

Drinking and Driving in France in the Nineties : Can Evaluation Help Prevention ?

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Keywords : legislation, enforcement, driver alcohol levels, injury accidents, trends, prevention

Abstract

In 1999, the french government decided to classify excessive alcohol consumption as a type of drug dependency, and the Interministerial Committee on Traffic Safety decided to halve the number of road deaths within the next five years. These decisions provide grounds for updating our epidemiological knowledge about drink-driving and accidents, and review our approach to prevention. We have tried to contribute to this process by analyzing the way the available data in the main areas which relate to drinking, driving and their consequences have changed during the nineties. The main features of the changes in legislation, enforcement, indicators and trends have been examined with reference to alcohol consumption, the results of roadside checks and alcohol-related accidents. We noticed a general decrease in accidents, and especially the series of accidents which are specifically associated with alcohol such as those involving young men under 25. The fall among men aged from 25 to 39 was much smaller. The decrease noticed among women over 40 was lesser. These trends, the scale of the associated stakes and the social groups concerned encourage discussion about new targets and preventive strategies.

Introduction

Drink-driving, which involves road travel practices and the social context of alcohol consumption, provides an opportunity for observing and analyzing both road risk and the risk to health. In France, alcohol has, after much controversy in recent years, now been classified as a drug, which constitutes a minor cultural revolution. During the last decade alcohol consumption has fallen, but there has also been a shift towards the strongest spirits with these accounting for a greater share of consumption (1). Average intake has fallen for both men and women in all age groups apart from men aged between 20 and 24 and women of over 65. The nature of consumption among young adults is also undergoing a change, shifting from regular use to dependency (2). The finishing touch was added to the alcohol prevention and enforcement policy, which has been built up gradually since 1954, in 1995 when the legal limit was reduced to 0.5 g/l in the blood. The current aim in France is not to reduce this limit further but to ensure that it is complied with. ICADTS 2000 provides an opportunity to evaluate trends in the area of alcohol use, drink-driving and the impact of this in terms of accidents. It also allows us to examine the prevention system that is based on roadside checks and consider how this should help to think over next research and new preventive strategies.

Data and Methods

The french national road safety institutes, ONSER then INRETS, conducted a large number of surveys of alcohol consumption and driving during the 1970s and 1980s. There has been no scientific survey of alcohol levels on roads since 1991-92, the date of the last INRETS survey in the Département of Pas de Calais (3). Our knowledge comes from official sources based on enforcement roadside checks conducted by the Gendarmerie on rural roads and in small towns and by the Police in larger towns and cities. The data we have studied were obtained from the drink-driving monitoring activities of officers of the Gendarmerie and Police between 1990 and 1998.

Data about subsequent convictions are provided by the Ministry of Justice (4). Under french penalty points licence law, driving with a blood alcohol level of between 0.5 and 0.8 g/l is a minor offence leading to the loss of 3 of the total of 12 points on the licence. Over the 0.8 g/l level it is an indictable offence leading to the loss of 6 points (or 8 in the case of a second offence or of unintentional injury or death). Resulting statistics give a mean to separate levels under and over 0,8g/l (5).

Acohol levels of drivers involved in injury accidents have been obtained from the INRETS report file where are collecting one out of fifty accident records each year since 1987 (6). The 1998 data were used to study the alcohol detection process and the more recent distributions of alcohol levels in accidents.

In order to investigate the effect of preventive measures introduced with regard to drink-driving in the period 1990-1998, we also have used series of alcohol-correlated accidents as an "intermediate variable". For this we have used the criteria which have been the most frequently linked to the presence of alcohol in epidemiological studies. These are : sex and age, the time and day on which the accident occurred, the location and the number of vehicles involved. A preliminary examination of the data and categories led us to select three age categories (under 25, 25-39, over 40) and two categories for location (firstly outside built-up areas and built-up areas with a population of less than 5,000, and secondly built-up areas with a population of over 5,000). Several series have been produced by combining these criteria. The series we have examined relate on the one hand to injury accidents and on the other to drivers involved in an injury accident from the french national accident file.

Results

Breathlyzer testing and enforcement trends (1990-1998)

In 1998, more than eight million drivers were breathalyzed when no accident had occurred. Random breath tests, of which 7 million were performed in 1998, are administered either on the instructions of the public prosecutor, under the law passed in 1978, or on the initiative of the Gendarmerie and Police, under the law passed in 1990. The second type has become increasingly common. Table 1 shows the way the number of breath tests (both random and those administered after an offence) have changed with the corresponding percentages of positive tests.

The number of random breath tests has risen steadily (from 2,900,000 tests in 1990 to 6,900,000 in 1998). The increase is explained by the increase in the number of tests conducted by the Police and Gendarmerie on their own initiative, which accounted for 92% of the total in 1998 (93% in the case of the Gendarmerie and 66% for the Police).

Table 1 : Random breath tests and breath tests after an offence (1990 - 1998)

Year	Breath tests performed		Percentage of positive tests	
	Random tests	Tests after an offence	Random tests	Tests after an offence
1990	2,881,232	1,619,531	1.1%	3.6%
1991	3,812,442	2,205,045	1.0%	2.9%
1992	4,614,079	1,662,413	1.1%	3.0%
1993	5,542,319	1,579,987	1.0%	3.0%
1994	6,270,045	1,664,788	1.0%	2.9%
1995	6,650,690	1,595,707	1.0%	2.9%
1996	6,286,419	1,532,461	1.2%	2.9%
1997	6,677,808	1,522,785	1.3%	3.0%
1998	6,908,932	1,491,951	1.4%	3.4%

From: Bilans annuels de l'ONISR (7)

Overall the percentage of positive random tests has risen continuously since 1995 (1.0% in 1995 coming up to 1.4% in 1998 - 1.5% for the Gendarmerie and 1.0% for the Police -). This can in part be attributed to the lowering of the legal limit to 0.5 g/l in September 1995 which means that levels of between 0.5 and 0.8 now count as positive.

The number of tests after offences (about 1.5 million) remains the same throughout the period 1990-1998. For these the percentage of positive tests (3.4%) was higher for the Police (17%) than for the Gendarmerie (2%).

Drink-driving offences and attendance of an alcohol consultation

In 1998, 21% of drink-driving offences without an accident came under the minor offence category and 79% were indictable offences (5). Drink-driving offences account for 16% of the indictable offences dealt with by the courts. This level has remained fairly constant throughout the 1990s (over 100,000 convictions a year) and has become a fact of life in France (8).

Furthermore, the re-offending rate drink-driving is almost 9% (8,400 of a total of 97,000 convictions in 1996). After 1984, judges tended to become more severe, with punishment of drink-driving shifting from fines to imprisonment. However, the tendency now is to impose penalties other than prison - for example a return to fines or the use of measures concerning the driving licence.

Being prosecuted of drink-driving increases the likelihood to attend an alcohol consultation. A 1996 study of those attending such consultations in the « Centre » region of France revealed that 48% had been convicted of an indictable offence -chiefly drink driving (9). In one third of cases this attendance had been suggested by the court. In the « Val d'Oise » department, a system has been set up by which a drink-driving offence is used to provide the driver with an opportunity to attend an alcohol consultation. This experiment revealed that a high percentage of those attending the consultation (44%) needed medical care (10). These appointments can be used to increase awareness among those attending, or even to begin to treat an alcohol problem (11).

Alcohol levels in accidents from the report file 1/50th of INRETS (1990-1998)

The percentage of alcohol levels that are known in the case of drivers involved in an injury accident varies between 85 and 90% between 1990 and 1998 (87% in 1998). This percentage is generally lower in the case of fatal accidents (between 70% and 86%), but has tended to improve since 1990. Between 1990 and 1998, the proportion of drivers whose alcohol levels were over the legal limit remained constant at between 7% and 9%. The variations in this proportion were greater for fatal accidents, between 15% and 24% (17% in 1998). Over the same period, the proportion of injury accidents with alcohol levels over the legal limit remained between 12% and 18% (in 1998). The proportion of fatal accidents with alcohol levels over the legal limit was between 29% and 41% in the same period (31% in 1998). This proportion, which was around 40% in 1996 and 1997 tended to fall in 1998 (31%). It is remarkable that the lowering of the legal limit in July 1994 (to 0.7 g/l) and then in September 1995 (to 0.5 g/l) has not led to any significant increase in the percentage of drivers in injury accidents of all types who are over the legal limit. However, the only figures at our disposal are averages which do not allow us to draw conclusions about changes in driver alcohol levels in accidents. It would be interesting to have more complete distributions in which levels between 0.5 and 0.8 g/l in particular are given separately. This very tedious work has been done for one year only (1998). These detailed results are given below and should also become available for previous and future years.

Results in more detail for 1998

We investigated a sample of 1,387 drivers involved in injury accidents in 1998 in the one-fiftieth file. The alcohol levels were known for 1,204 drivers i.e. 87%. Table 2 gives a breakdown, on the basis of detection mode, of the measured alcohol levels.

It is apparent that the percentage of drivers who are over the limit is considerably higher in the case of blood samples taken from drivers who have been killed or seriously injured when the breath test was impossible (47%) than in the case of a positive breath test backed up by a test on a blood or breath sample (5.4%).

Overall, 108 drivers (9.0%) had illegal alcohol levels when measured by breathalyzer or blood tests. Of this 9%, 0.5% had alcohol levels of between 0.5 and 0.79 g/l and 8.5% had alcohol levels of over 0.8 g/l.

Table 2 : Alcohol levels of accident-involved drivers in 1998

	Breath test administered	Breath test impossible	Total
Below legal limit	1,041 (94.6%)	55 (52.9%)	1,096 (91.0%)
Over legal limit	59 (5.4%)	49 (47.1%)	108 (9.0%)
<i>0.5 - 0.79 g/l</i>	<i>4 (0.4%)</i>	<i>2 (1.9%)</i>	<i>6 (0.5%)</i>
<i>0.8 - 1.19 g/l</i>	<i>13 (1.2%)</i>	<i>9 (8.7%)</i>	<i>22 (1.9%)</i>
<i>1.2 - 1.99 g/l</i>	<i>22 (2.0%)</i>	<i>20 (19.2%)</i>	<i>42 (3.5%)</i>
<i>>= 2.0 g/l or 1.0 mg/l</i>	<i>17 (1.5%)</i>	<i>17 (16.3%)</i>	<i>34 (2.8%)</i>
<i>Unknown illegal level</i>	<i>3 (0.3%)</i>	<i>1 (1.0%)</i>	<i>4 (0.3%)</i>

Known alcohol level 1,100 (100%) 104 (100%) 1,204 (100%)

From : PV/INRETS

For injury accidents, a higher percentage of pedestrians than drivers were over the legal limit for alcohol (14% compared to 9%). The percentage for lorry drivers was lower (5%) and for cyclists and bus and coach drivers it was zero. The percentage varied by a factor of seven depending on the sex of the driver (1.5% for women and 11% for men) and by a factor of three depending on age (3.5% for the under 18 and over 54 years of age, 8% for those between 40 and 54, 11% for those of 18-24 and 25-39).

The proportion of accidents with illegal alcohol levels varies according to the category, the time and the area of accidents. The highest percentage is in single vehicle accidents (39%) and the lowest is in two vehicle accidents (10%). The percentage is highest between midnight and 4 a.m. (60%) and is still high between 8 p.m. and midnight (37%) and between 4 a.m. and 8 a.m. (32%); it is lowest between 8 a.m. and noon (2%). It is higher outside built-up areas (21%) than in them (15%). Outside built-up areas, this percentage varies between 15% on main roads and 23% on country roads. The figure for motorways is 19%.

Series of accidents that are correlated with alcohol

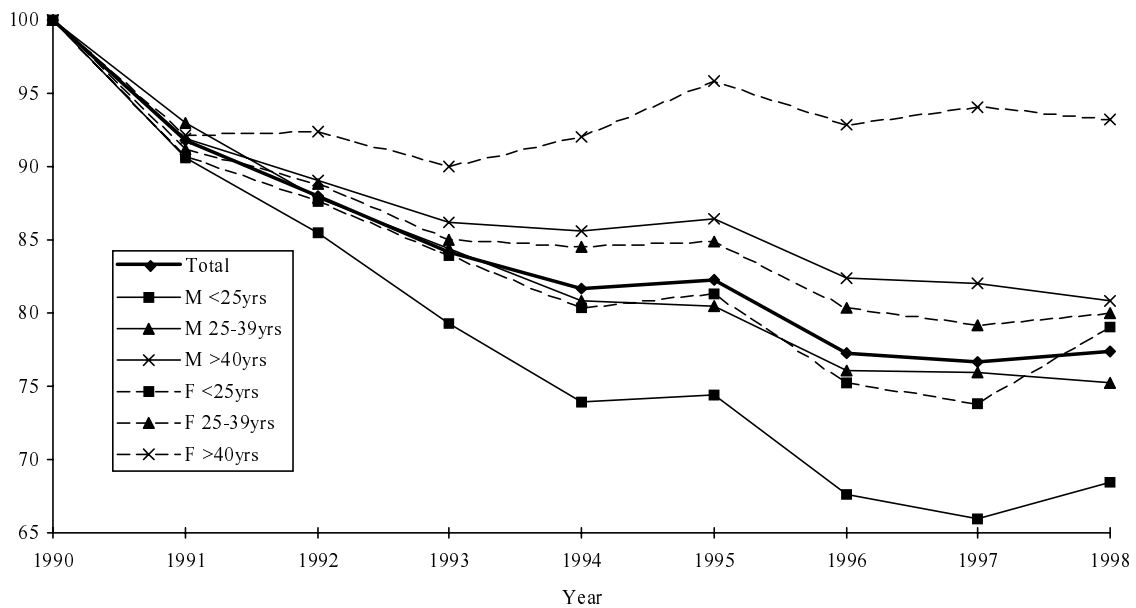
In the period 1990-1998 the number of injury accidents fell continuously (from 162,573 in 1990 to 124,387 in 1998) as did the number of accident-involved drivers (from 276,077 in 1990 to 213,514 in 1998). Over this period, three-quarters of the drivers involved in accidents were men and half of these were less than forty years old. In order to detect an improvement which would be specifically due to changes in drink-driving behaviour we have examined the differential trends for these series as shown in the diagram below (Figure1).

The general trend has been a 23% fall in the number of injury accidents and accident-involved drivers. Change has been better than this for the following : accidents in built-up areas (in particular those occurring during the night especially those involving more than one vehicle), men involved in accidents (in particular those of less than 25 years of age), men involved in night-time accidents, especially in multiple vehicle accidents.

Change has been worse than the general trend for the following : accidents outside built-up areas (particularly daytime accidents), single vehicle daytime accidents outside built-up areas, drivers involved in daytime accidents (especially women), women (both during the day and night) especially women over 40 years of age, women involved in night-time accidents (especially single vehicle accidents), women in daytime accidents outside built-up areas (in both single vehicle and multiple vehicle accidents).

These results show that there has been a greater reduction for the categories of accidents where alcohol is most frequently present than for those where it is generally rare. However, we did not have the series which is particularly correlated with alcohol (young drivers involved in single vehicle night-time accidents at weekends outside built-up areas). More complete series with two additional criteria (assumption of responsibility and type of day) are currently being created. Confirmation of our conclusions depends on these.

Figure 1. Injury Accident Involved Drivers over 1990-1998 : Changes according to Sex and Age



Involvement Ratio = (number of drivers involved in injury accidents a year between 1990 and 1998 divided by the number of drivers involved in injury accidents in 1990) x100
 From : National Accident File

Discussion

A feature of random breath tests, of which seven million have been administered, is that to a large extent they cover the entire population of drivers on a non-selective basis. The measured alcohol levels therefore reflect the range of alcohol-related behaviours. Overall, the transition to the 0.5 g/l level has not resulted in the anticipated rise in the number of positive tests - a doubling was expected on the basis of the distributions among drivers of alcohol levels of between 0.5 and 0.8 g/l and of more than 0.8g/l, previously stated - (12). This may be explained by two factors : the slowness with which the devices needed to detect the new limit were acquired and the relative increase among regular drinkers of those who drink small quantities (1 to 2 glasses a day, leading to a blood alcohol level below 0.5 g/l) compared to the number of moderate drinkers (whose consumption results in a level of between 0.5 and 0.8 g/l) (13). The proportion of accident-involved drivers exceeding the alcohol limit has remained constant at about 8% over the period. According to distributions stated in 1998, it seems as if moderate alcohol levels, between 0,5 and 0,8 g/l are not leading to accidents as frequently as expected : is this a phenomena which is linked to new drink driving behaviour or the result of bias inherent to the complex and difficult detection of alcohol level in case of injury accident ? Obviously the answer needs more investigation.

The dissuasive prevention system to drink-driving based on legislation and enforcement tend over the last ten years to reduce the number of accidents that can be attributed to alcohol consumption as discribed by alcohol correlated series of accidents.

Actually, drink-driving is a precursor of two problems : long recognized as a precursor of road accidents epidemiological data are now showing it to be a precursor of alcoholism. It has become

even more clearly apparent that neither of the two types of risk associated with drink-driving should be ignored : firstly, the driver's accident road risk (the legal limit for alcohol is still exceeded in 18% of injury accidents and 31% of fatal accidents), and secondly the risks to the driver's health and position in society (a high proportion of those charged with drink-driving have an alcohol problem). The system for preventing and punishing drink-driving constitutes an unexploited framework for detecting, or even preventing and treating, alcohol risk in the context of public health. The scale of the problem is illustrated by national testing statistics (around 150,000 positive tests) and the resulting criminal convictions (around 100,000). The roads and the courts have massive potential for bringing people into the system for preventing and treating alcoholism, while alcohol-related road safety activities which play a part in limiting drink-driving help to reduce accidents. The extent to which the legal system encourages drink-driving offenders to make use of the specialized structures for dealing with alcohol is bound to increase in view of the development of local policies which make use of the specialized apparatus that combats alcoholism.

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