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PSIHOLOGIE SOCIALĂ

THE INFLUENCE OF RELIGIOUS AFFILIATION AND LEVEL OF EDUCATION ON AGGRESSIVE DRIVING

INFLUENȚA APARTENENȚEI RELIGIOASE ȘI A NIVELULUI DE INSTRUIRE ASUPRA ȘOFATULUI AGRESIV

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Abstract

The prevalence of aggressive behavior in traffic represents a pressing issue in contemporary society. In recent times, there has been a notable surge in aggressive conduct among drivers, ranging from excessive honking to involvement in road accidents. The statistical data regarding accident rates in Romania and the Republic of Moldova underscore the necessity of investigating the underlying causes of this behavioral deviation among drivers and devising strategies for prevention or intervention to mitigate this maladaptive behavior.
This article presents the findings of an experimental study examining two variables that may influence the occurrence and expression of aggressive behavior among drivers in traffic: religious affiliation and level of driver education. The experimental hypothesis tested is as follows: We posit that statistically significant differences exist in the level of aggressive behavior exhibited in traffic—such as aggressive driving, dangerous driving, and risky driving—depending on the drivers' level of education and their religious affiliation.

Keywords: **aggressiveness, aggressive driving, dangerous driving, risky driving, level of education, religious affiliation.**

Rezumat

Manifestarea comportamentului agresiv în trafic reprezintă o problemă actuală a societății moderne. În ultima perioadă atestăm o sporire a manifestărilor agresive

la șoferi, de la claxonatul excesiv până la accidente rutiere. Datele statistice ridicate cu referire la rata accidentelor din România și Republica Moldova impune necesitatea studierii cauzelor care condiționează manifestarea acestei devianțe comportamentale la șoferi și elaborarea modalităților de prevenire sau intervenție în vederea diminuării acestor comportamente dezadaptative.

În articolul dat sunt prezentate rezultatele studiului experimental a două variabile care ar putea să condiționeze apariția și manifestarea comportamentului agresiv la conducătorii auto în trafic: apartenența religioasă și nivelul de instruire a șoferilor. Ipoteza verificată experimental a fost: presupunem că există diferențe statistic semnificative la nivelul comportamentului agresiv manifestat în trafic (șofat agresiv, șofat periculos, șofat riscant) în funcție de nivelul de instruire a șoferilor și apartenența lor religioasă.

Cuvinte-cheie: agresivitate, șofat agresiv, șofat periculos, șofatul riscant, nivel de instruire, apartenența religioasă.

Aggressive behaviour of drivers is one of the forms of deviant behaviour that is in the area of concern of many fields, including the field of humanities. Aggressive driving has been defined in many ways in the literature, concluding that it can be identified as an intentional act that can increase the risk of collision and is motivated by impatience, ignorance, hostility and time pressure. The results of a questionnaire indicated that nearly 90% of drivers had experienced at least one situation involving what they described as aggressive driving in the past year [7, p.138]. This behaviour can take different forms of manifestation: swearing, obscene signs, hits, minor collisions, road accidents, etc. There are also various factors and circumstances for their manifestation: traffic jams, traffic violations, bad roads, poorly formed drivers, etc. While behind the wheel, the driver experiences a wide range of negative emotional states such as irritability, anger, astonishment, excitement, fear, fright, anxiety or sadness. The driver in modern conditions is required not only to possess certain driving skills, qualities of attention, perception, and memory, but also ca-pacities to manage negative emotions and behaviours [6, p.9]. Alarming statistical data referring to the increased number of road accidents confirm the need to study the causes of their occurrence and develop measures to reduce them [8, 9].

Research methodology. The study of socio-demographic indexes is of major importance in understanding the causality of the manifestation of aggressive behaviour of drivers in traffic, which is conditioned by numerous variables (age, gender, etc.).

The research aims to study the interrelationship between aggressive, dangerous and risky behaviour manifested in traffic and some of the socio-demographic indicators, such as education level and religious affiliation.

Research hypothesis: we assumed that there are statistically significant differences in aggressive behaviour manifested in traffic (*aggressive driving, dangerous driving, risky driving*) depending on religious affiliation and level of education.

Research methodology. In order to experimentally verify this hypothesis, we developed a *questionnaire to identify these demographic indexes*, and to study the

level of aggressive behaviour of drivers in traffic, we used the results from The Dual Dangerous Driving Index (DDDI). One of the subscales used in this test is negative cognitions/emotions and refers to the dependent variable in our research that has no behavioural and affective-cognitive attribution. As described by C. Havârneanu [4], the Dula Dangerous Driving Index (DDDI) is a questionnaire used to assess aggressive tendencies and risky behaviours in driving. This tool was developed by psychologist Chris Dula from East Tennessee State University, USA and aims to measure aggressive driving, negative cognitions and emotions related to driving, as well as risky driving behaviour. The process of adapting DDDI in Romania involved ensuring that this tool can be used effectively to assess aggressive tendencies and risky behaviours in driving among the Romanian population [4].

This test can be used as a screening tool to identify people with tendencies towards dangerous behaviour and who could benefit from therapeutic interventions such as CBT (cognitive-behavioural therapy). This tool could be implemented in driving schools or road safety education programmes to identify drivers with the potential for aggressive and risky behaviour and intervene appropriately.

So, **the variables of the research** are as follows: **independent variable -** religious affiliation and level of training of drivers; **dependent variable -** aggressive behaviour of drivers quantified and operationalized by: aggressive driving, risky driving, cognitions and negative emotions, evaluated by - *DDDI: The Dula Dangerous Driving Index.*

Research sample: consisted of 204 drivers: *average age 37.5* (20 - 55 years), of which 177 men and 27 women; *religious affiliation:* 189 Orthodox and 15 other religions; *Level of education:* with vocational school 24 subjects, high-school - 86 and undergraduate or postgraduate studies 94 subjects. The sample was random. The research was attended by drivers who present themselves at the annual periodic evaluation in Romania, additionally answering the questions of the administered samples. For ethical reasons, study participants were informed of the purpose and character of the study.

Statistical methods. For data analysis, descriptive and inferential statistics were used, the processing being carried out through the SPSS software (Statistics Package for Social Sciences) [5]. One of the characteristics of the statistical methodology used in this research is that we performed descriptive statistics, due to the disproportionality of the lots, depending on demographic variables, which required differentiated attention for each variable. Thus, nonparametric statistical methods were used in our research. Given that the distribution of results obtained in our research is not symmetric, for all investigated variables, we used nonparametric methods for comparison and for verifying the existence of association relationships.

Results and discussions. Socio-demographic indexes are of major importance in researching aggressive behaviour in drivers in traffic, as accident rates differ depending on the environment (urban/rural), the driver's attitude towards the traffic process, his ability to analyse his situation or emotional state, as demonstrated by the worrying statistics existing on the rate of road accidents, both in Romania and in the Republic of Moldova [8, 9]. In order to prevent these aggressive behavio-

urs in traffic, we set out to study the incidence of aggressive behaviour of drivers in traffic, taking into account demographic indicators, so that, subsequently, we can intervene with psychological intervention programs based on these data. It should be mentioned that some of the socio-demographic indicators, experimentally researched, such as *age, gender, socio-economic status, background* etc, have been presented and analysed in a number of previous publications [1, 2].

In order to identify differences according to religious affiliation in the manifestation of aggressive behaviour of drivers in traffic, subjects were grouped into two categories: Orthodox and other religious minorities. The Kolmogorov-Smirnov test for assessing the normality of distributions indicates that scores on the aggressive driving variable deviate from a Gaussian distribution for subjects declaring themselves Orthodox ($z = 0.356$, $p < 0.001$), but not for subjects declaring themselves to have another religious orientation ($z = 0.248$, $p = 0.200$). Because for one category of this variable, the data does not show a normal distribution, we used the non-parametric Mann-Whitney U test to test the hypothesis that there are significant differences in aggressive driving by religion. This is shown in Table 1.

Table 1.

Differences in aggressive driving by religion

Religion	N	Median	Average	SD	Average ranks	Mann-Whitney U	Z	p
Orthodox	189	7.00	8.01	2.74	**87.99**	421.50	-1.516	0.129
Another	15	8.00	9.71	3.99	**113.79**			

Orthodox subjects scored lower on the aggressive driving subscale (rank average 87.99) compared to non-religious subjects (rank average 113.79), but these differences are not statistically significant, as indicated by the Mann-Whitney U test ($p > 0.05$). In order to streamline the perception of the obtained data, we illustrated them in figure 1.
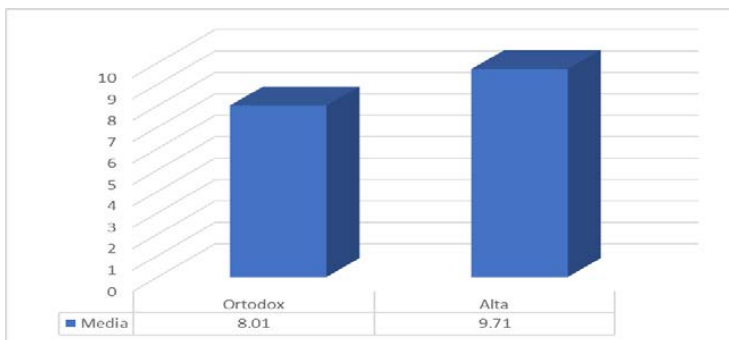

Fig. 1. Averages of scores on the subscale aggressive driving by religious affiliation

After applying the Dula Indicator to the aggressive driving subscale, we notice that the average values for *subjects with Orthodox religious affiliation* are 8.01 (average units); and for *subjects with other religious affiliation* 9.71 (average units). From Fig.1, we can see that religious affiliation does not weight determining aggressive behaviour in traffic among drivers.

The variable risky driving investigated by the Dula Indicator, which represents a behavioural component in generating aggressive behaviour of drivers in traffic, is subsequently presented according to the demographic factor, *religious affiliation*. The Kolmogorov-Smirnov test for assessing the normality of distributions indicates that scores on the variable *risky driving* deviate from a Gaussian distribution, both for subjects declaring themselves Orthodox (z = 0.320, p< 0.001) and for subjects declaring themselves to have another religious orientation (z = 0.315, p = 0.034). Thus, we used the non-parametric Mann-Whitney U test to test the component of the hypothesis that there are significant differences in risky driving by religious affiliation, shown in Table 2.

Table 2.

Differences in risky driving according to religious affiliation

Religion	N	Median	Average	SD	Average ranks	Mann-Whitney U	Z	p
Orthodox	189	12.00	13.51	3.24	88.71	545.5	-0.424	0.672
Another	15	12.00	14.00	3.056	96.14			

Subjects of Orthodox religious affiliation scored lower on the risky driving subscale compared to subjects of other religious affiliations, but these differences are not statistically significant, as indicated by the Mann-Whitney U test (p> 0.05). In order to streamline the perception of the data obtained, we illustrated them in Figure 2.
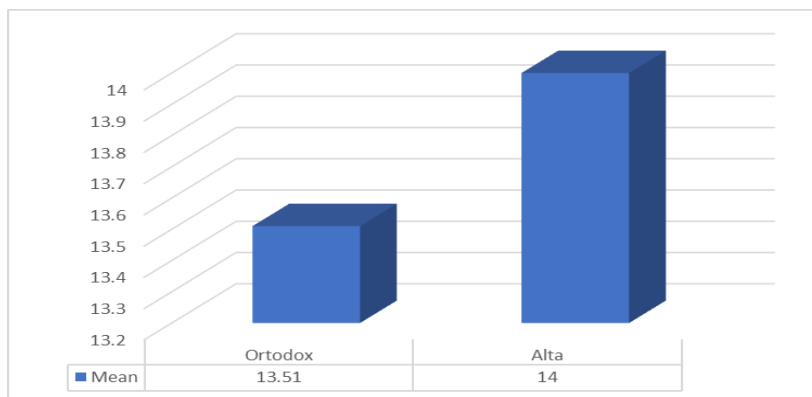

Fig. 2. Averages of sub-jerky risky driving scores by religious affiliation

After applying the Dula Indicator to the risky driving subscale, we notice that the average values for *subjects with Orthodox religious affiliation* are 13.51 (average units); and for *subjects with other religious affiliation* 14 (average units).

The negative emotions and cognitions variable researched by the Dula Indicator, which represents an affective-cognitive component in generating aggressive behaviour of drivers in traffic, is subsequently presented depending on the demographic factor, and *religious affiliation*. The Kolmogorov-Smirnov test for assessing the normality of distributions indicates that scores on ***negative emotions and cognitions*** *deviate* from a Gaussian distribution for subjects declaring themselves Orthodox ($z = 0.164$, $p < 0.001$), but not for subjects declaring themselves to have another religious orientation ($z = 0.197$, $p = 0.200$). Because for one of the categories of this variable, the scores do not show a normal distribution, we used the non-parametric Mann-Whitney U test to test part of the hypothesis that there are significant differences in negative emotions/cognitions according to religious affiliation, presented in Table 3.

Table 3.

Differences in negative emotions/cognitions according to religious affiliation

Religion	N	Median	Average	SD	Average ranks	Mann-Whitney U	Z	p
Orthodox	170	12.00	13.10	3.70	88.47	504.50	-0.686	0.493
Another	7	14.00	14.00	4.08	101.93			

Orthodox subjects scored lower on the cognitive variable/negative emotions (rank average 88.47) compared to non-religious subjects (rank average 101.93), but these differences are not statistically significant, as indicated by the Mann-Whitney U test ($p > 0.05$). For easier visualisation of the data, we show Figure 3.
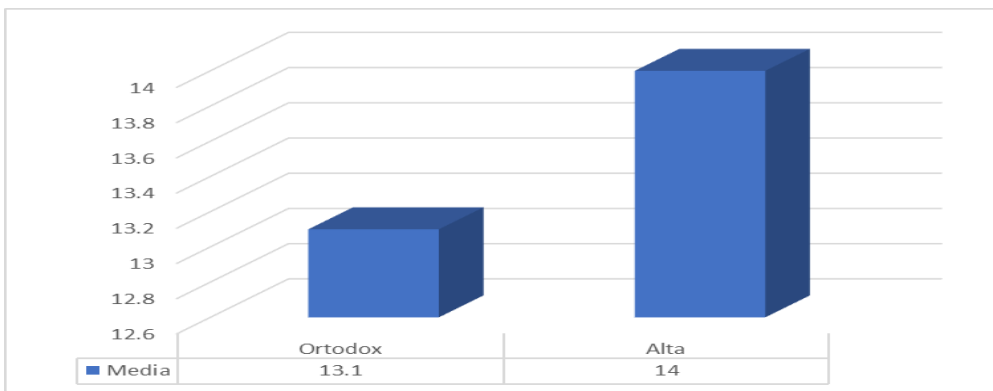

Fig. 3. Averages of negative cognitions/emotions subscale scores by religious affiliation

After applying the Dula Indicator to the negative cognitions/emotions subscale, we notice that the average values for *subjects with Orthodox religious affiliation* constitute 13.1 (average units); for *subjects from other religious minorities* 14 (average units). From the results presented in Figure 3, we can see that religious affiliation does not weigh in determining negative cognition/emotions in traffic in drivers.

Another stage of the research was to identify differences depending on the level of training of drivers in the manifestation of aggressive behaviour. The Kolmogorov-Smirnov test for assessing the normality of distributions indicates that scores on the aggressive driving variable deviate from a Gaussian distribution, for all levels of training: for drivers with 10 classes or vocational school (N=24) we obtained $z = 0.352$, $p < 0.001$; for drivers with high school or post-secondary education (N=86) we obtained $z = 0.380$, $p < 0.001$; for drivers with university or postgraduate education (N=94) we obtained $z = 0.346$, $p < 0.001$. So, to test the hypothesis that there are significant differences in aggressive driving depending on the level of training of drivers, we used the Kruskal-Wallis H non-parametric test. The results obtained are presented in Table 4.

Table 4.

Differences in aggressive driving depending on the level of training

Training level	N	Median	Average	SD	Average ranks	Kruskal-Wallis H	Df	p
10 classes or vocational school	24	7.00	8.27	3.25	88.57			
high school or post-secondary school	86	7.00	7.99	3.24	88.37	0.882	2	0.643
undergraduate or postgraduate studies	94	7.00	8.12	2.12	89.78			

Descriptive statistics (average ranks) show that subjects tend to have similar levels of aggressive driving, regardless of their level of training. This is also indicated by the statistical test, for which we obtained a p-value higher than 0.05. For an easier perception of the data, we illustrate them in Figure 4.
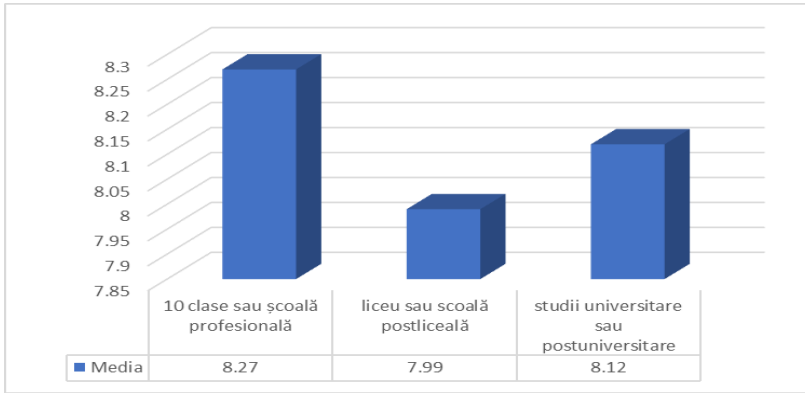
Fig. 4. Average scores on the aggressive driving subscale by level of training

Following the application of the Dula indicator to the aggressive driving subscale, we notice that the average values for *subjects with 10 classes* constitute 8.27 (average units); for *subjects with high school* 7.99 (average units) and for *subjects with university education* 8.12 (average units). From the results obtained and illustrated in Figure 4, we can see that studies have no weight in determining aggressive traffic behaviour in drivers.

The risky driving variable researched by the Dula Indicator, which represents a behavioural component in generating aggressive behaviour of drivers in traffic, is presented later, depending on the demographic factor, *the level of training*. The Kolmogorov-Smirnov test for assessing the normality of distributions indicates that scores on *the risky driving variable* deviate from a Gaussian distribution, for all levels of training: for drivers with 10 classes or vocational school (N=24) we obtained z = 0.284, p< 0.001; for drivers with high school or post-secondary education (N=86) we obtained z = 0.352, p < 0.001; for drivers with undergraduate or postgraduate education (N=94) we obtained z = 0.308, p< 0.001. Therefore, to test the component part of the hypothesis that there are significant differences in risky driving depending on the level of training of drivers on the road, we used the non-parametric Kruskal-Wallis H. test, presented in Table 5.

Table 5.

Differences in risky driving depending on the level of training

Training Level	N	Median	Average	SD	Average ranks	Kruskal-Wallis H	Df	p
10 classes or vocational school	24	13.00	14.50	3.69	104.00			
high school or post-secondary school	86	12.00	13.42	3.73	84.89	3.035	2	0.219
undergraduate or postgraduate studies	94	12.00	13.37	2.40	88.93			

Descriptive statistics (rank average) show that subjects with high school/vocational school and those with undergraduate/postgraduate education tend to have lower levels of risky driving compared to subjects with 10 grades or vocational school, but these differences are not statistically significant is also indicated by the statistical test, since the p-value of the Kruskal-Wallis H test is greater than 0.05. To facilitate data visualization, we illustrate them in Figure 5.

Following the application of the Dula Indicator to the risky driving subscale, we notice that the average values for *subjects with 10 classes* constitute 14.5 (average units); for *subjects with high school* 13.42 (average units) and for *subjects with university education* 13.37 (average units). From the results obtained and illustrated in Figure 5, we can see that studies are not a relevant variable in determining aggressive traffic behaviour of drivers. *The variable negative emotions and cognitions* researched by the Dula Indicator, which represents an affective-cognitive component in generating aggressive behaviour of drivers in traffic, is subsequently presented depending on the demographic factor, and *the level of training*.
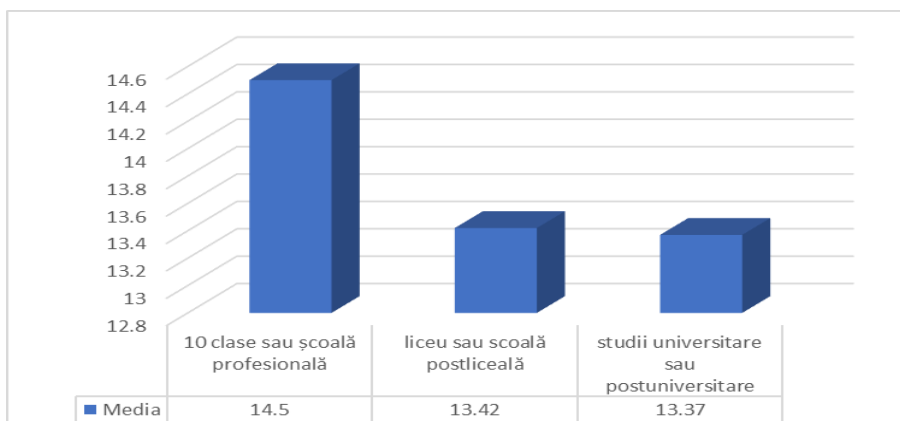

Fig. 5. Averages of scores on the risky driving subscale by level of training

The Kolmogorov-Smirnov test for assessing the normality of distributions indicates that scores on the *variable negative emotions and cognitions* deviate from a Gaussian distribution, for all levels of training: for drivers with 10 classes or vocational school (N=24) we obtained $z = 0.228$, $p = 0.004$; for drivers with high school or post-secondary school (N=86) we obtained $z = 0.194$, $p < 0.001$; for drivers with undergraduate or postgraduate education (N=94) we obtained $z = 0.155$, $p < 0.001$. So, to test the component of the hypothesis that there are significant differences in negative emotions/cognitions depending on the level of training of drivers, we used the Kruskal-Wallis H. non-parametric test, which is shown in Table 6.

Differences in negative emotions/cognitions variable depending on the level of training

Training Level	N	Median	Average	SD	Average ranks	Kruskal-Wallis H	Df	p
10 classes or vocational school	24	11.50	13.41	4.01	91.50			
high school or post-secondary school	86	12.00	13.23	3.52	92.28	0.882	2	0.643
undergraduate or postgraduate studies	94	12.00	12.96	3.85	84.87			

Descriptive statistics (rank average) show that subjects with undergraduate or postgraduate degrees tend to have lower levels of negative emotions and cognitions compared to other categories of sub-

jects, but these differences are not statistically significant, as the Kruskal-Wallis H p-value is higher than 0.05. For an easier perception of the data, we present them in Figure 6.
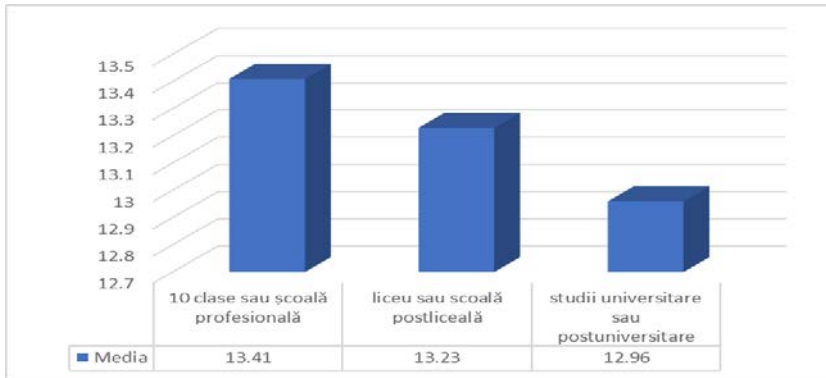

Fig. 6. Averages scores on *the subscale* of negative emotions/cognitions by level of instruction

Following the application of the Dula Indicator to the negative *emotions/cognitions subscale,* we notice that the average values for *subjects with 10 classes* constitute 13.41 (average units); for *subjects with high school* 13.23 (average units) and *subjects with university education* 12.96 (average units). From the results obtained and illustrated in Figure 6, we can see that studies have no weight in the experience of negative emotions and cognitions in traffic in drivers.

Conclusions. The study of demographic variables, which could condition the appearance and manifestation of aggressive behaviours in drivers in traffic, allowed to highlight the lack of statistically significant differences that would influence drivers in traffic. The research of demographic variables that can intervene as random factors, or as confused variables that could influence the specificity of the subsequent research of psychological factors that can condition the appearance and manifestation of aggressive behaviour of drivers, allowed us to

ascertain the absence of statistically significant differences that would influence, at a certain stage of life, drivers in traffic. The hypothesis put forward that there are statistically significant differences in aggressive behaviour in traffic, depending on *religious affiliation and educational level, has not been statistically confirmed.* This could allow control of variables confused by this randomization, and control of variables not relevant from the perspective of socio-demographic factors that may have occurred. The conclusions drawn from these experimental findings direct us to the need to study psychological variables that can intervene and condition the manifestation of aggressive behaviour in traffic of drivers, such as for example, the emotional state of the driver, social and emotional intelligence, personality profile, character traits, perceived stress level, experience of previous road accidents, etc.

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