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Shouting and Cursing while Driving: Frequency, Reasons, Perceived Risk and Punishment

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Abstract Traffic accidents are a major cause of death and injury in the world. Generally speaking about aggression, evidence has shown that drivers who use to express more aggressive behaviors tend, at the same time, to have higher rates of road crashes or traffic incidents. Furthermore, in most cases, the situations that appear aggressive behaviors are typical of normal current traffic conditions, making this behavior into something very common and very serious road safety issue. It has been also related with the clear lack of Road Safety Education that is evident in most of the countries. The aim of this study was to describe the factors and perceptions related to aggressive behavior of verbally insulting and shouting out while driving. In this study, it was described an extensive list of behaviors that experts consider more or less unanimously as "aggressive driving", one of them described as shouting and insult. In this study, the sample was obtained from a random sampling by proportional representation to population segments of age, sex, region and size of the municipality. The survey is aimed at Spanish drivers over 18 years. The starting sample size was 1,100 surveys. As result shout and insult are not considered a dangerous offense as it is driving under the influence of alcohol. Multiple modes of bad or risky maneuvers, will be banned from a legal point of view, uncomfortable and restrict other drivers and pedestrians, creating violent situations for risk and stress. The degree of social tolerance towards such behaviour is variable. Some individuals are limited to ignore them, accepting them as something inevitable. Multiple types of risky maneuvers and deliberated misbehaviors, which are (formally and informally) already forbidden from a legal point of view, uncomfortable and restrict other drivers and pedestrians, creating violent situations for risk and stress, are still performed among drivers. In short, aggression on driving is one of them. As a conclusion, there are a high prevalence of this phenomenon among Spanish drivers. Furthermore, most of the aggressive expressions related to shouting and cursing on the road are preceded by subjective factors such as stress, fatigue and personality traits, which may be intervened through the strengthening of road safety education and road safety campaigns.

Keywords: *aggressiveness, driving, road safety, infraction, normative, driving misbehaviors*

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1. Introduction

Traffic accidents are a major cause of death and injury in the world. According to the World Health Organization, 1.23 million people worldwide die each year because of a traffic accident [1,2]. Generally speaking about aggression, we could define this concept as any behavior with which people try to harm or inflict injury (physical, moral, psychological or social) to another or others. Respect, "aggressive driving" is defined as the behavior of an angry or impatient driver who intentionally endangers the life of another driver, passenger or pedestrian, in response to an argument, dispute or grievance traffic. In most cases, the situations that appear aggressive behaviors are typical of normal current traffic conditions, making this behavior into something very common and very serious road safety

issue [3,4,5]. It has been also related with the clear lack of Road Safety Education that is evident in most of the countries [6,7].

The causes of aggressive driving are very complex and this may be due to multiple factors [8,9], instead aggressive reactions are always preceded by an emotional state, which may have originated in their own personal circumstances [10,11], or be triggered by external, or the observed behaviors in other drivers or pedestrians. A nervous or angry driver may be more susceptible, have lower tolerance for frustration or be less tolerant of the behavior of others [5,8]. Moreover, and as any emotional reaction, aggressiveness is also modulated by the subjective interpretation of the situation and the type of authority to do about the intentions of others. The sake of simplicity, when explaining the origin of aggressive behavior in general, and particularly those manifested in driving, scientific studies have distinguished between internal causes specific to

each individual and their personal circumstances linked to internal and external causes, from the subjective context as well from social circumstances [8,9,12].

Among the external causes there are several environmental factors that in certain circumstances can contribute to an aggressive reaction or increase their probability of occurrence [12]. It is annoying physical conditions that directly affect the comfort, and can negatively affect mood, encouraging the emergence of aggressive behavior.

Among these factors it could be worth mentioning things like noise and heat. In relation to the ambient temperature, for example, it has shown that the incidence of violent crime increases during the summer months, so if the atmosphere is hot and humid, the driver is more likely to get frustrated or angry, and adopt aggressive behaviors. Some studies also show that noise pollution can lead to aggressive reactions, especially if the subject has no control over the size or duration [13]. Other external conditions most often associated with aggressive driving is traffic congestion so characteristic of big cities, and as often on the move in dates. These factors could add many others that have to do with one's own driving situation and the stress generated due to the urgency, frustration, or the actions of other drivers [14,15].

A number of aggressive behavior of drivers, especially young people, are rooted in the observation of violent models in film and television. No more to think about any of the chase scenes or street racing, which is literally shattered car, or the car violently or as a hallmark of an aggressive character is used. In real life, everyday example offered by many users of public roads also influences, especially when you consider that many of these aggressive behaviors are never sanctioned [16,17].

If we find that a person shouting and insult, one may be inclined to imitate such behavior in order to reach their destination before. In this sense, we might consider aggressive driving as a form of self-behavior of our culture, ingrained since childhood, learned first observed as passenger behavior of older people, and later put into practice, it is reinforced by the media communication. It has not to be forgotten the fact that in our society there is a widespread tendency to represent the vehicle as a private territory on the road, a kind of home on wheels moving with oneself and whose integrity must be maintained at all costs. In this sense it seems justifiable to point out that the aggressive impulse may represent innate feelings of territorial rights, serving as a basis for many dangerous and inconsiderate behavior on the roads [18].

Although there is no single profile aggressive driver, we know from the statistics that most aggressive drivers are relatively young men, poorly educated, with criminal records, histories of violence and problems with alcohol and drugs. Most aggressive behaviors often occur in drivers who are 18 to 26 years, but we can also find a good percentage of cases between 26 and 50 years, and longer in smaller proportion between 50 and 75 years [19]. Many of these individuals have recently had a strong emotional setback, such as job loss, loss of a loved one, a divorce or breakup, or have suffered an injury or accident.

Finally, numerous studies have found links between aggression and the difficulties to contain the anger and hostility toward others, and the tendency to take risks at

the wheel, committing offenses and traffic accidents. In general, increased aggressiveness and hostility, greater number of offenses and traffic accidents and increased risk of subsequent recurrence [21,22].

1.1. Study Framework

Law, and all its related aspects, has an essential part that comes from legal science. Moreover, law applies to individuals and societies, so it has a lot to do with sociology and psychology. Individuals and societies may or may not know the laws, they may or may not accept them, they may or may not share their principles, and they may or may not obey them. In order for laws to be applied and obeyed, different sciences must be involved when developing them. In addition, the law is not the only thing to take into account; rules make no sense unless there are consequences when they are not obeyed. From this approach, traffic laws have to be treated from a comprehensive perspective.

Moreover, it is important to understand legislation and everything it involves and to regulate drivers' behavior since reckless behavior not only affects the driver itself but other people (drivers and pedestrians on the road). Therefore, it is preserving one's life and the life of others. So, this is why the framework of this article was a largescale project based on "traffic laws and road safety" to raise people's awareness regarding this matter [23,24]. This global research on traffic laws and road safety used a questionnaire made up of a set of items in different sections. An important aspect of the questionnaire is the order of the questions. The objective of these items was not to influence the answers in a particular direction. First of all, the questionnaire was used to collect sociodemographic data (such as age, gender, occupation, etc.).

In addition, other descriptive factors relevant to road safety were also taken into account in order to classify drivers: main motive of the journey, driving frequency, professional drivers, driving experience, kilometers per year, type of journey, most frequently used type of road, and record of accidents and penalties.

There were also subsections to collect information related to these areas: unsafe/risky behaviors (speeding, inappropriate speed in specific situations, unsafe following distance, shouting or verbally insulting while driving, driving under the influence of alcohol, driving without a seat belt, smoking while driving, driving without insurance, driving without the required vehicle inspection). It was also interesting to learn about the beliefs, knowledge, and attitudes of participants towards the areas of "legislation", "penalties", "law enforcement", "law and traffic laws", and the "effectiveness of the measures to prevent traffic crashes". In this section of the questionnaire, participants were asked to provide information about aggressive behavior while driving: reasons and frequency, risk of expressing driving anger, severity of the penalty, estimated probability of penalty, type of penalties, and penalties received (evaluation and effectiveness).

1.2. Objectives

The aim of this study was to describe the factors and perceptions related to aggressive behavior of verbally

insulting and shouting out while driving. So, this study was to obtain information about the views Spanish people have about this conduct, to address the problem and propose more rigorously and see the best solutions suited to the social reality.

2. Materials and Methods

2.1. Participants

The sample was obtained from a simple random sample (SRS) based on gender, age, habitat and the region. The criteria for the distribution of the sample are: The election of households in proportional samples to the universe by Autonomous Community and habitat. For the election of individuals: proportional to the population studied by age group and sex.

The survey is aimed at drivers with driving license. The proportion of subjects is a reflection of the census; it includes drivers from 14 years to over 65 years. In terms of age (as shown in Table 1), it can be clearly seen how the percentage distribution is proportional to the general census of drivers. So, the age group most represented is the group between 30 and 44 years old (38.01%), and people between 14 and 17 years are the less represented.

The sample size was 1,100 surveys consisted of 678 men (61.60%) and 422 women (38.40%), representing operating with a margin of error for the general information of ± 3 with a confidence interval of 95% in the most unfavorable case of $p=q=50\%$, and a level of significance of 0.05. The gender distribution is closely related to age, the older the proportion of women decreases. From age 45, the percentage of women is reduced, as in the driving population.

Table 1. Distribution of the number of drivers and sample based on age

Age	Census	Distribution	Sample
14-17	248.62	1,21	13
18-24	1.987.05	9,67	106
25-29	2.635.76	12,83	141
30-44	7.809.78	38,01	418
45-65	6.158.15	29,97	331
> 65	1.706.37	8,31	91
Total	20.545.73	100	1.100

2.2. Procedure and Design

This observational cross-sectional study, consisted in the administration of a questionnaire, in which people was questioned about their views on the behavior of verbally insulting and shouting while driving.

The questionnaire includes the knowledge, attitudes and behaviors of users to traffic and road safety. Its comments refer to both assessment of current traffic rules as assessment of the behavior on the road scenario. The survey consists of a series of questions structured around a few different sections which address the objectives pursued in the investigation. The questionnaire was applied through a semi-structured telephone interview

with a maximum duration of 20 minutes by staff of EMER-GfK. The staff responsible for conducting the survey countries have followed the instructions the research team. The average duration of the interview was 20 minutes, with some variability due to individual differences themselves.

To achieve the proposed aims, the next variables were taken into account:

- Demographic variables: sociodemographic factors, as age and education level.

- Driving behavior: Subsequently, the drivers were asked about their opinions on the following behaviors: the mainly behaviors asked by this study were: "excess speed" and "inappropriate speed" on roads, weather conditions, etc. Moreover, this study also refers to the following behaviors: "not maintaining a safe distance", "driving after drinking", "driving without insurance" and "driving without seat belt in the rear seats and in the city", "shouting or insulting verbally while driving" and "smoking while driving".

- Information on driving behavior: information was extracted from these variables: behavior frequency, performance reasons, reasons by which it is not done, perception of the accident risk, strength level of sanction, the punishable behaviors and the behavior modification.

With these variables and the previously described demographic information, seven questions were designed: first of all, it was evaluated, "Shouting out and offending verbally" frequency. The response format ranging from "never" to "almost always" in a Likert format.

The second question evaluated the reason by which the behavior was performed "Shouting out and offending verbally", the response format was open, since the subject had to say why.

The third question assessed the reason by which the behavior was not performed "Shouting and offending verbally", the response format was open, since the subject had to explain why these behaviors have been performed.

The fourth question evaluated the risk perception of the subjects in the behaviors of "excess speed", "inappropriate speed", "not keep the safety distance", "shouting or insulting verbally while driving", "driving after drinking an alcoholic beverage" and "driving without seat belt in the rear seats and in the city". The possible answers for this question used a scale from 0 to 10, where 0 means that the risk, as a cause of accident, is zero and 10 is maximum.

The fifth question refers to: the behaviors' punishability, "shouting and cursing", "excessive speed", "not keeping the safety distance", "shouting or insulting verbally while driving", "driving without a seat belt in the rear seats and in the city", "smoking while driving", "driving without insurance", "inappropriate speed" and "driving after drinking", the possible answer for this question used a scale from "Yes", "No" and "I don't know".

2.3. Data Processing

Once the data was obtained, the relevant statistical analyses were carried out with the Statistical Package for the Social Sciences (SPSS). For the comparison of mean values, it was conducted One-way ANOVA test for the General Linear Model (GLM) procedure was used,

followed by Bonferroni's post-hoc test. Statistical significance was set at $p < 0.05$.

2.4. Ethics

For this type of study, ethical approval and formal consent are not required. The research type described in the manuscript did not require the official intervention of the Ethics Committee in Experimental Research, (consultative and advisory body of the University of Valencia), as no personal data are used and the participation was anonymous. However, the Research Ethics Committee for Social Science in Health of the University Research Institute on Traffic and Road Safety at the University of Valencia was consulted, certifying that the research subject to analysis responds to the general ethical principles, currently relevant to research in Social Science, and issued a favorable opinion to carry out such research in Spain.

3. Results

This study analyzed the results obtained in multiple behaviors that occur in the field of driving and road safety. As is shown in Figure 1, 26.4% of drivers acknowledge shouting or insults while driving; while 66.4% said they never or almost never performed this type of behavior while driving (see Figure 1).

In addition, some reasons for carrying out the studied behaviors (43.9% of drivers who recognize shout or insult while driving they do in reaction to another driver (either because it does not meet standards or face a dangerous maneuver).

Approximately, 27% of respondents say yelling insults while driving or when other drivers cause a risk or stress. In fact, the remaining percentage is relatively lower (see Figure 2).

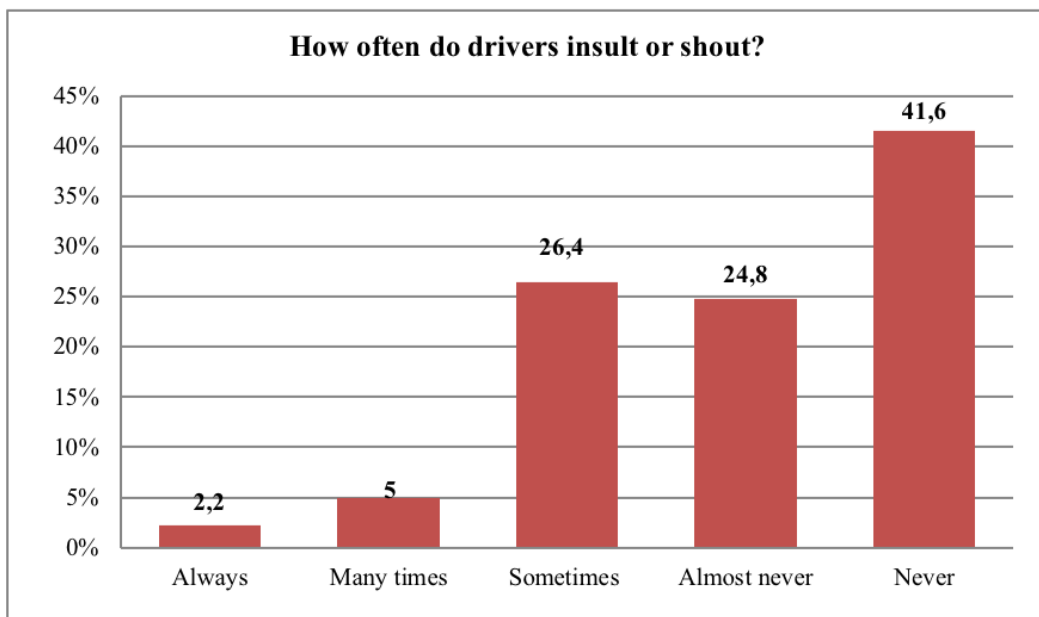


Figure 1. Percentage distribution of drivers depending on the frequency of performing the behavior "shouting or insults"

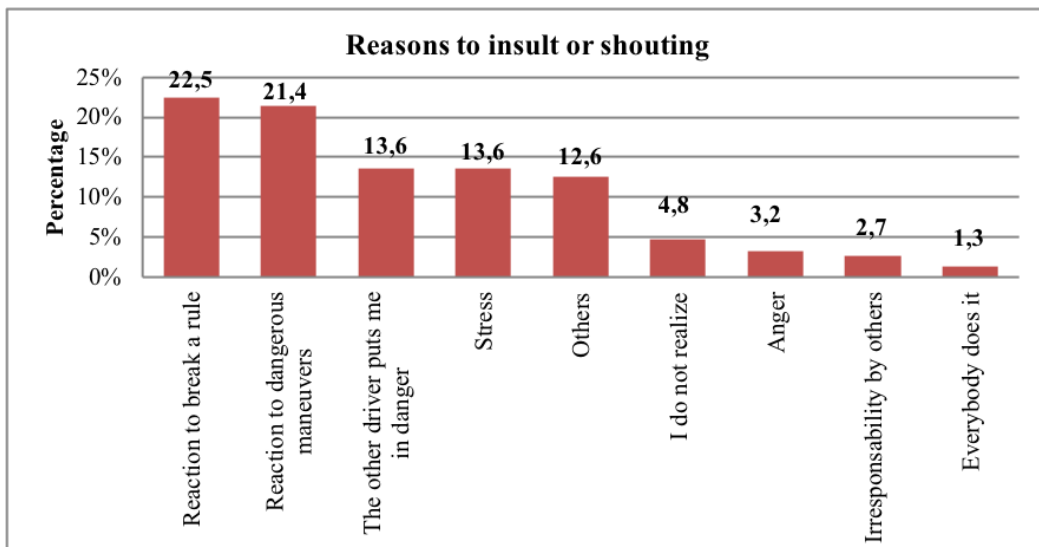


Figure 2. Percentage distribution of reported reasons given for the realization of behavior "shout or insult while driving".

On the other hand, 24.2% of people driving without shouting and insulting say it is their way of being, which

are quiet, 17.3% think it is a waste of time and about 15% believe it is a matter of habit and education.

Regarding factors that drivers use to associate with a attach greater risk of an accident on a scale of 0 to 10, the most scored ones are alcohol and speed (see Figure 3). In the case of driving after drinking any alcoholic drinks, about 60% gives the maximum score when assessing risk or danger of this behavior as a cause of accident; while over 75% of drivers valued at 8 or more the risk of accident by speeding. Behavior not match the speed to traffic conditions, the route, weather, etc., although the scores are more distributed, only 1.4% of drivers think this behavior without risk (giving below 5) values. As we have seen, not maintaining safe distance ranks fourth in terms of perceived risk. In this regard, over 65% of drivers gives a value of 8 (on a scale of 0-10), reflecting the higher risk considerations associated with this behavior as a cause of accidents. It is very worrying that 11.2% of drivers do not perceive any risks in the conduct of driving without seat belts even in the back seats and in the town. Also, only 25% gives the maximum risk. Thus, it seems necessary to carry out interventions to promote a change in attitudes about it. Regarding the status of the vehicle, one in three drivers do not consider that it is a factor or element of risk

(below 5 scores), when in reality is that many accidents are the result of the poor condition of the vehicle due to a lack of concern in maintaining security levels of them. Finally, few drivers who believe that shouting while driving carries some risk.

If we analyze the relationship between perceived risk drivers in each of the behaviors studied as a cause of accidents and the type of road they use for their trips, those who mainly perform urban journeys awarded each behavior scores higher average, while the middle between users only statistically differ significantly in the case of shouting or insulting behavior while driving $F_{(3,1086)}=7.29$; $p<.001$ (see Figure 4 and Table 2).

The analysis of mean differences by Bonferroni test as shown in Table 3, indicates that drivers shout out or insult verbally, depending on the type of road.

Subjects that lead on urban roads or highway, get higher scores and statistically more significant than those driving on a turnpike. Finally, there are also higher and statistically significant results in subjects who drive on conventional roads, leading in alignment with the group of subjects who travel on a turnpike.

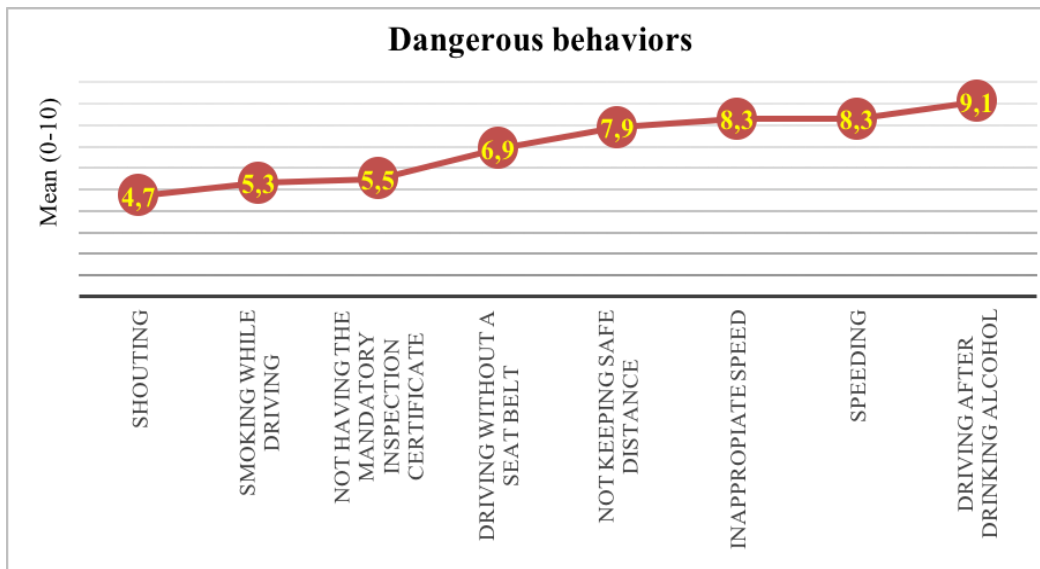


Figure 3. Level of risk perception according to different potential misbehaviors

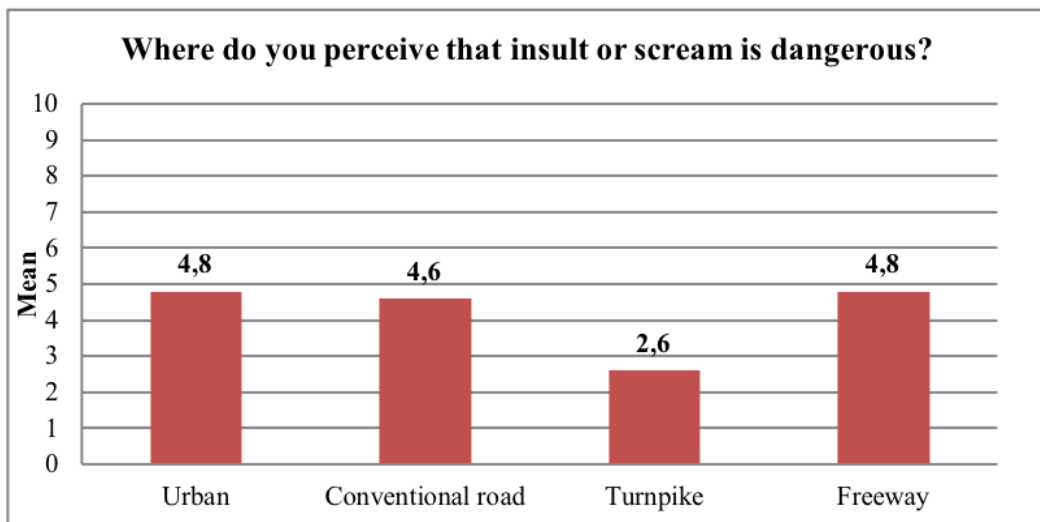


Figure 4. Distribution of perceived risk behavior "shout or insult while driving" depending on the type of usual route when traveling

Table 2. Bonferroni test

Dep. variable	(I)	(J)	Mean diff.	SE	Sig.	CI 95%	
			(I-J)			LL	UL
Shouting or insulting verbally while driving	Urban	Turnpike	1.97	.48	<.001	.93	3.49
	Conventional road	Turnpike	1.97	.49	<.001	.68	3.26
	Freeway	Turnpike	2.20	.49	<.001	.89	3.52

I= "Usually, the movements which performs with car are:"; J="Usually, the movements which performs with car are:".

Table 3. Bonferroni test

Dep. variable	(I)	(J)	Mean diff.	SE	Sig.
			(I-J)		
Shouting or insulting verbally while driving	Almost never	Many always	1.54	.41	.002
	Almost never	Sometimes	.99	.23	<.001
	Never	Many always	1.92	.39	<.001
	Never	Sometimes	1.37	.21	<.001

I= "How often shouting or insulting verbally while driving:"; J= "How often shouting or insulting verbally while driving:".

Table 4. Descriptive statistics for reported means of shouting or insulting while driving among Spanish drivers

Frequency	<i>n</i>	<i>M</i>	<i>SD</i>
Always	22	4.09	3.64
Many always	54	3.35	2.86
Sometimes	291	3.90	2.63
Almost never	273	4.89	2.55
Never	448	5.27	2.88
Total	1088	4.69	2.82

The frequency in which drivers perform the behaviors studied also keeps attributed to each risk. Subjects who show a high risk perception perform these behaviors to a lesser extent. If we focus on shouting or insulting behavior while driving, we obtain statistically significant results $F_{(4,1083)}=14.79, p<.001$.g Applying the post-hoc Bonferroni we found, as it can be seen in the Table 3, that drivers who say they often carry out this behavior, are those who perceive less risk in carrying out the same, and is also the means of these statistically different drivers of those who say they never or almost never yell or insult while driving (see Table 4).

Moreover, while virtually all drivers say that driving with speeding, driving beyond the limits of alcohol and driving without insurance are punishable behavior, it is noteworthy that, 14% think that driving without seat belt is not punishable behavior. The 8% of drivers report that running at an inappropriate speed is not sanctionable. In the case of not keeping a safe distance, 25% believe it is not punishable, whereas for 65% of drivers, to shout or insult while driving is not subject of sanctions. Finally, it is noteworthy that 35% of drivers think that smoking while driving can be punished.

Finally, if we analyze the type of sanctions that drivers associated with each of the behaviors, it can be observed that between 81% and 96% of drivers believe that all behaviors can be treated to a fine, 70% said that driving surpassing alcohol limits can be punished with prison, while about 90% of drivers said that driving with excess speed, inappropriate speed for existing conditions (85%) or exceeding alcohol limits (96.4%) may involve a temporary or full suspension permit, 78% said that driving without insurance may be subject for the penalty.

4. Discussion

Anger reactions and expressions are a commonly observed phenomenon on the road. Children observe, react and internalize swearing, screaming, obscene gestures or violent abuse of drivers, this role model distorted attitudes about what is dangerous, and children made the perception that it is normal the existence of aggressive drivers on roads that increase the risk for everyone. Also, role models of aggressive driver in the media, can contribute to the lack of respect for people and making traffic regulation. From this model, the risky driver lowers the threshold for expressing disrespect to endanger others, becoming socially acceptable to scream and insult. Role models of aggressive driver may wear a sense of social responsibility of drivers as key road users for health and safety of others [25].

In this study we have found that aggressive driving is a normal behavior for 26.4% of respondents. While 66.4% of people do not often have or have never had behaviors such as shouting or insulting other drivers on the road.

Also, the assessing of the perceived risk of violent behavior like yelling or insulting in relation to other risk behaviors that occur on the roads allows to predict and improve the existing measures to intervene this issue [9,19,23]. Thus, there are few drivers who perceive some risk of this type of action, situating "shout" behind other behaviors such as "driving having consumed alcohol", "driving without adapting to road conditions," "drive faster than permitted", "not keep the safety distance", "do not use a seat belt "and" have a vehicle in poor condition".

These results are consistent with other studies, which also emphasize that there is a tendency to underestimate perceived risk and, at the same time, to overestimate the risk assumed in the case of many of these behaviors [26]. The problem is that, often, drivers are right. If someone talk to any taxi driver or someone who spent most of their working day behind the wheel, they will not hesitate to tell us that traffic is a kind of jungle that prevails fittest and should not lower our guard. They are the first to be always on the defensive, and sometimes the best defense is a good offense. Antisocial driving is in many senses "contagious", and is becoming the statistical and social norm in largest cities, turning in an evident predictor of risky behaviors while driving [27]. In the worst cases, driving seems to

bring out the worst in people. As soon as drivers get into the car and sit behind the wheel, people are transformed and almost never for good. Many people stop being polite and become selfish, hostile and aggressive and, simultaneously, more dangerous to other road users [28].

5. Conclusions

Multiple types of risky maneuvers and deliberate misbehaviors, which are (formally and informally) already forbidden from a legal point of view, uncomfortable and restrict other drivers and pedestrians, creating violent situations related to higher objective risk for every road user. The degree of social tolerance towards such behavior is variable. Some individuals are limited to ignore them, accepting them as something inevitable. Others, however, react with indignation, unleashing all its lexicon of profanity and swearing, cursing and accompanying their words of relevant nonverbal communication, gestures of reproach with his driving, and sometimes reaching direct confrontation. Some are frightened or feel anxious about them. Fear causes are removed, yielding to coercion. Anxiety makes people get nervous, become indecisive or hesitant, giving rise to situations of risk or endangering both themselves and others.

In general, aggressive behaviors observed on the road are preceded by subjective factors such as stress, fatigue and personality traits. However, for the specific case of shouting and cursing, as specifically addressed in this study, there are a higher prevalence of this misbehaviors in urban and highway areas, and is more related to observed behaviors of other road users, such as breaking the rules and performing risky maneuvers.

Finally, regarding the intervention strategies to prevent this kind of aggressive expressions, it has been demonstrated that the articulation of road safety education and road safety campaigns can strength the growing of a road safety culture among road users.

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