ARAŞTIRMA / RESEARCH

The anger in municipal bus drivers and its relationship with sociodemographic characteristics

Belediye otobüs şoförlerinde öfke ve sosyodemografik özelliklerle ilişkisi

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Abstract

Purpose: This study was conducted to examine the relationship between anger level and anger expression styles with the socio-demographic factors of municipal bus drivers.

Materials and Methods: The study was carried out with 95 bus drivers. The data were collected by means of question forms, State-trait anger, and anger expression scales.

Results: The mean score were found to be: Trait anger 16.67±4.29, anger-in 15.05±3.31, anger management 25.12±4.97, and the anger-out 12.48±2.94. There is also a significant relationship between receiving anger management training and anger-out. There is a positive significant relationship between smoking duration (years) and anger control, years at work and anger-out. As being in consistency with other studies, the study has revealed that while the level of professional experiences increases the level of anger is decreased and when the years of working is higher in an institution, anger can be expressed more easily. The reflection of the problems at work as anger in the family life is a different subject examined.

Conclusion: This study provides evidence of socio-demographic characteristics affecting the level of anger and anger expression of drivers. The results of the study can be taken into account when planning interventions for bus drivers in terms of expressing anger correctly and anger control.

Keywords: Anger, transportation, motor vehicles, demographic factors

Öz

Amaç: Bu çalışma belediye otobüs şoförlerinin sosyo demografik özellikleriyle öfke düzeyi ile öfke ifade tarzları arasındaki ilişkinin incelenmesi amacıyla yapılmıştır.

Gereç ve Yöntem: Çalışma 95 otobüs şoförü ile yürütülmüştür. Veriler anket formu ve Sürekli öfke- öfke ifade tarzı ölçeği ile toplanmıştır.

Bulgular: Puan ortalamaları; sürekli öfke 16,67±4,29, öfke içe 15,05±3,31, öfke kontrol 25,12±4,97, öfke dışa 12,48±2,94 olarak bulunmuştur. Meslekte çalışma yılı ile sürekli öfke, öfkeyi ifade etmekte zorlanma ile öfke kontrol ve öfke dışa arasında istatistiksel olarak anlamlı bir ilişki vardır. Bir diğer ilişki işteki sorunlar nedeniyle aile yaşamında öfkeli olma ile sürekli öfke, öfke kontrol, öfke dışa arasındadır. Öfke kontrolü eğitimi alma ile öfke dışa arasında da anlamlı bir ilişki vardır. Sigara içme süresi (yıl) ile öfke kontrol, kurumda çalışma yılı ile öfke dışa arasında pozitif anlamlı bir ilişki vardır. Diğer çalışmalarla tutarlı olarak bu çalışma da mesleki deneyimin artmasının öfke düzeyini azalttığını, kurumda çalışma yılı arttıkça öfkenin daha kolay ifade edilebildiğini göstermiştir. Bu çalışmada işteki sorunların aile yaşamına öfke olarak yansıması incelenen farklı bir konudur.

Sonuç: Çalışmanın bulguları şoförlerin öfke düzeyini ve öfke ifadesini etkileyen sosyodemografik özelliklere dair kanıtlar sunmaktadır. Araştırma sonuçları öfkeyi doğru ifade edebilme ve öfke kontrolü konusunda otobüs şoförlerine yönelik müdahaleler planlarken dikkate alınabilir.

Anahtar kelimeler: Öfke, ulaştırma, motorlu araçlar, demografik faktörler

INTRODUCTION

Motor vehicle accidents are a public health problem all over the world. Traffic accidents are estimated to be the seventh leading cause of death in 2030[1]. According to the World Health Organization, "1.25 million people died in 2013 due to traffic accidents and more than 50 million people were injured"[2]. 7427

people died, and 300 383 people were injured because of traffic accidents in 2017 in Turkey[3]. Bus accidents in Metro Manila, Philippines between 2008 and 2012 resulted in fatal injuries of 124 people and nonfatal injuries of 2867 people[4]. Bus accidents also affect public health by injuries, deaths and financial losses[5, 6, 7] like all other highway accidents[1]. The ratio of the number of bus accidents resulted in deaths and injuries to the number of registered buses was found to be 2.9% in 2017 in Turkey[3]. This ratio is higher than the fatal injury rate occurred by other vehicles in the country.

Studies have shown that the anger of the driver may also be among the causes of traffic accidents[8,9,10]. Anger is a learned emotion that is felt when a person or a situation is considered to be dangerous. Sometimes the difficulties of life can decrease the level of tolerance of the people and turn them into an angry form[11]. Anger is a state of emotion [8] that can lead to dangerous situations in traffic[11]. Findings using driving simulators have revealed the presence of certain anger effects on some driving variables. The findings have noted that the total number of errors, speed errors and the number of collisions of the angry participants were much higher than the neutral participants[10]. Conflicts during driving also pose a danger when they result in anger. In anger caused by the physical or verbal conflict in drivers, distraction is maximized[8].

The driver's anger can find a response with aggressive driving[8,12]. The constant anger felt by the driver is characterized by speed in traffic [13] and intentional violation of traffic rules[8]. Particularly the anger felt in cases such as threats, frustration, and provocation, drivers show aggressive driving behaviors. Retaliation actions such as "intentional brake controls"[8] or horning [14], driving the vehicle fast[9], are performed against the driver causing the anger. This expression of anger poses a great danger and intended violations [8] can result in traffic accidents[13].

It is significant to identify and mitigate the risks to prevent traffic accidents[15]. There are also some risks in the working conditions of bus drivers such as time pressure, driving for a long time[4,16], lack of having breaks, and bad working conditions[4]. Unless measures are taken for these risks, traffic accidents may occur. Statistics show that driver errors constitute 89.9% of total errors[3]. In the study of Santos and Lu[4], it was determined that 59% of the bus drivers (n: 56) were involved in a traffic accident during business hours. The drivers stated that these accidents were caused by other drivers (42.3%), vehicle defects (25.0%), carelessness (11.5%), fatigue and micro-sleep (9.6%)[4].

Studies on anger present differences between genders[17, 18]. Mina et al.[18] reported a higher prevalence of anger among young men. When the statistics about the expression of anger and aggression are examined, it is seen that men have higher ration than women. In addition, men are ahead of women in aggressive driving, traffic violations and risk-taking behavior[17].

The driving experience, age[19] and gender are related to trait anger[20]. However, there is also a study showing that there is no relationship between gender and State-Trait Anger Expression Inventory (STAXI) scores[21]. In a study, it has been emphasized that drivers who work in public transportation have lower level of anger compared to the truck drivers and can express their anger more easily[19]. On the other hand, bus drivers go a long way in the city traffic. They are also subject to various complaints of passengers and difficulties in traffic[22]. When irregular shifts[22], racing against time, lack of recreational opportunities[16] are combined with some socio-demographic characteristics of drivers, it may result in stress, depression, burnout[22] or anger. Studies on anger focused on the driving reactions in some emotional states of the drivers, the effects of the obstacles in traffic on the driver's mood, aggressive driving and anger relation concepts[23-26]. However, there is no study examining the demographic characteristics and the anger relationship of the drivers in urban public transport. The sense of anger and the forms of expression of bus drivers spending their entire shift in traffic may be affected by some socio-demographic characteristics. The socio-demographic characteristics of the drivers may create differences in their understanding of the situations they encounter while driving. While some drivers do not react, some may feel anger for the same case. Therefore, it is aimed to investigate the relationship between the socio-demographic characteristics of municipal bus drivers with anger level and anger expression styles.

MATERIALS AND METHODS

The descriptive correlational design was used in this study. The sociodemographic characteristics and the anger characteristics of an individual were taken as an independent variable, State- trait anger and anger expression scales score was taken as a dependent

variable. The study was carried out with the bus drivers, being the members of the Private-Public Buses Association in a central province in the north of Turkey. Bus drivers serve a total of 23 lines in the city center. Service hours are between 06.00-24.00. Some of the drivers own the vehicle they serve and share working hours with some other drivers. Therefore, drivers who are not the owners of vehicles and the owners of the vehicles operate alternately on specific lines. However, sometimes there are long working hours because each driver does not have an alternative driver.

The number of bus drivers within the scope of the Private-Public Buses Association was 103 in total. During the implementation of the study, 5 of the drivers did not agree to participate in the survey and 3 of them did not fill all the information in the questionnaire. For this reason, 95 drivers (92.2%) were included in the study. According to the frequency data, 93 (97.9%) of the participants were male and 2 (2.1%) were female. The mean age of the participants was $\bar{x} \pm SD = 43,12 \pm 11.5$ [Median (Min; Max):43(23-67)]. Years of professional work was $\bar{x} \pm SD=13,66\pm11,2$ [Median (Min; Max):10 (1-40)]. Years worked in the company was $\bar{x} \pm SD=5,9\pm7,42$ [Median (Min; Max):2(1-35)]. 64 of the drivers were smokers. The mean duration of smoking (year) was found to be $\bar{x} \pm SS=12,9\pm11,9$. While 32 drivers (50.0%) stated that smoking did not affect their work, 22 drivers (34.4%) noted that driving increases smoking. In addition, 10 drivers (15.6%) expressed that being a driver has reduced their smoking.

The principles of the Helsinki Declaration were respected. Ethical approval was obtained from the " Bolu Abant Izzet Baysal University Ethics Committee of the Human Research in Social Sciences" (Protocol No.2015/63). The research was performed with the approval of the institution and the participants. Participating in the study was a voluntary act, and only volunteer drivers filled in the survey.

Measures

Demographic and anger related information

A structured questionnaire consisting of 19-item was used as a tool for the collection of data in the study. The questionnaire included questions about gender, age, educational status, marital status, number of children, smoking status, duration of participation in social activities, duration of work and information on anger.

State-Trait Anger Expression Scales (STAXI)

The validity and reliability of STAXI developed by Spielberger et al. [27] were verified by Özer [28]. The Cronbach alpha values obtained by Özer were found to be between 0,67-0,92 for trait anger. The Cronbach Alpha values taken from anger expression style sub-scales are: anger-in was between 0.58-0.76; anger control was between 0,80-0,90; anger-out was between 0,69-0,91. In this study, Cronbach Alpha coefficient was 0,74 for trait anger; for anger expression style subscales; anger-in was 0,50; anger-out was 0,59; Anger control was found to be 0.53. The number of items in the scale was 34. Participants were asked to score a 4-point scale (1 = almost never; 4 = almost always). Trait anger was measured with the first 10 items and the anger expression styles measured with the remaining 24 items. Trait anger often expresses how an individual feel and how anger is felt. The lowest score that can be obtained from the trait anger scale is 10 and the highest score is 40. The lowest score that can be obtained from anger-in, anger-out and anger control sub-scales is 8, and the highest score is 32. Higher scores on trait anger scores indicate higher levels of anger and high scores on anger-in sub-scale indicate that the anger is suppressed. High scores on anger control sub-scale indicate that the anger is controllable, and high scores on anger-out sub-scale indicate that the anger can be expressed easily [27, 28].

Procedure

The data collection of the study was assisted by the administrator of the Private-Public Buses Association. The questionnaires were distributed by the researcher to the bus drivers who were contacted by the help of the administrator. The participants were urged to give sincere responses to test items. As soon as the questionnaires were answered, they were collected back by the researcher.

Statistical analysis

Mean, minimum-maximum, arithmetic mean, standard deviation, and standard error of the mean were used to show the distribution of the scores obtained from the sub-dimensions of the scale. Skewness and Kurtosis (-2,5, +2,5) tests were performed for normal distribution of scores obtained from the scale. Number and percentage calculations

were made to evaluate the characteristics of the drivers regarding socio-demographic level, occupation and the feeling of anger. Age, years in the profession and years in the company, years of smoking were evaluated by the arithmetic mean, standard deviation, median, minimum-maximum.ANOVA, Kruskal Wallis test was used for comparison of groups of more than three in socio-demographic characteristics, independent sample t-test and Mann Whitney-u test was used in the comparison of double groups. Pearson and Spearman correlation analysis was conducted for the relationship between the driver variables of years in the profession and years in the institution, the

duration of smoking, the anger in family life because of work-associated factors and the scale scores.

RESULTS

Table 1 shows the distribution of the scores of the drivers about the State -trait anger and anger expression scales sub-dimensions. Accordingly, anger control as the sub-dimension of anger expression style scale has the highest average ($\bar{x}\pm$ SD=25,12±4,97). Other sub-dimensions other than the anger-out sub-dimension are homogeneously distributed.

Table 1. Distribution of drivers' scores of State -trait anger and anger expression scales sub-dimensions

Dimensions	Min-Max	Mean	SD*	SE*	Skewness	Kurtosis
Trait anger	10-31	16.67	4.29	0.44	0.624	0.054
Anger expression style						
Anger-in	8-26	15.05	3.31	0.34	0.281	0.518
Anger control	13-32	25.12	4.97	0.51	-0.422	-0.499
Anger-out	8-25	12.48	2.94	0.30	1.062	2.531

*SD: Standard Deviation, SE: Standard Error

Table 2. Distribution of some characteristics of drivers

Some characteristics n=95	n	%
Frequency of social activity		
Never	6	6.3
Every day	2	2.1
Several times a week	31	32.6
Several times a month	36	37.9
Several times a year	20	21.1
Weekly working hours		
Less than 40 hours	17	17.9
40-59 hours	39	41.1
60-80 hours	35	36.8
More than 80 hours	4	4.2
What is your behavior?		
Calm	40	42.1
Patient	29	30.5
Angry	26	27.4
Are there situations that will cause you to be angry when you drive?		
Yes	84	88.4
No	11	11.6
What makes you angry when you do your job? *		
Passengers do not obey the bus rules	63	20.5
Traffic jam	53	17.2
Passengers often ask the bus route	52	16.9
Passengers talk about disruptions in transportation as if I was responsible	52	16.9
Low rest breaks	24	7.8
Passengers unnecessary questions to the driver /chatting with the driver	23	7.5
I can't make time for my private life	18	5.8
Inadequate salary received	18	5.8
No situation to be angry	5	1.6

*More than one answer has been given

Table 2 shows the distribution of some characteristics of drivers. The drivers participating in social activities several times a month were 37.9%. The frequency of drivers with a weekly working time of 60-80 hours was 36.8%. 27.4% of the participants evaluated their behavior as angry. Passengers' non-compliance with the rules was stated as the case making drivers the angriest (20.5%).Correlation analysis between State-trait anger expression scales scores and variables revealed a significant negative relationship between trait anger and anger in family life due to problems at work (r=-0,289; p<0,01). Anger control sub-scale and smoking duration (r=0,226; p<0,05) and anger in family life (r=0,267; p<0,01) were found to be significantly weak and weak positive related. In the anger-out sub-scale, a very weak relationship has been identified with the years in the institution (r=0,218; p<0,05), and a significantly weak relationship was identified with the anger in family life due to problems at work (r=-0,202; p<0.05) (Table 3).

Table 3. Correlation between State -trait anger and anger expression scales scores and variables

Variables	1	2	3	4	5	6	7	8
1.Years at work	1							
2.Years in the institution	0.556**	1						
3.Duration of smoking (years)	0.012	0.026	1					
4.Being angry in family life due to problems at work	0.029	-0.095	0.101	1				
5.Trait anger	-0.175	-0.040	0.132	-0.289**	1			
6. Anger-in	0.078	0.124	-0.011	-0.071	0.356**	1		
7.Anger control	0.180	0.029	0.226*	0.267**	-0.308**	0.118	1	
8.Anger-out***	0.101	0.218*	-0.075	-0.202*	0.480**	0.306**	-0.184	1
N	95	95	95	95	95	95	95	95

*p< 0,05   ** p<0,01   ***Spearman correlation

Table 4 shows the comparison of State -trait anger and anger expression scales mean scores and demographic characteristics. According to the table, there is a significant relationship between the year of work in the profession and trait anger (t(93)=2,240; p=0,03). As the duration of work decreases, the level of anger increases. It is observed that the mean score of trait anger of the drivers with 1 to 20 years in the profession (17,17±4,31) is higher than the drivers with 21-41 year in the profession (14,80±3,81).

There is also a statistically significant relationship between difficulty in expressing anger with anger control (t(93)=2,727; p=0,01) and anger-out (z=-1,976; p=0,05). Anger control mean scores of those who stated that they have no difficulty in expressing anger are higher than the others (26,25±4,45). Drivers who have no difficulty in expressing anger can also express their anger easily, therefore their anger-out mean scores are higher than those who have difficulty expressing their anger (13,00±3,05).

Table 4. Comparison of State -trait anger and anger expression scales mean scores and demographic characteristics

Socio-demographic variables Test; df; p (n ; %)	Trait Anger		Anger control		Anger-in		Anger-out	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Age								
23-34	(26 ; 27.4)	16.73	4.84	24.50	4,84	14,65	3,38	11,53	2,61
35-46	(33 ; 34.7)	17.46	3.85	25.03	5,39	14,73	2,65	13,18	3,41
47-58	(26 ; 27.4)	16.12	4.42	26.04	4,59	15,58	4,18	12,35	2,64
59-70	(10 ; 10.5)	15.40	4.01	24.70	5,29	15,80	2,74	13,00	2,49
Test; df; p		F=0.798; df=3;p=0.49		F=0.449; df=3; =0.72		F=0.609;df=3;p=0.61		KW=5.33;df=3; p=0.15	
Education level								
Primary school	(27 ; 28.4)	16.74	4.83	25.48	5,39	16,00	3,72	12,19	2,82
Middle school	(25 ; 26.3)	17.08	3.90	25.04	5,29	14,84	3,25	12,80	2,69

High school	(37 ; 38.9)	16.19	3.70	24.76	4,68	14,35	3,17	12,51	3,16
University	(6 ; 6.3)	17.67	7.09	26.17	4,40	16,00	1,41	12,33	3,72
Test; df; p		F=0.333; df=3; p=0.80		F=0.199; df=3; p=0.89		F=1.506; df=3; p=0.22		KW=0.938; df=3; p=0.82	
Marital status									
Married	(83 ; 87.4)	16.72	4.38	25.34	4,89	15,16	3,32	12,54	2,98
Single	(12 ; 12.6)	16.33	3.82	23.67	5,57	14,33	3,37	12,08	2,71
Test; df; p		t test=0.292; df=93; p=0.77		t test=1.088; df=93; p=0.28		t test=0.802; df=93; p=0.43		MWU=465.500; Z=-0.367; p=0.71	
Number of children									
none	(13 ; 13.7)	15.92	3.28	23.00	5,70	13,69	3,23	12,08	2,57
1 child	(19 ; 20.0)	15.89	5.52	25.63	4,99	15,32	3,37	11,47	3,31
2 children	(42 ; 44.2)	17.21	4.29	25.48	5,12	15,74	3,48	12,50	2,00
3 children	(16 ; 16.8)	16.06	2.91	25.63	3,91	14,44	2,58	13,86	4,44
4 or more	(5 ; 5.3)	19.00	5.39	24.20	5,22	13,80	4,05	12,80	2,49
Test; df; p		F=0.863; df=4;p=0.49		F=0.771; df=4; p=0.55		F=1.361; df=4; p=0.25		KW=12.48; df=4; p=2.94	
Financial situation									
Low	(16 ; 16.8)	18.06	4.81	24.75	6,22	14,56	3,69	11,81	3,17
Middle	(75 ; 79.0)	16.48	4.24	25.19	4,72	15,05	3,27	12,63	2,91
High	(4 ; 4.2)	14.75	2.06	25.50	5,51	17,00	2,71	12,50	3,00
Test; df; p		F=1.321; df=2; p=0.27		F=0.061; df=2; p=0.94		F=0.861; df=2; p=0.43		KW=1.519; df=2; p=0.47	
Smoking									
Yes	(64 ; 67.4)	17.23	4.47	25.56	5,28	14,91	3,28	12,34	2,71
No	(31 ; 32.6)	15.52	3.73	24.23	4,217	15,36	3,43	12,77	3,40
Test; df; p		t test=1.850;df=93; p=0.07		t test=1.231; df=93; p=0.22		t test=-0.616; df=93; p=0.54		MWU=943.500; Z=-0.388; p=0.69	
Year of professional work									
1-20 years	(75; 78.9)	17.17	4.31	24.85	4,90	14,97	3,38	12,65	2,93
21-41 years	(20; 21.1)	14.80	3.81	26.15	5,23	15,35	3,13	11,85	2,96
Test; df; p		t test=2.240; df=93; p=0.03		t test=-1.036; df=93; p=0.30		t test=-0.449; df=93; p=0.65		MWU=653.000; Z=-0.891; p=0.37	
Difficulty to express anger									
Yes	(31; 32.6)	16.39	4.35	23.51	5,30	14,54	2,76	11,74	2,64
No	(64; 67.4)	16.88	4.29	26.25	4,45	15,41	3,64	13,00	3,05
Test; df; p		t test=-0.545; df=93; p=0.587		t test=-2.727; df=93; p=0.01		t test=-1.265; df=93; p=0.209		MWU=832.500; Z=-1.976; p=0.05	
Being angry in family life due to problems at work									
Yes	(31; 32.6)	18.45	3.93	23.23	4,49	15,39	2,99	13,36	3,08
No	(64; 67.4)	15.81	4.23	26.05	4,97	14,89	3,48	12,06	2,79
Test; df; p		t test=2.916; df=93; p=0.004		t test=-2.675; df=93; p=0.01		t test=-0.682; df=93; p=0.497		MWU=747.500; Z=-1.954; p=0.05	
Anger Control Training Status									
Received	(31; 32.6)	15.77	3.80	26.48	4,90	15,35	4,06	11,41	2,09
Not received	(64; 67.4)	17.10	4.47	24.46	4,91	14,90	2,91	13,00	3,16
Test; df; p		t test=1.427; df=93; p=0.16		t test=1.876; df=93; p=0.06		t test=0.616; df=93; p=0.57		MWU=681.500; Z=-2.481; p=0.01	

*F=Anova, KW=Kruskal Wallis, t test=Independent sample t test, MWU=Mann Whitney U test SD: Standard Deviation

A significant relationship was found between anger in family life due to problems in work with trait anger (t (93)=2.916; p=0.004), anger control (t(93)=2.675; p=0.01) and anger-out (z =-1.954; p= 0.05). The trait anger mean scores of those who were angry in their family life due to problems in the workplace (18.45±3.93) were higher than those who were not angry in the family life (15.81±4.23). It has been determined that those who are not angry in their family life (26.05±4.97) have better control over their anger than others (23.23±4.49). When we look at the anger-out mean score, it is understood that those who are angry in family life due to problems in the workplace (13.36±3.08) can easily express their anger. There is a significant relationship between receiving anger control training and anger-out (z=-2.481; p=0.01). It has been noted that those who did not receive the training had a better expression of their anger (13.00±3.16). No statistically significant relationship was found between the other variables and the scale.

DISCUSSION

In this study, the relationship between the socio-demographic characteristics with the anger level-anger expression styles of the municipal bus drivers were examined. The results showed a significant negative relationship between anger in family life due to problems in the workplace with trait anger and anger-out, and a significant positive relationship with anger control. A positive significant relationship between the year of work and anger-out, the smoking period (years) and anger-in was found. As the years of work in the profession decrease, the mean scores of trait anger increase significantly. It was found statistically significant that those who did not have difficulty in expressing their anger and did not carry their anger to the family life were able to control their anger and they express their anger easily. However, it has been statistically significant that those who are angry in their family life because they have problems at work can express their anger more and their trait anger levels are high. Anger-out scores of those who did not receive anger control training increased significantly. No statistically significant relationship was found between other variables (age, education, marital status, number of children, financial situation, smoking) with anger level and anger expression styles.

What happens in traffic can affect the mood of the drivers. Regardless of the errors in traffic, the driving performance of the driver is closely related to the emotional state. Angry drivers make more driving errors than drivers who experience other emotions (happiness, fear, neutral) [29]. In the study of Sulman et al.[25], it has been stated that 60% of the drivers experience road rage at least once in a year or 55% of the drivers have witnessed a road rage at least once. The reason for the rage may be related to the behavior of the drivers as well as the situations in traffic. In the study of Wu et al.[23], in the event of traffic congestion, only 38.6% of the drivers stated that they would be "patient" in waiting for a light traffic. In the current study, drivers describe their behavior as calm (42.1%), patient (30.5%), and angry (27.4%).

It is known that the drivers show their feelings either with movements or verbally in traffic. In the study of Zhang et al.[17], it has been highlighted that the drivers tried to express their anger by horning in the traffic, flashing the headlights, swearing at other drivers and making rude movements. In the same study, they found a negative correlation between expressing anger/aggressiveness and verbal aggression. It has been noted that there is a positive relationship between aggressive driving behaviors and all subscales in STAXI used to understand the anger level and anger expression of the drivers[17]. In another study, the trait driving anger was increased parallel to the trait anger level[25]. One of the reasons that affect the level of anger is the personality of the driver. It is known that the drivers with high extraversion personality express more anger[24]. In a study conducted with Chinese drivers, it was found that drivers who had high scores in personality traits such as anger, sensation-seeking, normlessness and low scores on altruism had a higher chance of making ordinary violations in traffic. In terms of aggressive violations, anger and violating of rules were stated as predictive variables[26]. In the current study, it was found that people who had difficulties in expressing and explaining their anger had lower anger control and could not express their anger easily.

In this study, 88.4% of the drivers stated that there were situations that would cause them to get angry. The drivers are getting angry when the passengers do not obey the rules, often ask the bus route, hold the driver responsible for the disruptions in transportation and try to ask unnecessary questions. On the other hand, the driver's anger may not be solely due to the behavior of the passengers. One of the results of the study by Hu et al.[30] has shown that

their role is as important as the behavior of the passengers. In the first phase of the study, Hu et al.[30] did not specify a standard of conduct for the passengers but gave only the role of supervisor and friend. When the passenger was a supervisor, it was observed that the driver's tendency to drive angry was reduced and the driver tried to give the impression of a more reliable and kinder driver. When the passenger was in the role of a friend, it has been observed that the driver behaves more comfortably and the furious driving tendency increases. An interesting result of the study by Hu et al.[30] is that the driver who is driving without passengers has a more furious driving tendency when he is engaged with the supervisor and less with a friend. In addition, when the driver is told about the characteristics of the passengers (roles) and the driver's angry driving behavior, the furious driving tendency decreases, and drivers are affected by the behavior of the passengers and angry driving preferences and they corrected their driving behavior[30].

In the current study, another situation making drivers angry is traffic congestion. Traffic barriers are seen as an important problem which makes the drivers angry in various studies [31, 18]. Contrary to these results, it was concluded in a study conducted with drivers on the internet that most of the drivers prefer to wait for traffic to be lighter rather than an aggressive behavior (verbal or honk) in traffic congestion. In the same study, when "the driver in front slows down or does not move when the green light is on", most participants have indicated that they will react by "horning or flashing headlights"[23].

In the current study, it was not possible to make a comparison with gender since almost all the drivers were male (97.9%). However, the study has shown that women are more tolerant in traffic than men and they have less expression of anger verbally by honking or flashing the headlight[17,23], the experience of anger [23], aggressive behaviors[17, 23, 25, 32]. The mean scores of the males on the aggressive driving scale (25,84±12,86) were statistically significantly higher than the females (22,63±12,75) (p<0,01)[17]. Men have more traffic violations than women[17,33]. At the same time, men tend to make more traffic accidents than women (women=59.5%; men=64.0%) in addition to their higher scores in anger/aggression mean scores (women=7,03±4,19 men=7,45±4,39)[17].

In this study, no significant result was found in STAXI score and age statistical analyses. On the other hand, there are some studies showing that there is a negative correlation between age and trait anger[25], age and aggressive driving[32].

In this study, while 6.3% of the participants did not participate in any social activities, 32.3% of the bus drivers in the study of Pimenta and Assunção[34] stated that they did not participate in the socio-cultural activities. In this study, drivers appear to be active in terms of social activities. However, it is seen in the frequency of these activities that 21.1% of the participants attend several social activities per year. This frequency seems to be quite low for a year. The fact that the group has a weekly working period of 40 hours or more may limit social activities. Excessive working time also prevents drivers from sparing the time to their private lives. 5.8% of the drivers (n: 18) stated that they were "angry with the fact that they could not spare time for their private lives due to work". Long working hours and the problems experienced at work cause the drivers to carry the emotional effects of these problems to the family life as anger. This study showed that the drivers could not get rid of the problems experienced at work and this situation was reflected in the family life as anger. There was a statistically significant relationship between anger status in family life and trait anger, anger control, and anger-out sub-scales. The anger level of the drivers stating that they are angry at work and carry their anger to the family life is found to be higher than non-angry drivers, and their anger controls are found to be lower and they can easily express their anger.

Reflection of the problems at work as anger in family life, length of working time during the day, various occupational problems (communication with passengers, struggling with the traffic, lack of breaks, lack of social activities...) reduce the tolerance of drivers. This causes anger and harmful behaviors for health. For example, it is not surprising that the drivers who cannot comfort themselves with social activities are easily irritated by various situations (88.4%) and they are smokers (67.4%). The study has highlighted that bus drivers smoke at varying rates (15.8% - 60.0%)[4,34]. In addition, smoking increases driving violations [33]. Smoking drivers have more motor vehicle collisions than non-smokers[35]. In this study, a very weak positive significant relationship was found between smoking duration and anger control sub-scale. Anger control increases as the duration of smoking increases (years). This result suggests that drivers use smoking as a method of coping with anger. It is noteworthy that the drivers

reported that they experience anger (n: 24, 7,8%) because of the lack of breaks for resting. Perhaps drivers consider smoking as a means of relaxation and resting. One possibility is that the drivers try to get the break they need from the smoking period. This could be the reason why the smoker drivers use the phrase "driving increased my smoking" (34.4%). One of the remarkable points in this study was that the mean duration of working (years) ($\bar{x}$ ± SD=13,66±11,2) and the mean duration of smoking (years) ($\bar{x}$± SD=12,9±11,9) were very close to each other. This result suggests that the demanding working conditions can be effective for the drivers to start smoking.

Driving is a stressful job. If the stress level is high, it is known that anger behavior is increased[24]. As the education level of the driver increases, optimistic perspective for life also increases [18]. In the current study, no relationship was found between the level of anger with age and the level of education. In addition, the anger-out mean score of the drivers who did not receive anger control training was statistically higher than who received this training. This result suggests that the content of the training, its continuity and the experience of the trainer should be examined.

The anger behaviors experienced in traffic are affected by the driver experience as well as the education level. The driving experience and level of education have a significant common effect on the behavior of anger. However, the driving experience has been more useful than the level of education in predicting anger behavior[24]. On the other hand, a study has concluded that the driving experience does not protect the drivers from the effects of situational anger[9]. In the study of Brandenburg et al.[21] conducted with taxi drivers, the professional driver average trait anger score was found to be lower than the non-professional driver (p= 0.001). In the correlation analysis performed in this study, it was revealed that there was a very weak positive relationship between anger-out and years of working in the institution in STAXI sub-scales. As the working year increases, the drivers can easily express their anger. In addition, it was found that the mean score of trait anger increased as the years of profession decreased and there was a significant relationship between the low level of driving experience and the high level of anger. As the working experience increases, it is easier for drivers to express their anger. The results of the study of Ge et al.[20] were in consistency with this finding. Ge et al.[20] found a positive correlation between trait anger with driving anger and dangerous driving. Driving anger mediated the effect of trait anger on dangerous driving behavior. The driving experience was determined to have a regulatory effect between trait anger and driving anger. Thus, it has been concluded that drivers who have more driving experience can drive more safely when driving, as they are less angry[20].

According to current design and sampling, the results of the research can only be generalized to the city center where the research was conducted. However, the results of this research may be useful when planning new topics. Another limitation of this study is that a large number of bus drivers are male (97.9%), and a gender-related relationship analysis cannot be performed. In addition, there are several variables that affect anger, apart from socio-demographic characteristics. These variables can be examined in new studies. In addition, the reliability of the data depends on the integrity and sensitivity of the participants in filling the questionnaire. Therefore, it is important to collect data in experimental, observational and qualitative dimensions, in addition to surveys.

Future research should be designed to expand and understand existing findings. Passengers and other drivers should also be involved in similar investigations. Analysis can be planned about the problems experienced in expressing anger, how anger affects family life, and the content of anger control training. The data collected in this study are quantitative. Qualitative research can be designed in order to understand how the elements causing anger are perceived and how these elements are explained. It is also important to plan experimental and observational research in order to understand the mood of drivers in various situations.

The fact that drivers cannot control the feeling of anger in public transport puts many people at risk. For this reason, the problems arising from the working conditions, communications by passengers and the traffic should be examined to understand the behavior of drivers being angry. Professional experience is effective in terms of reducing the level of anger. Moreover, the problems experienced at work are reflected in the family life as anger. Difficulty in expressing anger and anger control training are associated with anger level and anger expression sub-scales. Furious driving poses a risk at traffic.

There are also suggestions in order to reduce the risks of angry driving, improve public transport [23] and determine regulatory approaches by understanding the emotional state of drivers[29,36].

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