



Comparing the emotional intelligence and driving behaviors between the safe and risky drivers of Marivan Township

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Abstract: The purpose of this research was to compare the personality characteristics and driving behavior between the risky and safe drivers of Marivan Township. The statistical population included all drivers of Marivan township who had certification in 2014 that 225 persons of the statistical selected drivers were replaced in two groups of safe drivers (lack of accident and using of car insurance coupon) and risky drivers (accident record and using of insurance coupon) purposefully by referring to the insurance centers and according to the available sampling. The research variables were assessed through emotional intelligence questionnaire of Brad Berry & Jane Greaves and the questionnaire of Manchester driving behavior. The findings of the research questionnaires were analyzed by using of independent T-test and Hotelling's T-test. The results of the comparative analysis showed, there was meaningful difference between the relations management and social awareness in risky and safe drivers. The rate of mistakes, errors, intentional and unintentional violations in risky drivers was more than the safe drivers and this difference was meaningful statistically. The results of this research showed that the personality characteristics and psychological components (emotional intelligence and driving behavior) have been different between the drivers and therefore these factors should be also considered in giving the certification to the drivers.

Key words: driving behavior, risky drivers, safe drivers, emotional intelligence

Introduction

In today society, driving is an important thing for work, social life, recreation, educational, economic and innovative activities and other aspects. But the motor vehicles accidents are considered as one of the great factors of injuries, disabilities and death. The need to drive has caused to increase the number of road and urban accidents frequently and with high death rate, therefore it is stated as a problem in terms of general health (Bener et al, 2004). According to the studies about the driving accidents, four main factors are effective which include: human, road, vehicle and environment. The analysis of the road accidents in Iran shows that the most important factor of driving accidents in Iran is the human factor (Yaghoubi, 2001). There's no doubt that the car often creates the worst human characteristics, the persons who are naturally quiet and lovely may not be recognized when they are driving; these drivers swear that have been aggressive and stubborn since childhood and it seems all failures, disappointments and their hide jealousies are appeared while driving (Alexander, 2005).

In recent years, some of the researchers intended to consider the human factors effect in driving accidents; David Shiner, the member of a research team with multi-purpose goals studied about the reports after the accidents to clarify the effective factors in accidents and the mechanism of the injuries. He in his book entitled "road psychology" writes: "all researchers refer to this point that about 90 percent of the

accidents have been occurred due to the disability in the information processing by the driver or a behavior which is not usually committed by a skillful and intelligent driver” (Casten, 2005). Unfortunately, despite of the wide researches, the role of personality in the probability of accidents is still controversial and unclear and we haven’t progressed in perceiving the drivers’ behavior significantly (Rothn Gattr, 1997). Because in recent years, psychology has been only involved in studying the risky behavior and traffic safety and it hasn’t considered the emotional states and personality factors which influence on the driving behavior and lead to the accident (Burggs, 2000).

Driving behavior is said to a behavior that the driver selects it in the form of a model for his/her driving. Like driving speed, concentration rate in driving and maintaining the standard distance (Ozkan T, Lajunen T, 2005). Generally, each person has a series of characteristics which cause him/her to show a special behavioral method from himself/herself regularly and constantly.

The research hypotheses

The emotional intelligence rate is different in two groups of safe and risky drivers.

The driving behaviors rate is different in two groups of safe and risky drivers.

Methodology

The method of the current research is a descriptive and casual-comparative (Ex post facto) kind.

Statistical population

The statistical population of the current research includes all drivers who referred to the insurance centers of Marivan Township in the first half of 2013 to renew and provide the third-party insurance.

The sample size and sampling method

In order to select the group of the risky and safe drivers, the researcher has referred to the insurance centers of Marivan township level and the sample size was selected among the persons refereed to the insurance center with available method in the first half of 2013; and after the necessary explanations and creating the desired confidence and relation with mentioned drivers, the questionnaire was presented to them individually and 225 drivers of this population were selected with available sampling and statistically, and 117 safe drivers (drivers who hasn’t used of insurance coupon and are included discount) and 105 risky drivers (those who have used of their insurance coupon) were replaced in two groups purposefully.

The research tool

In order to obtain the primary data in this research, three standard questionnaires were used which are introduced in the following:

Emotional intelligence questionnaire (Brad Berry-Greaves)

This test has 28 articles which are divided into the scales of general emotional intelligence, self-awareness, self-management, social awareness and the relations management. The method of the test scoring is done by using of 6-point scale (1 to 6 points). The sum of the scores that the triable obtains in each one of the questions is the total score of the test.

Scoring manner

In this research, emotional intelligence questionnaire of Travis Brad Berry has been used. This questionnaire has 28 questions and it is one of the newest emotional intelligence tests. This test has 6 options as follows:

Never

This option takes the score 1 in the questions 1 to 6, 7 to 13, 16 to 19 and 21 to 28 and it takes the score 6 in the questions 14 and 15, it takes the score 5 in the question 20.

Sometimes

This option takes the score 3 in the questions 1 to 13, 16 to 19 and 21 to 28 and also it takes the score 4 in the questions 14, 15 and 20.

Usually

This option takes the score 4 in the questions 1 to 5, 7 to 13, 16 to 19 and 21 to 28 and it takes the score 5 in the question 6 , it takes the score 3 in the questions 14, 15 and 20.

Almost always

This option takes the score 5 in the questions 1 to 5, 7 to 13, 16 to 19 and 21 to 27 and it takes the score 6 in the questions 6 and 28, it takes the score 2 in the questions 14, 15 and 20.

Reliability

In order to estimate the reliability, Cronbach's alpha method has been used. The results show that the reliability coefficient (homology) of the emotional intelligence test of Brad Berry-Greaves is equal to 8313% for the whole of the group. Also the reliability coefficient of the test with Cronbach's alpha formula is equal to 822% (n=243) for the boys group and it is equal to 839% (n=297) for the girls group. Generally, the reliability coefficient of emotional intelligence test of Brad Berry-Greaves in the current research, both for girls and boys groups is in desired extent and it is more powerful compared to the reliability coefficient of similar tests.

Validity

About the emotional intelligence test of Brad Berry-Greaves, the most fundamental question is what characteristic or characteristics are measured by this test especially when it has been translated from the main language (English) to another language (Persian). Therefore, we need to collect the evidences about validation. With regard to this fact that the most fundamental quantitative method of the research about the validity of a test structure is to study its relation with a questionnaire which claims the intended assessment, in order to collect the evidences related to the tool structure studied, two methods of convergent validity and factorial analysis have been used so that through this way, it can be clarified that the mentioned questionnaire has been saturated from what structure or structures.

Driving habits test

This test is a self-reportorial test and it has 39 articles. 28 articles of this test was taken from ((Manchester driving habits questionnaire)) and 11 articles of it were added to the above articles by the researcher. This test studies the driving behaviors in a 6-degree scale (never, seldom, sometimes, almost much, often and always). These scales take the scores of 0, 1, 2, 3, 4 and 5 respectively. None of the questions has reversed scoring. This questionnaire has three subscales including ((mistakes)), ((errors)), ((violations)), or infringement of provisions which have been separated by Stardling and Midouz (2000). The validity of ((Manchester driving habits questionnaire)) in this study with internal homology method obtained the Cronbach's alpha coefficient of 0.79. Also the total internal homology of driving habits test obtained Cronbach's alpha equal to 0.92. This means that the added questions have helped the internal homology of test. The validity of this questionnaire was obtained according to the theory of two traffic officers. About the relevance of articles to the risky driving behaviors, the agreement coefficient of 0.98 was obtained, about the relevance of the subscales articles to three categories of mistakes, errors and violations, the agreement coefficients of 0.95, 0.92, 0.96 were also obtained respectively (Goudarzi and Shirazi, 2005).

The analysis method

In order to analyze the data, descriptive statistic methods (mean and standard deviation) were used and in order to compare the research variables in two groups of safe and risky drivers, T-test for independent groups and Hoteling's T-test for subscales were used by applying SPSS-22 software.

Demographic findings

In this part, after data and information collection, the sample is described by using of descriptive statistic which includes the central and dispersion indexes like frequency, frequency percent, diagram and tables. Frequency distribution and percents have been mentioned in the following tables separated according to the persons' characteristics.

Education level

The education level of the responders is according to the table (1).

Table 1. education level of the responders

Level Driving behavior education			Guidance (school)	Diploma	Associate degree	Bachelor's degree	Master degree	Unresponsive	Total
			Driving behavior	Safe	Number	5	24	11	34
Percent	2/2	10/7			4/9	15/1	0/4	18/7	52
Risky	Number	14		16	5	7	5	60	108
	Percent	6/2		7/1	2/2	3/1	2/2	26/7	48
Total	Number	19	40	16	31	6	102	225	
	Percent	8/4	17/8	7/1	18/2	2/7	45/3	100	

Marriage status

The marriage status of responders is according to the table (2).

Table 2. marriage status of the responders

Driving Behavior		Marriage status	Married	Single	Unresponsive	Total
			Driving behavior	Safe	Number	36
Percent	16	15/1			20/9	52
Risky	Number	5		40	63	108
	Percent	2/2		17/8	28	48
Total	Number	41	74	109	225	
	Percent	18/2	32/9	48/4	100	

Age group

The age group of the responders is according to the table (3).

Table 3. age group of the responders

Driving behavior			1	2	3	4	9	Total
			Driving behavior	Safe	Number	33	26	14
Percent	14/7	11/6			6/2	0/9	18/7	52
Risky	Number	20		21	6	0	61	108
	Percent	8/9		9/3	2/7	0	27/1	48
Total	Number	53	47	20	2	103	225	
	Percent	23/6	20/9	8/9	0/9	45/8	100	

Descriptive statistic of the research variables

Driving behavior

In order to describe the driving behavior in two groups of risky and safe drivers, the following results were obtained that state the following central and dispersion parameters.

Table 4. statistical indexes of driving behavior

Driving behavior	Group	Number	Mean	Standard deviation
Mistake	Safe	114	17.7982	8.74939
	Risky	108	32.2407	14.21127
Intentional violations	Safe	114	14.6930	9.61758
	Risky	108	32.9722	16.52778
Errors	Safe	114	6.3596	4.48819
	Risky	108	13.8333	7.21693
Unintentional violations	Safe	114	2.8947	2.10086
	Risky	108	5.3704	2.73978

Emotional intelligence

In order to describe the emotional intelligence and its dimensions in two groups of risky and safe drivers, the following results were obtained that state the following central and dispersion parameters.

Table 5. statistical indexes of emotional intelligence and its dimensions in two groups of safe and risky drivers

Emotional intelligence dimensions	Group	Number	Mean	Standard deviation
Self-awareness	Safe	116	27.3103	13.26611
	Risky	108	25.1852	7.40440
Relation management	Safe	116	35.7845	10.01721
	Risky	108	32.6667	10.33188
Self-management	Safe	116	29.8534	14.09548
	Risky	108	26.6296	8.52659
Social awareness	Safe	116	23.2241	6.08932
	Risky	108	20.5556	6.70379
Total score	Safe	116	116.1724	38.05380
	Risky	108	105.0370	30.60692

Inferential statistic and hypotheses test

After describing the responds obtained from statistical population in this part, the hypotheses proposed and statistical test used in the research have been studied. In other words, in this chapter the findings obtained from the field researches are analyzed so that the accuracy of the hypotheses can be studied statistically.

The research hypotheses test by using of comparative analysis

First hypothesis

There is difference between the personality characteristics of risky and safe drivers.

In order to study the meaningfulness of the personality characteristics difference in risky and safe drivers with regard to this fact that independent variable has two levels and dependent variable is multi-variable, Hotelling’s T-test is used for determining the meaningfulness index that its results have been mentioned in the table 5.

There is no difference between the personality characteristics of risky and safe drivers.

$$H_o = \bar{x}_1 = \bar{x}_2$$

There is difference between the personality characteristics of risky and safe drivers.

$$H_o = \bar{x}_1 \neq \bar{x}_2$$

Table 6. the results of comparing the personality characteristics of risky and safe drivers

Index variable	Test name	Observance value	Freedom degree of hypothesis	Freedom degree of error variance	F approximate	Meaningfulness level
Personality characteristics	T Hotelling-s	0/216	5	219	9/460	0/001

As it is observed in the table 6. by using of Hotelling’s T-test, meaningfulness of multi-variable F with the amount of 9.460 indicates that there is meaningful difference between the risky and safe drivers in one of the personality characteristics variables. In order to identify this fact that between the risky and safe drivers in which one of the personality characteristics there is difference, we refer to the LSD pursuit test that its results have been mentioned in the table 7.

Table 7. results of LSD pursuit test

Dependent variable		Group		Mean difference between two groups	Standard deviation error	Meaningfulness level
Five factors of personality	Neuroticism	Safe	Risky	-2.071	1.155	.074
		Risky	Safe	2.071	1.155	.074
	Flexibility	Safe	Risky	3.558*	.881	.000
		Risky	Safe	-3.558*	.881	.000
	Extroversion	Safe	Risky	2.048*	.906	.025
		Risky	Safe	-2.048*	.906	.025
	Compatibility	Safe	Risky	5.903*	1.000	.000
		Risky	Safe	-5.903*	1.000	.000
	Conscientiousness	Safe	Risky	5.405*	1.036	.000
		Risky	Safe	-5.405*	1.036	.000

According to the LSD pursuit test of personality characteristics, there is meaningful difference in flexibility, extroversion, compatibility and conscientiousness factors between the risky and safe drivers.

Second hypothesis

There is difference in emotional intelligence rate between the safe and risky drivers.

In order to inform of the existence of difference in emotional intelligence rate between the safe and risky drivers, the following hypothesis was tested by using of independent T-test that its result is as follows:

There is no difference in emotional intelligence rate between the risky and safe drivers.

$$H_o = \bar{x}_1 = \bar{x}_2$$

There is difference in emotional intelligence rate between the risky and safe drivers.

$$H_o = \bar{x}_1 \neq \bar{x}_2$$

Table 8. summary of independent T-test results

Variable	Levene test results		The amount of t	Freedom degree	Meaningfulness level
	The amount of F	Meaningfulness level			
Emotional intelligence	0/032	0/858	2/402	222	0/017

P<0.05

As it is observed in the table (8), the amount of t obtained (t-2.402) with freedom degree of 222 is meaningful in confidence level of 0.95. The result is that the H0 hypothesis was rejected and H1 hypothesis (the main hypothesis of the research) was confirmed according to the existence of meaningful difference in emotional intelligence rate between the safe and risky drivers. And according to the descriptive results, the mean of the general score of emotional intelligence in safe drivers was more than the risky drivers.

The subsidiary hypotheses test related to the subscales of emotional intelligence

In order to study the meaningfulness of difference in emotional intelligence dimensions between the risky and safe drivers, with regard to this fact that independent variable has two levels and dependent variable is multivariable, we use of Hotelling’s T-test for determining the meaningfulness index that its results have been mentioned in the table 9.

Table 9. the results of comparing the emotional intelligence dimensions between the risky and safe drivers

Index Variable	Test name	Observence value	Freedom degree of hypothesis	Freedom degree of error variance	F approximate	Meaningfulness level
Emotional intelligence dimensions	T Hotellings	0/047	4	219	2/593	0/038

As it is observed in the table 8, by using of Hotelling’s T-test, meaningfulness of F multivariable with the amount of 2.593 indicates that there is meaningful difference between the risky and safe drivers in one of the variables of emotional intelligence dimensions. In order to identify this fact that between the risky and safe drivers in which one of the emotional intelligence dimensions there is difference, we refer to the LSD pursuit test that its results have been mentioned in the table 9.

Table 9. the results of LSD pursuit test

Dependent variable		Group		The mean difference between two groups	Standard deviation error	Meaningfulness level
intelligence dimensions	Self-awareness	Safe	Risky	2.125	1.450	.144
		Risky	Safe	-2.125	1.450	.144
Emotional	Relation management	Safe	Risky	3.118*	1.360	.023
		Risky	Safe	-3.118*	1.360	.023
Emotional	Self- management	Safe	Risky	3.224*	1.571	.041
		Risky	Safe	-3.224*	1.571	.041
Emotional	Social awareness	Safe	Risky	2.669*	.855	.002
		Risky	Safe	-2.669*	.855	.002

According to the LSD pursuit test, there is meaningful difference between the dimensions of the relation management, self-management and social awareness in risky and safe drivers. But this difference wasn’t meaningful in self-awareness dimension.

In order to study the second hypothesis about the difference in the emotional intelligence rate between two groups of safe and risky drivers, independent T-test was used and in order to study the difference of emotional intelligence dimension in two groups, Hotelling’s T test was used. The results of independent T-test showed that the emotional intelligence rate in risky drivers was less than the safe drivers and this difference was meaningful statistically. A meaningful difference was observed in Hotelling’s T-test results between two groups, this difference was in the dimensions of self-management, social awareness and

relation management. In all of these dimensions, the scores amounts of the safe drivers were higher than the risky drivers. Another result of this hypothesis analysis was lack of meaningful difference in self-awareness scores between the risky and safe drivers.

A driver who has high self-control ability, in the emotional situations and when incorrect behaviors of other drivers force him to react angrily and inconsiderably obtains the ability to control his undesired thoughts and feelings and the behaviors which lead to violations and their bad consequences are prevented. Therefore self-control rate of non-offending drivers is more than the offending drivers. Emotional intelligence has been expressed as the performance ability in social situations. Emotional intelligence as the accurate perception ability creates the assessment and outbreak of emotion, ability to access or create the feelings, ability in emotion or emotional knowledge and ability to regulate the emotions for promotion of emotional development and intelligence. Emotional intelligence is separated from IQ and the method of better using of IQ is through self-control, eagerness, perseverance and self-motivation. Emotional intelligence creates the ability to control our emotional tendencies in the most private feelings of others, and it also causes the considered and calm behavior in human relations. Emotional intelligence determines what act is suitable or unsuitable in social relations, this aspect of intelligence determines the person's relations with others. Therefore the drivers who have high emotional intelligence have higher rates of self-control, self-awareness, self-motivation, social intelligence and social skill than the other drivers.

Tabesh and Zare research (2012) showed, teaching the emotional intelligence skills causes to increase the use of intuitive method of decision-making and decrease the use of avoidant, dependent and instantaneous method of decision-making. Strengthening the emotional intelligence as a combination of different personality traits enables the person that can manage and improve his/her cognitive processing by recognizing, perceiving, regulating and controlling the emotions and this issue confirms this hypothesis results. According to the researcher's opinion, the drivers who have high social skills have better recognition about the others especially drivers, pedestrians and the passengers of their vehicle, so they will behave with them suitably by this recognition and using of suitable social skills, therefore violations and accidents occur less for them. For example, a driver who has social skills, respects to the others' rights, considers the physical and spiritual conditions of different groups in the society as much as possible and he/she commits less violations.

In order to study the third hypothesis about the difference in risky behaviors rate between two groups of safe and risky drivers, Hotelling's T-test was used. The results showed that there was meaningful difference between the intentional violations, mistakes, errors and unintentional violations in two groups of safe and risky drivers and in each of the four subscales, the scores of risky drivers were higher than the safe drivers. James (2000) knows driving as a complicated behavior which includes incorrect assessment of risk, low moral development and selfishness, knowing the competition valuable, supremacy in driving, risking and aggression, perceptual error in estimation of speed, distance and mistake or failure in performance (Kazemini, Hashemabadi, Ghoravi, Esmaelizadeh, 2011).

The importance of considering the driving discussion is an obvious case; because every year there are more statistics of dead and injured persons related to the road accidents. According to the researches accomplished in studying the reasons of driving accidents, four main factors have been proposed. These factors are human and road factors, the factors related to the vehicles and finally the environment factor. Among these four factors, the researches have shown that the human factor has been about 90 percent of the accidents factor (Lajunen, Parker, 1998). With regard to the studies accomplished such as Shakernia et al researches (2010), Kazemini et al (2011), Daf Fen Baker et al (2003) and Albirej (2001), Haghshenas (2009), Lajunen (2001), Elberg (2002), Diamant and Borouhad (2002), Maxwell and Eslipkin (2005), LM Tis, Flynn and Mernez (2006), Fernandes, Hetfield and Job (2010), Samer (2005), Kasirlou (2003), Ferdousi (2009), Haghshenas (2005), Mousavi (2009), Hashemian et al (2009), Bourgis (2002), Haghshenas et al (2007), Pal and Torbjom (2003) and current research, the psychological and personality characteristics of persons can be effective in outbreak of driving behavior. The results of current research showed the difference of personality characteristics, emotional intelligence and driving behavior in risky and safe drivers.

Research restrictions

One of the main restrictions of this research is lack of generalization of this research results to a larger population due to the border situation, border-residents culture and the small area of Marivan Township.

In this research, in order to identify the risky drivers with regard to use of insurance coupon and accidents record and for removing this restriction, the future researchers are recommended to refer to the traffic centers of Islamic Republic Security Forces; and the list of risky drivers should be identified with regard to the violation kind and the repetition rate of violation.

Research recommendations

Applicable recommendations

Current research showed that driving is a phenomenon that puts the human in special conditions. These conditions cause to clarify some behaviors based on the driver personality with more clarity and objectivity. On the other hand, driving is a social behavior which influences on a wide range of cognitive, emotional and personality actions of persons; therefore the persons who launch to drive, always need to be aware of their psychological status, thus the recommendations of this research are as follows:

In order to take the certification and renew it and even in regular intervals, psychological assessments from drivers should be done (personal or public) and the drivers that according to the discretion, need education or counseling (risky or invasive drivers) should take part in especial educational plans in attending and non-attending classes and they can maintain their driving license by obtaining the passing score.

One of the results of this research was the difference in emotional intelligence between the risky and safe drivers, therefore the following cases are recommended:

Compulsive educational classes should be held in the domain of emotional intelligence for offending drivers.

Intensive courses for teaching the emotional intelligence should be held for drivers at the time of issuing the certification or renewing it.

The social awareness rate and correct skills of social life should be taught to the drivers especially risky drivers by using of suitable educational methods.

The emotional intelligence subject and its position in improvement of drivers' behavior should inform the public people in the form of film, drama and animation by using of media.

Self-motivation methods and the relations management should be strengthened in them by referring the risky drivers to the counseling centers of Islamic Republic Security Forces and other counseling centers; and non-attending educations of self-motivation methods and the relations management should be strengthened in them.

In educating the persons, this question is always proposed that what issues should be said to what groups of people and how should these education be presented? Cognitive psychologists with regard to the cognitive factors which can influence on the person's performance respond to these questions. Finally it should be mentioned that access to safe streets for all is the result of the experts' work in different domains for reviewing the safety methods and their preventive effect. Therefore cooperation of universities and government for decreasing the accidents is a necessary affair.

Investigative recommendations

Teaching the relational and self-control skills and its effect on decreasing the risky behaviors in risky drivers.

Doing the current research in larger towns for generalization of the results.

Studying other psychological predictors of risky driving behaviors.

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