

Title

Young Italian drivers: psychological features and accident risk

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Abstract

What are the psychological features that make a road accident probable? The article presents a survey carried out in Italy with interviews based on a questionnaire. 437 licensed young people (aged 18 - 35) answered questions about their knowledge of some rules in the Highway Code, their potential reactions at Police Control, their attitude towards alcohol and driving and alcohol consumption. The interview ended with questions of the CAGE questionnaire. The interviewers met young people in discos or at public parties. The results allowed to distinguish two groups of people with different behavioural - psychological features. It was identified a precise risk profile marked by a poor knowledge of the relationship between alcohol and driving, an undervaluing attitude towards the consequences of the use of psychotic substances on driving behaviour and fantasies of provoking-opposition and/or paranoid reactions when checked by the Police.

Key words: *young drivers; car accidents; alcohol; penalty; reactions to Police controls*

1. Introduction

In Italy road accidents represent a public emergency because of the large number of victims and the permanent and/or temporary disabilities they cause. The latest ISTAT data (Central Institute of Statistics) point out that in 2007 occurred 230.871 road accidents which caused the death of 5.131 people, whereas other 325.850 suffered damages of different seriousness. In particular, it was noticed that the age range that presents the maximum rate of mortality is that of people between 25 and 29 (432 victims), whereas the number of drivers from 35 years of age onwards, who suffered heavy consequences, decreases progressively. Besides, in opposition to the tendency noticed in the general population, where in the latest years there was a decrease in the number of victims for road accidents thanks to the introduction of protection and safety rules (ISTAT-ACI 2007), young people aged between 15 and 25 do not appear to have reacted positively to these rules and a high death and road accidents rate is still recorded (Carbone, 2009).

A survey recently carried out (Scafato et al., 2009) shows that 45% of accidents occurred in Italy are caused by a wrong driving behaviour, such as the non respect for the rules of priority, an inattentive driving and too high a speed. Instead the accidents caused by the alteration of the drivers' psychophysical state are only 3.1 % of the events but they cause the most dramatic consequences.

The accidents caused by drunkenness (6.124 cases, equal to 68% on the category), illness, ingestion of drugs or psychotropic substances and sleep, which are 29% of category with 2.612 events, are included in this category. So alcohol is one of the most important elements for road safety and this is particularly true for young people. Indeed, with an equal amount of alcohol drunk, the risk of accidents increases when the driver is younger and the habitual consumption of alcoholic substances is smaller (ISTAT - ACI 2007).

In details, it was found out that in Italy more than a third of serious or fatal road accidents, which occur every year, are caused by driver's high alcoholic rate; on the total amount of 6,000 victims, half are young people (Aguirre De Kot, 2007; Londi et al., 2008).

A national survey carried out by the Permanent Observatory on young people and alcohol (2007) points out that 47% of the young people interviewed aged between 13 and 24 are regular consumers of alcohol and that the percentage of occasional consumers goes from 72% of 13 - 24 age range to 88% of 35 - 45 age range. Besides the survey shows that the highest rates of alcohol consumption are reported in the age range included between 25 and 34, when also the cases of drink - driving scale up remarkably.

The above research concentrates above all on the effects that alcohol and drugs can have on a driver's performance and judgement powers. Instead they do not show much on the psychological and psychodynamic processes which lead a young person to assume the risk to drive under the effects of either alcohol or drug.

In fact, an interesting datum is that young people are the category that more undervalue the dangers originating from drink - driving. (Causse et al., 2004). In details, young drivers seem to tend to overvalue their capacity to take drugs or alcohol and to consider themselves able to control the events even under the effects of these substances. (Gustin, Simons, 2008).

The present survey starts in this context. It is directed to investigate young drivers' psychological and psychodynamic processes that increase accident risk. We took into account how much a sample group of young people knew about alcohol and driving, their behaviour towards the Police controls and the perception of risks related to driving. Finally we put into relation their answers with the possible use of alcoholic drinks, the existence or non existence of alcohol related problems and the accidents the subjects had met with.

2. Material and methods

2.1 The Sample

The sample was picked up on several occasions when young people met (concerts, discos, popular parties, etc.) and it made up of 437 people (277 males, 63.3%; 150 females, 34.3,%) aged between 18 and 35 who declared they had a driving licence. Of these subjects 65% (in numbers 284) is aged between 18 - 22, 21.7 % (No. 95) aged between 23 - 27 and 13.1% (in numbers 58) aged between 28 and 35. Most of the sample (73.3% No. 322) said they lived with their own parents; the most frequent education qualification is a High School Certificate (62.2 % No. 272). Besides the 52.6% (No. 230) of the subjects work, 47.1% (No. 206) study and only 4.3% (No.18) declare they are unemployed.

2.2 Instruments

For the survey it was used a questionnaire divided into five parts:

- The first part investigates the interviewees' knowledge of the effects of alcohol on driving behaviour and the law of the Highway Code about alcohol and driving.
- The second part consists of three cartoons depicting a dialogue between a Policeman and a driver. The person interviewed was asked to complete the strips of each cartoon: in the first one, the policeman asks the driver to draw his car up to the kerb for a check; in the second one the driver is submitted to the breathalyzer test and, finally, in the third one he is arrested because of the positive result of his test. In every situation our was to find out the interviewees' reactions to the checks carried out by the Police Force.
- The third part of the questionnaire investigates the subjects' behaviour about the violations of road rules and what makes the driving less safe, that is the interviewees' subjective point of view.

- The fourth part of the questionnaire investigates precise events in the person's life: accidents and sanctions due to his driving.
- Finally the last part of the questionnaire inquires about the possible consumption of alcoholic drinks and the presence of alcohol related problems showed by the CAGE test (Ewing, 1984). The CAGE test is composed of four questions; two or more positive answers are considered index of possible alcohol related problems (Fiellin et al., 2000; Dhalla, Kopec, 2007).

2.3 Procedures

The questionnaire was created through a feasibility study carried out in different stages. Initially a group of 10 experts (public service operators and private operators in the prevention field) proposed and chose a set of the possible items of the questionnaire. Later on, a pilot study was carried out to value the importance of the chosen items and the easiness to obtain the answers from the interviewees. A sample questionnaire was submitted to 20 subjects belonging to the target of our survey (young and adult drivers selected by chance). These subjects were asked to answer and to point out the aspects of the questionnaire that were not clear; the compilation time was recorded and then all answers supplied to the cartoons were collected.

According to the answers to the pilot questions further corrections were made to the questionnaire in order to make it clearer to the interviewees. In this way the experts were able to express a final judgement on the importance of every single item and expressed it in scores (5 = very important; 1 = not important) and in its final form the questionnaire included only the items relevant to the aim of the survey.

Before starting the questionnaire it was necessary to build up a method of coding the answers supplied to the cartoons (second part of the questionnaire). For this reason the questionnaire was submitted to other 20 drivers chosen by chance; a first group of answers to the cartoons was collected; in this way the most frequent classes of answers and the coding methods were identified. The answers that included attacks the policeman (e.g. "They get on my tits instead of going to searching thieves", "Shit, now he keeps me standing here for half an hour") were coded as persecution – attack - opposition (PAO). The answers that showed frustration, boredom, anxiety but without reference to the policeman (e.g. "Ooh what a nuisance", "What a bore") were coded by frustration (FR).

The answers that showed reactions of self - punishment or criticism (e.g. "Actually I have gone too fast". "My God, where have I got all my documents?") were coded as sense of guilt (SC). The answers that did not show any peculiar negative emotional reactions (e.g. "OK! I'll stop;" "I am in order") were coded tranquil (T). Finally the absence of answers or illegible answers were coded as not classifiable (NC).

3. Results

3.1 Knowledge

In the phase of coding the questionnaires, we valued the interviewees' knowledge, calculating the amount of right answers given in the first part of the questionnaire: particularly, those who answered correctly from 0 to 3 questions got an "inadequate" score, those who answered correctly from 4 to 5 questions got a "sufficient" score, from 6 to 7 got a "good score" and, finally, from 8 to 10 right answers got a "very good" score.

Therefore we noticed that a significant 32.3% (No. 141) of the sample have a poor knowledge of alcohol effects on driving behaviour and on the related regulations in the Highway Code and that 56.1% (inadequate +sufficient) give the wrong answer to 5 or more questions on 10; 33.2% have a good knowledge and, finally, 10.8% have a very good knowledge (see the graphic No. 1).

GRAPHIC n1

Giving full details of the single questions, we noticed that 79.4% (No. 347) recognize that alcohol makes driving less safe because it lowers the attention threshold and 63.6% (No. 278) think that alcohol alters perception and attention. Besides, 76.9% (No. 336) know that if blood alcohol concentration exceeds the 0.5gr/l the Highway Code does not allow to drive, but only 38.9% (No. 170) are able to specify how much alcohol a person must take to exceed this limit. 36.8% (No. 161) overvalue alcohol effects whereas 9.6% (No. 42) undervalue them and 14.6% (No. 64) are not able to give an answer. On the whole a significant 61.1% (No. 267) of the subjects do not know of how much they can drink before driving without exceeding the limit accepted by the Highway Code.

GRAPHIC n 2

It is interesting to stress that a significant statistic difference appeared in the options chosen by the subjects, according to their habits of alcohol consumption: the subjects who declare to consume alcoholic drinks several times a week undervalue alcohol effects on driving, ($gdl=30$; $Chi^2 < 0.001$), on the other side who declares to drink once a week is inclined to overvalue alcohol effects. 90.8% (No. 397) of the sample know that the alcohol indicator is used by the Police to check if a person drunk, nevertheless the interviewees do not know much about the sanctions that can be imposed in case the breathalyzer test is positive. For example, only 2.5% (No. 11) of the subjects know that if they are halted with a alcohol rate higher than the accepted limit they cannot start driving again until the alcohol concentration in the blood has dropped. Besides there is poor information on practical consequences: only 43.5% (No. 190) know that a driver positive to the test will have to pay a fine, only 38.4% (No. 168) know that among the sanctions a deduction of points from the driving licence is expected and only 160 interviewees (No. 36.6%) know that in these cases people can incur the confiscation of the driving licence.

Generally, we noticed that men have got a poorer knowledge in comparison with women ($gdl=6$; $Chi^2 < 0.05$) but there is no important statistical difference as regards the educational level or the fact that a subject either studies or works.

On the whole, the detected data are significant of a poor and vague knowledge of the Highway Code.

3.2 The reactions to Police controls

In succession we report the most important results emerged in the second part of the questionnaire, consisting of three cartoons that the subject had to complete. As we told, the answers were coded into 5 different types: tranquil answers (TR), of frustration (FR), of persecution – attack - opposition (PAO), of sense of guilt (SC) and, finally, not classifiable answers (NC).

In the first picture (“Do you mind drawing up alongside the kerb for a check?”) 35.5% (No 155) of the sample reacts with frustration, 25.4% (No. 111) with an experience of persecution, attack and opposition and, finally, 12.8% (No. 56) with a sense of guilt. At the end 5.3% (No. 23) report no classifiable answers.

On the whole, we point out that 73.7% (No. 322) have a negative perception of the activity carried out by the Police, as if road controls were either a reason of anxiety or worry, or a persecution to which people react with aggressiveness and/or a sense of guilt. Only 20.4% (No. 89) of the sample answer the policeman’s request quietly.

In the second picture, (“You must do the balloon test”), the subjects who answer with experience of tranquillity are a little more numerous (30.7%; No. 134) but anyway a poor number, whereas the 22.9% (No. 100) answer with frustration, 19% (No. 83) with an experience of persecution, attack

and opposition, the 16.2% (No. 71) with a sense of guilt and 8.2% (No. 36) provide no classifiable answers.

It is interesting to point up as these answers are associated in a statistically significant way with the fact that the subjects declared they had driven or not after drinking alcohol. Particularly, those who declare they have driven after taking alcoholic drinks answer in a larger amount to the policeman's request to do the test of the alcohol indicator with frustration, persecution, attack, opposition and a sense of guilt, whereas the quieter subjects are preventively those who declare they had never driven after drinking alcohol ($gdl=14$; $Chi^2<0.00$).

In the last picture ("I am sorry, but you exceeded the speed limit, you cannot drive") the answers of frustration (30% No. 131) and of persecution, attack, and opposition (29.3%;No. 128) increase as it was to be expected, on the contrary those related to an experience of tranquillity (13.3%; No. 58) but also those with a sense of guilt decrease. In fact only 15.8% (No. 69) of the subjects react to the policeman's order with a sense of guilt, showing the trend of the subjects "caught at fault" to pin the blame outside, on the checking itself, rather than to face up their own responsibilities. Finally, 10.5% (No. 46) give no classifiable answers.

Generally, we noticed a statistically significant correlation between the way people answered the illustrated strips and the frequency by which the subjects declare to assume alcohol: in fact the person who drinks several times a week or every day reacts to the policeman's request to do the breathalyzer test more often with frustration, persecution, attack, opposition and a sense of guilt ($gdl=44$; $Chi^2<0.005$).

GRAPHIC n 3

3.3 The attitudes

In the third part of the questionnaire we asked the subjects to express their opinion as regards the most serious traffic violations. 29.5% (No. 129) thinks that the most serious violation is driving on the wrong side of the road, followed by driving in a drunkenness state (24,7% No. 108) and under the influence of drugs (25.9% No.113). Only 40.5% (No. 177) of the sample think that assuming drugs make driving less safe and 27.5% (No 120) that the alcoholic drinks are a danger for driving. This datum indicates a trend in the young interviewees' behaviour to undervalue the effects of psychotropic substances on driving behaviour, particularly alcohol.

Actually, a significant 57.7% (No. 252) of the sample state they have driven after drinking alcohol. We found out a significant statistical difference between the interviewees' answers with several habits of alcohol consumption in their behaviour towards to the seriousness of road violations and their perception of what makes driving less safe. Particularly, the subjects who declare they drink several times a week (23.6% No. 103) or every day (14.2% No. 62) think that driving on the wrong side of the road is the most serious among the listed road violations, on the other hand driving in a drunkenness state is the most frequent choice among those who declare they drink once a month ($gd=136$; $Chi^2<0.00$). Besides the subjects who use alcoholic drinks most frequently think that driving is dangerously affected more by drug consumption than alcohol consumption. The trend to shift the problem is even more evident with the answer "sleepiness" : for people who drink frequently driving is dangerous more if they are sleepy than they are drunk ($gdl=36$; $Chi^2 <0.00$).

3.4 Accidents and violations

40.7% (No.178) of the sample report they had road accidents but only few subjects underwent the suspension of their driving licence(8.2%; No.36), its annulment (4.3% No.19), or the deduction of points (23.8% No.104).

Even though 57.7% (No. 252) of the subjects drive a vehicle after taking alcoholic drinks, the 62.2% (No. 272) of the subjects refer they have never been submitted to the breathalyzer test device

and only 16.7 % (No. 73) were stopped for the test at least once, whereas 10.1% (No.44) more than once. Besides among the subjects who state they were stopped by the Police to be submitted to the test, a significant 67.5% (No. 79) did not suffer any effect. There is a positive correlation between a poor knowledge of the Highway Code and the number of the times that people were halted to be submitted to the breathalyzer test. ($gdl=9$; $Chi^2<0,05$). It is possible that the Police Force carry out the breathalyzer test prevalently with the drivers who have already committed a violation, more likely among the less educated drivers.

3.5 Alcohol and CAGE test

The answers on the possible use of alcohol (last month) show the spreading of alcohol consumption in our sample: 31.6% (No.138) of the sample report to drink alcohol once a week, 23.6% (No. 103) several times a week and 14.2% (No. 62) every day.

As regards the CAGE questionnaire it was found out that 22% (No. 96) of the sample appear positive to 2 or more questions of the test. This can be a sign of alcohol - related problems.

We have investigated the peculiarities of this subgroup formed by 96 subjects in a more deeply way.

The subjects are concentrated in the 18 - 25 age range (81.2%; No. 78) and are predominantly males.

78.1% (No. 75) live with their parents and there is a substantial equal - distribution among those who work (45.8%; No. 44) and those who study (58.3%; No. 56). The higher education qualification more frequently reported is the High School - living Certificate (58.3%; No. 56), followed by the Junior High School - living Certificate (27%; No. 26). Only 10.4% (No. 10) have a university degree.

If we take into consideration the subjects with two, three or four positive answers we can point out pointed out that statistically significant differences emerge between who is positive to the CAGE test and who is not, if we consider the knowledge of the Highway Code: the positive subjects show an inadequate knowledge of the Highway Code ($gdl=6$; $Chi^2<0.05$) and this result appears even more evident if we limit the group to the interviewees with three or four positive answers to the Cage test, that is to say probably the subjects with more serious alcohol related problems ($gdl=6$; $Chi^2<0,001$).

Coming back to the whole group of positive subjects (two, three or four positive answers) is interesting to underline that in 71.8% (No. 69) of the cases these subjects recognize that taking alcohol makes driving less safe, distorts perception and attention (61.4%; No 59). Besides, 77% (No. 74) know that the limit of alcohol concentration in the blood, allowed by the law is 0.5 gr./l but 38.5% (No. 37) overvalue the alcohol effects necessary to overtake this limit.

These data show that the subjects of this subgroup generically know the alcohol effects on driving behaviour but try to consider the breathalyzer device as a too sensitive instrument.

The answers to the cartoons are associable to the answers provided in the other sections of the questionnaire. Although the difference between the two subgroups does not appear statistically significant, the different behaviour towards the strip number 2 ("You must do the balloon test") makes us reflect. In this case who answered positively the CAGE test is inclined to have reactions of persecution, attack, opposition more frequently (21.8% CAGE +, 18.8% CAGE -). This element also makes us think of people's defensive denial towards alcohol effects on their own behaviour.

Finally the interviewees with two or more positive CAGE answers refer in a larger and statistically significant amount they had more road accidents (46.5%; No. 45) in comparison with those who have a negative CAGE ($Chi^2<0.00$; $gdl=4$). 46.8% (No. 45) of these subjects have never been stopped by the Police to be submitted to the breathalyzer test ($gdl=3$; $Chi^2<0.05$). 27% (No. 26) were halted only once and 10.4% (No. 10) more than once whereas 15.6% (No. 15) did not answer. Among those who were stopped a significant 57.7% (No. 26) did not suffer any consequences.

4. Discussion

The outcomes of our survey show that a large part of the sample has a poor or superficial knowledge of the Highway Code: only 57% (No. 249) of the subjects do not obtain sufficient marks; particularly, a significant 61.1% (No. 267) of subjects are not able to value the amount of alcoholic drinks that involves exceeding the limit accepted by the Highway Code. Our data confirm those appeared on the Eurobarometer Report "Working Group Alcohol and Health" (Scafato, 2007), where it is pointed out that in Italy there is one of the lowest level of knowledge of the Highway Code. Generally, we have noticed that males have a poorer knowledge in comparison with females but there is no statistically significant difference in comparison with the education level or the fact that the person either studies or works. Those who consume alcohol more frequently undervalue the effects of this substance on their driving behaviour.

The interviewees answered in a diversified way the three strips about the policeman's proposal to do the breathalyzer test. It is interesting to point out that a significant 73.7% (No. 322) of the subjects have a negative perception of the operation performed by the Police: these interviewees reply in a frustrated and/or paranoiac way, for them road checks are a source of stress, sense of guilt or persecution to which they react in a provocative - opposing way. Particularly above all those who declared they had driven many times soon after assuming alcohol answered the strips showing frustration, persecution, opposition and a sense of guilt; on the contrary, those who reported they had never driven after drinking alcohol more frequently answered the strips quietly.

As regards the habits of alcohol consumption, we found out that in our sample 55.2% (No. 241) report they drink alcohol once or more a week but only 27.5% (No. 120) think the assumption of this substance constitutes a danger for driving. In fact, most of the sample think the most serious road infraction is driving on the wrong side of the road, showing a general inclination to undervalue the risks related to driving while intoxicated.

As regards the assumption of alcohol, a part of our sample pointed out possible alcohol related problems: 22% (No 96) turned out positive to the CAGE test; 57.7% (No. 252) of the subjects stated they had driven after drinking alcohol. 40.7% (No. 178) of the subjects had at least one road accident, but even so only a few of them were submitted to the breathalyzer and suffered consequences from the Police control.

5. Conclusion

The results of the survey allow to point out the presence of different psychologic - behavioural patterns inside the sample. Particularly, it is possible to distinguish two groups of subjects with several peculiarities as regards the knowledge of alcohol and driving, the perception of the risks related to driving and the behaviour in relation to the breathalyzer test.

A first larger group of subjects, is made up of those who have sufficient knowledge about alcohol and driving, who show a predominantly correct attitude in relation to the driving behaviour and who perceive the risks related to the assumption of psychotropic substances. These subjects present less incidence and prevalently report they do not assume alcohol or do that rarely. These same subjects, answering the three strips, more frequently react to the Police's request to do the breathalyzer calmly.

Another group of interviewees (22% of the sample, No. 96), turned out positive to CAGE test, show different psychologic - behavioural characteristics. They concentrate on the 18 - 25 age range (81.2%; No. 78).

This group knows the alcohol effects on the driving behaviour superficially, it is inclined to consider the alcohol indicator as a hypersensitive instrument and to undervalue the risks related to driving while intoxicated.

These young people seem to consider themselves able to control their own behaviour also after assuming psychotropic substances, confirming a tendency already pointed out in literature (Durkin et al., 2007; Kypri et al., 2006). Besides, in the answers provided in the cartoons, it appears that this group is inclined to react in a frustrated and/or paranoiac way to the Police's request to do the breathalyzer test. The same subjects frequently report they have had road accidents (46.8%; No. 45). These data are consistent with some studies that point out as the pursuit of strong sensations through the active assumption of risk, and the tendency to undervalue the dangers and to overvalue their own abilities of control are variables that turn out positively related to a higher risk of accidents in young drivers (Carbone 2003; 2009). Therefore it is possible to identify significant correlations between the inclination to assume risky behaviours in driving and some specific features of drivers' personality (impulsiveness, emotional instability, aggressiveness, etc.), often grouped in a "cluster", and to outline categories of young drivers particularly at risk (Ulleberg, Rundmond, 2003).

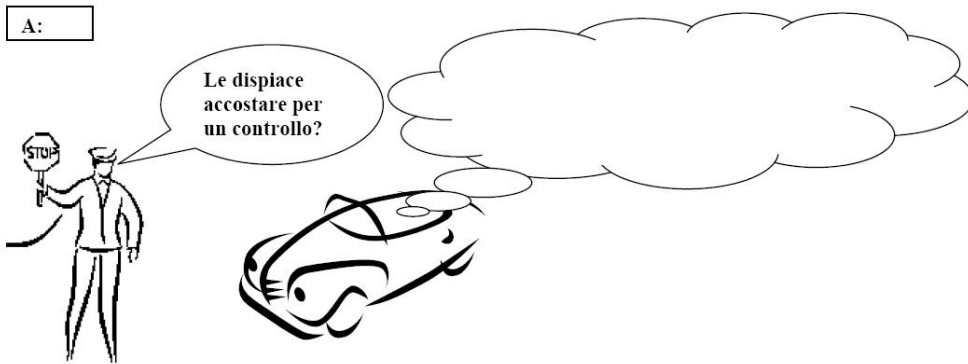
In detail, in our sample it is possible to notice a specific risk profile characterized by having poor knowledge of alcohol and driving, by a devaluing behaviour as regards the effects of psychotropic substances on the driving behaviour and by a provocative - opposed and/or paranoiac attitude at the Police's checks. These behavioural - psychologic features seem to expose these subjects more than the others to the risky behaviours such as the assumption of alcohol and drink - driving with the possible traumatic consequences related to them.

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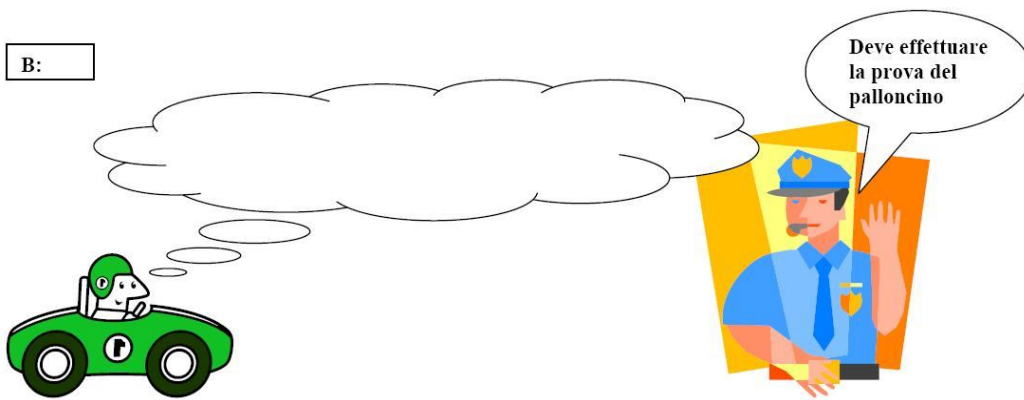
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Tables and graphics:



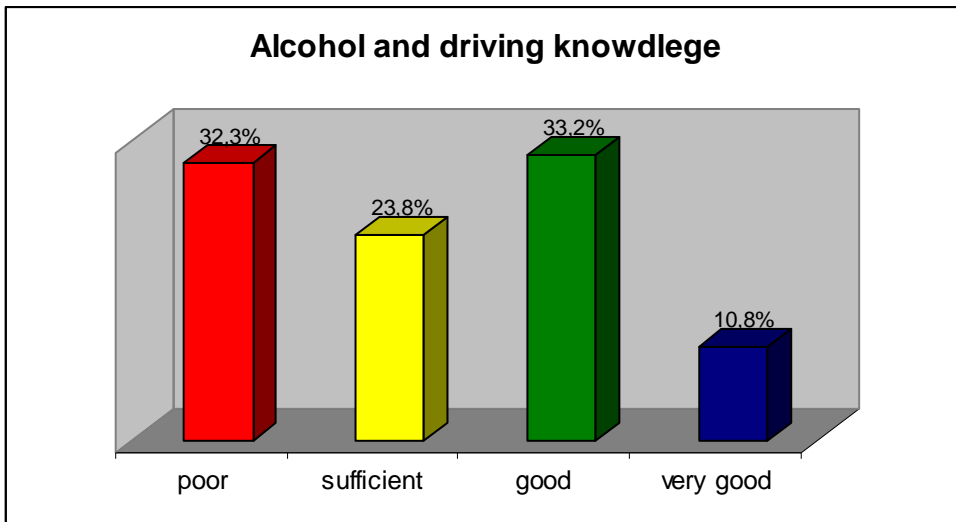
Picture 1: Check demand



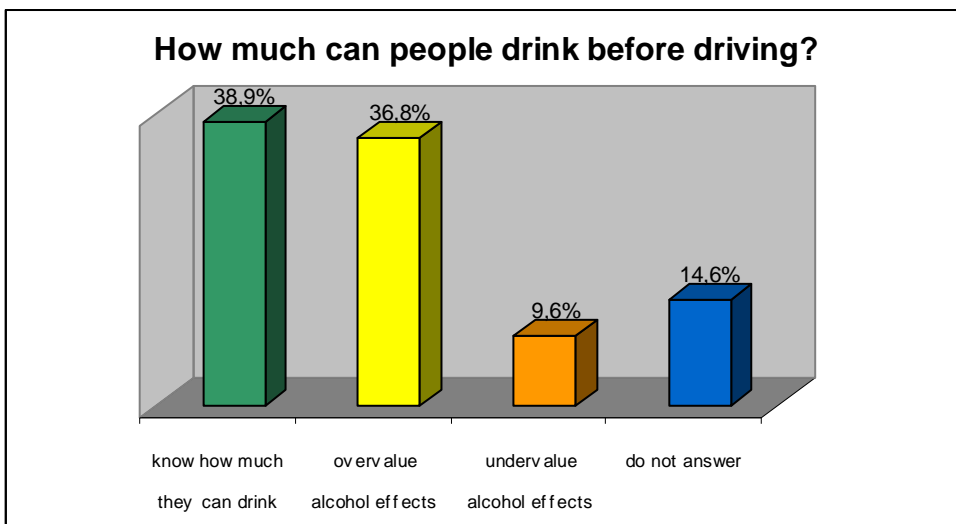
Picture 2: Breathalyzer test demand



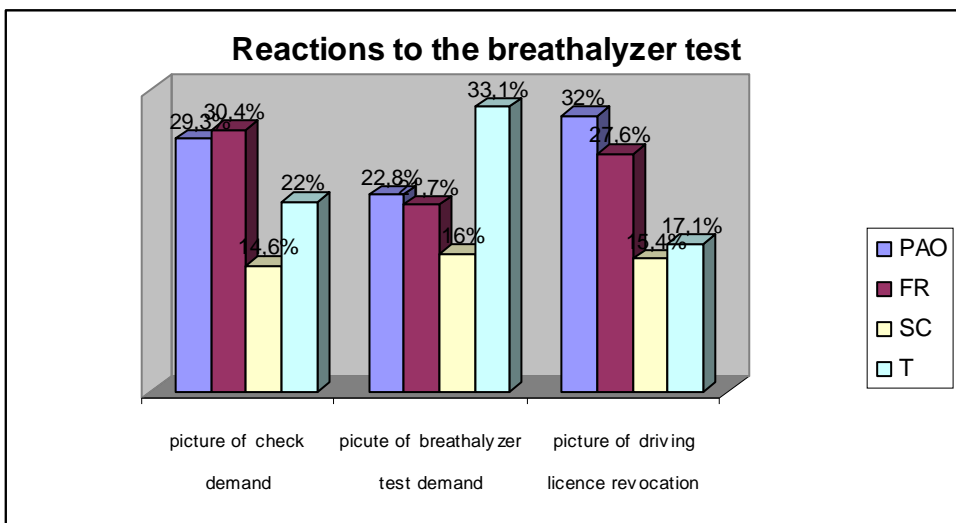
Picture 3: Driving licence revocation



Graphic n.1



Graphic n. 2



Graphic n. 3