Journal of Scientific Perspectives

EXAMINING THE RELATIONSHIP BETWEEN EMPATHY AND ANGER EXPRESSIONS OF THE DRIVERS

Şahide Güliz KOLBURAN * & Hande TASA ** & Elif Özge ERBAY ***

* Assist. Prof. Dr., İstanbul Aydın University, Faculty of Arts and Sciences, Psychology, TURKEY,
e-mail: sahidegulizkolburan@aydin.edu.tr
ORCİD ID: https://orcid.org/0000-0002-7403-6933

** Lecturer, İstanbul Aydın University, Faculty of Arts and Sciences, Psychology, TURKEY,
e-mail: handetasa@aydin.edu.tr
ORCİD ID: https://orcid.org/0000-0001-7543-1217

*** Assist. Prof. Dr., İstanbul Aydın University, Faculty of Arts and Sciences, Psychology, TURKEY,
e-mail: eliferbay@aydin.edu.tr
ORCİD ID: https://orcid.org/0000-0001-7927-0596

ABSTRACT

When human behavior, which is mediated by many different variables, is taken into consideration in a special condition such as traffic, it requires to investigate not only the visible situations that concern the moment, but also the sub factors that cause the resulting behavior. When examining driver behavior, focusing only on cognitive processes can lead to a one-way evaluation of the behavior, which may lead us to ignore factors such as emotions, past experiences and personality. Therefore, driver behavior should be addressed by a comprehensive holistic approach in which emotions and cognitive factors are considered together. The aim of the study is to investigate the role of empathy in the relationship between the situations evoking anger in traffic and anger expressions of the drivers. In order to run the study, data were collected through Demographic information form, Driver Anger Scale (DAS), Driver Anger Expression Inventory (DAX) and Basic Empathy Scale (BES) among 975 participants who are over 18 years of age and active drivers in traffic. According to the results, it has been seen that as people's cognitive empathy levels increased, their adaptive/ constructive anger expressions were increased. Also, the forms of expression of anger, was found to be significantly different according to gender.

Keywords: *Traffic Psychology, Driver, Anger, Empathy*

1. INTRODUCTION

As population density of cities is increasing day by day in our country and all over the world, settlement in cities is spreading in wide regions that creates an obligation to use transportation vehicles (Kavsıracı, 2018). Traffic which is especially an issue in big cities in which population density is very large, becomes a field of study for various disciplines. When considering 7427 people lost their lives and 300,383 people had injuries in traffic accidents in 2017 (Turkey Statistics Organization-TUİK, 2017), it becomes very understandable that studies conducted especially focus on traffic accidents, and death and injuries in those accidents. Besides the studies conducted to research about human factor in traffic accidents, studies involving the issues directly related with traffic safety, such as impulsive driving (eg. Özkan, Öztürk and Öz, 2018) and anger thoughts (eg., Yasak, Batıgün and Eşiyok, 2016), are also conducted.

Traffic psychology discusses human factor and variables related with human beings in the context of traffic. Psychologists studied in this area, investigates drivers' behaviors and their driving skills which are crucial issues to increase the traffic safety. Yasak (2002) cited various studies (Michon, 1980 and Brown, 1997) in which psychologists has been trying to find out solutions for hazardous situations in traffic caused by drivers since 1960s by using the methods of Psychology. Traffic psychology is interested in behaviors of driver, passenger and pedestrians in traffic system (Yasak, 2002).

When looking at the human behaviors in traffic, it has been seen that the factors predicting human behaviors are explained from different perspectives through various theoretical approaches. Behaviorists prioritize the stimulus-reaction relation, while cognitivists focus on the cognitive processes between the stimulus and the reaction. Psychodynamic theory, on the other hand, concentrate on the impulses emerging behavior. Considering the complex structure of human behavior, it would be better to take various perspectives into account as an eclectic approach rather regarding from a single theoretical approach.

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Human behavior is required to be evaluated by considering not only the obvious circumstances in which the behavior occurs, but also other factors which causes the behavior. Focusing only on cognitive processes when examining driver behavior leads to an evaluation of behavior over a single perspective, and to overlooking the other factors such as emotions, past experiences and personality. Therefore, driver behaviors should be evaluated through a holistic method including all these characteristics.

An individual is under the influence of internal and external stimuli while driving. Various emotions are revealed due to reasons such as traffic congestion, noise and contentious situations (Girgin and Kocabıyık, 2002), and negative emotions such as anger and frustration arise as an inner force motivating behavior. The external stimuli in traffic which a person is exposed to, also leads to a cognitive stimulation. Overexposure to external stimuli causes a distortion in cognitive processes, harmony of the self with the external environment and the psychological stability (Girgin and Kocabıyık, 2002). So, emotions cannot be considered as separated from certain situations evoking emotions and the cognitive processes in which people evaluate these situations. This study has shed light on the emotion of anger which people often face with in traffic, different theoretical perspectives explaining anger, and empathy skills which have an important role in angry situations in traffic.

1.1 Anger

The word "anger" ('öfke' in Turkish), is defined as "frustration, strain or an aggressive reaction to an intimidation" by Turkish Language Association (TDK, 2006). 'State anger', on the other hand, is defined as experiencing the feelings of tension, fury, and rage, resulting from

an interruption of a purpose-oriented behavior of an individual or from a perception of unfairness (Yılmaz and Dost, 2016). Thus, many theoretical approaches explaining the emotion of anger, find that anger is related with frustration and aggression (Atkinson et. al., 1999).

When looking at the theoretical views about anger, it can be seen that the emotion, anger is natural. However, while expressing anger, the process of transforming of it into a behavior or an action can be problematic. There are different views about anger transformed into behavior in various personality theories as well. *Classic psychanalytic approach* explain the aggression underlying anger with the instinct of death in the subconscious. When organism feels the necessity for something, this necessity should be met and the tense energy emerged from this necessity should be drained by expressing anger. Therefore, anger is seen as a way of discharging the accumulated energy (Özmen, 2006). C*ognitive approach* specifies that what the reaction to a situation will be, depends on how we perceive that situation (Burger, 2006). According to cognitive behaviorists, on the other hand, when individual experiences frustration, anger and aggression reactions may not be occurred, if the individual finds the reason of his/her frustration as rational. So, how people express their anger is closely related with cognitive processes in which the emergence of anger in individual depends on how the individual perceives and understands the external stimuli. The way one expresses his/her anger is a learned behavior, and all emotions are based on individuals' perceptions and interpretations about events. So, in terms of learning principles, taking anger under control can be accomplished by changing the basic thought underlying individual's anger behavior (Dykeman, 1995; Mayne and Ambrose, 1999). Emotional processes such as aggression and looking for excitement, have also been seen as related with drvivers' behaviors and their driving skills (Sümer and Özkan, 2002).

Frustration-Aggression is a hypothesis induced by John Dollard Leonard Doob, Neal Miller, O.H. Mowrer and Robert Sears in order to explain aggression. The theory has main two propositions as *"Frustration always leads to aggression and aggression will occur if, and only if, there is frustration"* (Freedman, Sears and Carlsmith, 1989: 198). Frustration -barriers to achieving pleasures or avoiding pain- may cause aggression, however, not all frustrations or strains result in aggression. Arbitrary frustrations or strains lead to more anger and aggression than non-arbitrary ones lead. If frustration is not perceived as a result of a bad intention and is perceived as being occurred unintentionally based on a just cause, it does not upset people and does not cause aggression (Freedman, Sears and Carlsmith, 1989). There are various views proposing that anger is considered as a natural emotion and studying about the way of expression of anger. The importance of cognitive processes in the relationship between the emotion itself and the way of expressing it, is especially underlined. Emotions cannot be considered as separate from thoughts, on the contrary, emotions and thoughts work as a complementary processes for each other (Çeçen, 2002). Parallel to this view, many studies about controlling anger and expressions of anger in acceptable ways focus on the individuals' empathic tendencies. For this reason, in this part of the study, it was found appropriate to include the theoretical framework about empathy.

1.2 Empathy

Dökmen (2005) discussed empathy with two aspects: *empathic tendency* and *empathic skill*. Empathic tendency is the emotional dimension of the empathy and reflects the individual's potential for using empathy, while empathic skill is the individual's ability to use empathy. Cognitive dimension of empathy refers that the individual places himself/herself in another's position and understand what he/she thinks, whereas emotional dimension of empathy refers that the individual places himself/herself in another's position and understand what he/she feels (Dökmen, 2005). In the study of Davis (1994) in which the conceptual and emotional components of empathy was examined, empathy is defined as someone's reacting emotionally

because he/she perceives that another experiencing an emotion. Empathic tendency is generally refers to a personality characteristic including a potential, and this potential can be improved through training (Hodges, 1991).

There are many researches in which empathic skill and its relationship with different variables were studied. For instance, a study shows that people who can understand what others are doing and why they are doing are more successful in dealing with negative situations; also shows that individuals who can use empathy can also solve their problems efficiently (Özcan, Oflaz and Türkbay, 2003). In another study conducted by Hasta and Güler (2013), the relationship between empathy and aggression was researched; it was found that empathic tendency and condescending relationship style significantly predict destructive and passive aggression. Dökmen (2009) also found that there is a positive relationship between interpersonal communication and collaboration, and empathy.

There are many studies show that there is a relationship between the expression of anger and empathy. One of them reveals that people with high level of empathy can regulate their anger in their interpersonal relations (Preston and Hofelich, 2011). In a similar study (Endersen and Olweus, 2001), a negative and significant relationship between empathy and bullying behaviors was found. A study conducted by Çankaya and Ergin (2015), also points that a negative relationship between aggression and empathy.

In the light of all these results in the literature, this study aims to examine the relationships between drivers' anger, forms of expression of their anger and their empathy skills. Main purpose is to explore the relationships between these variables and contribute to create safer traffic environments. Thus, some major researches confirm the effect of aggressiveness as a personality characteristics on risky driving behaviors (Ulleberg and Rundmo, 2003). It is also stated that drivers are most frequently angry at the aggressive and hostile behavior of other drivers and their aggression increases as their anger increases (Delice, 2013). The concept of "traffic monster" defining the driver who cannot control his/her anger shows up frequently in media as a metaphor that represent how risky angry drivers are perceived in traffic. Therefore, every study in traffic psychology will make important contributions to the field and help to constitute a safer traffic environment.

2. METHODOLOGY

2.1 Sample

Study population is vehicle drivers in Turkey. A total of 975 active drivers, 439 women and 536 men, aged between 18 and 67 years, were selected for the study by random sampling. Some of the data were collected through the Google form, and some by the questionnaires given to the participants.

2.2 Data Collection

Demographic Information Form: In the demographic information form created for the research, the participants were asked age, gender, educational status, traffic experience and the time spent in daily traffic.

Driver Anger Scale (DAS): It is a 33-item scale which aims to determine the extent of drivers' anger in traffic situations developed by Deffenbacher et al (1994). As a result of the validity and reliability studies of the scale, Cronbach's alpha internal consistency coefficients are ranging from 0.78 to 0.87. The scale has six factors which are 'Hostile Gestures' consists of 3 items, 'illegal driving' consists of 4 items, 'Police Presence' consists of 4 items, 'Slow Driving' consists of 6 items, 'Discourtesy' consists of 9 items, and 'traffic obstruction' consists of 7 items (Eşiyok, Yasak and Korkusuz, 2007).

Driver Anger Expression Inventory (DAEI): It is a 49-item scale that is designed to determine how often and how drivers are being furious in defined situations developed by Diffenbacher et al (2002). As a result of Turkish adaptation studies (Eşiyok et al., 2007), four factors were found: 'verbal aggressive expression' ($\alpha = .88$), 'personal physical aggressive expression' ($\alpha = .79$), 'use of the vehicle to express anger' ($\alpha = .87$) and 'adaptive / constructive expression' ($\alpha = .79$). In addition to these 4 factors, 'total aggressive expression index' factor (total aggressive expression $\alpha = .90$) was created from the sum of the other three factors other than the adaptive/constructive expression factor. The researchers called the factor of 'total aggressive expression index' as 'negative anger expression'.

Basic Empathy Scale (BES). The scale was developed by Jolliffe and Farrington (2006) and validated and adapted to Turkish by Topçu, Baker and Aydın (2010). The Likert-type and 5-point grading scale that measures cognitive and emotional empathy consists of 20 items. The scale consisting of two subscales: cognitive empathy consists of 9 items and emotional empathy consists of 11 items.

2.3 Procedure

For the scales to be used in the study, the necessary permissions were obtained from the researchers who carried out the validity studies. The Ethics Committee of Istanbul Aydin University gave an ethical approval after the necessary investigations for the study. Demographic Information form, Driver Anger Scale, Driver Anger Expression Inventory and Basic Empathy Scale together with an informed consent form were turned into as a test battery. Google form and face-to-face interviews have been carried on with participants who were selected by convenience sampling model. The obtained data were analyzed by various statistical techniques with SPSS 19 package program.

3. FINDINGS

3.1 Descriptive Analyses

As Table 1 indicated that the sample of the study consists of 975 people, 439 women, and 536 men, who are actively using vehicles in traffic. Participants' age is ranging from 18 to 67 years and mean of age is 51.5 years. When the distribution of the participants according to their educational status is examined, it is seen that 70.6% of the sample is university graduated (see Table 2).

Table 1. Gender Distribution of Participants

		Frequency	Ratio	Valid Ratio	Cumulative Ratio
Female		439	45.0	45.0	45.0
Male		536	55.0	55.0	100
	Total	975	100.0	100.0	

Table 2. Distribution of Education Level of Participants

		Frequency	Ratio	Valid Ratio	Cumulative Ratio
Primary school		42	4.3	4.3	4.3
Secondary school		43	4.4	4.4	8.7
High school		123	12.6	12.6	21.4
University		687	70.5	70.6	92.0
Master degree		66	6.8	6.8	98.8
Doctoral degree		12	1.2	1.2	100.0
Missing		2	.2		
	Total	975	100.0		

3.2 Correlations between Variables

Correlation analyses have been performed to examine the relationships between variables (see Table 3). According to the analyses, there is a significant positive correlation between empathy and adaptive/constructive expression of anger (r=.12, p=.000). In other words, as people's empathy levels increase, their level of adaptive / constructive expression of anger is also increasing. In addition, there is a significant positive correlation between cognitive empathy level and adaptive / constructive expression of anger (r=.23, p=.000). Accordingly, as cognitive empathy levels of individuals increase, their level of adaptive/constructive expression of anger is also increasing. Moreover, a significant negative correlation between cognitive empathy and negative anger expression is found (r= -.92, p=.000). In other words, as the levels of cognitive empathy decrease, negative expression of anger is increasing.

Table 3. Correlations between Variables

	Mean (SS)	Empathy (Total)	Cognitive empathy	Emotional empathy	Adaptive anger expression	Negative anger expression
Empathy (Total)	58.78 (6.79)	1				
Cognitive empathy	29.49 (3.71)	.740**	1			
Emotional empathy	29.30 (4.76)	.852**	.277**	1		
Adaptive anger expression	42.55 (9.53)	.120**	.230**	-.007	1	
Negative anger expression	86.38 (19.54)	.009	-.092**	.084**	-.669**	1

*p < .05; **p < .01

Findings about Demographic Variables

T-test and ANOVA analyses were performed to see whether gender, age, education level, and cities where participants drive their vehicles affect their empathy levels, anger expressions and situations that cause anger.

Independent sample t-test was conducted in order to see if there is a significant difference between the situations that cause anger in the traffic environment and gender. Accordingly, discourtesy [t(973)=4.42, p=.000], hostile gestures [t(973) = 4.39, p=.000], illegal driving [t(973) = 5.34, p=.000], and traffic obstruction [t(973) = 3.68, p=.000] differ depending on gender. So, it is seen that women get angrier than men in discourtesy, hostile gestures, illegal driving and traffic obstruction (see Table 4).

Table 4. Differences of Anger Level According to Gender

	Gender	N	Mean	SS	SSE
Discourtesy	Female	439	3.5756	.81712	.03900
	Male	536	3.3344	.87024	.03759
Hostile Gestures	Female	439	3.4525	1.21496	.05799
	Male	536	3.1135	1.18037	.05098
Illegal Driving	Female	439	3.6291	.80844	.03858
	Male	536	3.3452	.84585	.03653
Traffic Obstruction	Female	439	3.2138	.83018	.03962
	Male	536	3.0191	.81395	.03516

In the study, independent sample t-test was performed to investigate whether the negative expression of drivers' anger differ according to gender. By considering the total scores, it was observed that anger expression significantly differs according to gender [t (960) = -5.110, p=.001]. Accordingly, it was found that women (x̄= 82.91) showed negative anger expressions significantly less than men (x̄= 89.29). Adaptive / constructive anger-expressing scores differ significantly according to gender [t (952,16)= 5.987, p=.000]. Accordingly, women (x̄= 44.52) expressing anger in an adaptive / constructive way is significantly higher than men (x̄= 40.93) (see Table 5).

Table 5. Meaning of Negative Anger Expression and Adaptive / Constructive Anger Expression

	Gender	N	Mean	SS	SSE
Negative Anger Expression	Female	439	82.9094	16.78337	.80103
	Male	523	89.2882	21.15670	.92512
Adaptive/Constructive Anger Expression	Female	439	44.5194	9.09157	.43392
	Male	536	40.9300	9.57923	.41376

Considering the difference in negative anger expression (total aggressive expression index) between men and women; whether the three factors included in the index differ according to gender was also examined by independent sample t-test. It is found that use of the vehicle to express anger differs significantly according to gender [t(973) = -4.94, p=.000]. In the case of angry situations in the traffic, men (x̄ = 1.65, *SS* = .58) express their anger more by shortening their following distance in traffic comparing with women (x̄ = 1.48, *SS* = .45). A similar situation can be seen in personal physical aggressive expression [t(973) = -6.90, p=.000]. Women (x̄ = 1.15, *SS* = .32) are more hesitate than men (x̄ = 1.33, *SS* = .48) to express their anger by fist shaking. Finally, a significant difference between gender and verbally expressing anger, such as grumble to the driver in situations that cause anger in traffic [t(973) = 2.03, p<.05]. Women's (x̄ = 2.18, *SS* = .65) verbal expression of their anger were found significantly higher (x̄ = 2.09, *SS* = .69) than men's.

Table 6. Difference Between Negative Anger Expressions and Gender

	Gender	N	Mean	SS	SSE
Verbal Expression	Female	439	2.1800	.64941	.03099
	Male	536	2.0919	.69273	.02992
Personal Physical Expression	Female	439	1.1465	.31555	.01506
	Male	536	1.3307	.48209	.02082
Use of the Vehicle to Express Anger	Female	439	1.4804	.44524	.02125
	Male	536	1.6471	.58108	.02510

As a result of the one-way analysis of variance (ANOVA) conducted to determine whether there was any difference between the participants' expressions of anger according to the cities where the vehicle is used. It is found that the difference between means for anger expression statistically significant according to cities where the vehicle is used [F=(3, 969)= 6.03; p=.000]. It is seen that the people who drive in Istanbul get higher scores (x=1.62, ss=.56), than those driving in other cities (x=1.51, ss=.47) in expression of anger by vehicle. In other words, people who drive in Istanbul express their anger more by using their vehicle than those driving in other cities. Other differences in subscales are found not statistically significant. In verbal expression of anger subscale [F=(3, 969)= 5.172; p=.002], it is found that the people who drive in Ankara get higher scores (x=2.48, ss=.66) in the other cities' drivers (x=2.06, ss=.68). In this respect, it is seen that people who drive in Ankara express their anger more verbally than people who drive in other cities.

One-way analysis of variance (ANOVA) was performed to determine whether the forms of expression of anger differ according to participants' educational levels. In verbal expression

of anger subscale [$F=(5, 967)= 6.69$; $p=.000$], it is found that university graduates (x=2.18, ss=.67) and master degree graduates (x=2.33, ss=.69) have higher scores than middle school graduates (x=1.74, ss=.66). Accordingly, it is seen that university and master degree graduates express their anger more in verbal way than middle school graduates.

One-way analysis of variance (ANOVA) was performed also to determine whether the forms of expression of anger differ according to the participants' age. Significant differences were found between 18-25, 26-45, and over 45 years age groups [use of the vehicle to express anger: $F=(2, 940)= 17.587$; $p=.000$; negative anger expression: $F=(2, 930)= 17.394$; $p=.000$; adaptive/constructive anger expression: $F=(2, 940)= 7.534$; $p=.001$; verbal expression: $F=(2, 940)= 7.918$; $p=.000$; personal physical aggressive expression $F=(2, 940)= 7.112$; $p=.001$]. According to the mean differences shown in Table 7, while the mean of negative anger expression in 18-25 age group is higher than other age groups, adaptive/constructive anger expression mean is lower than other age groups. From this point of view, it can be said that while age increases adaptive/constructive anger expression is also increase but negative anger expressions decrease.

Table 7. Difference Between Anger Expressions and Age

Anger Expression	Age (ı)	Mean	Age (j)	Mean Differences	SE	Sig.
Use of theVehicle to Express Anger	18-25	1.6706	26-45	.18594*	.03702	.000
			46+	.24779*	.05766	.000
	26-45	1.4846	18-25	-.8594*	.03702	.000
			46+	.06185	.06034	.561
	46+	1.4228	18-25	-.24779*	.05766	.000
			26-45	-.06185	.06034	.561
Negative Anger Expression	18-25	89.9611	26-45	6.57463*	1.37286	.000
			46+	9.61774*	2.13201	.000
	26-45	83.3865	18-25	-6.57463*	1.37286	.000
			46+	3.04311	2.23525	.362
	46+	80.3434	18-25	-9.61774*	2.13201	.000
			26-45	-3.04311	2.23525	.362
Adaptive/Constructive Expression	18-25	41.4743	26-45	-2.19329*	.66724	.003
			46+	-2.92232*	1.03914	.014
	26-45	43.6676	18-25	2.19329*	.66724	.003
			46+	-.72903	1.08745	.781
	46+	44.3966	18-25	2.92232*	1.03914	.014
			26-45	.72903	1.08745	.781
Verbal Expression	18-25	2.2238	26-45	.14351*	.04713	.007
			46+	.23743*	.07340	.004
	26-45	2.0803	18-25	-.14351*	.04713	.007
			46+	.09392	.07681	.440
	46+	1.9864	18-25	-.23743*	.07340	.004
			26-45	-.09392	.07681	.440
Personal Physical Aggressive Expression	18-25	1.2956	26-45	.09352*	.02992	.005
			46+	.13129*	.04660	.014
	26-45	1.2021	18-25	-.09352*	.02992	.005
			46+	.03777	.04877	.719
	46+	1.1643	18-25	-.13129*	.04660	.014
			26-45	-.03777	.04877	.719

*. $p < 0.05$

Finally, independent sample t-test analysis was performed to see whether participants' empathy levels differ according to gender. According to the results, there was statistically significant differences between men and women in both total empathy scores [$t(973) = 4.171$, $p=.002$] and sub-scales of empathy levels as emotional [$t(973) = 3.209$, $p=.003$] and cognitive empathy levels [$t(973) = 3.437$, $p=.000$]. According to these results, general empathy levels, cognitive empathy and emotional empathy levels of women are statistically higher than men's (see Table 8).

Table 8. Means of Empathy Levels of Women and Men

	Gender	N	Mean	SS	SSE
Total empathy scores	Female	439	59.7736	6.07018	.28971
	Male	536	57.9649	7.23663	.31257
Cognitive empathy scores	Female	439	29.9043	3.34882	.15983
	Male	536	29.1423	3.94654	.17046
Emotional empathy scores	Female	439	29.8692	4.30240	.20534
	Male	536	28.8226	5.05495	.21834

4. DISCUSSION

Traffic environment, various stimuli that drivers exposed to, and interaction between drivers and their vehicles may be evaluated through different perspectives. Girgin and Kocabıyık (2002), for instance, discussed the effect of obstructions and conflict situations in traffic into human behaviors, and they pointed out the vehicle-individual interaction as a factor influencing the driver behavior. From a psychoanalytical view, driving a vehicle can be seen a function to uncover the individual's emotions and motives suppressed in the subconscious. Driver integrates his/her self with the vehicle which he/she gets into, and manages, and this speeding armor makes the driver feel powerful (Girgin and Kocabıyık, 2002). From this point of view, the vehicle makes the driver untouchable, and assigns him/her power as well. This unconscious and unreal perception decrease controlling of anger and its expressions. So that, a minor threat for the vehicle in traffic is perceived as an assault to the drivers' identity because of integration between the driver's body and the vehicle. At this point, the supposition can make sense that drivers are expanding their body perceptions with the limits of the vehicle, and they perceive that any obstruction in traffic occurs directly toward their own body. So, emergence of anger in traffic environment is not only the result of traffic specific situations, but also of the personal characteristics affecting how the individuals perceive these specific situations.

In a study examining drivers' anger expressions, angry situations in traffic significantly differ between men and women (Delice, 2013). According to this study, the factors of 'hostile gestures', 'driving slowly' and 'traffic obstruction', make men and women angry in different levels; so that women who face with these situations in traffic get angrier than men. Same study also revealed that women express their anger verbally more than men. This result found in previous studies, was also confirmed in the current study. Gender as a determinant factor in anger expression, may be explained through the differences between men and women in terms of how they perceive and evaluate the situations, their social learning mechanisms, and the attributed social roles. Thus, the society expect from individuals to be 'feminine for a woman' and 'masculine for a man', to have the compatible characteristics with these identities, and to fulfill the gender roles required by these identities. So that, in their social and private lives, women and men face with the fact that they can only be accepted if they conform the society's expectations (Gülseven, 2017).

Besides gender, age is another factor influencing anger in traffic and anger expressions. Previous studies found significant relationships between age, and anger and aggression in

traffic. As age increases, traffic violations and faults decrease, and driving skills increase (Sümer and Özkan, 2002). Drivers' anger and aggression levels, and traffic crash rates also decrease as age increases (Blockley and Hartley, 1995; cited in Delice, 2013). Another study conducted by Eşiyok et al (2007) showed that young drivers express their anger in traffic more physically and by using their vehicle than older drivers do. Consistent with these results, the current study also revealed that positive anger expressions increase and negative anger expressions decrease as age increases. This result is considered as the conclusion of getting more experiences in traffic as a driver as age increases; also as the conclusion of that dealing with anger may differ according to developmental stages related with age.

There are various studies showed that anger and aggressive behaviors in traffic differs according to educational levels. One of these studies showed that primary and secondary school graduates express their anger by using their vehicles, whereas university graduates and higher levels express their anger verbally (Eşiyok et al, 2007). In the current study, university degree or higher level graduates express their anger more verbally comparing primary and secondary school graduates. Since university or higher education graduates, compared to others, face with the situations more often, in which they have to express themselves verbally during their education, this result can be considered as expected.

The important result of the current study is that empathy level of women is significantly higher than men's. Thus, various studies examined empathy levels according to gender showed that women's empathy levels are higher than men's, and it can be seen that the results of these studies are compatible with other (Endresen and Olweus, 2001). Moreover, it has been found that empathy helps to decrease aggressive and antisocial behaviors due to a significant negative relationship between empathy and aggressive and bullying behaviors (Endresen and Olweus, 2001; Loudin et al, 2003). The current study also reached the consistent results with the previous studies mentioned above. According to the results, as individuals' cognitive empathy scores increase, it has been seen that they express their anger in an adaptive/constructive way in traffic. At this point, future traffic studies which will examine in detail whether attempts to increase individuals' empathy skills make a difference in expressions of anger in traffic can be meaningful.

A limitation of the current study is that the sample of the study is predominantly composed of the drivers in Istanbul, and drivers who are university and higher level graduates. Future studies expanding the research over other regions of Turkey would be meaningful to make cultural or sub-cultural comparisons between driver behaviors. Moreover, examining other probable variables which may effect on adaptive /constructive expression of anger in traffic, will both contribute to the literature and real life situations to create adaptive/constructive behaviors in traffic environment.

REFERENCES

ATKINSON, R. L., ATKINSON, R. C., SMITH, E. E., BEM, D. J. and NOLEN-HOEKSEMA, S. (1999), *Psikolojiye Giriş,* Y. Alogan (Çev.), Ankara: Arkadaş Yayınları.

BURGER, J.M. (2006), *Kişilik*, İnan Deniz Erguvan Sarıoğlu (Çev.), İstanbul: Kaknüs Yayınları.

CHENG, Y., CHOU K.H., DECETY, Y., CHEN, D., HUNG, O. J., TZENG, L. and LIN, C.P. (2009), Sex Differences in The Neuroanatomy of Human Mirror-Neuron System: A Voxel-Based Morphometric İnvestigation, *Neuroscience*, 158, 713–720.

COŞAN, E. (2016), Beyin ve Bilinç Evrimi, *Osmangazi Tıp Dergisi*, 38(1), 20-28.

ÇANKAYA, G. and ERGIN, H. (2015), Çocukların oynadıkları oyunlara göre empati ve saldırganlık düzeylerinin incelenmesi, *Hacettepe University Faculty of Health Sciences Journal,* 1(2), 283-297.

ÇEÇEN, A.R. (2002), Duygular İnsan Yaşamında Neden Vazgeçilmez ve Önemlidir?, *Çukurova Üniversitesi Sosyal Bilimler Enstitüsü Sosyal Bilimler Dergisi*, 9 (9), 164-170.

DAVIS, M. H. (1994), *Social psychology series. Empathy: A social psychological approach. Boulder,* CO, US: Westview Press.

DELICE, M. (2013), Sürücüyü Öfkelendiren Davranışların ve Sürücülerin Bu Davranışlara Verdiği Tepkilerin İncelenmesi, *Atatürk Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 17(2), 251 – 273.

DÖKMEN, Ü. (2005), *İletişim Çatışmaları ve Empati*, İstanbul: Sistem Yayıncılık.

DÖKMEN, Ü. (2009), *Sanatta ve Günlük Yaşamda İletişim Çatışmaları ve Empati*, İstanbul: Sistem Yayıncılık.

DYKEMAN, B. F. (1995), The social cognitive treatment of anger and aggression in four adolescents with conduct disorder. *Journal of Instructional Psychology*, (22), 194-203.

ENDERSEN, L. M., and OLWEUS, D. (2001), Self-reported empathy in Norwegian adolescents: Sex differences, age trends, and relationship to bullying in A. C. Bohart, C. Arthur, and D. J. Stipek (Ed.), *Constructive & destructive behavior: Implications for family, school, and society*., Washington DC: American Psychological Association.

ERSOY, E., KÖŞGER, F. (2016), Empati: Tanımı ve Önemi, *Osmangazi Tıp Dergisi*, *38*(2), 9-17.

EŞIYOK, B., YASAK, Y., KORKUSUZ, İ. (2007), Trafikte Öfke İfadesi: Sürücü Öfke İfadesi Envanteri'nin Geçerlik ve Güvenirliği, *Türk Psikiyatri Dergisi*, 18(2).

FREEDMAN, J. L., SEARS, D. O. AND CARLSMITH, J. M. (1989), *Sosyal Psikoloji*, A. Dönmez (Çev.), İstanbul: Ara Publishing.

GIRGIN, V., KOCABIYIK, A. (2002), *Düşünen Adam Dergisi*,15(3), 182-184.

GÜLSEVEN, A. S. (2017), Türk Aile Hukukunda Toplumsal Cinsiyet Rolleri, *TBB Dergisi*, (132), 183-230.

HASTA, D., GÜLER, M.E. (2013), Saldırganlık: Kişilerarası İlişki Tarzları Ve Empati Açısından Bir İnceleme, *Ankara Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 4(1).

HODGES, S.A. (1991), An experiment in the development ofempathy in students nurses, *Journal of Advanced Nursing*, 33(1), 1296-1300.

İÇMELI, C., ÖZÇETIN, A., BAHÇEBAŞI, T. and ATAOĞLU, A. (2011), Toplu Taşıma Ve Tır-Kamyon Sürücülerinde Öfke ve Öfke İfade Tarzı., *Düzce Üniversitesi Sağlık Bilimleri Enstitüsü Dergisi,* 1(2), 18-23.

KAVSIRACI, O. (2018), Güncel Politikalar Çerçevesinde Kent İçi Karayolu Trafik Güvenliği, *Kent Araştırmaları Dergisi,* 9(25), 960-979.

LOUDIN, J. L., LOUKAS, A. AND ROBINSON, S. (2003), Relational aggression in college students: Examining the roles of social anxiety and empathy. *Aggressive Behavior*, (29), 430-439.

MAYNE, J. T., AMBROSE, K. (1999), Research review on anger psychotherapy. *Journal of Clinical Psychology*, 55(3), 353-363.

MACGILLIVRAY, L. (2009). Feel Your Pain: Mirror Neurons and Empathy. *Health Psychology*, 6(1),16-20.

ÖZMEN, A. (2006), Öfke: Kuramsal yaklaşımlar ve bireylerde öfkenin ortaya çıkmasına neden olan etmenler, *Ankara University, journal of faculty of educational science*, 39(1), 39-56.

ÖZCAN, C., OFLAZ, F. AND TÜRKBAY, T. (2003), Dikkat eksikliği aşırı hareketlilik ve binişik karşıt olma-karşı gelme bozukluğu olan çocukların anne-babalarının empati düzeylerinin karşılaştırılması. *GATA Tıp Fakültesi Çocuk ve Gençlik Ruh Sağlığı Dergisi*, 10(3), 108-114.

ÖZKAN, Ö., ÖZTÜRK, İ., ÖZ, B. (2018), Trafik Güvenliği Bağlamında Dürtüsel Sürücülüğün Sürücü Öfke İfadesi ile İlişkisi, *Güvenlik Bilimleri Dergisi*, 7(2), 329–354.

PRESTON, S. D. AND HOFELICH, A. J. (2011), The many faces of empathy: Parsing empathic phenomena through a proximate, dynamic-systems view of representing the other in the self, *Emotion Review*, 20(10), 1-10.

SÜMER, N., ÖZKAN, T. (2002), Sürücü Davranışları, Becerileri, Bazı Kişilik Özellikleri ve Psikolojik Belirtilerin Trafik Kazalarındaki Rolleri, *Türk Psikoloji Dergisi*, 17(50), 1-22.

TOPÇU, Ç., BAKER, Ö.E., AYDIN, Y.Ç. (2010), Temel Empati Ölçeği Türkçe Uyarlaması: Geçerlik ve Güvenirlik Çalışması, *Türk Psikolojik Danışma ve Rehberlik Dergisi*, 4 (34), 174-182.

TÜRKIYE İSTATISTIK KURUMU. (2017). *Highways Traffic Accidents Statistics.* 05.01.2019 tarihinde http://www.tuik.gov.tr/PreHaberBultenleri.do?id=27668 adresinden alındı.

TÜRK DIL KURUMU. (2006). *Güncel Türkçe Sözlük*. 03.01.2019 tarihinde http://www.tdk.gov.tr/index.php?option=com_gts&arama=gts&kelime=%C3%B6fke adresinden alındı.

ULLEBERG, P., RUNDMO, T., (2002), Risk-taking attitudes among young drivers: The psychometric qualities and dimensionality of an instrument to measure young drivers risk-taking attitudes, *Scandinavian Journal of Psychology*, 43 (3), 227–237.

YASAK, Y. (2002), Trafik Psikolojisi ve Psikoteknik Değerlendirmenin Tarihine Genel Bir Bakış, *Türk Psikoloji Yazıları*, 5(9-10), 121-136.

YASAK, Y., BATIGÜN, D.A., EŞIYOK, B. (2016), Trafik ve Stres: Stres ile Trafikte Öfke İfadesi Arasındaki İlişkide Sürücü Öfke Düşüncelerinin Aracı Rolü, *Türk Psikoloji Dergisi,* 31(78), 13-21.

YASAK, Y., EŞIYOK, B. (2009), Anger amongst Turkish drivers: Driving Anger Scale and its adapted, long and short version*, Safety Science,* 47, 138-144.

YILMAZ, E., DOST, M.T., (2016), Polislerin Kişilerarası Problem Çözme Becerileri ile Öfke ve Öfke İfade Tarzları, *Türk Psikolojik Danışma ve Rehberlik Dergisi*, 6(46), 15-34.