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Predictors of Self-Reported Crashes Among Iranian Drivers: Exploratory Analysis of an Extended Driver Behavior Questionnaire

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PREDICTORS OF SELF-REPORTED CRASHES AMONG IRANIAN DRIVERS: EXPLORATORY ANALYSIS OF AN EXTENDED DRIVER BEHAVIOUR QUESTIONNAIRE

ABSTRACT

More than 16,500 people lose their lives each year due to traffic crashes in Iran, which reflects one of the highest road traffic fatality rates in the world. The aim of the present study is to investigate the factors structure of an extended Driver Behaviour Questionnaire (DBQ) and to examine the gender differences in the extracted factors among Iranian drivers. Further, the study tested the association between DBQ factors, demographic characteristics, and self-reported crashes. Based on Iranian driving culture, an extended (36 items) Internet-based version of the DBQ was distributed among Iranian drivers. The results of Exploratory Factor Analysis based on a sample of 632 Iranians identified a five-factor solution named "Speeding and Pushing Violations", "Lapses and Errors", "Violations Causing Inattention", "Aggressive Violations" and "Traffic Violations" which account for 44.7 percent of the total variance. The results also revealed that females were more prone to Lapses and Errors, whereas males reported more violations than females. Logistic regression analysis identified Violations Causing Inattention, Speeding and Pushing Violations as predictors of self-reported crashes in a three-year period. The results were discussed in line with road traffic safety countermeasures suitable for the Iranian context.

KEY WORDS

Driver Behaviour Questionnaire; Exploratory Factor Analysis; self-reported crashes predictor; road safety; human factor;

1. INTRODUCTION

Road traffic crashes are recognized as a major health problem worldwide. Over 90 percent of total road fatalities occur in low- and middle-income countries, which only have 48 percent of the registered vehicles [1]. Traffic crashes in Iran led to 16,500 deaths and more than 300,000 injured in 2015 [2]. The Iranian traffic fatality rate was 21.3 per 100,000 populations, one of the highest in the world. One can attribute unsafe traffic in Iran to rapid increase in the number of vehicles (doubled in last decades) and young population in Iran [3]. Due to a complicated interaction of contributing factors, these conditions have the potential to become even worse, if suitable strategic and action plans are not provided and followed effectively.

Human factors, operationalized as driving styles and driving skills [4], contribute to more than 97 percent of road traffic crashes in Iran [5]. Driving skills include information processing capabilities and motor skills (i.e. what drivers can do); these skills may improve with practice and training. Driving style, however, concerns individual driving habits, i.e. the way a driver chooses to drive, such as the level of obedience to traffic regulations. Driving style is usually established over longer temporal periods; however, it does not necessarily get safer as driving experience increases [4].

Several self-report instruments have been developed for measuring the driving style. The Driver Behaviour Questionnaire (DBQ) is one of the most widely used instruments to study driving style. DBQ was based on the theoretical taxonomy that aberrant behaviours could be classified as errors and violations [6]. Researchers defined errors as "the failure of planned actions to achieve their intended consequences", and violations as "deliberate deviations from those practices believed necessary to maintain the safe operation of a potentially hazardous system". Errors were further

distinguished into slips, lapses, and mistakes [7]. Slips are actions that do not have the intended consequences, while lapses refer to memory failures. Mistakes refer to failures in the plan of action; even if execution of the plan is done correctly, the intended outcome is not achieved (6). Violations may occur due to several reasons, and these behaviours have accordingly been found to split into different factors. Lawton et al. [8] split violations into "Aggressive Violations" and "Ordinary Violations". Aggressive violations contain an interpersonally aggressive component, and ordinary violations are deliberate deviations from safe driving without reflecting aggression.

Different structures of DBQ have been identified in different countries and sub-groups of drivers, for instance, the original three-factor solution (violations, errors, and lapses) [7, 9]; or four-factor solution (aggressive and ordinary violations, errors, and lapses) [8, 10-12]. Most studies have found small differences in the factor structures. Slips and lapses do not always shape their own factor but may group together with errors (e.g. [13]). The distinction between unintentional errors and intentional violations appears to be stable, independent of respondents' age, gender, country (traffic culture), or the type of vehicle used [14]. Driver violations also vary in different groups. For instance, males tend to commit violations more frequently than females. The same tendency applies to young drivers as compared to old drivers and for those who drive more often compared to those who drive less often [6-9, 15].

Drivers' self-reported crashes could be predicted by different types of behaviours, but the results in this area have not been consistent [14]. For example, a higher score in violations was associated with self-reports crashes in several studies [7, 14, 16]. Aggressive violations [17], lapses [14, 17] and errors [16] were also identified as predictors of self-reported crashes.

Iranian driver behaviour was investigated in a cross-cultural study. Özkan et al. [18] investigated the factor structure in a cross-cultural study including six countries (Finland, Great Britain, Greece, Iran, The Netherlands, and Turkey). They used a 19-item DBQ (eight errors, eight violations, and three aggressive violations). The findings supported the global three-factor structure in Iran by using Confirmatory Factor Analysis. The authors advised that the structure could be better fitted in an exploratory analysis. This study did not examine the differences between groups in the DBQ factors and did not investigate whether these factors predict self-reported crashes.

Due to the lack of enforcement, the Iranian drivers tend to disobey traffic laws to gain advantages in traffic situations. New technologies are another challenge for the Iranian drivers. One of them is the cell phone which has become ubiquitous and even used while driving. According to the Iranian Traffic regulations, it is illegal to use cell phones while driving [19]. Using cell phones while driving (either having conversations or sending SMSs) causes physical and cognitive distractions [20], which in turn have negative impact on driver performance. Cell phones negatively affect drivers' attention and reaction time particularly in complex situations [21, 22]. Using cell phones while driving is associated with crash risk [23] and an increase in the reaction time [24]. Several studies have shown that drivers who talk on the cell phone while driving may become as impaired as drunken drivers in road traffic (e.g. [25]). It is well-established that alcohol and substance consumption have negative impacts on driver performance [20] and increase crash risk for the drivers [26]).

Taking these factors into consideration, the present study included items associated with cell phone use and traffic violations that reflect Iranian driving behaviour in addition to items that measure ordinary errors and violations to develop an instrument that reflects the Iranian driving behaviour. Moreover, the aim of the present study is to investigate the structure of modified DBQ and to examine the gender differences in the factors of DBQ. Furthermore, the aim is to study the relation between DBQ factors and the drivers' self-reported crashes.

2. METHODS

2.1 Questionnaire development

The first section of the questionnaire included questions about demographic characteristics and driving habits of the respondents, such as exposure (the number of driving hours per day), the number of years having a driver's license, and driving experience (measured by the total number of years a person had driven a car). Further, questions about the number and severity of crashes in the past three years and before that were collected.

The second section of the questionnaire was based on a modified 28-item version of the Manchester Driver Behaviour Questionnaire [11]. To develop the extended DBQ instrument, a pilot study was carried out among 30 transportation and highway engineers. These participants were asked to indicate how often they committed each of these items in the past two years on a Likert scale (0 = hardly ever, 5 = nearly all the time). Based on the participants' feedback and group discussions, new items were added to reflect the Iranian driving behaviour. A few of these items (i.e., drive fast when in bad mood, warn a slow car in front to drive faster, drive fast to pass a yellow light turning red) were used in previous studies (e.g., [27]). Two new items were also added to reflect the impact of cell phone use on driver behaviours (i.e. talk on the phone while driving, send/read SMS while driving). Disregard of traffic rules late at night, driving on the wrong lane in the opposite direction, and not giving way to cyclists while turning were also added to the questionnaire to reflect other driving behaviours.

An Internet-based Persian version of the questionnaire was devised and uploaded to the Google Form. The link to the survey was exposed to Iranian users in online social communities (e.g., Facebook, LinkedIn, and Google+) for a period of three weeks. The purpose of the study and the methods to ensure anonymity and confidentiality of the data were presented before respondents completed the questionnaire.

2.2 Participants

Table 1 shows the characteristics of respondents. Respondents included 634 Iranian individuals including 497 males and 137 females. A total of 632 respondents had a driving license when they responded to the questionnaire. Only those who had a valid driving license were considered for further analysis. Eighty-six percent of the respondents lived in the City of Tehran by the time of the study and the rest lived in the Tehran province. The respondents' age ranged from 18 to 70 years (M=27.1, SD=7.0). The respondents driving experience ranged from 1 to 53 years (M=7.5 years, SD=7.8). The average driving hours per day (i.e., exposure) was 1.85 hours (SD=1.68). *Table 2* shows the characteristics of the respondents in further detail. As shown, males were more frequently involved in crashes solely causing material damages, than females. On the other hand, there were no significant gender differences in crash involvement causing personal injury.

Table 1 – Age distribution of the males and females

Gender	Gender [%]	Age (Mean)	Age Range
Male	78	26.3	18-68
Female	22	28.7	19-57

2.3 Statistical analyses

Statistical analyses were performed using SPSS 19.0 and STATA 13. Kaiser–Meyer–Olkin (KMO) was used to test whether the sample data met the requirements for Exploratory Factor Analysis (EFA). EFA with Varimax rotation was conducted to identify the factor structure of the DBQ. Kaiser's criterion, the Cattell scree plot and the interpretability of the factors were used to determine the number of factors. Cronbach's alpha coefficients were calculated to test the internal consistency of each factor. One-way analysis of variance (ANOVA) was conducted to determine whether there were significant differences between sub-groups of drivers on the DBQ factors. Logistic regression with controlling of age, gender, education, driving experience, and exposure was performed to investigate the relation between the factors and self-reported crashes in the past three years (1: reported crash(es), 0: no crash reported).

3. RESULTS

Table 3 presents means and standard deviations of the DBQ items. As illustrated, the items that tended to segment into the violation factor were among the most reported aberrant driving behaviours. The most frequently reported violation was "Sound your horn to indicate your annoyance to another road user". The most frequently reported lapse was "Realize that you have no clear recollection of the road along which you have just been travelling" and the most frequently reported error was "Fail to check your rear-view mirror before pulling out, changing lanes". Lapses and Errors (e.g., Attempt to drive away from the traffic lights in third gear, on turning right nearly hit a cyclist who came up on your inside) were among the least frequently reported aberrant behaviours in the sample.

The KMO measure of sampling adequacy was 0.89 which indicated sample adequacy for EFA. EFA with Varimax rotation resulting in a five-factor solution that explained 44.7 percent of the total variance (*Table 4*).

One error and ten violations related to speeding violations (e.g., disregard speed limit on freeway), push someone to drive faster (e.g., warn a slow driver in front to drive faster), disregarding other users' right of way (e.g., Pull out of a junction so far that the driver with right of way has to stop and let you out) formed the first factor. This factor was named "Speeding and

Table 2 – Driving and crash histories of the respondents

Item	Mean (SD)			F/χ^2
	Sample	Male	Female	
Driving experience (years)	7.46 (6.00)	7.77 (6.22)	6.20 (5.60)	2.44
License history (years)	6.28 (5.72)	2.00 (1.75)	1.35 (1.30)	4.87*
Damage-only crashes in three years' period	42.5	45.1	33.1	6.37*
Injury crashes in three years' period	2.8	2.9	2.8	.001
Damage-only crashes prior three years	41.8	45.3	29.5	11.11**
Injury crashes prior three years	3.9	4.0	3.6	.52

**Sig< 0.05, **Sig< 0.001*

Table 3 – Means and standard deviations of DBQ items

Item	Mean	Std. Deviation
Sound your horn to indicate your annoyance to another road user	2.20	1.60
Talk on the phone while driving	2.14	1.42
Disregard speed limit on freeway	1.84	1.51
Increase speed to pass yellow light	1.83	1.34
Warn a slow driver in front to drive faster	1.77	1.52
Disregard speed limit on residential road	1.69	1.43
Overtake a slow driver on the inside	1.66	1.24
Send/read SMS while driving	1.56	1.54
Drive so close to the car in front that it would be difficult to stop in an emergency	1.38	1.27
Realize that you have no clear recollection of the road along which you had just been traveling	1.36	1.25
Speeding in bad mood	1.32	1.31
Stay in a motorway lane that you know will be closed ahead until the last minute before forcing your way into the other lane	1.23	1.21
Become angered by a certain type of driver and indicate your hostility by whatever means you can	1.19	1.24
Fail to check your rear-view mirror before pulling out, changing lanes, etc.	1.13	1.72
Disregard rules late at night	1.08	1.25
Become angered by another driver and give chase with the intention of giving them a piece of your mind	1.05	1.30
Get into the wrong lane approaching a roundabout or a junction	0.96	1.00
Pull out of a junction so far that the driver with right of way has to stop and let you out	0.91	0.99
Intending to drive to destination A, you “wake up” to find yourself on the road to destination B	0.85	0.91
Hit something when reversing that you had not previously seen	0.76	0.88
Misread the signs and exit from a roundabout on the wrong road	0.74	0.92
Forget where you left your car in a car park	0.66	0.99
Attempt to overtake someone that you had not noticed to be signalling a left turn	0.64	0.98
Miss “Give Way” signs and narrowly avoid colliding with traffic having right of way	0.62	0.82
Brake too quickly on a slippery road or steer the wrong way in a skid	0.57	0.79
Fail to notice that pedestrians are crossing when turning into a side street from a main road	0.54	0.86
Underestimate the speed of an oncoming vehicle when overtaking	0.53	0.81
Switch one thing, such as the headlights, when you meant to switch on something else, such as the wipers	0.51	0.85
Not give way to cyclist while turning	0.48	0.80
Cross a junction knowing that the traffic lights have already turned against you	0.45	1.03
driving on the wrong lane in the opposite direction	0.38	0.71
Attempt to drive away from the traffic lights in third gear	0.31	0.65
Driving under the influence of alcohol/ drugs	0.30	0.82
Queuing to turn left onto a main road, you pay such close attention to the main stream of traffic that you nearly hit the car in front of you	0.29	0.62
Race away from traffic lights with the intention of beating the driver next to you	0.17	0.58
On turning right nearly hit a cyclist who came up on your inside	0.15	0.47

Table 4 – Exploratory Factor Analysis of DBQ items

Item	Factor				
	1	2	3	4	5
Disregard speed limit on residential road	0.66				
Overtake a slow driver on the inside	0.61				
Drive so close to the car in front that it would be difficult to stop in an emergency	0.56				
Pull out of a junction so far that the driver with right of way has to stop and let you out	0.47	0.36			
Stay in a motorway lane that you know will be closed ahead until the last minute before forcing your way into the other lane	0.47				
Warn a slow driver in front to drive faster	0.46			0.36	
Disregard speed limit on a freeway	0.46				
Increase speed to pass through yellow light	0.45				
Attempt to overtake someone that you had not noticed to be signalling a left turn	0.41				
Not give way to cyclist while turning	0.40				
Speeding in bad mood	0.36				
Forget where you left your car in a car park		0.62			
Switch one thing, such as the headlights, when you meant to switch on something else, such as the wipers		0.56			
Misread the signs and exit from a roundabout on the wrong road		0.50			
Miss “Give Way” signs and narrowly avoid colliding with traffic having right of way	0.42	0.46			
Fail to notice that pedestrians are crossing when turning into a side street from a main road		0.43			
Get into the wrong lane approaching a roundabout or a junction		0.42			
Realize that you have no clear recollection of the road along which you have just been traveling		0.42			
Intending to drive to destination A, you “wake up” to find yourself on the road to destination B		0.42			
Hit something when reversing that you had not previously seen		0.41			
Attempt to drive away from the traffic lights in third gear		0.37			
On turning right nearly hit a cyclist who has come up on your inside		0.36			
Send/read SMS while driving			0.68		
Talk on the phone while driving			0.66		
Driving under the influence of alcohol/ drugs			0.48		
Become angered by a certain type of a driver and indicate your hostility by whatever means you can				0.68	
Become angered by another driver and give chase with the intention of giving them a piece of your mind				0.68	
Sound your horn to indicate your annoyance to another road user				0.46	
Cross a junction knowing that the traffic lights have already turned against you					0.63
Disregard rules late at night	0.41				0.52
Driving on the wrong lane in the opposite direction					0.45
Race away from traffic lights with the intention of beating the driver next to you					0.39
Average score	1.30	0.71	1.30	0.50	1.46
Cronbach’s alpha	0.84	0.75	0.71	0.64	0.67
Variance explained [%]	22.6	8.4	5.0	4.8	4.1

Table 5 – Means and standard deviations of DBQ factors by gender

Factors	Gender	Mean	SD	*t*-value	Sig.	*d*-value
Speeding and Pushing Violations	Female	0.92	0.62	-5.71	0.000	0.58
	Male	1.31	0.74			
Lapses and Errors	Female	0.74	0.49	2.64	0.008	-0.25
	Male	0.63	0.44			
Violations Causing Inattention	Female	0.91	0.85	-5.13	0.000	0.52
	Male	1.39	1.02			
Traffic Violations	Female	0.31	0.48	-3.80	0.000	0.40
	Male	0.54	0.66			
Aggressive Violations	Female	1.20	0.98	-3.04	0.002	0.30
	Male	1.50	1.08			

Note: males=497, females=137

Pushing Violations". The factor accounted for 22.6 percent of the total variance and had an alpha value of 0.84 (average corrected inter-item correlation=0.83).

The second factor consisted of eight lapses and three errors. This factor was named "Lapses and Errors". The factor accounted for 8.4 percent of the total variance with an alpha value of 0.75 (average corrected inter-item correlation=0.74).

The third factor consisted of three violations, where two of them were related to using a cell phone while driving, and the third item was driving under the influence of alcohol or drugs. All of these behaviours might lead to a longer reaction time and could cause risky situations. Therefore, this factor was named "Violations Causing Inattention". The factor accounted for 5.1 percent of the total variance with an alpha value of 0.71 (average corrected inter-item correlation=0.53).

Three aggressive violations (e.g., Sound your horn to indicate your annoyance to another road user) formed the fourth factor which accounted for 4.8 percent of the total variance with an alpha value of 0.67 (average corrected inter-item correlation=0.50).

The fifth factor included items related to traffic negligence (e.g., driving on the wrong lane in the opposite direction). This factor was named "Traffic Violations". This factor accounted for 4.1 percent of the total variance with an alpha value of 0.64 (average corrected inter-item correlation=0.57).

As reported in *Table 5*, comparison of means on the DBQ factors showed that males tended to commit more Speeding and Pushing Violations (t=-6.45 (632), p<0.001), Violations Causing Inattention (t=-4.2 (632), p<0.001), Traffic Violations (t=.30 (632), p<0.766) and Aggressive Violations (t=-3.40 (632), p<0.002), than females. On the other hand, females were more prone to commit Lapses and Errors (t=5.56 (632), p<0.001). The Cohen's d-values reported in *Table 5* reflect that the differences were large in Speeding and Pushing Violation, Violations Causing Inattention, while the differences in Traffic Violations, Aggressive Violations, Lapses and Errors were modest.

One-way ANOVA results indicated that the driving experience had no significant differences in factor means except for Errors and Lapses (F=1.825 (631), p<0.003). On the other hand, drivers who reported crashes in their lifetime (i.e., either in reported crash three years' period or period before that), reported more Speeding and Pushing Violations (F=24.25 (631), p<0.000), Violations Causing Inattention (F=23.00 (631), p<0.000), Traffic Violations (F=4.70 (631), p<0.031), and Aggressive Violations (F=4.37 (631), p<0.037) than those who did not report crashes.

Table 6 shows the results of the binary Logistic regression. The McFadden' R^2 of the model was 0.121. As shown in *Table 6*, driving experience (β=-0.036, p<0.05) was negatively related to self-reported crashes. On the other hand, exposure (β=0.166, p<0.002), Speeding and Pushing Violation (β=0.412, p<0.005), and Violations Causing Inattention (β=0.068, p<0.038) were positively associated with self-reported crashes.

Table 6 – Predictors of crashes in the past three-year period as a binary variable (1: reported crash, 0: no reported crash)

Variable	B	SE	Z	*p*-value
Speeding and Pushing Violations	0.412	0.014	2.81	0.005
Lapses and Errors	0.013	0.017	0.76	0.448
Violations Causing Inattention	0.068	0.033	2.07	0.038
Traffic Violations	0.043	0.040	1.09	0.276
Aggressive Violations	0.021	0.027	0.78	0.437
Age	0.007	0.023	0.34	0.733
Gender	0.062	0.237	0.26	0.792
Education	-0.082	0.099	-0.82	0.410
Exposure	0.166	0.053	3.10	0.002
Driving Experience	-0.036	0.018	-1.96	0.050
McFadden R^2=0.121				
n=632				
$LR\chi^2(10)$=51.2				

4. DISCUSSION

The primary objective of this study was to investigate the Iranian driving behaviours using the extended DBQ instrument. A web-based version of this instrument was modified for this study based on the Iranian driving culture. Exploratory Factor Analysis led to a five-factor solution, namely: Speeding and Pushing Violations, Lapses and Errors, Violations Causing Inattention, Aggressive Violations, and Traffic Violations which accounted for 44.7 percent of the total variance. The Cronbach's alpha values were satisfactory and ranged between 0.64 and 0.84. The distinction between Lapses and Errors factor with other factors in this study supports the original theoretical assumption underlying the DBQ. In line with the original four-factor structure, the present study showed that Aggressive Violations were distinct from ordinary violations. Ordinary violations were also divided into Speeding and Pushing Violations and Traffic Violations. Comparing the average reported behaviours of the Iranian driver shows that Iranians reported fewer traffic violations [12, 18, 28, 29] than drivers in the Arab countries, China, and Greece [27, 30, 31]. However, the Iranian drivers reported more traffic and aggressive violations than the European countries. On the other hand, the average of lapses and errors was less than European countries [18].

Speeding and Pushing Violations may reflect driving styles of drivers who do not like to spend their time in road traffic and conduct these types of behaviours to reduce their in-vehicle travel time. Traffic Violations consisted of four items all related to violating traffic regulations, the main reason for conducting such aberrant behaviours could be the lack of ubiquitous enforcement [32] and the moderate level of national speed-related law enforcements [19]. Road traffic safety in Iran could benefit from a stronger focus on regulations and their enforcement by applying automated enforcement system (e.g., installing speed cameras and red lights cameras), particularly at locations with high risk of crashes. Moreover, safety awareness campaigns intended to target driver violations could be effective. This campaign has shown its efficiency in the European countries (e.g., [33]).

The fourth factor consisted of three Aggressive Violations forming one of the subscales of the four-factor DBQ structure. A potential explanation is that Iran has a considerable share of young drivers. Aggressive Violations are more common in this group [34], and a higher proportion of these drivers in the system is likely to lead to a higher frequency of these behaviours. Further studies should be conducted to scrutinize the contributing factors of aggressive driving among Iranian drivers. Meanwhile, promoting defensive driving and safe driving behaviours through awareness campaigns could help to reduce aggressive driving. Violations Causing Inattention reflects the impact of new technologies related to cell phone use while driving. The current findings revealed that talking on the cell phone was the second most frequently reported violation in the current sample and sending SMS while driving was also ranked among the top ten reported violations. The other item in this factor is driving under the influence of alcohol and drugs; it is worthy to notice that Iran is a religious country and alcohol consumption is strictly prohibited [35, 36]. Therefore, in line with other Iranian self-reported studies [37] this behaviour is less expected from Iranian respondents. The Iranian police should review the current enforcement and target cell phone use while driving.

As it was expected the driving experience and exposure had a significant impact on crash involvement. Moreover, the findings suggested that Speeding and Pushing Violations as well as Violations Causing Inattention were positively related to self-reported crashes. Violations Causing Inattention engage drivers to physical distraction; moreover, it delays or increases drivers' reaction [21, 25]. Speeding and Pushing Violations enhance the likelihood of crashes by reducing the safety margin and the time drivers should make a decision. This may in turn cause more severe consequences of human action as they reduce the error tolerability of the physical road traffic environment.

Unfortunately, there is no reference to compare the current sample to the population of the drivers in Iran and one could question whether a web-based questionnaire is appropriate to reach out to the driver population in Iran. Internet penetration rate in Iran is very strong and close to 49% [38]. Moreover, individuals who use the Internet tend to be younger and better educated than those who do not; this is an important characteristic of the overall populations in Iran [39]. The impact of the significant features of the sample was also included in this study as covariates in the statistical analysis.

5. CONCLUSION

The current study modified the DBQ to improve its suitability to the Iranian traffic culture. A five-factor solution, namely Speeding and Pushing Violations, Lapses and Errors, Violations Causing Inattention, Aggressive violations and Traffic Violations were extracted. The extracted factors had a high loading and acceptable internal consistency. Speeding and Pushing Violations and Violations Causing Inattention were the main predictors of the self-reported crashes. Improvement in drivers' safety could be achieved through safety campaigns and by enforcing traffic regulations.

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پیش‌بینی‌کننده‌های تصادفات خوداظهاریِ رانندگان ایرانی: تحلیل اکتشافی پرسش‌نامه رفتار رانندگی توسعه‌یافته

سالانه در ایران بیش از 16500 نفر جان خود را در تصادفات رانندگی از دست می‌دهند که یکی از بالاترین نرخهای تلفات رانندگی در دنیا است. هدف این مطالعه بررسی پرسش نامه رفتار رانندگی توسعه یافته با تاکید بر تفاوت بین مردان و زنان است. به علاوه، در این مطالعه رابطه بین ساختار پرسش‌نامه رفتار رانندگی، خصوصیات اجتماعی و تصادفات خوداظهار شده مورد بررسی قرار می‌گیرد. نتایج تحلیل عاملی اکتشافی بر روی نمونه ای شامل 632 نفر از رانندگان ایرانی 5 عامل تخلفات سرعت و عجله، خطا و لغزش، تخلفات منجربه عدم توجه، تخلفات تهاجمی و تخلفات رانندگی که 44/7 درصد از واریانس کل را توضیح می‌دهد استخراج گردید. نتایج تحلیل‌ها نشان می‌دهد که زنان بیش از مردان خطا و لغزش گزارش کرده‌اند، در صورتی که مردان بیش از زنان تخلفات رانندگی را گزارش کرده‌اند. نتایج مدل دوگانه لوجیت نشان می‌دهد که تخلفات منجربه عدم توجه، تخلفات سرعت و عجله پیش‌بینی‌کننده تصادفات خوداظهارشده رانندگان است. یافته های مطالعه در چارچوب ایمنی راه مورد بحث و بررسی قرار می‌گیرد.

کلمات کلیدی: پرسش‌نامه رفتار رانندگی، تحلیل عاملی اکتشافی، پیش‌بینی تصادفات خوداظهاری، ایمنی راه، عامل انسانی

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