

Factors influencing a risky driving profile among a cohort of young university students: Bases for adopting evidence-based prevention interventions

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The aim of this research is to identify and analyse factors that have an influence on the creation of a high risk profile in young drivers, in order to create road safety educational initiatives designed to minimise the risk of suffering a traffic accident, and aimed at preventing young people from developing a high risk profile. With the purpose of identifying what may have been the strongest influences in establishing the risk profile, the factors of family, peers and partner, reactions to stressful situations, videogames and accident experiences were considered among a cohort of university students. The results show that family and peers seem to be the most influential factors, whereas driving schools seems to be the strongest protective factor in preventing the appearance of risky driving profiles. Educational programmes highlighting the modelling role of those who teach young people how to drive need to be developed.

Keywords: Young drivers, risky driving profile, prevention interventions, road safety.

Factores que influyen en la configuración del perfil de conductor de riesgo en la población de jóvenes estudiantes universitarios: evidencias para el diseño de intervenciones preventivas

El objetivo de esta investigación es identificar y analizar los factores que influyen en la creación de un perfil de conductor de alto riesgo entre los jóvenes conductores. La finalidad de ello es tener evidencias científicas que permitan

diseñar iniciativas de intervención educativa para minimizar el riesgo de sufrir accidentes de tráfico y prevenir el desarrollo de perfiles de alto riesgo en jóvenes conductores. Con el propósito de identificar las influencias que podrían tener más peso en la creación del perfil de riesgo se analizaron los factores familia, grupo de iguales y pareja, reacción a situaciones estresantes, videojuegos, e involucración en accidentes de tráfico en una muestra de estudiantes universitarios. Los resultados indican que la mayor influencia sería ejercida por la familia y el grupo de iguales, mientras que por otro lado, las autoescuelas se posicionarian como el mayor factor protector en la prevención de la aparición del perfil de conductor de riesgo. A partir de estos hallazgos se recomienda el desarrollo de programas que permitan reforzar el rol modelador de aquellos que enseñan a los jóvenes a conducir.

Palabras clave: jóvenes conductores, conductor de riesgo, seguridad vial, acciones preventivas.

Introduction

The accident rate continues to be a worldwide problem. According to the WHO, road accidents claim 1.3 million lives each year and cause injury or other types of disability to 50 million people (WHO, 2011). Traffic accidents, which most of them are preventable, are the first cause of death in young people (WHO, 2009).

The majority of traffic accidents can be attributed to driver behavior. Clarke, Ward and Truman's (2005) findings suggest that a large percentage of young drivers' accidents resulted from a voluntary risk-taking rather than lack of skill.

Williams (2006) shows that youngest drivers have more crashes respect the older ones. These results could be explained, in part, due to their inexperience and less potential to identify risk on the roads (Mc knight & Mc knight, 2000; OCDE, 2006) and possible risk taking tendencies (Ferguson, 2003).

However the way young drivers' drive is influenced (directly or indirectly) by many different factors. There are some risky driving behaviors that are involved in most of the driving crashes: speeding, drunk driving, driving while fatigued, not wearing seat belts (Fernandes, Hatfield, & Job, 2010; Harrison & Fillmore, 2011; Senserrick 2006) and driving distraction (Ferguson, 2003). Shope (2006) present a complex set of six categories of influence on those youthful driving behavior: driving ability (skills and experience), developmental factors (physical, psychological and behavioral), personality factors (risky taking propensity), demographics (age, sex, employment, education and living situation), the perceived environment (norms, parental involvement and behavioral expectations), and the driving environment (physical and social: weather, vehicle, passengers, road conditions, night/dark).

Research on predictors of risky driving behavior has also considered other factors associated with high risk. Risk perceptions, attitudes about driving and

different personality traits (sensation seeking, normlessness and aggression) could predict different types of offences among young drivers (Fernandes et al., 2010; Ulleberg & Rundmo, 2003). The role of affective and emotional factors in perceiving and evaluating risk (Rundmo, 2002; Sjöberg, 2006; Slovic, Finucane, Peters, & McGregor, 2004) and the influence of the socioemotional abilities (Arnau-Sabatés, Sala-Roca, & Jariot-Garcia, 2012) are also considered. Low social skills were associated with an increasing tendency for risky driving among some young adults (Vassallo, Lahaussé, & Edwards, 2013)

All the influences of the social environment of the young drivers (parents, siblings and peers) may explain the risky behavior profile (Assailly, 2010). A recent longitudinal US Study shows that various indicators of social maturity (job, relationship, marriage, parental roles, etc.) are related to a decrease of young drivers offences (Bingham, Shope, Zakrajsek, & Raghunathan, 2008). The effects of having been involved in an accident on attitudes towards driving are also pointed out (Arnau-Sabatés, Jariot-Garcia, Martínez-Muñoz, & Montané-Capdevila, 2013; Falk & Montgomery 2007; Kouabenan 2002; McKenna & Albery 2001; Rajalin & Sumala 1997) even results are sometimes contradictory.

Researchers have also considered, specifically, the effect of age and gender variables on the accident rate and their interaction with some of the risk factors (Begg, Langley, & Stephenson 2003; Chen et al., 2010).

Regarding age, it is found by the research that young drivers and passengers wear their safety belts less often than old drivers (IIHS, 2013) and get easily distracted from their driving task (Greenberg et al., 2003). Considering gender, in the States, about 2 out of every 3 teenagers killed in crashes in 2011 were males (IIHS, 2013). It is found by the research that risky driving behavior decreases when young people make the transition to adulthood (Bingham et al., 2008). However there are some young drivers that are “persistent risky drivers” across time remaining their risky driving high or increasing it especially in their late twenties (Vassallo et al., 2013). They tend to be male, more aggressive and feel alienated from the rest of society (after adjusting driving exposure) (Gulliver & Begg, 2007).

It seems by the consulted research that young men present, in general, a higher tendency to take risks than women (Byrnes, Miller, & Schafer 1999; Roth, Schumacher, & Brahler 2005), which correlates directly with an increase in risky behaviour when driving (Harré & Sibley 2007). In the same vein, Arnau-Sabatés et al. (2013), identified two clusters of risky young drivers-those characterized by high risk were on average more males than females- versus those showing low levels of risk characterized for more females, confirming that males are in fact more likely to engage in risky driving behaviour than females.

Examining these factors associated with specific risky driving behaviours may explain (alone or in combination) individual differences in risk-taking behaviour. It would appear important to distinguish between different groups of young drivers as the factors that influence driving risky behaviour may differ.

The aim of this study is to analyze the relative influence of family, peers, culture, emotions, personality and drive experiences in the risk profile construction. Identifying the factors that have an effect in the formation of the profile of risky driver would be useful to design effective education programs.

Method

The research design is a combination of quantitative and qualitative methods, but the mainly approach is qualitative. In a first phase, the quantitative approach was only used to select participants according to their risk driving behaviors. To carry out the selection, a questionnaire for measuring the risky attitudes of car drivers (QAR-C) (Montané, Jariot, & Rodríguez Parrón, 2006) was applied to 86 students from the Universitat Autònoma de Barcelona. From this questionnaire a risk index in the profile of driver is obtained. Based in the scores of this index a sample of high and low risk drivers was selected and they were interviewed in a second phase. The objective of this second phase was analyzing the factors that may influence the establishment of a risk profile comparing the answers of both groups (high and low risk) from the interview.

Sample

A sample of university students with a high and low driver risk profile were selected.

In order to obtain the final sample, a previous opportunity sample of 86 students from Universitat Autònoma de Barcelona (Faculty of Education) answered the screening questionnaire designed to evaluate risky driving attitudes (QAR-C). The 10.6% of these students were male, and 89.4% were female. The mean age of these students was 22.11 (3.8 *SD*) and they had 3.1 (2.9 *SD*) years of driving experience.

The criteria of selection was the percentile score: all those students who scored up to percentile 75 in the Global Risk Attitude Index of QAR-C were chosen as high risk drivers and those students who scored below percentile 25 were chosen as low risk drivers. Thus, 42 persons were selected for an in-depth interview: 21 persons for the high risk group and 21 persons for the low risk group. However, 9 persons declined to be interviewed and the final sample consisted of 19 young high risk drivers (15 female and 4 male), and 13 young low risk drivers (11 female and 2 male). The average age was 22.4 (*SD* 4.1) and most of them (78.1%) drove daily.

Instruments

A screening instrument was used to measure drivers' behaviour, which was adapted from a questionnaire validated to assess risky driving attitudes (QAR-C *Questionari d'avaluació del risc del conductor*) (Montané et al., 2006). From the original instrument that includes 62 items, all the items related to the main risk factors were selected. So the adapted instrument contained 30 items on the subjects' risky driving attitudes regarding to various risk factors scoring between 30 and 120 points, and consisted of an overall risk attitude index ($\alpha = 0.856$) and four specific risk factor scales: speeding ($\alpha = 0.813$), consumption of alcohol and other drugs ($\alpha = 0.680$), distraction and fatigue ($\alpha = 0.610$) and risk-taking tendency ($\alpha = 0.629$). A Likert Scale was used to rate these risk factors from 1 to 4. The participants' sex, age and driving experience were also recorded.

A semi-structured interview consisting of three dimensions was designed (table 1). The first dimension contained a group of questions aimed at collecting information about general information related to driving experience. The second dimension collected information related to risky driving attitudes: beliefs and practices related to speeding, drunk driving, drugs, distractions, etc. And a final group of questions sought information about the influences of family, peers, videogames, reactions to stressful situations when driving, and accident experiences. The content interview was validated by experts.

TABLE 1. SEMI-STRUCTURED INTERVIEW FOR YOUNG DRIVERS: DIMENSIONS AND TOPICS.

<i>Dimensions</i>	<i>Topics</i>
Driving experience	Age, sex, time of driving experience, average of kilometres per week, type of vehicle
Towards defining the profile of a risky driver	Beliefs related to speeding, sensation seeking, beliefs related to drugs and drunk driving, proneness to distraction when driving
Internal and external factors determining the profile of a risky driver	Influences of the family, influences of peers and partner, influences of videogames, reactions to stressful situations when driving, influences of general driving risk perception (opinions and beliefs), accident experiences

Data analysis

The data was treated in an anonymous and confidential manner throughout the entire process. Quantitative data obtained from QAR-C was analyzed using descriptive and t-test analysis in order to compare differences between both

groups regarding to their risk level. In a second phase, a content qualitative analysis was used by means of an inductive classification process using descriptive analysis categories in order to identify what influences may had been important for the participants in the formation of their risk profile.

Results

Risky Driving profile

In table 2, the different scores and percentiles for the 86 students in every factor defining the Global Risk Attitude Index of QAR-C can be seen.

TABLE 2. SCORES FOR QAR-C RISK PROFILE FACTORS.

	<i>M</i>	<i>SD</i>	<i>Percentile 25</i>	<i>Percentile 75</i>
Risk Profile	53.4	11	44.7	60.2
Speeding	19.9	5.2	16	24
Sensation seeking	12.8	3.2	11	16
Drugs & alcohol	8.3	2.9	6	9.3
Distraction	13.7	3.4	11	16

T-test revealed significant differences in scores between high risk drivers and low risk drivers (table 3). The greatest differences can be observed in the speeding risk factor.

TABLE 3. T-TEST IN QAR-C SCORES BETWEEN HIGH AND LOW RISK GROUPS.

	<i>Low risk</i>	<i>High risk</i>	<i>T</i>
Risk Profile	41.1	68.6	-15.1***
Speeding	14.5	26.3	-11.3***
Sensation seeking	10.8	17.6	-9.5***
Drugs & alcohol	6.9	10.4	-3.8**
Distraction	10.5	17.4	-8.7***

Prior to analyse qualitative information, it was checked that there were no differences between groups in terms of driving experience and age.

According to interview topics, there were a number of differences between high and low risk groups (table 4). The high risk group drive more often and longer distances than the low risk group, and they usually drive when going out with friends. There are also more young people that own a car.

Most of these high risk group individuals define themselves as reckless drivers. They also confess that those close to them claim they drive aggressively. This group contains more drivers who usually become distracted, don't rest on long trips, don't respect traffic signals, drive over speed limits, race with friends on the road and drive under the influence of alcohol. In fact, in the high risk group there are more drivers who think that alcohol doesn't influence them, that underestimate the impact of drugs in driving and who think that driving under the influence of drugs should not be punished with Driving Licence withdrawal.

TABLE 4
MAIN DIFFERENCES IN THE PROFILE OF HIGH AND LOW RISK DRIVERS.

<i>Profile</i>	<i>High risk group</i>	<i>Low risk group</i>
Drive daily	84%	69%
Average Km / week	248.4	145
Have their own car	68%	46%
When the go out with friends, he/she drives	58%	38%
<i>Risk indicators</i>	<i>High</i>	<i>Low</i>
Define themselves as a reckless driver	37%	8%
Others tell the driver that they drive aggressively	74%	31%
Respect traffic signals	42%	85%
Usually exceed the speed limit on motorways	133 km/h	115 km/h
Race with friends on public roads	11%	0%
Drive even though they have drunk alcohol	74%	31%
Think alcohol doesn't affect them	11%	0%
Think normal drug consumption doesn't affect their driving	11%	0%
Think driving under drug influence should not be punished with Driving Licence withdrawal	92%	37%
Plan to drive a 1,000km trip in only one day	89%	61%
Stop more frequently to rest when they drive long distances	68%	85%
Usually become distracted when driving	47%	15%
Engage in other activities while driving such as eating, smoking, using the mobile phone, etc.	58%	15%

The influence of accidents on driving style

Fifty percent of the individuals taking part in this study had been in a traffic accident; 53% of the high risk drivers and 46% of the low risk drivers. It seems that the experience affected both groups similarly. Twenty-five percent of the young people who suffered an accident said the accident didn't affect their driving habits (33% of the low risk group vs. 20% of the high risk group). Sixty-nine percent of them stated that they changed their behaviour, but only paying more attention to the factors that caused the accident (50% of the low risk group vs. 80% of the high risk group). Only 6% stated that their general perception of risk had increased (17% of the low risk group vs. 0% of the high risk group).

Fifty-nine percent of the young people have a close acquaintance that has had an accident. In 89% of them the experience increased their general perception of risk, and only 11% stated that the accident didn't affect them. However, it seems that accidents that happened to close acquaintances had a greater effect on low risk drivers. All the individuals from the low risk group who were in this situation said they had changed their driving behaviour, whereas 20% of the high risk drivers in the same situation admitted to not having changed it. The way modifications were made to the driving behaviour was also different depending on the group the drivers belonged to. On the one hand, all of the high risk drivers admitted to taking more preventive behaviour only in relation to the specific cause of the accident, whereas 56% of the low risk drivers said that they had also adopted more general preventive behaviour.

Yes, I know quite a lot of people who have had car accidents; some acquaintances and a few friends lost their lives on the road. This makes you drive slower and safer because you remember them (Case 2, Low risk group).

Well, a person I know was driving on a single lane two-way road and the driver coming the other way was drunk and swerved into my acquaintance's lane, so they had a head-on collision. As it happened during the night, I do pay more attention to how other people on the road drive at night (Case 12, High risk group).

Family and driving school influences

Both the father and mother of 88% of the young people interviewed usually drive. 41% of the interviewees also had a sibling who drives. Seventy-eight percent of the sample stated that their parents driving style had influenced their own driving style. Only 22% said their parents' driving style did not influence theirs at all.

On recalling the times when the interviewees were learning how to drive, 94% said they had had some kind of help from their parents and only 6% said they had not received any help at all. Sixty-nine percent had some driving practice with their parents, 22% got only oral advice, and 9% drove accompanied at the beginning after having their driving licence.

As can be seen in table 5, half of the interviewees found that the greatest influence on their driving behaviour came from their family and from the driving school.

TABLE 5. THE INFLUENCE OF DIFFERENT AGENTS ON DRIVING STYLE.

	Global	Low risk group	High risk group
Family	53%	54%	47%
Peers	13%	15%	11%
Driving school	56%	69%	42%
Partner	16%	8%	21%

After analysing the specific role that family may have had on the interviewees' driving style, some evidence was found that this factor has an important influence. The main difference between high and low risk drivers was found in the percentage of mothers that drive. While 100% of mothers of the high risk group drive, only 69% of the mothers of low risk drivers drive.

A large number of high risk drivers said they were influenced by their parents' driving style; however, this was more uncommon among low risk drivers (84% vs. 69%). Moreover, all the young people who claimed to have been influenced by their parents' driving style admitted that they drive similar to them.

In fact numbers prove this statement. A larger number of low risk drivers admitted having a mother (62% vs. 37%) and a father (69% vs. 58%) who drove calmly on the road. The opposite effect was also found. More high risk drivers admitted having a mother (53% vs. 8%) and a father (32% vs. 23%) who were risky behind the wheel.

On examining how families helped the interviewees during their learning period, some differences between the two groups were found. There were more young people who practiced driving with their parents when they were learning to drive among the high risk group than among the low risk group (79% vs. 54%). On the other hand, low risk drivers got more oral advice from their family than high risk drivers (38% vs. 11%). In fact, for high risk drivers the factor that influenced their driving style the most was family (47%), followed by driving school (42%), intimate partner (21%) and friends (11%). For low risk drivers the main influence factor was the driving school (69%), followed by family (54%), friends (15%) and intimate partner (8%) (see table 4).

I think that the biggest influence on my driving style is my family, because they are the ones I have most often seen driving (Case 32, high risk group).

The driving school has clearly influenced me the most because I did my driving practice with them (Case 31, low risk group).

My mother gave me some driving practice before taking my driving test. She used to take me to an industrial site and teach me how to drive (Case 16, high risk group).

My family used to give me some driving tips when I was getting my driving licence (Case 26, low risk group).

Peer influences

It seems that peers had less influence than family on driving style. Considering the whole sample, it can be seen in Table 4 that friends and intimate partner had less influence than family or driving school. Peer influence was similar in both groups, but the influence of the partner was slightly higher in the high risk group than the low risk group.

Only 28% of the young people stated that their driving behaviour was not changed when they drove with friends in the car. Twenty-eight percent of them stated that they took more risks when driving alone and 13% said they drove more carefully when carrying other people. Sixteen percent of the young people stated that they paid more attention when driving alone and another 16% stated that they were more distracted when they were accompanied.

There were no significant differences in the driving behaviour of both groups when they had other people in the car, with the exception of the fact that high risk group said they became more distracted (21% vs. 8%).

(When you are with peers) You don't drive as concentrated as when you drive alone, because you are talking and you pay more attention to the other person rather than to the road [...]. With friends you lark about while driving (Case 4, high risk group.)

When I drive alone I feel more calm and relaxed than when going with my friends, because they are shouting and turning the music up all the time and I get really nervous and stressed (Case 20, low risk group).

Other influences on driving profile

Influences of several factors such as video games or emotional reactions to stressful situations were gathered. Sixty-six percent of the youngsters played driving simulator games. The main reason they gave for enjoying these games was the extreme condition of speed and driving (34%). Others claimed to enjoy the reality of the simulation (13%), the challenge of the game (13%), and the absence of bad consequences of risky driving (9%). The main differences between real driving and game driving listed by young people were extreme driving (59%), the absence of consequences (9%), and the more powerful cars (6%).

Surprisingly, a larger number of low risk drivers admitted to playing driving games (85% vs. 53%) and most of them said they liked the risk in the game (54%

vs. 21%). When comparing the driving behaviour in the game and in reality, they said they loved the fact that in these games they can drive in a non-real way (85% vs. 42%).

I like racing games because you can drive in a way that is strictly forbidden in real life (Case 10, low risk group).

Racing games allow you to take risks that you would never even think about in real life, such as driving at 200 km/h, dodging other cars, etc. (Case 23, low risk group).

Nearly the whole sample said they felt anxious in traffic jams and most of them (62%) admitted to trying to make up for lost time by driving faster (53%) or finding a shortcut (6%).

Examining both groups more specifically, it can be seen that drivers of both groups became nervous in traffic jams (92% and 95%), however more high risk drivers admitted to driving faster after getting out of the traffic jam (74% vs. 23%).

After getting out of a traffic jam I always try to find the free spaces on the road to keep overtaking so I can arrive at my destination as quickly as possible (Case 5, high risk group).

If I get stuck in a traffic jam, I do nothing specific. Since I am already late, I apologise and say I will get there when the traffic allows me to (Case 6, low risk group).

Discussion

The results in the present study confirm that a high percentage of young drivers exhibit risky behaviour when driving, and show that speed and distractions are the main indicators for the level of risk in the profile of young drivers; in fact there exists a broad difference in speed and distraction scores between drivers with high and low risk profiles. It is interesting to note, that the young people who admitted riskier types of behaviour when driving also perceived risk as less dangerous than it really was.

These facts make this sort of driver lose awareness of the risks they are involved with on the road, and consequently the probability of a car accident rises. In agreement with these findings, Fernandes et al. (2010) found that low risk perception is associated with higher rates of speed, and therefore with an overall risk increase leading to higher chances of being involved in a car crash. Furthermore, research shows that young drivers are also more aggressive when driving, and aggressive drivers tend to commit a higher number of mistakes driving their vehicle (Alonso, Esteban, Calatayud, Alamar, & Egido, 2002).

The knowledge of the factors influencing the creation of these high risk profiles becomes an essential finding to allow the designing of proper educational

initiatives aimed at preventing the development of high risk profiles in young drivers, and therefore minimising the risk of young people being involved in road accidents.

Our results show that family is the main influencing factor, followed by peers and previous crash involvement. As mentioned, family appears to be the most influent factor in the creation of the risky driving profile. The same driving behaviour pattern is found to be repeated at least in two generations in the same family in both the high and low risk groups indistinctly. Therefore high risk drivers maintain the reckless driving behaviour their parents had, while low risk drivers have the same attitudes to road safety as their parents had. This data is in agreement with previous findings by Assailly (2010), who found that parental driving style influences their sons and daughters' driving style, and this influence relationship is stronger when referring to ordinary traffic code violations. In the same vein, the study by Ferguson and Leaf (2001) showed how traffic code violations among those aged between 18 and 21 correlate with the violations made by their parents.

It is interesting to note that in the high risk group, all mothers hold a driving licence and drive regularly, and their sons and daughters judge them to be risky drivers. There is a need to understand the specific role mothers have in influencing their children's driving style, in order to develop public health programmes to modify non-healthy parenting behaviour, since, as Jackson and Dickinson (2009) point out, these kind of programmes lead to a host of beneficial health outcomes for children by not only preventing them from driving in an unsafe way, but also in terms of alcohol and tobacco use, drug abuse, violence, diet and physical activity.

The reason for this family influence may be explained from two complementary perspectives. On the one hand, as most personality traits can be a result of genetic inheritance, as the findings of Zuckerman and Kulman (2000) reveal, this repeated driving pattern could be explained by the strong heritability of a sensation-seeking tendency and resistance to the effects of sensation that predispose to accidents of all kinds, to risky behaviour or to several addictions.

On the other hand, this inheritance is reinforced by a learnt part, absorbed throughout the years spent under the modelling influence of the parents' driving style. As is found in our study, young high risk drivers received informal practical driver training from their parents, using non-adapted vehicles (family car), despite the fact that this is strictly prohibited in Spain, and this reveals a lot about the status these parents attribute to road safety attitudes.

This fact diverges considerably from the drivers in the low risk group, who received only spoken driving advice from their families and received all their practical training at the driving school. Not by chance, low risk drivers were those most influenced by driving schools, which leads to the conclusion that formal driver training enhances risk consciousness and promotes road safety attitudes in young drivers. The actions of driving schools should therefore be empowered, as

they appear to be one of the main preventive factors in the emergence of risky drivers. In the same vein, the study by Tronsmoen (2010) supports our findings, pointing out that there is a focus on safety attitudes that is retained throughout the formal practical driver training. In this respect, his results showed that professional driver training is associated with enhanced safety attitudes and less frequent self-reported risk behaviour. More specifically, existing literature suggests that formal driving training programmes are effective in reducing collisions if they are empirically based, addressing critical age and experience related factors (Mayhew & Simpson, 2002). In addition, as Alonso et al. (2002) suggest, this empirically based driving training programmes should train learners in identifying, practicing and controlling emotional reactions that may appear while driving, and also detecting sources of emotional provocation, in order to show the existing strategies to deal with to the learners and respond to situations of emotional provocation. Hence, the results indicate that there is a need for goal-directed driver education to influence attitudes shown on the road.

Passenger peers is another influencing factor in the risk profile of young drivers. Most of the drivers in the sample, regardless of whether they belong to the high or low risk groups, are influenced by their peers. Driving with passenger peers makes the driver modify his behaviour, especially by lowering speed. Some of the high risk drivers admit increasing the risk level of their actions, but this is not the general tendency of their group. These results are inconsistent with other research that shows that risky driving behaviour by teenage drivers is more common in the presence of teenage peers (Farrow, 2002; Gardner & Steinberg, 2005), and remarking that the presence of passengers may increase the likelihood of teenage drivers engaging in explicitly risky behaviour, for example, by actively encouraging the drivers to take risk (Goodwin, Foss, & O'Brien, 2012). This disparity may be explained because the sample in the present study consisted of a group of university students in their early twenties, who may be slightly older than the teenage drivers that appear in the consulted literature.

Surprising differences are found in the perception of having suffered an accident in the person or having acquaintances who have been involved in a car crash. Those who have suffered an accident personally usually pay more attention to the factor that caused the accident, however those related to someone they know involved in an accident tend to increase their risk perception in general and they become more aware of the dangers they are exposed to every time they take the car. Moreover, it is interesting to mention that experiences of accidents affect low-risk drivers more, perhaps because this group is more sensitive to risk and to the consequences that risky driving can entail.

The influence of external educational agents (family, friends, partner) really attracts attention, because from these results Educational-formative Programs comprising preventive actions/interventions to avoid road hazards in drivers whose ages were mentioned could arise.

In this sense, when designing intervention programs, the treatment of a systemic and interactive approach that involves and engages the related areas, based on a participatory and collaborative work, should be taken into account

It would be useful to educate parents, family and friends about their role in modelling the behaviour of young drivers. In the same way, the positive role that driving schools have in training drivers who develop low risk profiles has to be enhanced and reinforced. Furthermore, it could be interesting in driving schools to develop lifelong training programmes for drivers with a greater emphasis placed on safety attitudes, and to make drivers aware of the amount of influence their driving style has on friends, siblings, partners, children and other young people around them.

There should therefore be goals for educating parents so that they become aware of their role in modelling the behaviour of their sons and daughters at the wheel. It is also important to make parents aware that if they give their children informal driving lessons, it cannot be a mere transfer of driving guidelines and non-ideal (unconscious) attitudes on the road, but should also focus on the transfer of safety attitudes. In future studies the perception of parents' driving style and specific behaviour should be analysed and the correlation between the behaviour of parents and their offspring developed.

Limitations

Due to the possibilities of access to the sample in this study, a large part of the sample was female (89.4%). The small number of males did not allow a comparative analysis between genders. In future research, the sample should be extended in order to check if all the findings in the present study can also be seen in a more heterogeneous sample.

The present study was a pilot project analysed in a qualitative way. It would be interesting to corroborate its findings in a larger sample and using the quantitative methodology.

Another dilemma appears with regard to the sincerity of respondents. Speaking about beliefs and doing so face-to-face may induce individuals to respond based on what is socially desirable rather than giving their genuine opinion about what they are asked. For this reason sincerity was requested at all times, guaranteeing confidentiality for their responses and giving them the opportunity to refuse to respond.

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