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Research Paper

Study of the Relationship Between the Characteristics of Taxi Drivers and Driving Experience

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Abstract

Millions of people die in road accidents every year. This issue is more important for professional drivers as they are more likely to involve in a car accident due to the longer driving hours. The purpose of this study was to identify the most important manner or factors affecting traffic accidents as well as the taxi driver's characters based on the Drivers' Behavior Questionnaire (DBQ) and Emotionality Activity Sociability (EAS) temperament survey, a total number of 420 taxi drivers in Tehran province were asked to participate in this study and the results indicated that there is a remarkable relationship between driving history and anger management. The results also shows that the more driving experience the drivers have, the better they can manage their anger along with long-term plans and psychological classes. Finally, the correlation between the main variables of the research were measured and the findings revealed that the highest correlation pertains to that between temperament (anger, activity, helplessness, anxiety, sociability) and errors (0.995), and temperament driving offences of taxi drivers (0.474).

Keywords: Driver behavior, Drivers' Temperament, Taxi Drivers, Traffic Accidents, Safety

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1. Introduction

Driving mistakes can lead to car accidents, which can cause major injuries and fatality. According to the World Health Organization, more than 25 million people die or become disabled in road accidents worldwide each year. Road accidents are the ninth leading cause of death in the world. The report adds that the highest number of fatalities due to accidents occurs in low-income countries (WHO). In recent decades, significant academic and practical efforts have been made to examine the relationship between accidents and the factors involved therein. At the same time, researchers increasingly emphasize the role of human factors, especially drivers' behaviors in the occurrence of accidents and argue that the dignified and reasonable behavior of drivers in various traffic conditions can significantly reduce the rate of accidents and traffic-related issues incidents. Among the various groups of road users, taxi drivers are of particular interest. Moreover, identifying behavioral and characteristic factors influencing the behavior of taxi drivers and accidents, particularly their temperament, can significantly contribute to the safety of people in the road. Because, according to international researchers in 2020, the second most common cause of disease is depression, the concept of personality and traits in psychology, including temperament, is a very significant yet common concept, while it is also highly complicated incredibly complex. As Allport states, the emergence of more than 50 different definitions for personality indicates its complexity, but in a comprehensive definition, personality refers to those characteristics within an individual or individuals that include their fixed thought, love, and behavioral patterns (Majidi and Kadivar, 2002). Recent studies report that show that 75% of road accidents can be associated to human personality (Shirmohammadi, 2006). Researchers consider personality traits as one of the determinants of behavior (Norris et al., 2000). As an effective behavior, driving is no exception. High-risk drivers are usually more emotionally unstable and more anxious toward law-abiding. The five major personality traits (extraversion, agreeableness, openness, conscientiousness, and neuroticism) are directly related to traffic accidents (Khodarahimi, 2010). It is commonly known that high-risk driving behaviors are one of the most important and effective factors in traffic accidents. According to previous studies, human errors are involved in 93% of traffic accidents, while road factors and vehicle malfunctions are respectively involved in 34% and 12% of traffic accidents (Zamani, 2009). The two traits of neuroticism and extraversion are more associated with high-risk behaviors or traffic offenses (Damyar et al., 2012). Olandoski et al. (2019) the behavior and performance of drivers can be related to their personality and individuals higher in neuroticism report more dangerous behavior. (Karimi et al, 2021) examined 512 undergraduate students in Brazil and found out that controlling emotions and anger improves drivers' mental health in addition to reducing the frequency of driving offences. Rahemi et al. reported that speeding and drunk driving are the most prevalent high-risk behaviors in Iranian drivers (Rahemi et al., 2017). In a study in Queensland, Australia, Salmon et al. (2019) identified five factors (driving under influence, reckless driving, speeding, fatigue and not using seat belt) as the most fatal behaviors in drivers. Research shows that traffic violations threaten the safety of drivers and their passengers (Gras et al., 2006). The Driver Behavior Questionnaire (DBQ) is one of the most common self-reporting tools in traffic safety research and fleet settings (Davey et al., 2007). We used the modified version in Iran because there are many modified versions of

this questionnaire in the world and its reliability and validity have been proven in the world.

Previous research has shown that there is a statistically significant relationship between the driving score of taxi drivers and their mental health (Somayeh Noori et al., 2017). Analyses suggested that more empathetic individuals had lower rates of accident involvement, whereas more anxious, guilt-prone, exhibitionistic, and risk-taking individuals had higher rates. (Landay et al 2020). During a six-year study (2006-2012) on 7,183 accident cases in Xi'an, Ming et al. separated 726 samples from the cases and examined them in light of three scopes, namely characteristics of the taxi driver, road users, and environmental factors, the results of which revealed that the trend and pattern of taxis involved accidents is significantly different from those of personal cars (Wang et al., 2015). Moreover, Research indicates that the most influential factor in the occurrence of road accidents is the human factor (i.e. human error) (Rhodes and Pivik, 2011). Studies on professional drivers reveals that factors such as smoking, not using seat belt and speeding play are heavily featured in the occurrence of accidents (Adl et al., 2014). In this regard, Kwona et al. (2019) studied 161 professional drivers in Korea, the results of which revealed that driving under influence is significantly correlated with speeding. Research has shown that there is a significant relationship between reckless driving and speeding, and the occurrence of accidents in occupational (taxi) drivers (Bakhtiyari et al., 2014). Another study also showed that there is a meaning relationship between talking on phones while driving and the occurrence of accidents in occupational drivers (Mohammadfam and Golmohammadi, 2004). Havârneanu et al. performed a study on 237 taxi drivers and concluded that workplace conflicts are positively associated with high-risk driving behaviors (Havârneanu et al., 2019). Erkus and Özkan compared 38 young taxi drivers to 40 drivers of personal cars, the results of this which indicated that young taxi drivers and drivers of personal cars had a similarly negative attitude towards safety and behavior, but taxi drivers attributed their self-reported safety skills to perceptual and motor skills, while drivers of personal cars did not have such an insight into safety (Erkus and Özkan, 2019).

Aristide et al. (2009) studied risky behaviors, personality traits, and road accidents in 132 students, and reported that people who were concerned about personality were more inclined to exhibit high-risk behaviors. The results of the study also showed that people who had more traffic accidents self-reported more high-risk behaviors such as recklessness. Research has shown that young drivers are more likely to drive at high risk than more experienced drivers (Witt et al., 2019). social anxiety and selfishness are the best predictors of the violations; aggressive mode is a significant predictor of the aggressive violations; urgency has a perfect impact on the errors; and finally, life satisfaction, sensation seeking, conscientiousness, age, and urgency are the best predictors of the lapses. (Aghabayk et al, 2020)

Given the importance of identifying emotions and temperaments and its effect on the management field is felt more than ever, which may also contribute to a better understanding of the feelings and temperaments of human beings. As such, Kyrios and Prior showed that environmental conditions are effective in shaping temperament (Kyrios and Prior, 1990). socio-demographic characteristics were significantly correlated with driving behavior. In addition, driving behaviors were correlated with traffic crashes and the resulting injuries. The findings of this study can be utilized to develop driving behavior interventions among the drivers. (Rezapur et al, 2020). Lewis and Olsson also concluded in their study that stress

in the living environment is highly correlated with temperament (Lewis and Olsson, 2011). Research shows that cultural factors, social class, moral factors and gender highly contribute to the development of temperament (Prior, 1992), and it is noteworthy that temperament is one of the emotional states in which a person develops a continuous and penetrating emotional ambience. In more severe cases, it can affect virtually all aspects of a person's behavior. Overall, people who occupationally drive are exposed to a range of stressors such as behaviors of other drivers, heavy traffic, ergonomics, noise, weather conditions, and work schedules that affect their temperament, thus leading to poorer performances (driver behavior).

Recent years, the impact of factors related to driver behavior (DBQ) is sought-after by researchers owing to its importance and effectiveness, as many researchers have found academic interest in this field. These studies reveal that the behaviors of drivers have a significant effect on the heightened risk of road accidents (Sahebi and Nassiri, 2019). Hence, it is safe to argue that the effect of psychological factors and its relationship with behaviors are involved in the occurrence of these accidents. In this regard, ESA questionnaire was employed in this study to identify the temperament of taxi drivers (anxiety, anger, helplessness), with the purpose of comparing the scores of traffic violations.

2. Research Methods

The present research is an applied descriptive study, in which questionnaires were employing to examine the correlation between the factors involved in the abnormal behaviors of taxi drivers using the Pearson correlation coefficient.

2.1. Preparing Questionnaires

By studying different methods of collecting information for evaluating the behavior of taxi drivers, the Driver Behavior Questionnaire (Manchester) was deemed the most optimal tool for this study, which also has a high validity. furthermore, Buss and Plomin's Emotionality Activity Sociability (EAS) Temperament Survey (1984) was used to measure the temperament of this class of occupational drivers.

2.2 The Final Structure of The Questionnaire

The designed questionnaire is consisted of 4 parts. The first part of the questionnaire is associated with the behavior of driver, which is also known as the Manchester Questionnaire (DBQ). This questionnaire has 28 items addressing 4 different aspects, namely intentional violations, unintentional violations, errors and slips. The second part pertains to the demographic information of taxi drivers, includes age, gender, and marital status, among others demographic items were classified according to data analysis, and our group classified demographic items according to what was obtained from the results of the analysis. Moreover, the third part deals with travel information (distance traveled, etc.). The last section is in fact the Buss and Plomin's Emotionality, Activity, Sociability (EAS) Temperament Survey (1984) which consists of three dub-scales of level of sociability, activity and emotionality (i.e. helplessness, fear, anger). A 6-level Likert scale was used to score the collected information on the temperament of taxi, such that respondents should are faced with 6 options to choose from, namely never, rarely, occasionally, most of the time, very much and always, the final result of which would be thus obtained

Questionnaires were distributed at taxi stations in Tehran in August and September of 2018, distributed among taxi drivers in Tehran, and since the size of the statistical population was not known, a baseline value of 270 was considered. In total, 420 taxi drivers were

sampled from Tehran province for optimal reliability in the present study.

2.3. Data Analysis Method

After collecting data, the correlation of the available data for factor analysis was examined by kmo and Bartlett tests in this study. Furthermore, the reliability of the data was measured by Cronbach's alpha coefficient and using factor analysis, the main factors for the Driver Behavior Questionnaire and EAS Survey Questionnaire were extracted. Finally, Pearson correlation coefficient, ANOVA Friedman test and Wilcoxon symptomatic rank test with Bonferroni correction were employed to evaluate the level of significance and the relationship between variables.

3. Results

3.1. Demographic Characteristics of the Sample

Table 1. Frequency (percentage) of participants in terms of demographic and personal variables, travel and vehicle

Variable		Frequency	Percentage (%)
Age	Less than 37	59	14
	38-48	122	29
	49-59	148	35.4
	More than 60	91	21.6
Marital status	Married	415	99.5
	Single	5	0.5
Smoking status	Smoker	162	38.6
	Non-smoker	258	61.4
Times involved in accidents	None	99	56.9
	Once	35	23.6
	Twice	25	8.3
	Three times	10	6
	More than three times	12	5.1
Driving experience	Less than 10 years	8	1.9
	10-15 years	51	12.1
	16-20 years	59	14.1
	21-25 years	48	11.4
	More than 26 years	254	60.5
Driving experience in taxi	Less than 10 years	140	32.14
	10-15 years	75	17.86
	16-20 years	61	14.52
	21-25 years	65	15.48
	More than 26 years	84	20
Occupational satisfaction	None	270	64.3
	To some extent	103	24.5
	High	47	11.2

According to Table 1,

- 14 percent of drivers are aged less than 37 years, while more than 35% are 49-59 years old. Furthermore, more than 99 percent are married.
- More than 68 percent do not smoke.

- More than 56% of drivers have been accident-free in the last three years, and only 5.1% were involved in more than three accidents in the past three years.
- 32.14% percent of drivers have less than 10 years of occupational driving experience as a tzi driver
- More than 64 percent of drivers have no job satisfaction.

3.2. Analysis

3.2.1. Questionnaire reliability

The KMO measure of sampling adequacy determines multicollinearity. According to Table 2, the KMO index is estimated to be 0.845, indicating a suitable value and the results of Bartlett test were also significant. Descriptive analysis of the questionnaire is presented in the table below.

Table 2. Data adequacy test results

Test	Measure	Driver Behavior Questionnaire
KMO index	Measure of Sampling Adequacy	0.845
Bartlett test	Approx. Chi-Square	2373.355
	Df	378
	Sig.	0.000

The reliability of 4 factors obtained from the MDBQ Inventory was tested using Cronbach's alpha ($\propto$). Factor 1, i.e. normal violations exhibited a very high internal consistency with a total value of 0.808. This value was calculated to be 0.644 for factor 2 (errors), 0.624 for factor 3 (i.e. slips) and 0.354 for factor 4 (i.e. aggressive violations). The results from multiple regression squares revealed that the variance is weak, and that Cronbach's alpha did not increase with the exclusion of any of the item. In total, the correlation of the all 28 items of the questionnaire was high ($\propto$=0.826) and its value is statistically significant. Cronbach's alpha was also tested for the EAS Questionnaire, revealing a weak consistency. By excluding item 12, the correlation was determined to be moderate ($\propto$= 0.625).

Table 3. Rotated Factor Analysis

Item	1	2	3	4
28	0.732	-	-	-
3	0.695	-	-	-
11	0.654	-	-	-
21	0.571	-	-	-
24	0.568	-	-	-
18	0.532	-	-	-
14	0.495	-	-	-
20	0.479	-	-	-
15	0.447	-	-	-
7	-	-	-	-
9	-	0.727	-	-
23	-	0.633	-	-
6	-	0.619	-	-
5	-	0.581	-	-
1	-	-	-	-
16	-	-	-	-
2	-	-	0.659	-

26	-	-	0.650	-
19	-	-	0.633	-
22	-	-	0.470	-
4	-	-	0.464	-
12	-	-	0.421	-
13	-	-	-	0.612
17	-	-	-	0.547
25	-	-	-	0.488
10	-	-	-	0.455
8	-	-	-	-
27	-	-	-	-

A 28-item questionnaire was administered to assess the behavior of 420 participating taxi drivers. To achieve a more manageable number of items. Using exploratory factor analysis and principal component analysis, and through Varimax orthogonal and a cut-off value of 1.2, four factors that explained more than 0.42 of the data were relaxed, finally arriving at 9 items for normal violations, 4 items for errors, 6 items for slips and 4 items for aggressive violations.

3.3. Identifying the Factors of EAS Survey

Cronbach's alpha was also tested for the EAS questionnaire, which indicated a weak consistency. Excluding item 12 moderated the correlation ($\propto = 0.625$; Table 4).

Table 4. Descriptive statistics of EAS Survey

Title	Mean	SD
Part 1: Sociability		
1. I'd rather be with other people. (1)	3.867	1.6177
2. I'd rather work with other people or by myself. (7)	3.517	1.4631
3. I consider people to be the main cause of stimulation. (11)	3.169	1.4631
Part 2: Activity		
4. It often seems that I'm in a hurry. (2)	2.564	1.5719
5. my life has an accelerated pace. (6)	2.283	1.5551
6. I often sense that I'm overhyped. (12)	3.543	1.4593
Part 3: Emotionality		
7. Daily events make me anxious and distressed. (14)	2.450	1.3817
8. I'm easily emotionally distressed (8)	3.383	1.3211
9. I am frequently disturbed. (4)	3.031	1.7082
10. I'm easily terrified. (3)	1.902	1.3081
11. I often feel insecure. (10)	2.881	1.4176
12. I panic when I'm scared. (15)	2.164	1.2063
13. There are a lot of things that annoy me. (9)	3.414	1.4158
14. when I'm dissatisfied, I make a great deal out of it. (13)	3.752	1.4593
15. I'm considered a hot-headed person. (5)	3.976	1.1904

To identify the scales of Buss and Plomin's Emotionality Activity Sociability (EAS) Temperament Survey according to the instructions put by the authors, the scores of the questionnaires are summarized in three groups of test items. Summing the scores on items 2, 6, 12 determines the level of activity factor. Summing the scores on items 4, 8 and 14 reveals the helplessness factors, while summing the scores on items 3, 10 and 15, and on items 5, 9 and 13 respectively determine the factor of anxiety and anger. It should be noted that these last three factors, i.e. helplessness, anxiety and anger are all measures of the Emotionality scale.

3.4. The Relationships Between Taxi Drivers' Behavior Variables and Temperament Factors

Owing to the non-normality of the data, Spearman test was used to measure the correlation between the factors of the EAS Survey and drivers' behavior. The results are presented in Table 5.

Table 5. Spearman correlation coefficient, level of significance and relationship between variables

Variables	Spearman coefficient	Level of significance	Sample size
Errors-Normal violations	0.480	0.000	420
Helplessness-anxiety	0.426	0.000	420
Aggressive violations-normal violations	0.371	0.000	420
Aggressive violations-Helplessness	0.334	0.000	420
Anxiety-slips	0.291	0.000	420
Sociability-errors	0.275	0.000	420
Helplessness-normal violations	0.268	0.000	420
Helplessness-Errors	0.266	0.000	420
Anxiety-Aggressive violations	0.216	0.000	420
Aggressive violations-Slips	0.212	0.000	420
Normal violations-Activity	0.202	0.000	420
Errors-Anxiety	0.191	0.000	420
Slips-Errors	0.190	0.000	420
Helplessness-Slips	0.189	0.000	420
Normal violations-Slips	0.185	0.000	420
Sociability-Normal violations	0.183	0.000	420
Activity-Aggressive violations	0.173	0.000	420
Helplessness-Activity	0.165	0.000	420
Aggressive violations-Errors	0.154	0.000	420
Sociability-Helplessness	0.142	0.000	420
Normal violations-Anxiety	0.133	0.000	420
Sociability-Anxiety	0.122	0.000	420

According to Table 5, the highest correlations were achieved between variables of errors and common violations (Pc = 0.00, r_s = 0.480) and helplessness and anxiety (Pc = 0.00, r_s =0.426), implying a moderate correlation therebetween. Moreover, the lowest correlations were witnessed between sociability-anxiety (r_s = 0.122, P = 0.006) and normal violations-anxiety (rs = 0.133, P = 0.003), implying a weak correlation.

4. Discussion

One of the most significant and influential factors on driving violations and errors is the behavior of drivers. As such, identify and examining relevant behaviors and their impact seems of utmost importance. The purpose of

this study was to identify the effects of personality variables, particularly temperament and driving conditions on driving behaviors. Our team wanted to be able to reduce the rate of accidents and damages among these professional drivers by identifying the factors of mood and its relationship with the behavior of taxi drivers.

Raouf Haddadi Sania et al. examined 117 taxi drivers in Mashhad, Iran, and concluded that aggression was the only significant predictor of traffic violations, and that difficulties in emotional regulation may exacerbate high-risk driving behaviors as aggression has a solid impact on drivers vulnerable to traffic violations, thus leading to high-risk driving behaviors among taxi drivers in Iran (Raouf Hadadi Sania et al., 2017).

Mehdizadeh et al. examined two groups of occupational drivers (i.e. taxi and truck) in Mashhad, Iran, the results of which showed that high-risk driving behaviors among taxi drivers were more involved in accidents compared to truck drivers, while the structure of the high-risk driving factor was fixed in both groups (Mehdizadeh et al., 2019).

Maslac et al. conducted a comparative study between occupational (taxi) drivers and ordinary drivers, which showed that non-occupational drivers exhibit more high-risk behaviors compared to occupational drivers. The different behaviors of non-occupational and occupational drivers can be attributed to two factors: (1) They drive for different reasons. Non-occupational drivers travel for business- or tourism-related reasons, while occupational drivers travel solely for the need of business (earnings); and (2) These two groups of drivers undergo different levels of training, i.e. non-occupational drivers have only basic training related to driving a vehicle, but occupational drivers have regular training and also receive a certificate of professional competence. Moreover, occupational drivers are required to undergo periodic training and safe driving courses, which will certainly affect their behavior (Maslac et al., 2018).

By examining occupational drivers, Sergio et al. (2018) compared the operational performance of public transport drivers and exposure to psychosocial risk in three types of transport, namely taxi drivers, city bus drivers and intercity bus drivers. The required data in this study was obtained from 780 occupational drivers from three transport companies in Bogota, Colombia. 78% of the participants (94.9% of city buses, 30.7% of intercity buses and 74.1% of taxi drivers) worked more than 10 hours a day, indicating a fatigue factor related to the perception of work-site demand and exposure to environmental stressors (such as congested traffic, interaction with passengers, and unfavorable road conditions, among others) had theoretically a significant correlation with high rates of high-risk driving behavior and ensuing traffic accidents (Hartley and El Hassani, 1994; Sergio et al., 2018; Taylor and Dorn, 2006).

Useche et al. conducted extensive research on the violence of Colombian occupational drivers and concluded that anger is measurable, dividing this violence into three subscales (obstruction, illegal driving, and direct hostility (Useche et al., 2019).

5. Conclusion

A significant correlation was observed between driving experience and anger control. That is, as the drivers gain more experience, their anger management improves.

Research has shown that there is no significant relationship between driving experience and activity, helplessness, anxiety and sociability.

Also, the highest correlation was observed between errors and traffic violations, and between helplessness and anxiety.

The lowest correlation was observed between socialization and anxiety, and traffic violations and anxiety.

Normally, according to general knowledge, when the number of experienced drivers increases and he becomes more and more in control of his work (becomes more experienced), he can better and more easily manage and divide his daily activities, his anxiety will naturally decrease, his helplessness and disability will decrease. It is possible to interact more easily with society and its people and to control their anger more easily in the face of everyday events and happenings, but according to our research and the results of the analysis, only the anger component can be controlled by increasing history.

6. Research Suggestions

- Government can provide drivers with peace of mind by providing facilities for faster replacement of used cars
- Employing a larger statistical community to increase the accuracy of the model.
- Increase the level of drivers' income to reduce the distance traveled
- Drivers drive safer by holding training classes without increasing their experience.
- Integrating a second questionnaire related to the problems of occupational drivers, along with the Manchester questionnaire

7. References

- Adl, J., Dehghan, N. and Abbaszadeh, M. (2014) "The survey of unsafe acts as the risk factors of accidents in using taxies for intercity travelling in Tehran". Journal of Safety Promotion and Injury Prevention, Vol 2, No. 1, pp. 39-46. (In Persian)

- Aghabayk, K., Mashhadizade, L. and Moridpour, S. (2020) "Need Safer Taxi Drivers? Use Psychological Characteristics to Find or Train!". Sustainability, Vol. 12, No. 10, pp. 4206.

- Aristides, I.F., Martínez, L.F. and Adelina, G.M. (2009) "Risky behavior, personality traits and road accidents among university students". European Journal of Education and Psychology, Vol.2, No. 2, pp. 79-98.

- Bakhtiyari, M., Soori, H., Ainy, E., Salehi, M. and Mehmandar, M.R. (2014) "The survey of the role of humans' risk factors in the severity of road traffic injuries on urban and rural roads". Journal of Safety Promotion and Injury Prevention, Vol. 2, No. 1, pp. 1-8. (In Persian).

- Damyar, N., Golmahammadi, R., Mohammad Fam, A. and Fardmal, J. (2012) "Study of unsafe behaviors among city bus drivers in Hamadan, 2011". Journal of Health and Safety at Work, Vol.1, No. 1, pp. 53-61. (In Persian).

- Davey, J., Wicshart, D., Freeman, J. and Watson, B. (2007) "An application of the driver behavior questionnaire in an Australian organizational fleet setting". Transportation Research, Vol. 10, pp. 11-21.

- Erkus, U. and Özkan, T. (2019) "Young male taxi drivers and private car users on driving simulator for their self-reported driving skills and behaviors". Transportation Research Part F, Vol. 64, pp. 70–83.

- Gras, M.E., Sullman, M.J.M., Cumill, M., Aym erich, M. and Font-Mayolas, S. (2006) "Spanish drivers and their aberrant driving behaviors". Transportation Research, Vol. 9, pp. 129-132.

- Hartley, L.R. and El Hassani, J. (1994) "Stress, violations and accidents". Applied Ergonomics, Vol. 25, pp. 221-230.

- Havârneanu, C.-E., Măirean, C. and Popuşoi, S.-A. (2019) "Workplace stress as predictor of risky driving behavior among taxi drivers". The role of job-related affective state and taxi

driving experience. Safety Science, Vol. 111, pp. 264-270.

- Karimi, S., Aghabayk, K., Abrari Vajari, M. and Stephens, A. (2021) "Aggressive driving: self-reported anger expression and its relationship with driver personality". International journal of transportation engineering, Vol. 8, No. 3, pp. 299-316.

- Khodarahimi, S. (2010) "Perfectionism and five-big model of personality in an Iranian sample". International Journal of Psychology and Counselling, Vol. 2, No. 4, pp. 72-79.

- Kwona, S., Kima, H., Kima, G.-S. and Choa, E. (2019) "Fatigue and poor sleep are associated with driving risk among Korean occupational drivers". Journal of Transport and Health, Vol. 14, pp. 100572.

- Kyrios, M. and Prior, M. (1990) "Temperament, stress and family factors in behavioural adjustment of 3-5-year-old children". International Journal of Behavioral Development, Vol. 13, No. 1, pp. 67-93.

- Landay, K., Wood, D., Harms, P. D., Ferrell, B. and Nambisan, S. (2020) "Relationships between personality facets and accident involvement among truck drivers". Journal of research in personality, Vol. 84, pp. 103889.

- Lewis, A.J. and Olsson, C.A. (2011) "Early life stress and child temperament style as predictors of childhood anxiety and depressive symptoms: findings from the longitudinal study of Australian children". Depression research and treatment.

-Majidi, J. and Kadivar, P. (2002). "Characters, theories and projects". Aig Publications, Tehran.

- Maslac, M., Antic´, B., Lipovac, K., Pešic´, D. and Milutinovic´, N. (2018) "Behaviours of drivers in Serbia: Non-professional versus professional drivers". Transportation Research Part F: Traffic Psychology and Behaviour, Vol. 52, pp. 101-111.

- Mehdizadeh, M., Shariat-Mohaymany, A. and Nordfjaern, T. (2019) "Driver behaviour and crash involvement among professional taxi and truck drivers: Light passenger cars versus heavy goods vehicles". Transportation Research Part F: Traffic Psychology and Behaviour, Vol. 62, pp. 86-98.

- Mohammadfam, I. and Golmohammadi, R. (2004) "Evaluation of safety behavior among coach drivers in Hamadan". Monthly Zahedan Journal of Research in Medical Sciences (Tabibe-e-Shargh), Vol. 5, No. 4, pp. 251-60. (In Persian)

- Norris, F.H., Matthews, B.A. and Riad, J.K. (2000) "Characterological, situational, and behavioral risk factors for motor vehicle accidents: a prospective examination". Accident Analysis and Prevention, Vol. 32, No. 4, pp. 505-515.

- Olandoski, G., Bianchi, A. and Delhomme, P. (2019) "Brazilian adaptation of the driving anger expression inventory: testing its psychometrics properties and links between anger behavior, risky be- havior, sensation seeking, and hostility in a sample of Brazilian undergraduate students". Journal of Safety Research, Vol. 70, pp. 233-241.

- Prior, M. (1992) "Childhood temperament". Journal of Child Psychology and Psychiatry, Vol. 33, No.1, pp. 249-279.

- Rahemi, Z., Mirbagher Ajorpaz, N., Sharifi Esfahani, M. and Aghajani, M. (2017) "Sensation-seeking and factors related to dangerous driving behaviors among Iranian

drivers". Personality and Individual Differences, Vol. 116, pp. 314–318.

- Raouf Hadadi Sania, S., Tabibib, Z., Salehi Fadardic, J. and Stavrinosd, D. (2017) "Aggression, emotional self-regulation, attentional bias, and cognitive inhibition predict risky driving behavior". Accident Analysis and Prevention, Vol. 109, pp. 78-88.

- Rezapur-Shahkolai, F., Taheri, M., Etesamifard, T., Roshanaei, G. and Shirahmadi, S. (2020) "Dimensions of aberrant driving behaviors and their association with road traffic injuries among drivers". PLoS one, Vol. 15, No. 9, pp. e0238728.

- Rhodes, N. and Pivik, K. (2011) "Age and gender differences in risky driving: The roles of positive affect and risk perception". Accident Analysis and Prevention, Vol. 43, No. 3, pp. 923-931.

- Sahebi, S. and Nassiri, H. (2019) "Correlates of self-reported driving aberrations in Tehran: A study at the level of drivers and districts". Transportation Research Part F: Traffic Psychology and Behaviour, Vol. 63, pp. 309-322.

- Salmon, M.P., Read, G., Beanland, V., Thompson, J., Filtness, A., Hulme, A., McClure, R. and Johnston, I. (2019) "Bad behaviour or societal failure? Perceptions of the factors contributing to drivers' engagement in the fatal five driving behaviours". Applied Ergonomics, Vol. 74, pp. 162-171.

- Sergio, A., Viviola Gómez, V., Cendales, B. and Alonso, F. (2018) "Working conditions, job strain and traffic safety among three groups of public transport drivers". Safety and Health at Work, Vol. 9, No. 4, pp. 454-461.

- Shirmohammadi, H. (2006) "The human factor in traffic-related challenges and strategies to reduce traffic violations. in: the first urban traffic conference". Islamic Azad University, Khorasgan Branch, Isfahan.

- Somayeh Noori, H., Dehnavieh, R., Norouzi, S., Bameh, E. and Poursheikhali, A. (2017) "Is There Any Relationship between Mental Health and DrivingBehavior of Taxi Drivers in Kerman?", Global Journal of Health Science, Vol. 9, No. 2, pp. 294-303.

- Taylor, A. and Dorn, L. (2006) "Stress, fatigue, health, and risk of road traffic accidents among professional drivers: The contribution of physical inactivity". Public Health, Vol. 27, pp. 371-91.

- Useche, S.-A., Cendales, B., Alonso, F., Montoro, L. and Pastor, J.-C. (2019) "Trait driving anger and driving styles among Colombian professional drivers". Heliyon, Vol. 5, pp. e02259.

- Wang, Y., Li, M., Du, J. and Mao, Ch. (2015) "Prevention of taxi accidents in xi'an, china: what matters most?", Central European Journal of Public Health, Vol. 23, No. 1, pp. 77–83.

- WHO: World Health Organization

- Witt, M., Kompaß, K., Wang, L., Kates, R., Mai, M. and Prokop, G. (2019) "Driver profiling – Data-based identification of driver behavior dimensions and affecting driver characteristics for multi-agent traffic simulation". Transportation Research Part F: Traffic Psychology and Behaviour, Vol. 64, pp. 361-376.

- Zamani, A.F. (2009) "Design and evaluation of educational model in order to prevent harm risky driving behaviors in motorcycle dri - vers". Journal of Tarbiat Modares University, Vol. 5, No. 98- 100. (In Persian)