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Assessing Traffic Safety Culture among Public Transport Driver Population in Baghdad

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ABSTRACT

Traffic education has a great influence on road safety. However, traffic safety cultures differ between different parts of the world, and this in turn affect show drivers respond to advisory traffic information. Understanding how to assess the influence of culture on traffic safety is important for improving traffic safety globally. Traffic safety culture is embedded in the larger context of country's cultural norms and values, producing different safety outcomes even when other factors are similar. The driver's population in Baghdad with different age groups and level of education has been investigated through a field survey. A questionnaire was carefully designed for such assessment. The total number of drivers that are tested is 1052 driver, from January to June 2018. Traffic accident data were obtained for the last ten years, and the participation of each age group in accident was analyzed. It was noticed that the traffic Safety Cultures strongly affect how drivers respond to a situation. Different Traffic Safety Cultures can result in different driving strategies. The accident location (rural or urban) and the driver education level have shown a great influence on

accident participation. It was concluded that to control the level of road traffic accidents, attention should be focused on traffic safety cultures of the drivers rather than the physical condition and the experience in driving when issuing a driving license.

Keywords: Accident, traffic safety culture, drivers, education level

1. INTRODUCTION

Traffic safety culture is a relatively new concept in developing countries which has recently gained attention in the field of traffic safety. Single solutions like infrastructure improvements and vehicle design have had positive results, however, such strategies are insufficient towards achieving comprehensive transportation safety. Future efforts to improve traffic safety will involve transforming traffic safety culture to foster a broader engagement in safety [1]. Preliminary definitions of traffic safety culture have typically focused on specific road safety problems and the anticipated effect of a strong traffic safety culture. The literature to date has tended to emphasis how traffic safety culture might be created or shaped [2]. However, without a better understanding of the nature and structure of traffic safety culture, discussions regarding changes to traffic safety culture are restricted. The AAA Foundation [3], had conducted the annual Traffic Safety Culture Index, a nationally-representative telephone survey, to begin to assess a few key indicators of the degree to which traffic safety is valued and is being pursued. The major issues considered were (Personal experience with crashes, Drinking and driving, Cell phone use and texting, Speeding, Red light running, Drowsy driving and Seatbelts and Helmets). Drivers ages 16 to 18 were oversampled to ensure an adequate number of responses for age-specific analyses. The data were post-stratified and weighted. The results reported here have a margin of error that varies according to whether data are being reported on the entire sample or some subset thereof, as well as the distribution of responses to each individual item. Some suggestions were provided by [4] for how the safety culture concept may be applicable to society in general. It was stated that Identifying specific indicators of safety culture and developing appropriate methods for assessing and initiating cultural change become substantially more complex at the community or societal level [21-25]. It was stated by [5] that that factors affecting traffic safety culture are including of control of motorcyclists and their skills, education and awareness repeatedly by the media, planning principles for reducing motorcycle trips within the city, intervention of the judiciary in motorcycle traffic violations, rigorous implementation of traffic rules in the motorcycle riders, create a single regulatory system with the necessary protections for motorcycle transport system, identification of high-accident areas and secure them, annual review and analysis of accidents and casualties, identifying and resolving technical defects and optimization of the production process or entry vehicle. The follow-up public opinion survey was conducted by [6]. The questionnaire was focused on gathering information on the most-relevant traffic safety goals and priority areas, public attitudes, traffic-related experiences, and driving behaviors. The survey covered a wide range of traffic safety topics, including driver education, traffic enforcement, road design and engineering, distracted driving and other driving behaviors, and attitudes about traffic safety policies, procedures, and enforcement techniques [22]. It was recommended to Increase education and marketing efforts to reduce distracted driving and improve young driver education by pursuing an increase in hours required for both classroom and driving. It was stated by [7] that Traffic safety culture is a concept that encompasses the public's beliefs and actions regarding traffic safety; in short, it is the framework on which the transportation network exists. As stated by [8], traffic safety cultures differ between different parts of the world, and this in turn affects how drivers respond to advisory traffic information. It was already known that Traffic Safety Cultures strongly affect how drivers respond to a situation; it was shown how different Traffic Safety Cultures can result in different driving strategies. Moreover, it is possible to design a cross-cultural interface. The effect of traffic signs identification in all its types have been explored by [9] with drivers' characteristics in the field that protect drivers' life in three of Arab gulf countries. The results addressed the relation between those factors and the findings of this research. The understanding of signs increased with experience increment, but the results on traffic incidents did not shows any relation, and when considering the effect of age together with accidents on signs knowledge, the same results have gotten. The relation between the experienced years divided by number of accidents and the three following factors, traffic signs, velocity violations registered, and Commitment to safety belt during driving with traffic signs understanding show the significant relations. The differences of safety culture in three continents was demonstrated by [10], and it was stated that the summation of passenger vehicles in each country affect the number of incidents in that country that is the major cause of death, in addition to other reasons such as budget, average age and the level of education that participate in the results for different level of developments. Four variables were used in the rate of accidents and death rate, the network of roads (km) and vehicles variables affect the deaths rate, the rate in North America and Europe was less than that in Africa. The risks in Europe are more than the American north. Linking

death rate with vehicles number (pc) is effective in conclusion making. The characteristics that drivers have in 5 countries from Arab gulf and their understanding of the signs in traffic that inform, warn, or instruct drivers have been demonstrated by [11]. The results show weak relation between the rate of accidents participation and the self-feature of drivers, but the drivers understanding of traffic signs shows significant relation with features of drivers. The outcomes of this study were very useful in traffic field and signboard making attributes, the drivers with one-decade experience and over shows better results in the understanding, and the females are worse than males. The signs understanding of drivers was outlined by [12] and related to the specification design of signs and drivers' factors influence. The outcomes of collected data uncover the important variables that are effective in the understanding of signs. Learning level and years of experience from driving licensure are significant. It was concluded that educated drivers understand better than less educated and the assessing of such drivers are necessary. As the time from having license increases the understanding of signs decreases. The driving hours doesn't show any influence on signs understanding. The concept that, for a given population, there is not a single traffic safety culture, but rather a set of alternative cultures in which the individual driver might belong have been explored by [13]. There are several different cultures of dangerous driving behavior and each might need a separate strategy for intervention or amelioration. Each of the clusters is reviewed in terms of responses to selected survey questions. Three separate and distinct dangerous traffic safety cultures emerge: first, a culture of risky driving dominated by excitement seeking and optimism bias; a second dominated by denial of societal values; and a third characterized by its propensity to find rational justifications for its speeding behavior. The culture influence on traffic safety outcomes in three of the largest automobile countries in the world which have different cultural values and different traffic safety outcomes: China, Japan and the United States was examined by [14], China has an emerging driver population and cultural values that result in aberrant driving behaviors and "scrambling" to gain the right of way, producing a high number of crashes. Japan has an established driver culture, but an emphasis on reducing risk, which results in a lower rate of crashes. The United States, with the most established "car culture", has an historical and cultural view of the car as a representation of freedom, leading to choices that result in higher crash rates than many countries around the world. These countries are compared across the different dimensions to establish unique cultural influences on traffic safety.

The aim of this work is assessing traffic safety culture among driver population in Baghdad; the assessment will be conducted through a field survey and design of questionnaire for drivers with different experience and ages.

2. METHODOLOGY

2.1. Selection of bus terminals for investigation

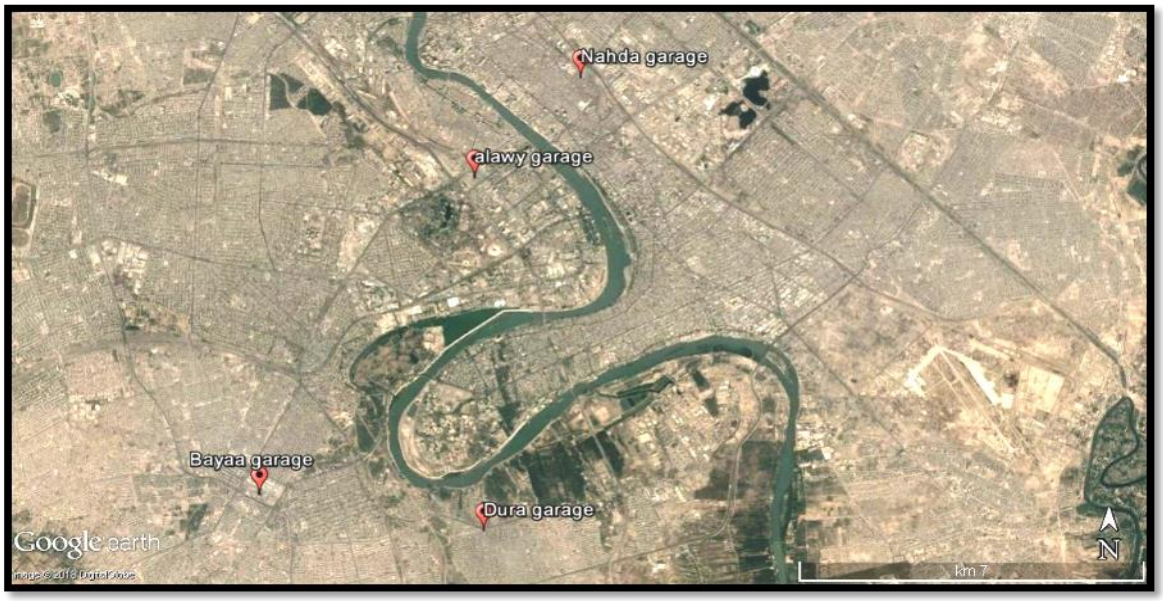

Figure 1 The investigated Bus terminals in Baghdad

Four public and private transportation terminals in Baghdad have been selected including (Bayaa, Dura, Nahda and Alawy) to conduct the field assessment. Such terminals exhibit the major nodes of minibus transport in the urban area of Baghdad as well as

the rural area surrounding Baghdad. Fig. 1 show the location of the bus terminals investigated. The drivers sample percentage was (25, 20, 35 and 20) % for the above-mentioned terminals respectively. The research community was deliberately selected unlike sample of the research which was randomly selected.

2.2. Design of questionnaire

Based on previous researches techniques [15] and [16] and on the literature review conducted in collecting data of drivers, and by trying to expand the questions to a limit that are satisfying the needs to use in theoretical work to get the best results in statistical analyses, the questionnaire presented in Plate 1 was designed. The questionnaire was dedicated to the 1052 tested drivers only and was completely collected during the assessment for analysis.

2.3. Questionnaire form details

The age of drivers was divided into four age groups (18- 27 years, 28 – 37 years, 38 -47 years, and ≥48) years).The Experience of driver considered in this work is depending on the time that drivers use their vehicles extensively after their skills increased. The point of view of which date must be taken for the number of years of experience was based on the literature. The first registration date for licensure to account of the years of experience number was considered [17], noting that some drivers leave driving for period of years and the experience in this case is calculated from the summation of active driving years. Regarding the Driving license issue in Iraq, the license procedure after 2003 was with minor complications and sometimes neglecting the traffic signs educations and exams for real driving situation tricks for having licensure which makes the years of experience not effective, so the years of experience taken is fully depending on driving. The illiterate drivers can have license in contrary with rules before the years 2003 which prohibit obtaining the license for illiterate drivers. This makes the start point for the traffic culture and safety culture deficiency.

Plate1 Questionnaire form shape and details [15] and [16]

Driving Experience (years)				
Driving (hours/day)				
Age group	18-27	28-37	38-47	≥ 48
Education level	Illiterate Read and write Primary Secondary University	Illiterate Read and write Primary Secondary University	Illiterate Read and write Primary Secondary University	Illiterate Read and write Primary Secondary University
driving license	Y/N	Y/N	Y/N	Y/N
Traffic education	Good Medium Not good	Good Medium Not good	Good Medium Not good	Good Medium Not good
No. of Accidents participation				
No. of accidents his fault				
No. of accidents not his fault				
Vehicle type				
Type of area	Urban Suburban Rural	Urban Suburban Rural	Urban Suburban Rural	Urban Suburban Rural

The Driving hours per day was considered as the average driving hours, the problem faced in consideration of such data is that most of bus drivers do not drive every day, and they have to wait for the opportunity in the que and may have a chance once or twice or more than this number in a week, some of them drive one time every ten days depending on available passengers travelling

from Baghdad to north or south of Iraq cities or outside to the neighbored countries and some drivers drive different hours daily and some of them drive long distances for many hours up to 36 hours continually that affect the drivers and impair their abilities. The Educational level of drivers is taken as follows, [Illiterate (do not read and write), read and write (up to 5th primary level), primary level (6th primary level up to 2nd middle school), secondary level (3rd middle school up to 6th level), University level include all drivers having BSc, MSc, PhD] but the drivers who did not graduated from university was considered as secondary school levels. The evaluation of traffic education and specifically the knowledge of traffic signs of drivers is based on the different traffic signs shown inFig. 2. Some of the signs are used to instruct drivers and the others to inform them of the expected dangers in roads. The traffic signs (red circle and cross inside it) mean that drivers prevented from stopping in the place where the sign exists, while the other sign with one red line sloped in an angle 45^{o} tells that the driver could not wait at that place, the signs with blue color inside it and (bicycle or person) drawn inside the circle with white color means that there is a road the bicycle or pedestrian are forced to use. The last signs types with red circle (prevention signs), and red triangle (caution signs) means prevent either bicycle or pedestrian from using that road, and the triangle signs warns the drivers of bicycle and pedestrian. The evaluation of the drivers in their understanding of traffic signs was (poor, medium, good). In this questionnaire, the only targeted gender was male because of the difficulty to find female drivers due to social and cultural habits in the country. The ownership of driving license was marked as (no, yes). Accidents participation number taken for the whole life of drivers, and the number of accidents that drivers blamed to and not blamed to depending on the responsibility percentage in accidents occurring, the drivers considered responsible for the accidents if the percentage of responsibility is 50% and over as demonstrated by [18] and when knowing the number of accidents that is driver blamed to, the number of accidents not blamed to is equal to the [total accidents-accidents blamed to].

Figure 2 Traffic signs used in the evaluations

The area where the accident occur was divided into 3 divisions, (urban, suburban, rural), based on drivers Accommodation.The data of accident and causalities were provided by the general traffic directorate and presented as a report with tables and statistics for the problem that happened in various governorates in the country, the data and tables that the researcher focuses on are the distribution of road traffic accidents according to road characteristics as followed. To know the size of problem that threats the safety specifically in Iraq, the reported total number of accidents through the years 2007 up to 2017 in Baghdad is presented in Fig. 3. It can be noted that the total number of causalities sometimes exceed the causalities from Terrorist operations.

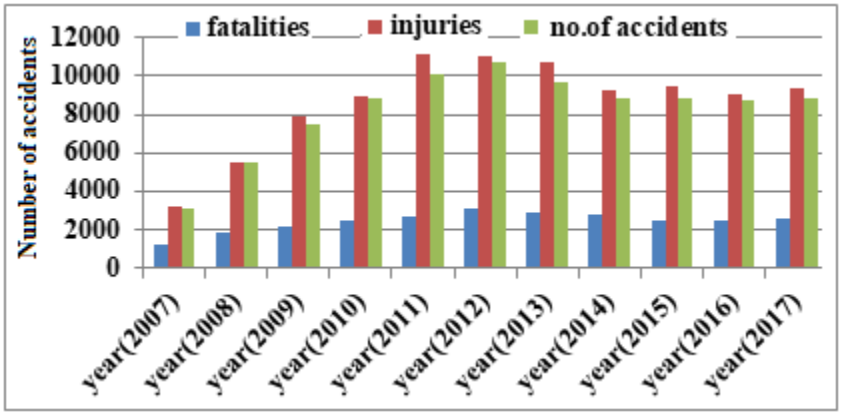

Figure 3 The causalities and total accidents numbers in Baghdad (Directory of traffic police)

3. RESULTS AND DISCUSSION

Table 1 reviewed rural and urban accidents occurred in 7 years up to 2017, the urban area accidents include sub road, main road and freeway in Baghdad.

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Table 1 Accidents statistic according to area type*

Year	Rural area accidents	Urban area accidents
2011	18	1445
2012	13	1737
2013	6	1373
2014	40	1283
2015	56	1192
2016	33	1078
2017	22	993

** Directory of Traffic police*

3.1. Drivers' accidents fluctuation with age groups

Fig. 4 shows the average accidents number for each group of drivers multiplied by 100 (for scale purpose), total number of accidents for each age groups, average (accidents number for each group per years of experience) and multiplied by 1000 (for scale purpose), knowing that accidents involvements was taken for the whole life of drivers. Table 2 exhibit the average number of accidents for driver. The maximum (accident/driver) could be noticed for age group ≥48 which is equal to 0.156 (accident/driver) while the minimum average number of accidents is for drivers of age group 28-37 years and equal to 0.145 (accident/driver). The maximum total number of accidents is for age group 28-37is equal to 552 accident, while the minimum accidents number for drivers is for age group ≥48 years is equal to 252 accident. On the other hand, the young drivers with age group 18-27 exhibit the highest (accident/years of experience) of 0.258, while such value decreases as age group increases and the elder drivers exhibit the lowest value of 0.049. This may be attributed to the gain in driving experience with age.

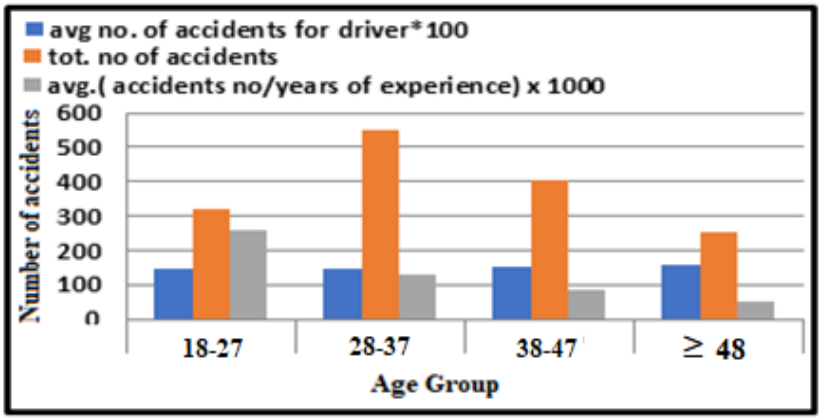

Figure 4 Accidents calculations for the age groups and related responsibilities

Table 2 (accident/driver) variations with age group

Age group	18-27	28-37	38-47	≥ 48
Average number of accidents for a driver	0.147	0.145	0.154	0.156
Total number of accidents	319	552	406	252
Average (accident/ years of experience) x 1000	0.258	0.131	0.084	0.049

It was noticed from the results that drivers with age 28-37 years have more total accidents number than other groups but with less average accidents number for each driver, and by considering accidents rate (accident no /experience of driver), the risk of older age drivers is lower than those of younger age. Similar findings have been reported by [18] and [19] that younger ages of 25-30 years are more participating in accidents than other age groups. The traffic police directorate results of the drivers who participate in

accidents are comparable with the results of current study for average accidents rate which both recorded the maximum for age up to 28 or 29 years old. The proposed reason of the minimum number of the average number of accidents per driver is the high percent of drivers free from accidents as compared to other groups which represent 45% of all age groups and affect the value to be a minimum. As reported by [16], if the annual mileage considered for drivers per kilometer driven instead of experience of drivers, the accident rate decreased.

3.2. Drivers responsibility of accident

The drivers were asked if their responsibility on accidents is 50% or more, the 50% of responsibility on accidents represent that driver is responsible on accident as mentioned by [18]. Fig.5 shows the Kai square analysis of the cumulative accidents number through driver life separated to the responsibility of accidents. It can be observed that young and elder drivers exhibit the minimum in number of accident responsibility and non-responsibility, while the maximum number of accidents responsible and non-responsible for are for age group 28-37. Despite the cumulative accidents for all age groups, Table 3 shows that the age group ≥48 years results of accident responsibility are approximately equivalent to that of young driver. The age group28-37had recorded maximum number of non-responsible and responsible accidents, this is in contrary with data presented by [18] for young driver group.

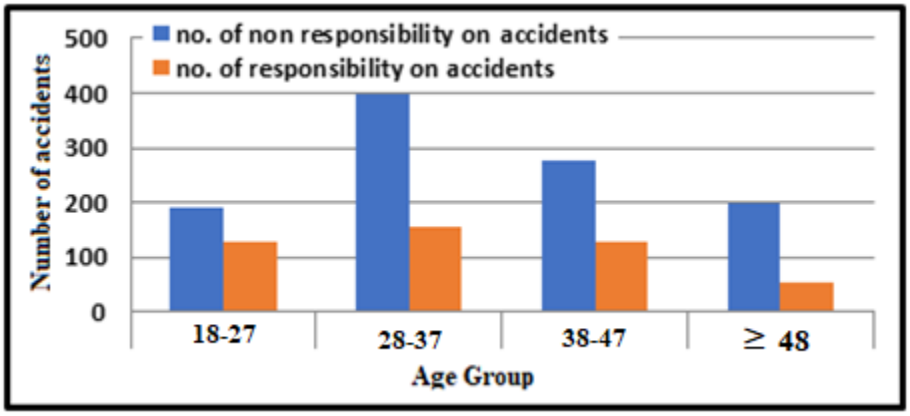

Figure 5 kai square analysis

Table 3 Responsibility of driver of accident

Age group	18-27	28-37	38-47	≥ 48
Number of non-responsible drivers of accident	192	397	277	197
Number of responsible drivers of accident	127	155	127	54

The relation between drivers' responsibility of accidents and the age group by kai square is presented by Table 4. The calculations show that p-value is less than 0.05 and that is an indication of statistically significant difference between the age groups and the responsibilities of accidents (p-value=0.00002)<(0.05).

Table 4 Age groups - responsible and non-responsible driver of accidents by kai square

Age		Responsible	Not responsible	% Responsible
18-28	O=Observed	127	192	39.8
	E=expected	222.2	96.8	
	$(O-E)^2/O$	9.4	4.1	
29-39	O=Observed	155	397	28.0
	E=expected	384.6	167.5	
	$(O-E)^2/O$	0.930	0.405	
40-50	O=Observed	127	277	31.2
	E=expected	281.42	122.6	
	$(O-E)^2/O$	0.1596	0.0695	

More than 51	O=Observed	54	197	21.4
	E=expected	174.8	76.16	
	$(O-E)^2/O$	6.45	2.81	
Chi square=24.4	DF=3	P-value=0.00002		

The age groups 18-27 shows the obvious difference in responsibility of accident as compared to other age groups. It is involving in responsibility of 39.8 % of accidents as composed with other age groups. This finding does not agree with [18] conclusion for age less than 20 which was reported as less responsible of accidents despite their high participation in accidents. The influence of driver's experiences and their responsibility of accidents as computed by kai square is demonstrated in Table 5. It exhibits a significant difference because of the p-value is less than 0.05. it can be observed that the responsibility of accident decreases as the driving experience increases. Such finding does not match with [18] findings of no significant relation with driving experience. Fig. 6 demonstrates the percent of drivers with zero accident participation. The second group 28-37 years' old drivers have the maximum percentage of drivers that did not have any accidents, while the elder drivers show the minimum percentage of drivers with zero participation in accident.

Table 5 Drivers' responsibility of accidents with experience by kai square

Experience(years)		Responsible	Not responsible	% Responsible
1-10	O=Observed	165	281	37.0
	E=expected	135.3	310.7	
	$(O-E)^2/O$	6.51	2.84	
11-20	O=Observed	157	371	29.7
	E=expected	160.2	367.8	
	$(O-E)^2/O$	0.064	0.028	
21-30	O=Observed	74	215	25.6
	E=expected	87.7	201.3	
	$(O-E)^2/O$	2.1	0.93	
31-40	O=Observed	61	161	27.4
	E=expected	67.4	154.6	
	$(O-E)^2/O$	0.6	0.26	
41-50	O=Observed	6	35	14.6
	E=expected	12.4	28.6	
	$(O-E)^2/O$	3.3	1.5	
Chi square=18.1	DF=4	P=0.001		

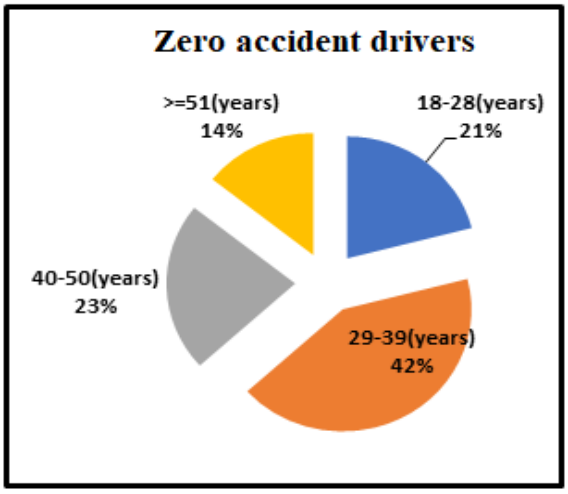

Figure 6 Zero accident drivers' percentages

3.3. Traffic Culture

Table 6 shows the drivers' statistics of traffic culture, it revealed that unsatisfactory traffic culture exhibits the highest number of accidents as compared to fair and good traffic education. However, the zero accident driver percentages show no significant relation with accidents participations, and the results varied from driver to driver. It was felt that more data for those drivers of good traffic culture are needed for more accurate relation to predict if the traffic culture is significant factor on accidents participations.Fig.7 shows the traffic culture level percentage for whole sample of drivers.

Table 6 Drivers' statistics for traffic Culture

Traffic educations	Unsatisfactory	Fair	Good
No. of drivers	781	219	52
Tot. no. of accidents	1122	388	70
Avg. no. of accidents/driver	1.437	1.771	1.346
Zero accident driver's percentage	28.7%	25.1%	25%

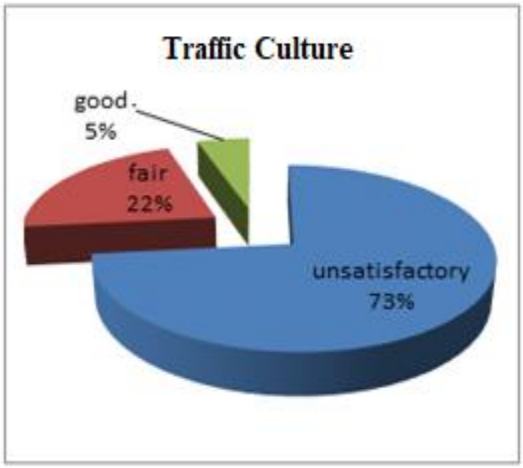

Figure 7 Traffic culture of the tested sample

The traffic culture appeared to be significant in accidents participation, and that is no far from [19], but it differs from [9] findings that there is no relation between traffic accidents and traffic culture. Table 7 show that young drivers have the lowest traffic culture level while the elder drivers exhibit better traffic culture. It can be noted that 73% of the tested drivers have unsatisfactory traffic culture. Such findings support the data provided by the directory of traffic police presented in Table 3.

Table 7 Influence of traffic education level on drivers' accidents background

Age group	Participating in accidents (%)	% of drivers with traffic educations		
		Good	Fair	Unsatisfactory
18-27	21	4	15	81
28-37	34	5	19	76
38-47	26	6	24	70
≥ 48	19	6	29	65
average	-------	5.25	21.75	73

3.4. General education

Fig. 8 shows the influence of general education on accidents background. It can be noted that the illiterate drivers exhibit the lowest accident participation. Such behavior was further supported by Table 8. This may be attributed to their conscious while driving due to deficiency in understanding the traffic signs. It was noticed that as the education level increases the number of participations in accidents decreases when comparing primary or less education with secondary and university levels. Such results are in reverse order with [18] at which the involvement in accidents increases with the increase in level of education and this may be attributed to the variability of socioeconomic level and different behavior as mentioned by [15] and [20].

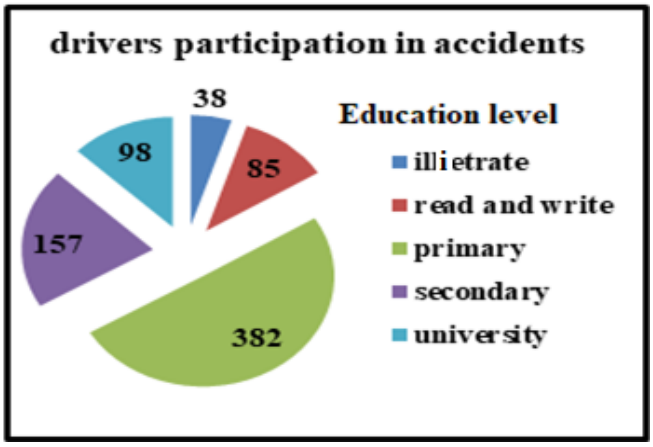

Figure 8 Drivers' participation in accidents for level of general education

Table 8 Educational level and accident participations

Education level	% of driver's population tested	% of drivers participated in accidents
Illiterate	5	5
Read and write	11.5	11
Primary	50.4	50
Secondary	19.9	21
University	13.2	13

3.5. Driving license

The driving license statistics and its relationship with accidents participation was investigated, the number of drivers with license are 95% and the drivers without license are 5%.The average accidents number for drivers without license is(1.399 accidents/driver) while it is less than that of licensed drivers of (1.5 accidents/driver).The zero accidents driver percentage is 27.8% for drivers without license and is 18.4% for drivers with license, and that is biased, and no logical value can be estimated from driving license. Such finding agrees with [15]; [19] and [20].

3.6. Experience of drivers and traffic education

Fig. 9 shows the tested drivers and their driving experience percentage, the professional drivers are highly represented by about 79% of driver's population in current research, and for minimum 10 years of experience as stated by [19] which discussed the safety conditions for driving. Table 9 shows the percent of drivers of different driving hours and their level of educations. Drivers with primary education forms the largest population among other driver's general education levels. These findings are similar to [9] for traffic culture of signs.

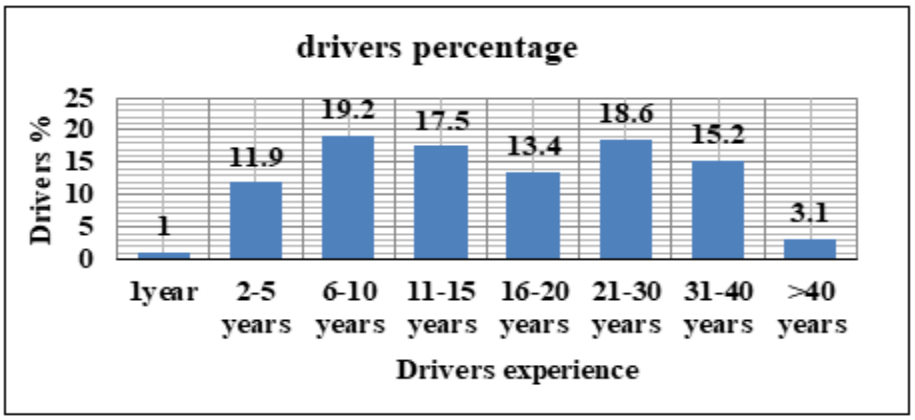

Figure 9 Drivers' and their experience

Table 9 General educational level of drivers with driving hours

Educational level	% of drivers with driving hours			
	(1-2)hours	(3-5)hours	(6-9)hours	≥10 hours
Illiterate	0.57	2.7	1.4	0.29
Read and write	1	6	3.8	0.67
Primary	4.1	24.2	16.4	5.6
Secondary	2.7	7.9	7.5	1.9
University	2.9	6.2	3.2	0.97
Summation	11.27	47	32.3	9.43

It seems to be that educational level of secondary school and university levels affect the decision of persons of being professional in this job, while most of the driver's population has primary school education level. Table 10 demonstrates the relationship between traffic education level and the driving experience. As the driver experience increases with more driving hours, the percentage of drivers with good and fair education levels increases. On the other hand, the percentage of drivers with unsatisfactory traffic education level decreases. This may be attributed to their adaptation in watching and recognizing the traffic signs with time.

Table 10 Relationship between traffic education and driving experience

Experience	Good%	Fair %	Unsatisfactory%
1-9	2.48	14.9	82.62
10-20	4.2	17.3	78.5
21-30	7.7	30	62.3
31-40	6.3	27.5	66.2
41-55	12.1	24.2	63.7

3.7. General Educational level with traffic culture relation

Table 11 shows the relation between traffic signs comprehension and the level of education. It was noticed that as the educational level increases the percentage of drivers with good and fair traffic culture, while the percentage of drivers with unsatisfactory traffic culture level decreases. These results are in agreement with [12].

Table 11 General Education level and traffic signs comprehension

Level of education	Traffic signs comprehension level%		
	Unsatisfactory%	Fair%	Good%
Illiterate	90	7.7	2.3
Read and write	88.3	10.8	0.9
Primary	79.1	18.7	2.3
Secondary	63	27	10
University	53.9	33.1	13

4. CONCLUSIONS

Based on the field assessment, the following conclusions may be drawn

1- The maximum (accident/driver) of 0.156 could be noticed for age group ≥48 while the minimum average number of accidents is for drivers of age group 28-37 years and equal to 0.145 (accident/driver).

2-The maximum total number of accidents is for age group 28-37which is equal to 552 accidents, while the minimum accidents number for drivers is for age group an ≥48 year which is equal to 252 accidents.

3- The age groups 18-27 shows the obvious difference in responsibility of accident as compared to other age groups. It is involving in responsibility of 39.8 % of accidents as composed with other age groups.

4-Unsatisfactory traffic culture exhibits the highest number of accidents as compared to fair and good traffic culture. Young drivers have the lowest traffic culture level while the elder drivers exhibit better traffic culture. It can be noted that 73% of the tested drivers have unsatisfactory traffic culture.

5- Educational level of secondary school and university levels affect the decision of persons of being professional in this job, while most of the driver's population have primary school education level.

6-The participation percent in accidents decreases as the educational level increases, with maximum participation percent of 66% for (primary), and minimum participation of 13% for university level of education. The illiterate drivers group shows minimum involving in accidents of about 5%.

7-Traffic signs comprehension increases as the level of education increases with maximum percentages of good and fair levels of 13% and 33% in sequence.

8- The traffic educational level increases as the age of driver increases and the age group ≥50 revealed maximum good and fair levels with(6 and 29) % respectively.

9- The traffic safety culture was unsatisfactory among driver's population in Baghdad, the traffic education strategies should be revised and improvement of safety issues on the roadway should be implemented.

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