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The fatality analysis reporting system of the United States has shown that more than two-third of dead teen passengers in crashes wore no seat belts.^[11]

The rate of seat belt use varies in different countries, and relies on the seat belt use laws.^[12] In recent years, this rate has globally increased mostly due to strict driving laws and cash penalties for the lack of using seat belts, although the rate of increase among children and teenagers has been reported low compared to the adults.^[13-16]

A mandatory seat belt use law was initiated in Iran on March 21, 2005.^[17] Although the use of seat belts is mandatory for front- and rear-seat occupants on suburban roads, regarding urban roads, nonuse of seat belts has fine only for front-seat occupants. Previous research demonstrated that more teen passengers in a car increase the likelihood of the lack of wearing seat belts, although the presence of a person over the age of 30 can increase the use of seat belts in this group of occupants.^[18] Despite the advantage of seat belt use, individuals living in most low/middle-income countries such as Iran do not sufficiently use it.^[15] Teenagers are more likely to take risky behaviors such as the nonuse of seat belts compared to children or adults.^[19-22] Teenagers are breaking ties with childhood while being fascinated by gaining independence. In addition, they perform risky behaviors due to the lack of emotional and cognitive maturity compared to the adults.^[23,24]

Several studies reported that teenagers have a high potential risk of mortality in RTIs.^[25-28] Although most people believe that seat belt use is an effective way for reducing mortality and severe RTIs, there is a lack of the necessary motivation for performing this healthy behavior.^[29]

Demographic characteristics such as age, gender, and educational level could influence safety belt use,^[30-32] and the highest rate of accidents and the lowest rate of seat belt use are observed among teens.^[18,33] There are limited number of studies on the impact of gender on seat belt use among teens, and contradictory results have been reported in this regard.^[34,35] In general, the rate of seat belt use among female adults was more prevalent compared to male adults, and a low-risk perception of males compared to females could be the reason for this difference.^[36,37]

The use of seat belts in the driver and front passenger is interrelated, and observance of this behavior in the former meaningfully predicts that of the latter.^[35] Therefore, parents' use of seat belts may influence teenagers' behavior in this regard. Given the scarcity of studies in this area, further research is necessary.

The use of seat belts among teenagers does not seem to be at a desirable level, and factors associated with nonseat belt use among teen passengers have not been well-documented yet. Moreover, there is limited knowledge about the impact of demographic characteristics, especially family members' behaviors on seat belt use among teenagers. Therefore, this

study sought to evaluate the influence of these important variables on the seat belt use of teen students.

METHODS

Study design and participants

This cross-sectional study was performed on 942 junior high school students including 497 girls and 445 boys who were in 7–9 educational grades (13–15 years old) in the schools of Tabriz during 2019–2020 academic years. Tabriz is located in the northwest of Iran and has five educational regions according to the divisions of the Tabriz Department of Education. The data were collected from November 30, 2019, to January 5, 2020.

The sample size was estimated using the

$$n = \frac{\left(Z_{\alpha} \right)^2 P (1-P)}{E^2} \times DE \text{ formula for cluster sampling}$$

Where, (the prevalence of using seat belt which was determined based on the previous studies.^[38] Also, a cluster sampling correction coefficient of 1.5 and a 10% attrition rate were considered, so the final sample size was considered 952.

This study was conducted after coordination with the Department of Education authorities in the province and the managers of the selected schools. In this study, the cluster random sampling method was used for the selection of students. In the first step of sampling, the list of junior high schools was prepared by the Department of Education. Twenty schools from the mentioned regions (four schools in each region, including two public and two private schools) were selected in the terms of gender classifications (male/female). In Iran, girls and boys are trained in single-sex schools. In each school (male/female), one classroom from each grade (7–9), and then a number of students from each classroom were chosen through the simple random sampling method based on the sample size.

The inclusion criteria were being male and female students studying in junior high schools (7–9 educational grades), studying at the schools of Tabriz, showing a willingness for participation in the study, and obtaining parents' consent for their children's participation. On the other hand, the exclusion criterion included not showing consent for participating in the study (students and/or their parents). It should be noted that 942 out of 952 students participated in the study, and only 10 participants did not answer the questionnaire (the response rate was about 99%).

Data collection instrument

A researcher-made questionnaire consisting of four sections was used to collect the required data. The first section contained questions on demographic information including students' educational grades and physical condition, the father's and mother's age, occupation, and educational level. The second section included questions on the student's seat belt-wearing

behavior as a front- or rear-seat occupant inside or outside of the city. These questions were based on a 5-point Likert-type scale, and students' answers were scored from 5 to 1, representing always, most of the time, sometimes, seldom, and never using a seat belt, respectively. The third section encompassed questions on the students' reported adherence to the traffic rules of seat belt use as a rear- or front-seat occupant inside or outside of the city. In the fourth section, there were questions on the seat belt-wearing behavior of students' parents and siblings during driving or as a front- or rear-seat occupant inside or outside of the city. A qualitative assessment was conducted by 12 experts in the fields of health education, health promotions, and traffic safety to standardize and validate the questionnaire. Further, reliability assessment was performed among 50 junior high school students in Tabriz using a test-retest method and Cronbach's alpha, and the Cronbach's alpha coefficient of the behavior structure was 0.81.

Statistical analysis

In this study, the mean (standard deviation) and frequency (percentage) were used to present descriptive statistics of quantitative and qualitative variables, respectively. Due to the clustering structure of the sampling method, a multivariate generalized estimating equation (GEE) approach was used to identify the correlates of traffic behaviors or pupils to account for intra-cluster correlation. Finally, SPSS software Ver. 16.0 (SPSS, Chicago, IL) was employed to analyze the data.

Ethical considerations

The students were informed about the study and voluntary participation in the study. Oral and written informed consent forms were obtained from the students and their parents, respectively. The questionnaires were anonymous and other data were kept confidential and used only for this study. This study was confirmed by the Ethics Committee of Hamadan University of Medical Sciences (Ref. No: IR.UMSHA.REC.1397.819).

RESULTS

The results showed that 24.6% and 12.1% of students as front-seat occupants never wore seat belts inside and outside the city, respectively [Table 1]. The results further revealed that only about 20% of students as rear- or front-seat occupants permanently use seat belts.

Table 2 provides data on the relationship between demographic variables and the seat belt-wearing behavior of students.

According to the results of the analytical regression model of GEE [Table 2], the mean score of seat belt-wearing behavior among male students was significantly lower than that of female students ($P < 0.0001$).

The mean score of the seat belt-wearing behavior was significantly higher among the students whose mothers were government employees compared to the students with retired mothers ($P = 0.007$). However, the mean score of the seat belt-wearing behavior of the students of housewife mothers

was significantly lower in comparison with that of students of retired mothers ($P = 0.0001$). Eventually, the mean score of the seat belt-wearing behavior of students of self-employed mothers was significantly lower than that of students with retired mothers ($P = 0.0001$).

According to the results, the mean score of seat belt-wearing behavior was significantly higher among seventh-grade students than that of the ninth-grade students ($P < 0.0001$).

Table 2 shows that the mean score of seat belt-wearing behavior among the students increased significantly by an increase in the father's age ($P = 0.003$).

Table 3 presents data regarding the relationship between traffic-related variables and seat belt-wearing behavior among students by the GEE regression model.

The mean score of the seat belt-wearing behavior was significantly more remarkable among the students who completely or somewhat adhered to these rules compared to the students who did not adhere to traffic rules at all ($P < 0.01$).

The mean score of seat belt-wearing behavior of students who chose the front seat for sitting was significantly less considerable compared to the students who did not care about sitting on the front or back seat ($P = 0.039$).

The mean of the seat belt-wearing behavior of students who considered wearing a seat belt to be legally mandatory for the front- or rear-seat occupants inside or outside the city was significantly more noticeable ($P < 0.01$) compared to the students who did not consider this behavior to be legally mandatory for the front-seat occupants of the car inside the city.

Table 4 summarizes data on the relationship between the traffic behaviors of the family and seat belt-wearing behavior variables by the GEE regression model.

The mean score of the seat belt-wearing behavior of students whose fathers wore seat belts during driving was significantly ($P < 0.0001$) higher than that of students whose fathers did not observe this behavior while driving.

The results further revealed that the mean score of the seat belt-wearing behavior was significantly greater among the students whose older siblings were a driver or always wore a seat belt compared to the students whose older siblings were not a driver or sometimes wore a seat belt ($P < 0.05$).

The results further represented that the mean score of the seat belt-wearing behavior of students whose parents or siblings wore a seat belt as the front- or rear-seat occupant inside or outside of the city was significantly more considerable than that of the students whose mothers did not wear a seat belt ($P < 0.01$).

Finally, the mean of the seat belt-wearing behavior among students whose parents or siblings have ever been fined by the police for not wearing a seat belt was significantly lower compared to the students whose parents or siblings have never been fined for this reason ($P < 0.009$).

Table 1: n (%) of seat belt use behavior of the students (n=942)

Seat belt use behavior	Always, n (%)	Most of the time, n (%)	Sometimes, n (%)	Very little, n (%)	Never, n (%)
I fasten my seat belt when I sit in the front seat of the car in the city	128 (13.5)	132 (13.9)	244 (25.7)	213 (22.4)	234 (24.6)
I fasten my seat belt when I sit in the front seat of a car outside the city	64 (6.7)	63 (6.6)	137 (14.4)	224 (23.6)	463 (48.7)
I fasten my seat belt when I sit in the rear seat of a car in the city	318 (33.4)	191 (20.1)	187 (19.7)	140 (14.7)	115 (12.1)
I fasten my seat belt when I sit in the rear seat of a car outside the city	191 (20.1)	139 (14.6)	221 (23.2)	177 (18.6)	223 (23.4)

Table 2: The relationship between demographic variables with the seat belt use behaviors of the students based on the multivariate generalized estimating equation regression model

Covariates	Levels	β (SE)	95% Confidence limits	Wald χ ²	df	P
Intercept		17.14 (2.26)		57.477	1	<0.0001**
Gender	Boy	-0.687 (0.16)	12.71-21.57	19.181	1	<0.0001**
	Girl	Reference category	-0.99-0.38			
Grade	Seventh	1.643 (0.36)	0.95-2.34	21.335	1	<0.0001**
	Eighth	0.299 (0.44)	-0.56-1.16	0.464	1	0.496
	Ninth	Reference category				
Physical condition	Fat	-0.187 (0.60)	-1.37-0.99	0.096	1	0.756
	Fit	0.621 (0.36)	-0.08-1.32	3.011	1	0.083
	Thin	Reference category				
Father's occupation	Government's employee	0.313 (1.20)	-2.05-2.67	0.068	1	0.794
	Freelance	0.181 (1.28)	-2.33-2.69	0.02	1	0.888
	Retired	0.15 (1.27)	-2.34-2.65	0.014	1	0.906
	Unemployed	Reference category				
Mother's occupation	Government's employee	-2.767 (1.03)	-4.79--0.74	7.172	1	0.007**
	Housewife	-2.711 (0.59)	-3.88--1.55	20.79	1	<0.0001**
	Freelance	-3.072 (0.86)	-4.76--1.38	12.691	1	<0.0001**
	Retired	Reference category				
Father's educational level		0.137 (0.16)	-0.17-0.44	0.78	1	0.377
Mother's educational level		0.127 (0.13)	-0.13-0.39	0.941	1	0.332
Father's age		0.002 (0.001)	0.001-0.004	8.713	1	0.003**
Mother's age		-0.026 (0.02)	-0.07-0.02	1.237	1	0.266

*Significant at 0.05, **Significant at 0.01. Goodness of fit criteria: QIC=17503.865, QICC=17904.606. QIC: Quasi-likelihood under independence model criterion, QICC: Corrected Quasi-likelihood under independence model criterion, SE: Standard error

DISCUSSION

The results of the present study showed that only about one-fifth of the studied adolescents used seat belts. In addition, seat belt-wearing behaviors among male students were significantly more prevalent compared to female students. The mother's occupation, the father's age, and the student's educational level had a significant impact on seat belt-wearing behaviors among the students. The seat belt-wearing behaviors of parents and siblings positively contributed to those of the students. Based on the results, nearly 20% of the students as rear- or front-seat occupants always wore a seat belt. In line with the result of the current study, Mohammadi demonstrated 82% inconsistently (not always) seat belt use among Iranian college students.^[39] In a study in the United States, only 51% of high school students living in 38 states reported that they always use a seat belt when riding as a passenger.^[38] In a study among school teenagers in Qatar, 47% of participants reported using seat belts as a driver or a passenger.^[40] In a study among Kuwaiti passengers, the prevalence of noncompliance with self-reported mandatory seat belt wearing as a passenger

was 80.9%.^[41] Likewise, Vecino-Ortiz *et al.* concluded that the mean of seat belt use rates was lower than 60% in most sites in four middle-income countries including Egypt, Mexico, Russia, and Turkey.^[42] These results indicate that the rate of seat belt use among school students is low, and thus, prevention programs are required to increase the observance of this behavior among this group.

According to the results of this study, gender is an influential factor on seat belt use among teen students. More precisely, the rate of seat belt use among female students was more than that of male students. Korn and Bonny-Noach also concluded that risky behaviors among young adults during driving were significantly more frequent in males compared to females,^[43] which corroborates with the result of the present study. These gender differences in seat belt wearing could explain males' further involvement in risky behaviors, greater sensation seeking, and lower use of equipment such as seat belts and helmets compared to females.^[44-46] Females feel more concerned about road safety problems and perceive greater risk compared to males.^[47-49] The results of other studies revealed

Table 3: The relationship between traffic-related variables and seat belt-wearing behaviors among the students by the multivariate generalized estimating equation regression model

Covariates	Levels	β (SE)	95% Confidence limits	Wald χ^2	df	P
Intercept		5.312 (0.58)	4.175-6.45	83.87	1	<0.0001**
Adherence to traffic rules	Quite	5.351 (0.79)	3.81-6.89	46.35	1	<0.0001**
	Nearly	2.559 (0.83)	0.942-4.18	9.63	1	0.002**
	Never	Reference category				
Which seat do you usually choose to sit on when you get in the car?	Front seat	-0.685 (0.33)	-1.335--0.04	4.267	1	0.039*
	Rear seat	0.513 (0.36)	-0.184-1.21	2.082	1	0.149
	It does not matter	Reference category				
Is it legally required to wear a seat belt for the front-seat occupant in the city?	Yes	1.59 (0.45)	0.7-2.48	12.25	1	<0.0001**
	No	Reference category				
Is it legally required to wear a seat belt for the front-seat occupant outside the city?	Yes	0.961 (0.49)	0.005-1.92	3.88	1	0.049*
	No	Reference category				
Is it legally required to wear a seat belt for the rear-seat occupants in the city?	Yes	1.397 (0.26)	0.883-1.91	28.40	1	<0.0001**
	No	Reference category				
Is it legally required to wear a seat belt for the rear-seat occupants outside the city?	Yes	1.378 (0.41)	0.565-2.19	11.05	1	0.001**
	No	Reference category				
Have you ever been fined by the police for not wearing a seat belt?	Yes	-0.386 (0.24)	-0.854-0.08	2.62	1	0.106
	No	Reference category				

*Significant at 0.05, **Significant at 0.01. Goodness of fit criteria: QIC=12555.943; QICC=12559.103. QIC: Quasi-likelihood under independence model criterion, QICC: Corrected Quasi-likelihood under independence model criterion, SE: Standard error

that differences in risky behaviors among males and females may be due to biological factors, attitudes, perceptions, and behaviors across cultures.^[50-52]

Based on the results of the present study, a mother's occupation was related to the seat belt-wearing behavior of students. Carine *et al.* found that the students of parents with an occupation that requires a high or scientific level of skills (e.g., a teacher) further used seat belts compared to the students of parents with occupations that only require elementary or a low level of skills including cleaning women.^[53] In our study, the seat belt use of students with housewives or self-employed mothers was lower compared to the students with retired mothers. Contrarily to the result of the current study, a previous study showed that students' risky behaviors were not associated with mothers' occupations.^[54] The result of our study also indicated that the father's occupation was not related to the student's behavior.

According to the results of the present study, seat belt-wearing behavior among students that completely or somewhat adhered to traffic rules was more noticeable compared to the students who did not adhere to traffic regulations. Moreover, the seat belt-wearing behavior of students, who considered wearing a seat belt to be legally mandatory for the front or rear seat of a car inside or outside the city, was more considerable in comparison with the students who did not consider this behavior to be legally mandatory. The law of seat belt use improves seat belt wearing while reduces traffic fatalities in the general population.^[16] In the United States, some studies reported the effectiveness of enacting seat belt laws, especially on teens' seat belt wearing.^[55,56] Carpenter and Stehr suggested that primary enforcement seat belt laws increase regular youth seat belt use while decreasing youth fatalities.^[55] Human

factors (e.g., failure to comply with traffic rules) are one of the main reasons for traffic crashes and injuries.^[6,7]

The results of the present study represented that parents and sibling behaviors have a significant impact on a student's seat belt-wearing behavior. Han concluded that if a driver wears a seat belt, 92.6% of passengers also wear seat belts while if a driver does not follow this rule, only 19.1% of passengers would observe such traffic behavior.^[57] According to the social learning theory, people are influenced by their observations and perceptions of how others are normally involved in health behaviors.^[58,59] Parents can affect their children's health beliefs and behaviors.^[60] Simons-Morton *et al.* demonstrated that social norms may influence teenage traffic-related behaviors.^[61] Parental social support prevents children's risky behaviors, and the encouragement of children for using seat belts increases the observance rate of this behavior among them.^[62,63] Finally, Dunlop and Romer found that normative perceptions related to seat belt-wearing behavior of friends and school peers were associated with seat belt nonwearing for boys and girls.^[64] Self-reporting is one of the limitations of the present study.

CONCLUSION

In general, the results indicated that the status of seat belt wearing among the studied students is unfavorable. Gender is an important factor in seat belt-wearing behavior, and the rate of seat belt use among males was lower compared to females. In addition, family plays an important role in their children's behaviors; therefore, involving adolescents' families including their parents and siblings can be important and helpful in developing any preventive programs for promoting the use of seat belts among this group of individuals.

Table 4: The relationship between the traffic behaviors of family and seat belt-wearing behaviors using a multivariate generalized estimating equation regression model

Covariates	Levels	β (SE)	95% Confidence limits	Wald χ^2	df	P
Intercept		9.793 (1.01)	7.81-11.78	93.228	1	<0.0001**
Is the father the driver?	Yes	-1.017 (0.81)	-2.60-0.56	1.592	1	0.207
	No	Reference category				
Does the father wear a seat belt while driving?	Yes	2.056 (0.55)	0.97-3.14	13.773	1	<0.0001**
	No	Reference category				
Is the mother the driver?	Yes	-0.471 (0.47)	-1.38-0.44	1.024	1	0.312
	No	Reference category				
Does the mother wear a seat belt while driving?	Yes	-0.033 (0.47)	-0.95-0.88	0.005	1	0.944
	No	Reference category				
Do you have an older sibling to drive?	Yes	-1.283 (0.47)	-2.2--0.37	7.516	1	0.006*
	No	Reference category				
Does the older sibling wear a seat belt while driving?	Yes	1.398 (0.56)	0.30-2.5	6.184	1	0.013*
	No	0.139 (0.56)	-0.97-1.24			
	Sometimes yes/no	Reference category				
Does the father usually fasten his seat belt as a front-seat occupant in the city?	Yes	0.342 (0.44)	-0.52-1.20	0.611	1	0.434
	No	Reference category				
Does the father usually fasten his seat belt as a front-seat occupant outside the city?	Yes	0.133 (0.45)	-0.75-1.01	0.089	1	0.766
	No	Reference category				
Does the father usually fasten his seat belt as a rear-seat occupant in the city?	Yes	0.954 (0.46)	0.06-1.85	4.323	1	0.038*
	No	Reference category				
Does the father usually fasten his seat belt as a rear-seat occupant outside the city?	Yes	-0.44 (0.42)	-1.26-0.38	1.111	1	0.292
	No	Reference category				
Does the mother usually fasten her seat belt as a front-seat occupant in the city?	Yes	1.454 (0.42)	0.64-2.27	12.102	1	0.001**
	No	Reference category				
Does the older sibling usually fasten her seat belt as a front-seat occupant in the city?	Yes	1.431 (0.54)	0.38-2.48	7.133	1	0.008**
	No	0.281 (0.55)	-0.79-1.35			
	Sometimes yes/no	Reference category				
Does the mother usually fasten her seat belt as a front-seat occupant outside the city?	Yes	-0.057 (0.46)	-0.95-0.84	0.015	1	0.901
	No	Reference category				
Does the older sibling usually fasten her seat belt as a front-seat occupant outside the city?	Yes	-0.282 (0.59)	-1.44-0.88	0.228	1	0.633
	No	0.645 (0.62)	-0.58-1.86			
	Sometimes yes/no	Reference category				
Does the mother usually fasten her seat belt as a rear-seat occupant in the city?	Yes	0.449 (0.46)	-0.45-1.34	0.967	1	0.325
	No	Reference category				
Does the older sibling usually fasten her seat belt as a rear-seat occupant in the city?	Yes	0.717 (0.82)	-0.88-2.32	0.774	1	0.379
	No	0.394 (0.74)	-1.05-1.84			
	Sometimes yes/no	Reference category				
Does the father usually fasten his seat belt as a rear-seat occupant outside the city?	Yes	-0.44 (0.42)	-1.26-0.38	1.111	1	0.292
	No	Reference category				
Does the mother usually fasten her seat belt as a rear-seat occupant outside the city?	Yes	1.222 (0.42)	0.4-2.04	8.499	1	0.004**
	No	Reference category				
Does the older sibling usually fasten her seat belt as a rear-seat occupant outside the city?	Yes	-0.257 (0.68)	-1.60-1.08	0.142	1	0.706
	No	-0.8 (0.63)	-2.03-0.43			
	Sometimes yes/no	Reference category				
Have a parent or sibling ever been fined by the police for not wearing a seat belt?	Yes	-0.88 (0.34)	-1.54--0.22	6.866	1	0.009**
	No	Reference category				

*Significant at 0.05, **Significant at 0.01. Goodness of fit criteria: QIC=9897.941, QICC=9890.757. QIC: Quasi-likelihood under independence model criterion, QICC: Corrected Quasi-likelihood under independence model criterion, SE: Standard error

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Conflicts of interest

There are no conflicts of interest.

REFERENCES

- Sethi D. European Report on Child Injury Prevention: WHO Regional Office Europe; 2008. Available from: <https://www.euro.who.int/en/publications/abstracts/european-report-on-child-injury-prevention>. [Last accessed on 2021 Jul 23].
- Peden M, Oyegbite K, Ozanne-Smith J, Hyder AA, Branche C, Rahman A, *et al.* World Report on Child Injury Prevention. Geneva: World Health Organization; 2009. Available from: http://apps.who.int/iris/bitstream/handle/10665/43851/9789241563574_eng.pdf;jsessionid=75EED3C82B9B1F5C637D918AB9669F9B?sequence=1. [Last accessed on 2021 Jul 23].
- Organization ILM. Report of Road Traffic Related Death Statistics in Iran; 2020. Available from: https://www.lmo.ir/web_directory/53999%D8%AA%D8%B5%D8%A7%D8%AF%D9%81%D8%A7%D8%AA.html. [Last accessed on 2021 Jul 23].
- Montazeri A. Road-traffic-related mortality in Iran: A descriptive study. *Public Health* 2004;118:110-3.
- Roehler DR, Elliott MR, Quinlan KP, Zonfrillo MR. Factors associated with unrestrained young passengers in motor vehicle crashes. *Pediatrics* 2019;143:e20182507.
- Stanojević P, Jovanović D, Lajunen T. Influence of traffic enforcement on the attitudes and behavior of drivers. *Accid Anal Prev* 2013;52:29-38.
- Vardaki S, Yannis G. Investigating the self-reported behavior of drivers and their attitudes to traffic violations. *J Safety Res* 2013;46:1-11.
- Kahane CJ. Injury Vulnerability and Effectiveness of Occupant Protection Technologies for Older Occupants and Women; 2013. Available from: <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/811766>. [Last accessed on 2021 Jul 23].
- Fell JC, Baker TK, McKnight AS, Brainard K, Langston EA, Rider R, *et al.* Increasing Teen Safety Belt Use: A Program and Literature Review: United States: National Highway Traffic Safety Administration; 2005. Available from: <https://www.nhtsa.gov/sites/nhtsa.gov/files/documents/809899.pdf>. [Last accessed on 2021 Jul 23].
- Centers for Disease Control and Prevention. Teen Drivers: Fact Sheet; Retrieved September 2012. https://www.cdc.gov/transportationsafety/teen_drivers/teendrivers_factsheet.html. [Last accessed on 2021 Jul 23].
- Administration NHTS. Fatality Analysis Reporting System (FARS) 2001. Washington, DC: National Center for Statistics and Analysis, National Highway Traffic Safety Administration; 2002. Available from: <https://www.nhtsa.gov/research-data/fatality-analysis-reporting-system-fars>. [Last accessed on 2021 Jul 23].
- Violence W, Prevention I. Organization WH. Global Status Report on Road Safety; 2013. Available from: https://www.who.int/violence_injury_prevention/road_safety_status/2013/en/#:~:text=The%20Global%20status%20report%20on,at%201.24%20million%20per%20year. [Last accessed on 2021 Jul 23].
- Pickrell TM, Liu C. Occupant Restraint Use in 2013: Results from the NOPUS Controlled Intersection Study; 2015. Available from: <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812080>. [Last accessed on 2021 Jul 23].
- Administration NHTS. Traffic Safety Facts, 2013 Data: Occupant Protection. Washington, DC: US Department of Transportation, National Highway Traffic Safety Administration; 2015. Available from: <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812153>. [Last accessed on 2021 Jul 23].
- World Health Organization. Global status report on road safety 2015. Geneva: World Health Organization; 2015. Available from: <https://www.afro.who.int/publications/global-status-report-road-safety-2015>. [Last accessed on 2021 Jul 23].
- Dinh-Zarr TB, Sleet DA, Shults RA, Zaza S, Elder RW, Nichols JL, *et al.* Reviews of evidence regarding interventions to increase the use of safety belts. *Am J Prev Med* 2001;21:48-65.
- Soori H, Royanian M, Zali AR, Movahedinejad A. Road traffic injuries in Iran: The role of interventions implemented by traffic police. *Traffic Inj Prev* 2009;10:375-8.
- McCartt AT, Northrup VS. Factors related to seat belt use among fatally injured teenage drivers. *J Safety Res* 2004;35:29-38.
- Steinberg L. A social neuroscience perspective on adolescent risk-taking. *Dev Rev* 2008;28:78-106.
- Li K, Simons-Morton BG, Hingson R. Impaired-driving prevalence among US high school students: Associations with substance use and risky driving behaviors. *Am J Public Health* 2013;103:e71-7.
- Scott-Parker B, Watson B, King MJ, Hyde MK. Young novice drivers and the risky behaviours of parents and friends during the provisional (intermediate) licence phase: A brief report. *Accid Anal Prev* 2014;69:51-5.
- Onyema CR, Oladepo O. Knowledge and attitude of safety belt use among professional drivers in a tertiary Nigerian institution. *Int J Inj Contr Saf Promot* 2011;18:57-64.
- Albert D, Chein J, Steinberg L. The teenage brain: Peer influences on adolescent decision making. *Curr Dir Psychol Sci* 2013;22:114-20.
- Chein J, Albert D, O'Brien L, Uckert K, Steinberg L. Peers increase adolescent risk taking by enhancing activity in the brain's reward circuitry. *Dev Sci* 2011;14:F1-10.
- Elliott MA, Baughan CJ. Developing a self-report method for investigating adolescent road user behaviour. *Transp Res Part F Traffic Psychol Behav* 2004;7:373-93.
- Sullman MJ, Gras ME, Font-Mayolas S, Masferrer L, Cunill M, Planes M. The pedestrian behaviour of Spanish adolescents. *J Adolesc* 2011;34:531-9.
- Sullman MJ, Mann HN. The road user behaviour of New Zealand adolescents. *Transp Res Part F Traffic Psychol Behav* 2009;12:494-502.
- Sullman MJ, Thomas A, Stephens AN. The road user behaviour of school students in Belgium. *Accid Anal Prev* 2012;48:495-504.
- Gras ME, Cunill M, Sullman MJ, Planes M, Font-Mayolas S. Predictors of seat belt use amongst Spanish drivers. *Transp Res Part F Traffic Psychol Behav* 2007;10:263-9.
- Sahai VS, Pitblado JR, Bota GW, Rowe BH. Factors associated with seat belt use: An evaluation from the Ontario health survey. *Can J Public Health* 1998;89:320-4.
- Kim S, Kim K. Personal, temporal and spatial characteristics of seriously injured crash-involved seat belt non-users in Hawaii. *Accid Anal Prev* 2003;35:121-30.
- Baker DR, Clarke SR, Brandt EN Jr. An analysis of factors associated with seat belt use: Prevention opportunities for the medical community. *J Okla State Med Assoc* 2000;93:496-500.
- Bishai D, Quresh A, James P, Ghaffar A. National road casualties and economic development. *Health Econ* 2006;15:65-81.
- Thuen F, Rise J. Young adolescents' intention to use seat belts: The role of attitudinal and normative beliefs. *Health Educ Res* 1994;9:215-23.
- Afukkaar FK, Damsere-Derry J, Ackaah W. Observed seat belt use in Kumasi metropolis, Ghana. *J Prev Interv Community* 2010;38:280-9.
- Chaudhary NK, Solomon MG, Cosgrove LA. The relationship between perceived risk of being ticketed and self-reported seat belt use. *J Safety Res* 2004;35:383-90.
- Calisir F, Lehto MR. Young drivers' decision making and safety belt use. *Accid Anal Prev* 2002;34:793-805.
- Shults RA, Haegerich TM, Bhat G, Zhang X. Teens and seat belt use: What makes them click? *J Safety Res* 2016;57:19-25.
- Mohammadi G. Prevalence of seat belt and mobile phone use and road accident injuries amongst college students in Kerman, Iran. *Chin J Traumatol* 2011;14:165-9.
- Shaaban K, Hassan HM. Underage driving and seat-belt use of high school teenagers in Qatar. *J Transp Saf Secur* 2017;9:115-29.
- Ridha H, Bouzaber F, Al-Sallal M, Almutairi A, Al-Dhubaiei R, Akhtar S. Prevalence of and factors associated with self-reported noncompliance with mandatory seatbelt-use law while driving among adults in Kuwait. *Inj Epidemiol* 2020;7:1-10.
- Vecino-Ortiz AI, Bishai D, Chandran A, Bhalla K, Bachani AM, Gupta S, *et al.* Seatbelt wearing rates in middle income countries: A cross-country analysis. *Accid Anal Prev* 2014;71:115-9.
- Korn L, Bonny-Noach H. Gender differences in deviance and health risk behaviors among young-adults undergraduate students. *Subst Use Misuse* 2018;53:59-69.
- Barr GC Jr, Kane KE, Barraco RD, Rayburg T, Demers L, Kraus CK, *et al.* Gender differences in perceptions and self-reported driving behaviors among teenagers. *J Emerg Med* 2015;48:366-70.e3.
- Cestac J, Paran F, Delhomme P. Young drivers' sensation seeking, subjective norms, and perceived behavioral control and their roles in

- predicting speeding intention: How risk-taking motivations evolve with gender and driving experience. *Saf Sci* 2011;49:424-32.
46. Fernandes R, Hatfield J, Job RS. A systematic investigation of the differential predictors for speeding, drink-driving, driving while fatigued, and not wearing a seat belt, among young drivers. *Transp Res Part F Traffic Psychol Behav* 2010;13:179-96.
 47. Butters J, Mann RE, Wickens CM, Boase P. Gender differences and demographic influences in perceived concern for driver safety and support for impaired driving countermeasures. *J Safety Res* 2012;43:405-11.
 48. Obst P, Armstrong K, Smith S, Banks T. Age and gender comparisons of driving while sleepy: Behaviours and risk perceptions. *Transp Res Part F Traffic Psychol Behav* 2011;14:539-42.
 49. Struckman-Johnson C, Gaster S, Struckman-Johnson D, Johnson M, May-Shinagle G. Gender differences in psychosocial predictors of texting while driving. *Accid Anal Prev* 2015;74:218-28.
 50. Brown TG, Ouimet MC, Nadeau L, Tremblay J, Pruessner J. Sex differences in the personality and cognitive characteristics of first-time DWI offenders. *J Stud Alcohol Drugs* 2015;76:928-34.
 51. Granié MA, Thévenet C, Varet F, Evennou M, Oulid-Azouz N, Lyon C, *et al.* Effect of culture on gender differences in risky driver behavior through comparative analysis of 32 countries. *Transp Res Res* 2021;2675:274-87.
 52. Hussain B, Sato H, Xiong S, Miwa T, Nguyen NT, Morikawa T. Cross-cultural differences in aberrant driving behaviors: Comparison of Japanese, Chinese, and Vietnamese drivers. *J East Asia Soc Transp Stud* 2019;13:43-59.
 53. Vereecken CA, Maes L, De Bacquer D. The influence of parental occupation and the pupils' educational level on lifestyle behaviors among adolescents in Belgium. *J Adolesc Health* 2004;34:330-8.
 54. Sohrabivafa M, Tosang MA, Molaei Zadeh SZ, Goodarzi E, Asadi ZS, Alikhani A, *et al.* Prevalence of risky behaviors and related factors among students of Dezful. *Iran J Psychiatry* 2017;12:188-93.
 55. Carpenter CS, Stehr M. The effects of mandatory seatbelt laws on seatbelt use, motor vehicle fatalities, and crash-related injuries among youths. *J Health Econ* 2008;27:642-62.
 56. O'Malley PM, Wagenaar AC. Effects of safety belt laws on safety belt use by American high school seniors, 1986–2000. *J Safety Res* 2004;35:125-30.
 57. Han GM. Non-seatbelt use and associated factors among passengers. *Int J Inj Contr Saf Promot* 2017;24:251-5.
 58. Kunkel A, Hummert ML, Dennis MR. Social Learning Theory: Modeling and Communication in the Family Context. Chapter 17: Braithwaite D. O. & Baxter L. A. *Engaging theories in family communication: Multiple perspectives* 2006; 260–275. Sage Publications, Inc. Available from: <https://doi.org/10.4135/9781452204420.n17>. [Last accessed on 2021 Jul 23].
 59. Svenson O, Fischhoff B, MacGregor D. Perceived driving safety and seatbelt usage. *Accid Anal Prev* 1985;17:119-33.
 60. Lau RR, Quadrel MJ, Hartman KA. Development and change of young adults' preventive health beliefs and behavior: Influence from parents and peers. *J Health Soc Behav* 1990;31:240-59.
 61. Simons-Morton BG, Ouimet MC, Chen R, Klauer SG, Lee SE, Wang J, *et al.* Peer influence predicts speeding prevalence among teenage drivers. *J Safety Res* 2012;43:397-403.
 62. Williams AF, McCartt AT, Geary L. Seatbelt use by high school students. *Inj Prev* 2003;9:25-8.
 63. Foster SE, Jones DJ, Olson AL, Forehand R, Gaffney CA, Zens MS, *et al.* Family socialization of adolescent's self-reported cigarette use: The role of parents' history of regular smoking and parenting style. *J Pediatr Psychol* 2007;32:481-93.
 64. Dunlop SM, Romer D. Associations between adolescent seatbelt non-use, normative perceptions and screen media exposure: Results from a national US survey. *Inj Prev* 2010;16:315-20.