

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

Francisco Alonso^{1,*}, Cristina Esteban¹, Andrea Serge¹, M^a Luisa Ballestar²

¹DATS (Development and Advising in Traffic Safety) Research Group, INTRAS (University Research Institute on Traffic and Road Safety), University of Valencia, Valencia, Spain

²METRAS (Measurement, Evaluation, Analysis, and Data Processing of Traffic Accidents and Road Safety) Research Group, INTRAS (University Research Institute on Traffic and Road Safety), University of Valencia, Valencia, Spain

*Corresponding author: datspublications@gmail.com

Abstract Traffic accidents are a major cause of death and injury in the world. Generally speaking about aggression, evidence has shown that drivers who usually express aggressive behaviors more frequently tend, at the same time, to have higher rates of road crashes or traffic incidents. Furthermore, in most cases, the situations in which aggressive behaviors appear are typical of normal current traffic conditions, turning this behavior into something very common, and into a very serious road safety issue. This has also been 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 the aggressive behavior of verbally insulting and shouting while driving. In this study, an extensive list of behaviors, that experts more or less unanimously consider as aggressive driving, was described; one of them was labeled shouting and insulting. The sample was obtained from a random sampling proportional to and representative of the segments of the population by age, sex, region and size of the municipality. The survey was aimed at Spanish drivers over 14 years. The starting sample size was 1,100 surveys. As a result, shouting and insulting is not considered such a dangerous offense as it is driving under the influence of alcohol, but we cannot deny that there are many types of bad or risky maneuvers that could be banned from a legal point of view. The degree of social tolerance towards such behavior is variable. Some individuals merely 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, make other drivers and pedestrians uncomfortable and restrict their movements, creating violent, stressful and risky situations, and they are still performed by drivers. In short, aggression in driving is one of them. As a conclusion, there is 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: *smoking, driving, road safety, infraction, normative, driving misbehaviors*

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1. Introduction

Traffic accidents represent 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 through which people try to harm or inflict injury (physical, moral, psychological or social) to another person or other people. In this regard, "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 in traffic. In most cases, the situation in which aggressive behaviors appear are typical of normal current traffic conditions, making this

behavior into something very common and a 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], on the other hand, aggressive reactions are always preceded by an emotional state, which may originate in people's own personal circumstances [10,11], or be triggered by the external environment, or by the behaviors observed 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. For 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 as 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 its probability of occurrence [12]. 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 elements such as noise and heat. In relation to the temperature of the environment, for example, it has been 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 of the noise [13]. Another external condition that is most often associated with aggressive driving is traffic congestion, so characteristic of big cities. To these factors we could add many others that have to do with one's own driving situation and the stress generated by the urgency, the frustration, or the actions of other drivers [14,15].

A number of aggressive behaviors of drivers, especially young people, are rooted in the observation of violent models in film and television. Just think of any of the chase scenes or street racing, where cars are literally shattered, or used violently, or employed as a hallmark of an aggressive character. In real life, the everyday example offered by many users of public roads is also influent, especially when you consider that many of these aggressive behaviors are never sanctioned [16,17].

If we find that a person shouts or insults, we may be inclined to imitate such behavior in order to reach our destination more quickly. In this sense, we might consider aggressive driving as a form of self-behavior of our culture, ingrained since childhood, first learned as a passenger, observing older people, and later put into practice and reinforced by the media. It must not be forgotten 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 of the 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 old, but we can also find a good percentage of cases between 26 and 50 years, and later 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 getting involved in traffic accidents. The more aggressiveness and hostility, the higher the number of offenses and traffic accidents, the more the risk of subsequent recurrence increases [21,22].

1.1. Study Framework

Law, and all its related aspects, plays an essential role 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 the drivers' behavior since reckless behavior not only affects the driver him/herself but also other people (drivers and pedestrians on the road). Therefore, it means 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" with the purpose of raising 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 used to collect information related to the following 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 the aggressive behavior of verbally insulting and shouting while driving. So, this study aimed at obtaining information about the views Spanish people have on this conduct

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 samples proportional 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 least represented.

The sample size was 1,100 surveys and it consisted of 678 men (61.60%) and 422 women (38.40%), representing 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 age, the more 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 were questioned about their views on the behavior of verbally insulting and shouting while driving.

The questionnaire includes the knowledge, attitudes and behaviors of users regarding 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 followed the instruction of 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 following 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: "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 verbally insulting while driving".

Information on driving behavior: the information was obtained from these variables: behavior frequency, performance reasons, reasons why it is not done, perception of the accident risk, and type of road.

With these variables and the previously described demographic information, five questions were designed: first of all, the frequency of "verbally shouting and insulting" was evaluated. The response format ranged from "never" to "almost always", in a Likert format.

The second question evaluated the reason by which the behavior "Shouting and verbally insulting" was performed; the response format was open, since the subject had to provide reasons.

The third question assessed the reasons why the actions of shouting and cursing are not performed. The response format was open.

The fourth question evaluated the risk perceived by the subjects in the behaviors of "speeding", "driving at an inappropriate speed", "not keeping the safe distance", "shouting or verbally insulting 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 were presented in 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 asked the participants to state on which type of road they perceived the highest level of risk, on a scale ranging from 0 to 10.

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, the One-way ANOVA test for the General Linear Model (GLM) was conducted, 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 our 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 recognize that they shout or insult while driving; while 66.4% say they

have never or almost never performed this type of behavior at the wheel (see Figure 1).

In addition, some reasons provided by the participants for carrying out the studied behaviors are the following: 43.9% of drivers who recognize that they shout or insult while driving do it in reaction to another driver, either because the other driver does not meet their standards or because they have to face a dangerous maneuver.

Approximately, 27% of respondents state that they shout or insult while driving when other drivers cause a risky or stressful situation. In fact, the remaining percentage is relatively lower (see Figure 2).

On the other hand, 24.2% of people who drive without shouting and insulting say it is their way of being, that they are quiet, 17.3% think it is a waste of time and about 15% believe it is a matter of habit and education.

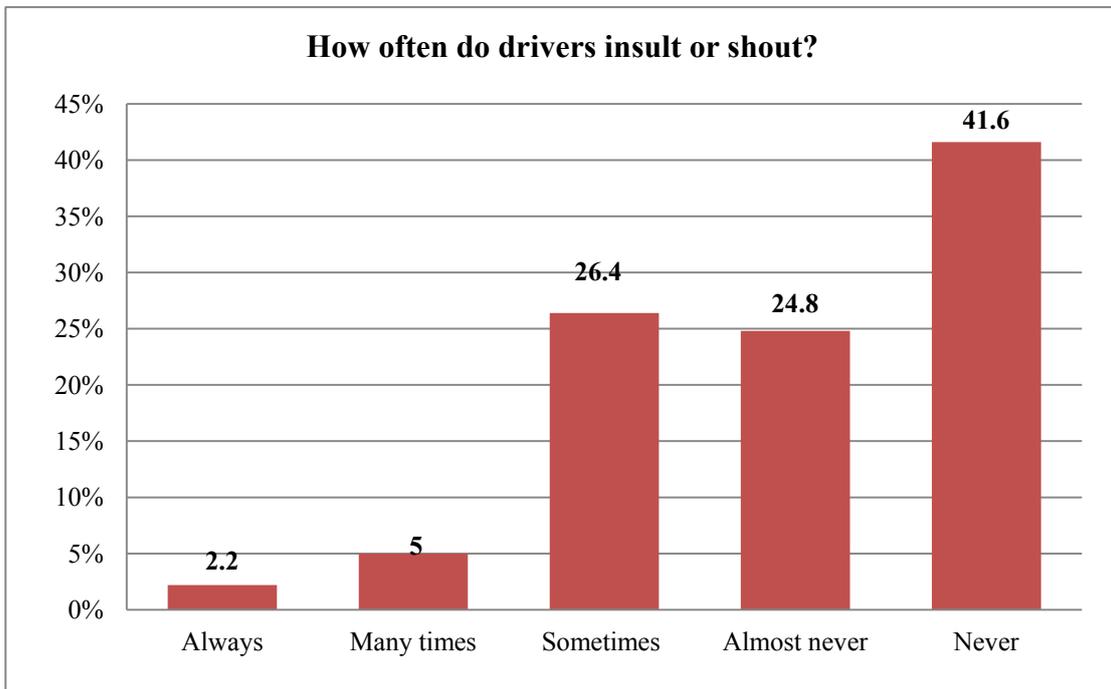


Figure 1. Percentage distribution of drivers depending on the frequency of performing the behavior "shouting or insulting"

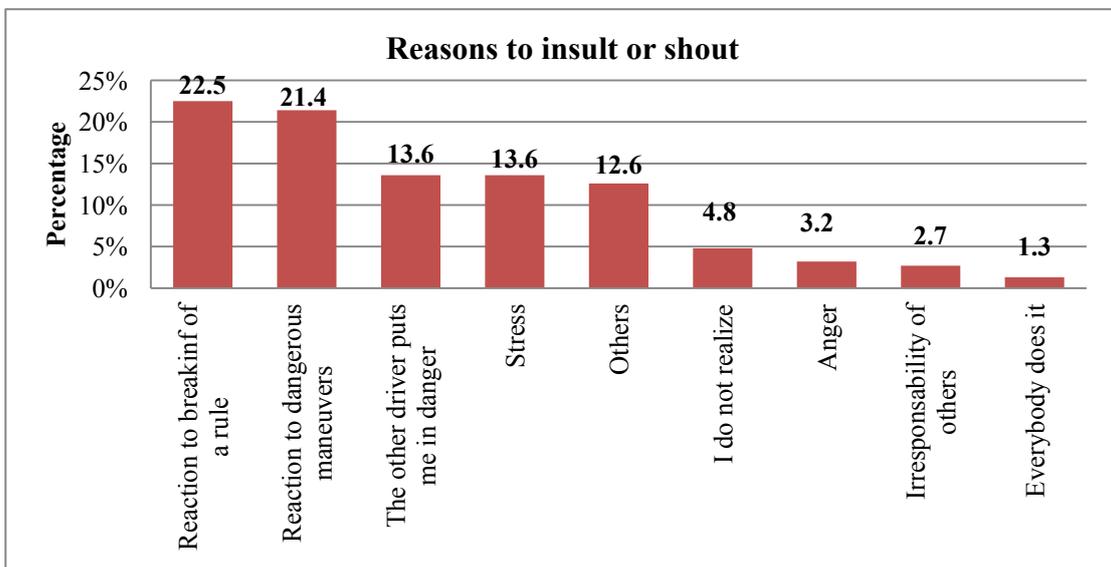


Figure 2. Percentage distribution of reported reasons given for the realization of behavior "shout or insult while driving".

Regarding factors that drivers usually associate with an implied higher risk of accidents, on a scale from 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. For what concerns the behavior of not adjusting the speed to the condition of traffic, road, weather etc, even though the scores are well distributed, only 1,4% of the drivers think that it does not imply any risk (giving scores below five -5-). As we have seen, not maintaining a safe distance ranks fourth in terms of perceived risk. In this regard, over 65% of drivers give 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 a city. Also, only 25% give 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 out of three drivers do not consider that it is a

factor or element of risk (scores below five), when the reality is that many accidents are the result of the poor condition of the vehicle, caused by a lack of concern in maintaining its security levels. Finally, there are few drivers who believe that shouting while driving carries some risk.

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

The analysis of mean differences through Bonferroni test, as shown in Table 2, indicates that drivers shout or verbally insult depending on the type of road.

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

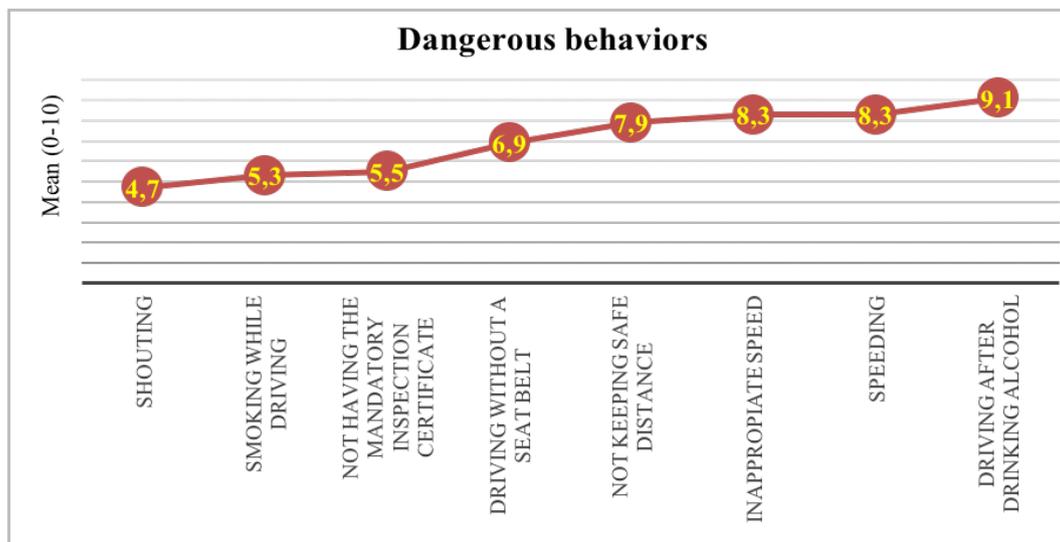


Figure 3. Level of risk perception according to different potential misbehaviors

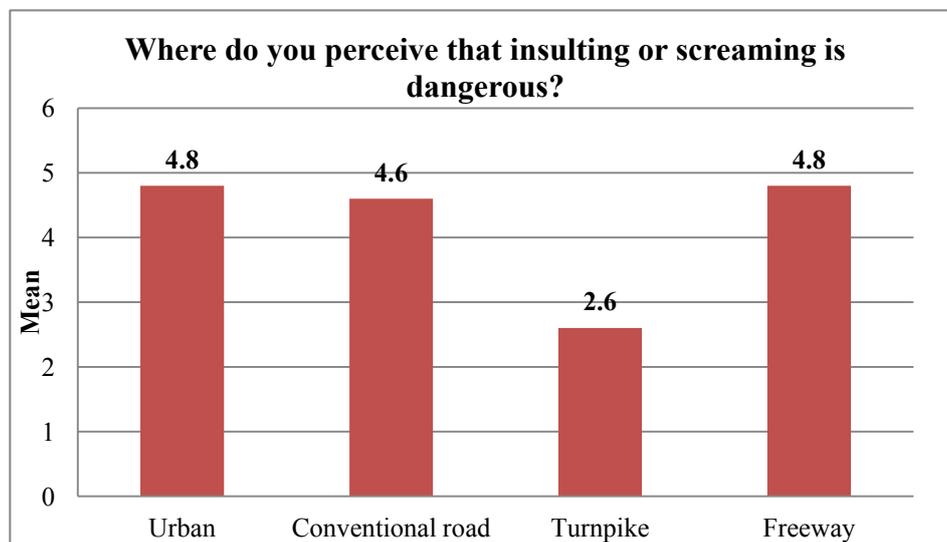


Figure 4. Distribution of the risk perceived in the behavior “shouting or insulting when driving” depending on the road normally used while traveling

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= type of road normally used for trips; J= type of road normally used for trips.

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 participants shout or insult while driving."; J= "How often participants shout or insult while driving."

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

Frequency	n	M	SD
Always	22	4.09	3.64
Many times	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 is also maintained in 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 Table 3, that drivers who say they often carry out this behavior are also those who perceive the lowest risk in doing so, and their mean values are statistically different from those of drivers who say they never or almost never shout or insult while driving (see Table 4).

Moreover, while virtually all drivers say that driving at an excessive speed, driving with levels of alcohol higher than what is legally allowed and driving without insurance are punishable behaviors, it is noteworthy that 14% think that driving without seat belts is not punishable. The 8% of drivers report that driving at an inappropriate speed is not sanctionable; in the case of not keeping a safe distance, 25% believe that it is not sanctionable either, and the same applies to 65% of drivers for what concerns shouting and insulting while driving. Also, it is noteworthy how 65% of them think that smoking while driving is not sanctionable.

Finally, if we analyze the type of sanctions that drivers associated with each behavior, it can be observed that between 81% and 96% of drivers believe that all behaviors can be sanctioned with a fine, 70% said that driving with excessive alcohol levels can be punished with prison, while about 90% of drivers said that driving at an excessive speed, at an inappropriate speed for the existing conditions (85%) or exceeding the alcohol limits (96.4%) may involve a temporary or full suspension of the driving license; also, 78% said that driving without an insurance may be subject to 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 abuses of drivers: this role model distorts the attitudes about what is dangerous, and gives children the perception that the existence of aggressive drivers on the road is normal, which increases the risk for everyone. Also, role models of aggressive driving in the media can contribute to the lack of respect towards people and towards the traffic regulation. Through this model, the risky driver lowers the threshold for expressing disrespect and endangering others, making shouting and insulting a socially acceptable behavior. Role models of aggressive drivers may wear a sense of social responsibility as key road users for the health and safety of others [25].

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

Also, the assessment of the perceived risk of violent behaviors like yelling or insulting in relation to other risky behaviors that occur on the roads allows us to predict and improve the existing measures of intervention on this issue [9,19,23]. Thus, there are few drivers who perceive some risk in this type of action, situating "shouting" behind other behaviors such as "driving after consuming alcohol", "driving without adapting to road conditions," "driving faster than permitted", "not keeping the safe distance", "not using a seat belt" and "having a vehicle in poor condition".

These results are consistent with other studies, which also emphasize that there is a tendency to underestimate the 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 talks to any taxi driver or with someone who spent most of his/her working day behind the wheel, this person will not hesitate to say that traffic is like a jungle, where the strongest ones prevail and where one should not lower his or her 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 it is becoming the statistical and social norm in big

cities, becoming an evident predictor of risky behaviors while driving [27]. In the worst cases, driving seems to bring out the worst of people. As soon as drivers get into the car and sit behind the wheel, they 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, make other drivers and pedestrians uncomfortable, and restrict their movements, creating violent situations related to higher objective risk for every road user. The degree of social tolerance towards such behavior is variable. Some individuals merely ignore them, accepting them as something inevitable. Others, however, react with indignation, unleashing all their lexicon of profanity and swearing, cursing and accompanying their words with relevant nonverbal communication, gestures of reproach, and sometimes reaching direct confrontation. Some people are frightened or feel anxious about this. Fear causes are removed, leading to coercion. Anxiety makes people nervous, makes them become indecisive or hesitant, thus giving rise to situations of risk or endangering both them 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 is a higher prevalence of these misbehaviors in urban areas and on highways, and they are more related to the observed behaviors of other road users, such as breaking the rules and performing risky maneuvers.

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

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