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**ALCOHOL RELATED FIGHT AMONG ADOLESCENTS IN ITALY AND FRANCE : THE EVIDENCE
OF ESPAD STUDY**

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INTRODUCTION :

Alcohol related violence is a serious concern for public health. Injuries or wounds resulting in alcohol use are common and can often have heavy consequences (hospitalization, lesions, school absence, and care). Despite abundant literature, few has been done to compare directly the risk factors for alcohol related violence in different cultures. Thanks to the Espad data collected in 2007, this article shows the risk factors associated with alcohol related fight in France and Italy and proposes a comparison of the two countries.

THEORETICAL PERSPECTIVES

Alcohol-related violence seems to be associated with many drinking patterns, amongst which most prominent are the frequency of binge drinking [Room Bondy Ferris, 1989; Rossow, 1996; Sheperd & Brickley, 1996] and important alcohol intake [Graham *et al.*, 1998; Rossow, 2001]. But as some authors acknowledge the numbers of potential drinking patterns influencing the alcohol related violence is very high (Stafström, 2007). Moreover, the association of this patterns with violence depends also on other individual and environmental characteristics. Personality traits, such as the seeking of sensation, bad social competence or inability to avoid conflicts, etc. (see for example Seguin, Pihl *et al.*, 1995 bc1; Cooper *et al.*, 1995).

Some studies focus on children and prove the role of very specific factors. The environment of the children is also very important: bad relationships between parents and child, and first of all abuse or neglect, traumatic events during childhood can lead children to substance abuse (Ammerman *et al.*, 1999; Aseltine *et al.*, 1998), and develop aggressive tendencies. Some authors (Fagan *et al.*, 1990) think that especially among young people, alcohol offers some means to prove one's own value: resist drunkenness, but also to find courage to accomplish some acts more easily. The classical alcoholic disinhibition is thus desired and used as a means to gain something. Alcohol has a social role in the group of pairs. But it can also be the excuse one gives when caught doing something wrong, especially when accused for a crime: Robinson *et al.* (1991) show in their survey that 81 % of Canadian prisoners who were judged guilty said that they would not have done what they have if they were not drunk.

On a wider standpoint, violence is determined by the alcohol market structure (Alaniz *et al.*, 1998; Goldstein, 1985). Furthermore, crimes related to alcohol depend on cultural characteristics [Rehm *et al.*, 2001; Rossow, 2001; Cherpitel *et al.*, 2003].

As our outcome variable is the declaration of fighting because one's alcohol use during the last 12 months, we do not intend to establish a relationship between alcohol and violence. Our research is based on the assumption that despite close general cultural background, there must be important differences in alcohol related violence between France and Italy. As our dependent variable is the fight because of alcohol use, we focused mainly on alcohol drinkers. The first goal is to assess the specific relationships between drinking patterns and fight related to alcohol use in both countries. By doing this, we paid attention to family structure, parental care and control on outings, but also on outings with friends which reflects a part of the opportunities of drinking and fighting occasions and school achievement, which can reveal either good social skills or intellectual abilities. The use of other psychotropic substances was also used: tobacco, cannabis and stimulants. The second goal is to compare the alcohol related violence levels in both countries by taking into account all confounding factors.

METHODS

Data used for the analyses are a part of the ESPAD data collected in France and Italy in 2007. ESPAD is a survey on the use of tobacco and substances alcohol and legal and illegal drugs by the 16th students of the high schools.

The variables retained here are the basic sociocultural characteristics of the interviewees, the details about their consumption of alcohol including binge drinking and drunkenness, the use of

tobacco, cannabis and stimulants. Other variables are problems with alcohol occurring last 12 months, including fight, which is our independent variable.

SAMPLE

The ESPAD sampling is a two stage sampling : firstly, the schools are sampled to the national registry of the National minister of Education ; secondly, two classes are randomly sampled in each selected school. All the students in classes fill the questionnaire during one hour. The overall sample was draw from a population consisting students born in 1991, and it is rappresentative of the 16th studend population of France and Italy. Details regarding the complete survey methodology are described elsewhere (Hibell *et al.*, 2004).

The analysis is restrained to pupils aged 16. The French raw sample contains 2950 observations and the Italian one 8923. These raw databases were checked for inconsistencies between answers and non responses with an algorithm developed by the CNR. It was approved by all researchers involved in the project. Cleaning procedure deleted some type of inconsistencies (> 50% of missing values in the Espad core questionnaire; people with max frequency of use for the 4 types of alcoholic beverages during the last 30 days; people with max frequency of drunkenness in the three timeframes; inconsistencies between the three timeframes on at least one (licit or illicit) substance; people with at least one of the 4 diagonal patterns of response for all 12 illicit drugs; people with max frequency of use to every question on licit and illicit drug, on every timeframe; people having taken fake drug (relewin or netalin). The rate of inconsistent questionnaires are close in the two countries, with a slight advantage for the French sample (3,9% vs 5,1%). The main difference is due the proportion of people who failed or did not answer more than the half of the questionnaire (0,2% vs 1,3%). The second important difference is due to the number of people who declared the maximum frequency of alcohol use for life, last 12 months and last 30 days.

All these questionnaires were excluded before analysis, assuming that they were containing data of poor reliability. The final database contains 2804 French questionnaires and 8331 Italian questionnaires.

MEASURES

Outcome variable

- *Fighting because of alcohol use during the last 12 months.*

Independent variables

Socio-demographic characteristics:

- *family structure* indicates whether or not students lives with one parents (monoparental) or with both parents (traditional) or whether one of the parents is a step parent or student lives with grandparents or other relatives (reconstructed).
- *Mother and father's education* indicated the highest level of education that they have received (secondary school, one parent completed some university, both parents completed some university).

Family functioning

- *Parental control of the Saturday outings.* This simple variable assess the regularity of the parental control on the main outings during the week. The exact wording is : *Do your parents know where you are on Saturday nights ?* (always, often, sometimes or rarely).
- *Global absence of parental warming.* This index is the sum of the reponses to two questions (always, often, sometimes, rarely, never): *I can easily find comfort with my parents; I can easily find moral support from my parents.* It was dichotomised, opposing the three first quartiles (75% of the children) to the last one (25%).

School functioning and leisure time

- *Truancy* : indicated how many days of school student had missed without reasons during the last 30 days.
- *Outing with friends*: indicated how many times students go out with friends during last year. The exact wording is : *During last 12 months, how many times did you go out for the evening in discos, bars, to parties, etc.?* (never, a few times, one or twice per month, at least once a week or more often).

Alcohol consumption :

- *Drinking frequency and patterns*. Three variables are used, describing how many times students drank alcohol in the last 12 months, how many times they were drunk and how many times they drank at least 5 drinks on the same occasion during the last 30 days (binge drinking).

Other use of psychotropic substances

- *Daily tobacco use during the last 30 days*
- *Use of cannabis*: the number of use during the last 12 months was dichotomised: less than 10 times, 10-40 times and more.
- *Use of stimulants*: the number of use of ecstasy, cocaine, crack, and amphetamines during last 12 months was dichotomised : no use, 1-10 more uses.

Analyses were performed using SAS V9.03

We performed simple bivariate statistics with Chi-Square tests, a principal components analysis and a cluster analysis in order to describe the drinking patterns in France and Italy. Three analysis were performed in order to compare the risk factors for our outcome variables in both countries. First, an analysis using binary variables for alcohol use indicators. Second, an analysis using the clusters for pattern of use and third, an analysis using the principal components as patterns of use. For each analysis, we presented raw odds ratios and adjusted ones.

The cluster analysis was performed with the proc fastclus of the SAS statistical package which provides non hierarchical clustering using the Euclidian distances among individuals. The number of clusters was thus chosen according to the pseudo-F, Cubic clustering criterion and Overall R² statistics.

RESULTS

Table 1 presents the comparisons of the two national sample for sociodemographic characteristics and drinking patterns, the sex distribution are very similar in the two country: male are 50,1% in France and 52,4% in Italy. There are many difference in school functioning and leisure time, in the habit to outing with friends: French students go out less frequently than Italian and present a lower level of truancy, and have better marks at school.

There are some socio-demographic differences between the children of the two countries. A greater part of the French pupils were not able to describe the level of school of their parents (13,6% vs 4,1%), but the difference national differences are low when these non responses are omitted. The family structure of the pupils depend on the country, the French ones being more often in monoparental families instead of traditional families. French adolescents report a greater control of their outings on Saturday nights. Despite the definition of the parental warming, some little difference remain between the two countries, which is due to the procedure and is of no interest here.

Patterns of alcohol vary from a country to the other one. Frequency of drinking during the last 12 months is quite the same, but the binge drinking proves to be more frequent in France, as well as the drunkenness. French adolescents declare less fight during the last 12 months (12,2% vs 16,1%, $p < 0.0001$).

Finally, using cannabis 10 times or more during last 12 months prove to be similar in both countries, whereas tobacco use is higher in Italy, and use of stimulants is higher in France.

Additional analysis show that French adolescents declare a superior intake of beer (2,1 units vs 1,7, $p < 0,0001$) and spirits (2,1 vs 1,8, $p < 0,0001$) during their last drinking occasion (whereas the wine intake is almost the same, 1,5 vs 1,6 in Italy, $p = 0,39$), resulting in a superior alcohol intake in France (3,2 units vs 2,8, $p < 0,0001$). A similar relation is found for the perceived intensity of last drunkenness rated 4,8 in France and 3,2 in Italy ($p < 0,0001$) on a scale ranging from 1 (not drunk) to 10 (so drunk that I could not remember what happen).

We computed a principal components analysis on our three alcohol use indicators. The two first axis (eigenvalues= 1.96 and 0.57) explain 84.3% of the whole variance (65.3 for the first axis, 19.1% for the second). These principal components express themselves like this :

$$\text{prin1t} = 0.561509 * \text{alcohol} + 0.596406 * \text{binge} + 0.573592 * \text{drunk} ;$$

$$\text{prin2t} = 0.768606 * \text{alcohol} - 0.119146 * \text{binge} - 0.628529 * \text{drunk} ;$$

where *alcohol* stands for alcohol frequency of use during the last 12 months, *binge* stands for the frequency of binge drinking during last 30 days and *drunk* the frequency of drunkenness during the last 12 months.

We interpreted the first one as an *intensity of drinking*, cumulating both frequency of use and excessive punctual use leading to drunkenness. The second one is a index of *frequent moderate alcohol use*.

We performed a clustering analysis with our three alcohol use indicators. The results are shown in table 2.

Four clusters were found. Because of the definition of our outcome variable, the analysis is restricted to pupils who drank at least one time during the last 12 months: 2264 individuals in France and 6591 in Italy.

The first cluster comprises 7,9% of the sample. Two thirds (63,7%) of these pupils are boys and 31,8% are French, which is far over the mean (52,9% and 25,3% respectively). This cluster comprises the most heavy drinkers of the sample : 57,7% drank more than 40 times during the last 12 months, half declare more than 6 binge drinking episodes during the last 30 days and 43,3% were drunk more than 10 times during the last 12 months. They go out with friends almost everyday and present worse school functioning than the others, according to their average marks and truancy. They live more frequently in non traditional families, have less parental control on their outings and find less comfort with their parents. Finally, they declare the most frequent use of cannabis, tobacco and stimulants. It can be described as the one of *Intensive alcohol users*.

Cluster 2 comprises 21,3% of the sample. 27,2% are French and 61,9% are boys, which is over the average (25,3% and 52,9%). These pupils declare a quite frequent drinking during year, but only 19,7% did drink more than 40 times ; they all declare more than two episodes of binge drinking during the month, but only 20,2% did it more than 6 times. Only 58,9% of them were drunk during the year, but mainly 1 or 2 times and nobody was more than 10 times. These pupils spend less times with their friends than the ones from cluster 1, but going out is still very compare to the average. They declare a worse school functioning than the average and especially the pupils from clusters 3 and 4, but they declare better marks and less truancy than the individuals from cluster 1. They live more frequently in non traditional families than the average, but more often as the individuals in cluster 1. In their families, there is less parental control and less parental warming than the average, but these characteristics are less pronounced than in cluster 1. The level of education of their parents is a little bit lower compared to the average. Finally, their levels of use of cannabis, tobacco and stimulants are also very high, despite lower than in cluster 1, and so is their rate of alcohol related fight prevalence is 25,8%. This cluster can be described as the one of *Infrequent binge drinkers*.

Cluster 3 comprises almost half of the sample (49,8%). 23,8% are French, and 46,5% are boys, which is under the average rate. These pupils declare infrequent alcohol consumption during year, very few binge drinking episodes and drunkenness. They spend very few times with friends, have good marks at school and they miss it rarely. They come from traditional families with an mean level of education, receive comfort from their parents and their outings are very frequently controlled. Finally, they declare very rare levels of use of psychotropic drugs, especially illegal ones. The rate of alcohol related fights is the lowest (11,3%). This cluster can be described as the one of *Infrequent and moderate drinkers*.

Cluster 4 comprises 20,9% of the sample. 54,9% are male and the distribution of the nationalities is close to the average. These pupils declare very frequent alcohol use, but very rare binge drinking episodes (1 maximum) and quite rare drunkenness episodes (39,9% were drunk during year, but only 10% declare more than 3 episodes). The frequency of their outings is close to the average ; they have good scholar performances and are less frequently truants than the average. They belong to traditional families, with mean parental warming and control on the outings. The declared level of education of the parents is higher than the average. Finally these pupils present low level of use of psychotropic substances, but somewhat higher than those observed in cluster 3. The rate of alcohol related fight (14,6%) is just above the one observed in cluster 3, that is, just under the average (17,5%). This cluster can be described as the one of *Frequent moderate drinkers*.

This result illustrates the links between frequent alcohol use and drug use, poor family support, and fights. It also shows that French pupils are overrepresented among the most important drinkers, which proves that the pattern of alcohol use differs in the two countries.

Table 3 shows the results for bivariate analysis in France. All variables are significantly associated with the alcohol related fights. Boys are two-fold more frequently involved in fight than girls. There is a strong relationship with frequency of outings, and bad school functioning (namely the frequency of truancy and low marks). Concerning the family, people with parents having both completed some university declare less frequently a fight than the others, and the one coming from not traditional family declare more. The lack of parental control on outings and the lack of parental warming increase the frequency of fight. Cannabis, tobacco and stimulants uses are increasing the frequency of alcohol related fights.

Concerning alcohol, when considered independently, alcohol frequency consumption, drunkenness and binge drinking are strongly associated with alcohol related fights. But when considering the cluster analysis, clusters 1 and 2 present much higher prevalences than those from cluster 3 and 4. A similar result is obtained with the principal components: the link with the *Intensity of drinking* (namely variable Prin1t) is very strong, whereas the link with the *Frequent moderate alcohol use* (namely variable Prin2t) is negative ($OR < 1$) and non significant.

In Italy (Table 4), some bivariate associations are not significant, namely gender and level of education of the parents. The relationships between independent and dependent variable are generally weaker than in France, for example for outings, school functioning and type of family. The same results is observed for psychotropic drug use, both tobacco and illegal ones. Concerning alcohol indicators, the link is significant for the three binary indicators, despite much lower than in France. When considering the clusters, all clusters are associated with more frequent fights compared to cluster 3, whereas difference with cluster 4 was not significant in France. Finally, both of the principal components of alcohol use are significantly linked with alcohol related fights, whereas the second one was not in France.

This comparison suggests that : alcohol related fights are very masculine behaviours in France, but equally distributed in both genders in Italy, and that the fights seem more determined by socio-demographics characteristics in France, such as school performance, level of education of parents, etc. Another important result is that alcohol patterns of use prove to have different links with fights in both countries. In France, fights seem more dependent on alcohol use than in Italy. Furthermore, in France, cluster analysis and principal components analysis suggest that some patterns of use are not (see cluster 4 being not different from cluster 3) or are negatively (see Prin2t, described as *Moderate frequent alcohol use*) linked to alcohol related fight. This is not the case in Italy.

When adjusting on all these variables, the number of significant links diminishes dramatically, whatever the retained alcohol indicators are retained (model 1, 2 or 3). For France (Table 5), only 8 variables among 14 are significant in model 1, 7 among 12 in model 2, and 5 among 13 in model 3. Besides the alcohol indicators, the common significant cofactors in at least two models are: gender, outings with friends, level of education of the parents, parental control of the outings, daily tobacco and stimulants use.

Concerning the different alcohol indicators, in model 1 which considers only binary variables, only the frequency of binge drinking is significantly linked to the outcome variable, despite the fact that alcohol use and drunkenness are close to be significant. In model 2, which considers the clusters compared to cluster 3, only the cluster 1 and 2 present a increased prevalence of alcohol related fight, whereas cluster 4 proves to be non significantly different: $OR = 1.2$ (0.77-1.94). In model 3 which uses the principal components, we find a strong

positive association of alcohol related fight and *Intensive alcohol use* and a negative one with *Frequent moderate alcohol use*. This suggests again that in France, a certain pattern of use could be a protective factor for fights .

For Italy (table 6). Besides the alcohol use indicators, 8 variables are still significant in the multivariate model 1, 8 in the model 2 and 7 in the model 3. Gender, frequency of outings, truancy, lack of parental warming and of parental control on outings, cannabis, tobacco and stimulants use are at least significant in two of the three models. One important result is that girls fight more than boys because their alcohol use. The other one is that cannabis use appear to be protective. The link with school truancy is significant but quite modest, and the link with daily tobacco use is small and just significant in the two first models.

Concerning the alcohol indicators, alcohol use, binge drinking and drunkenness are strongly associated with alcohol related fight, and their effects are close from each others. In the model 2, when compared to cluster 3, clusters 2 and especially 1 present increased prevalence of alcohol related fights, but the cluster 4 is not significantly different. Finally, in the model 3, *Intensive use of alcohol* is positively linked to the outcome, but *Frequent moderate use of alcohol* is not significant, despite a small negative trend.

When comparing these two national profiles of associated factors, some results stand out. First, whereas fight is a very masculine behaviour in France, it is a feminine one in Italy. Then, the sociodemographics and familial characteristics, namely the level of education of the parents and their control of the outings of their children, appear more important than in Italy. In Italy, on the contrary, poor warming of the parents appear more important. The association with tobacco and stimulants is stronger in France, but none is measured with cannabis use, whereas cannabis smoking seems to be a protective behaviour in Italy. Finally, alcohol related fights are more determined by alcohol use patterns in France than in Italy. Moreover, one seems to be protective in France.

When France and Italy are compared by adjusting on all cofactors, French pupils tend to fight less than Italian ones, but the exact result depend on choice of the indicators for alcohol use. For the model 1 using only the binary variables, the Odds ratio for France compared to Italy is not significant: 0.9 (0.79-1.09). When using the clusters instead of the binary variables (model 2), the result is somewhat the same OR for France equals 0,9 (0,77-1,06). But when using the principal components instead of the clusters, French pupils appear to fight clearly less often than the Italian ones because of their alcohol use:OR=0,8 (0.68-0.87).

Table 1: Comparisons of the two national samples (%)

		FRANCE	ITALIE	P	N1	N2
Gender	Male	50,1	52,4		1421	4368
	Female	49,9	47,6	0,0335	1385	3963
Outings With friends During year	Never / rarely	37,7	17,2		1035	1424
	1-2 a month	32,6	15,6		896	1288
	Once a week	25,1	50,7		717	4195
	Almost everyday	4,6	16,6	<,0001	127	1374
Average marks at school	Good	48,8	42,6		1121	2859
	Median	31,2	32,7		707	2196
	Low	20,0	24,6	<,0001	440	1650
Truancy Last 30 days	0 days	75,6	50,8		2144	4231
	1 day	15,4	26,2		423	2183
	2 days and more	9,0	23,0	<,0001	239	1917
Max school level of parents	NR	13,6	4,1		388	342
	Secondary	31,9	35,7		903	2971
	University (1 parent)	24,5	25,3		693	2108
	University (2 parents)	30,0	34,9	<,0001	822	2910
Family	Traditional	72,7	80,3		1634	5387
	Other	27,3	19,7	<,0001	634	1318
Parental control of the Saturday outings	Always	61,6	54,3		1376	3476
	Often	22,5	24,5		507	1571
	Sometimes, rarely	15,9	21,2	0,0015	358	1359
Parental warming	High (75%)	76,3	79,0		1735	5294
	Low (25%)	23,7	21,0	0,0090	533	1411
Alcohol during Last 12 months	None	18,4	17,1		492	1382
	1-2	15,6	17,5		424	1417
	3-5	14,3	14,9		388	1201
	6-9	14,6	14,6		401	1184
	10-19	16,4	15,5		457	1255
	20-39	9,7	10,8		282	873
	40+	11,0	9,6	0,0000	316	775
Binge last 30 days	0	57,3	59,6		1560	4927
	1	14,7	14,9		411	1231
	2	9,9	9,7		286	805
	3-5	9,2	9,6		267	790
	6+	9,0	6,2	<,0001	263	512
Drunkenness Last 12 months	None	63,5	71,5		1725	5751
	1-2	22,2	17,3		622	1388
	3-5	8,1	5,6		227	448
	6-9	2,9	2,8		86	224
	10+	3,3	2,9	<,0001	93	231
Fight because of alcohol	Yes	12,2	16,1	<,0001	366	1322
Cannabis (10+ / 12M)	Yes	8,1	8,2	0,8772	233	668
Daily use of tobacco	Yes	16,8	25,0	<,0001	506	2038
Lifetime use of stimulants	No	8,1	5,9	<,0001	229	491

Table 2 : Cluster analysis

		1	2	3	4	Whole
N		711	1913	4472	1877	8973
%		7,9%	21,3%	49,8%	20,9%	100,0%
<i>Alcohol during*</i>	<i>None</i>					
<i>Last 12 months</i>	1-2	0,4	0,8	40,7	0,0	20,5
	3-5	0,6	6,0	32,9	0,0	17,7
	6-9	2,8	19,7	26,4	0,4	17,7
	10-19	16,2	30,3	0,0	54,2	19,1
	20-39	22,4	23,9	0,0	28,7	12,9
	40+	57,7	19,2	0,0	16,7	12,2
<i>Binge last 30 days*</i>	0	1,0	0,0	75,8	63,8	51,2
	1	3,1	0,0	19,1	36,2	17,3
	2	15,2	39,7	4,2	0,0	11,8
	3-5	30,2	40,1	0,9	0,0	11,4
	6+	50,5	20,2	0,0	0,0	8,3
<i>Drunkenness*</i>	<i>None</i>	0,0	41,1	83,6	60,1	63,1
<i>Last 12 months</i>	1-2	0,0	43,8	14,0	29,7	22,3
	3-5	24,9	14,3	2,1	7,3	7,6
	6-9	31,8	0,8	0,3	2,6	3,4
	10+	43,3	0,0	0,0	0,3	3,6
Country	France	31,8	27,4	23,8	24,2	25,3
	Italy	68,2	72,6	76,3	75,8	74,7
Fight because of alcohol	Yes	42,4	25,8	11,3	14,6	17,5
Gender	Male	63,7	61,9	46,5	54,9	52,9
	Female	36,3	38,1	53,5	45,1	47,1
Outings	Never / rarely	2,3	8,0	24,9	12,9	17,0
With friends	1-2 a month	9,3	16,1	23,9	20,1	20,3
During year	Once a week	54,1	52,5	42,8	53,4	47,9
	Almost everyday	34,3	23,5	8,5	13,7	14,8
Average marks at school	Good	33,2	35,4	49,4	45,8	44,4
	Median	34,3	37,2	30,5	31,1	32,4
	Low	32,5	27,4	20,1	23,2	23,3
Truancy	0 days	37,3	45,8	61,3	58,9	55,6
Last 30 days	1 day	24,2	24,7	23,2	22,8	23,5
	2 days and more	38,5	29,5	15,5	18,3	20,9
Max school	NR	7,6	6,8	5,2	4,8	5,6
level of parents	Secondary	32,2	36,0	35,7	31,0	34,5
	University (1 parent)	24,6	26,5	25,1	26,0	25,5
	University (2 parents)	35,6	30,7	34,1	38,3	34,4
Family	Traditional	69,1	74,8	80,3	80,3	78,3
	Other	30,9	25,3	19,7	19,7	21,8
Parental control	Always	31,1	42,2	66,7	54,1	56,1
of the Saturday outings	Often	23,5	28,6	20,7	27,7	24,0
	Sometimes, rarely	45,5	29,2	12,6	18,2	19,9
Parental warming	High (75%)	63,7	74,1	82,5	78,3	78,3
	Low (25%)	36,3	25,9	17,5	21,7	21,7
Cannabis (10+ / 12M)	Yes	45,6	15,7	2,1	8,3	9,7
Daily use of tobacco	Yes	69,2	43,4	15,5	23,9	27,4
Lifetime use of stimulants	Yes	30,9	12,8	2,2	4,6	7,2

* = Active variables

All associations significant, Chi-Square test, $p < .0001$

Table 3 : Raw Odds ratios for fight because of alcohol use in France

		OR	LCL	UCL
Sexe	Male	2,3	1,80	2,96
	Female			
Outings With friends During year	Never / rarely			
	1-2 a month	2,3	1,52	3,46
	Once a week	6,2	4,18	9,04
	Almost everyday	17,3	10,35	28,91
Average marks at school	Good			
	Median	1,3	0,97	1,69
	Low	2,0	1,47	2,64
Truancy Last 30 days	0 days			
	1 day	1,5	1,13	2,11
	2 days and more	3,3	2,34	4,70
Max school level of parents	NR	1,1	0,74	1,61
	Secondary			
	University (1 parent)	0,8	0,56	1,04
	University (2 parents)	0,7	0,49	0,90
Family	Traditional			
	Other	1,6	1,25	2,05
Low parental warming	Yes vs No	1,5	1,17	1,98
Parental control of the Saturday outings	Always			
	Often	1,7	1,23	2,26
	Sometimes	4,4	3,28	5,86
Cannabis	Yes vs No	5,1	3,72	6,89
Tobacco	Yes vs No	5,0	3,92	6,48
Stimulant	Yes vs No	5,1	3,75	6,98
Alcohol (12M)	20 +	3,3	2,59	4,32
Binge (30D)	3 +	5,7	4,42	7,26
Drunkenness (12M)	6 and more	5,7	4,09	7,87
Cluster	Cluster 3			
	Cluster 1	16,0	11,00	23,55
	Cluster 2	6,5	4,71	9,21
	Cluster 4	1,5	0,97	2,34
Principal components	Prin1t	1,6	1,55	1,75
	Prin2t	0,9	0,83	1,04

Table 4: Raw Odds ratios for fight because of alcohol use in Italy

		OR	LCL	UCL
Sexe	Male	1,0	0,85	1,10
	Female			
Outings With friends During year	Never / rarely			
	1-2 a month	1,3	0,95	1,77
	Once a week	2,5	1,92	3,22
	Almost everyday	3,3	2,49	4,36
Average marks at school	Good			
	Median	1,1	0,93	1,25
	Low	1,2	1,02	1,40
Truancy Last 30 days	0 days			
	1 day	1,3	1,10	1,51
	2 days and more	1,9	1,66	2,24
Max school level of parents	NR	1,4	0,74	2,50
	Secondary			
	University (1 parent)	0,9	0,76	1,05
	University (2 parents)	0,9	0,78	1,05
Family	Traditional			
	Other	1,4	1,24	1,67
Low parental warming	High (25 %)	1,7	1,47	1,95
Parental control of the Saturday outings	Always			
	Often	1,6	1,41	1,92
	Sometimes, rarely	2,2	1,91	2,60
Cannabis (10+/12M)	Yes vs No	1,8	1,49	2,19
Daily tobacco	Yes vs No	1,9	1,70	2,22
Stimulant (12M)	Yes vs No	3,2	2,55	3,90
Alcohol 12 months: 20 times +	Yes vs No	1,9	1,63	2,11
Binge 30 days : 3 +	Yes vs No	2,4	2,08	2,78
Drunkenness 12 months : 6+	Yes vs No	3,0	2,42	3,71
Cluster	Cluster 3			
	Cluster 1	4,4	3,57	5,49
	Cluster 2	2,2	1,83	2,53
	Cluster 4	1,3	1,10	1,55
Principal components	Prin1t	1,3	1,27	1,35
	Prin2t	1,1	1,01	1,12

Table 5 : Adjusted Odds ratios for fight because of alcohol use in France

		Model 1 Binary variables			Model 2 Cluster analysis			Model 3 Principal components		
		OR	LCL	UCL	OR	LCL	UCL	OR	LCL	UCL
Sexe	Male	2,2	1,63	2,89	2,1	1,57	2,79	2,2	1,65	2,97
	Female									
Outings With friends During year	Never / rarely									
	1-2 a month	2,0	1,32	3,13	1,8	1,17	2,81	1,8	1,14	2,76
	Once a week	2,9	1,87	4,46	2,5	1,63	3,95	2,4	1,55	3,81
	Almost everyday	4,0	2,20	7,28	3,6	1,96	6,51	3,3	1,78	6,12
Average marks at school	Good									
	Median	1,0	0,76	1,44	1,0	0,73	1,39	1,1	0,76	1,46
	Low	1,3	0,91	1,86	1,4	0,96	1,98	1,4	0,98	2,02
Truancy Last 30 days	0 days									
	1 day	0,9	0,62	1,30	0,9	0,60	1,26	0,8	0,58	1,23
	2 days and more	1,6	1,02	2,37	1,5	0,98	2,31	1,4	0,91	2,18
Max school level of parents	NR	1,1	0,70	1,73	1,1	0,70	1,76	1,2	0,73	1,84
	Secondary									
	University (1 parent)	0,7	0,47	0,95	0,7	0,48	0,97	0,6	0,44	0,90
	University (2 parents)	0,7	0,50	1,01	0,7	0,52	1,05	0,7	0,50	1,02
Family	Traditional									
	Other	1,2	0,93	1,67	1,3	0,96	1,71	1,2	0,92	1,67
Low parental warming	Low (25 %)	1,0	0,72	1,34	1,0	0,70	1,31	1,0	0,73	1,39
Parental control of the Saturday outings	Always									
	Often	1,1	0,77	1,52	1,1	0,75	1,49	1,0	0,74	1,48
	Sometimes, rarely	1,6	1,09	2,22	1,6	1,09	2,24	1,4	0,98	2,04
Cannabis (10+/12M)	Yes vs No	1,1	0,76	1,68	1,1	0,75	1,65	1,0	0,65	1,45
Daily tobacco	Yes vs No	1,9	1,42	2,66	1,8	1,28	2,42	1,7	1,23	2,35
Stimulant (12M)	Yes vs No	2,0	1,40	2,96	1,8	1,27	2,69	1,9	1,28	2,76
Alcohol 12 months : 20+ Binge 30 days: 3+ Drunkenness 12 months: 6 +	Yes vs No	1,4	0,98	1,85						
	Yes vs No	2,2	1,59	2,94						
	Yes vs No	1,4	0,92	2,08						
Cluster	Cluster 3				5,3	3,34	8,27			
	Cluster 1				3,5	2,40	5,02			
	Cluster 2				1,2	0,77	1,94			
	Cluster 4									
Principal components	Prin1t							1,4	1,30	1,52
	Prin2t							0,8	0,68	0,87

Table 6: Adjusted Odds ratios for fight because of alcohol use in Italy

		Model 1 Binary variables			Model 2 Cluster analysis			Model 3 Principal components		
		OR	LCL	UCL	OR	LCL	UCL	OR	LCL	UCL
Sexe	Male	0,8	0,74	0,98	0,8	0,74	0,97	0,8	0,72	0,95
	Female									
Outings	Never / rarely									
With friends	1-2 a month	1,2	0,90	1,72	1,2	0,89	1,70	1,2	0,87	1,66
During year	Once a week	2,0	1,51	2,59	2,0	1,51	2,59	1,8	1,39	2,40
	Almost everyday	2,0	1,44	2,65	1,9	1,44	2,64	1,8	1,32	2,43
Average marks at school	Good									
	Median	0,9	0,78	1,07	0,9	0,77	1,06	0,9	0,78	1,08
	Low	1,0	0,80	1,13	0,9	0,80	1,13	0,9	0,78	1,12
Truancy	0 days									
Last 30 days	1 day	1,1	0,90	1,25	1,1	0,90	1,25	1,0	0,88	1,23
	2 days and more	1,3	1,08	1,51	1,3	1,07	1,51	1,2	1,04	1,47
Max school level of parents	NR	1,3	0,68	2,55	1,3	0,65	2,46	1,3	0,68	2,56
	Secondary									
	University (1 parent)	0,9	0,76	1,07	0,9	0,76	1,08	0,9	0,75	1,06
	University (2 parents)	0,9	0,81	1,11	1,0	0,81	1,12	0,9	0,80	1,10
Family	Traditional									
	Other	1,2	0,98	1,35	1,2	0,98	1,36	1,1	0,96	1,33
Low parental warming	Low (25 %)	1,2	1,06	1,45	1,2	1,06	1,46	1,2	1,03	1,42
Parental control of the Saturday outings	Always									
	Often	1,4	1,15	1,60	1,4	1,14	1,59	1,3	1,10	1,53
	Sometimes, rarely	1,4	1,20	1,69	1,4	1,18	1,67	1,3	1,12	1,59
Cannabis (10+/12M)	Yes vs No	0,8	0,60	0,97	0,7	0,59	0,94	0,7	0,52	0,84
Daily tobacco	Yes vs No	1,2	1,02	1,41	1,2	1,01	1,38	1,1	0,95	1,31
Stimulant (12M)	Yes vs No	1,7	1,32	2,19	1,7	1,31	2,16	1,6	1,21	2,03
Alcohol 12 months : 20+	Yes vs No	1,3	1,08	1,46						
Binge 30 days: 3+	Yes vs No	1,5	1,24	1,77						
Drunkenness 12 months: 6 +	Yes vs No	1,4	1,11	1,84						
Cluster	Cluster 3									
	Cluster 1				2,7	2,11	3,56			
	Cluster 2				1,6	1,37	1,95			
	Cluster 4				1,1	0,95	1,37			
Principal components	Prin1t							1,2	1,19	1,30
	Prin2t							0,9	0,89	1,01

DISCUSSION

Our research aims to describe the risk factors for alcohol related violence among adolescents in France and Italy and to test the hypothesis that despite similar cultural backgrounds and similar alcohol use patterns, it remains differences between France and Italy concerning the alcohol related violence. Our results show that many of the associated factors for alcohol related fight are similar in the two countries. Truancy, parental control of the outings, tobacco use and use of stimulants are associated factors in both countries. But some differences are important. First of all, alcohol related fights are very masculine behaviours among French pupils, but are slightly feminine ones in Italy. Then, having parents with high level of education decreases the frequency of fights in France but not in Italy, whereas poor parental warming is non significant in France but in Italy. In France, tobacco use is a very important associated factor, but is a more moderate one in Italy; finally, cannabis use appears non significant in France but a protective factor in Italy. Alcohol related fights appear more clearly linked to some patterns of use of alcohol in France than in Italy, namely intensive use of alcohol. But as the results are more contrasted, one pattern of use seems clearly to protect people from alcohol related fight in France, whereas it is not the case in Italy.

In France, the use of cannabis is not significant, on the contrary with tobacco daily use. In Italy, the link with tobacco is very modest, but the one with cannabis appears to be significantly protective. This result was already seen previously (REF) in Italy. In France, previous result show that important cannabis use is linked to victimisation for both genders and linked with fight (whatever the circumstances or substances involved) among girls only (Lagrange et Legleye, 2007).

One important result is that the parental control and on a less extent parental warming (only in Italy) prove to be very important for predicting the alcohol related violence whereas the type of family is not. A previous analysis found that parental control was an important variable for predicting fight especially in response to an aggression (Lagrange et Legleye, 2007).

Our study suffers of certain limitations. First, the questionnaire does not detail the type of fight, nor its reason nor any circumstances of its occurrence. This can be a very important problem because the violent acts are generally a response to a certain situation which can greatly vary. Many studies found a link between aggressive behaviours and exposure to violence (Lagrange et Legleye, 2007; Wacquant, 2006; REF). The wording of the question does not implicate that the fight was itself was caused by the alcohol intoxication of the respondent but only that he participates to the fight because of its alcohol use. Again, this can reflect a certain type of circumstances : exposure to violence, etc. Furthermore, it does not

describe the type of intoxication during the fight nor the consequences of the fight, which implies that it is impossible to distinguish between arguments and intense assaults. Nevertheless, the question assess the concomitance of alcohol use and fight and that the relation is established by the respondent which makes the link between violent behaviour and alcohol quite explicit. The sole doubt we could express is the wrong attribution of concomitance or causality between alcohol and fight by the respondent. But such a misjudgement becomes very improbable when controlling for alcohol use patterns.

As alcohol related violence is a part of violence in general, it is necessary to adjust the analysis on propensity to violence in general in order to isolate the very effect of alcohol. Our study only provides some questions about seven adverse consequences of alcohol use during the last 12 months: accident or injury; problems with parents; problems with friends; bad results at school; to be victim of a theft; problem with police; to be admitted to hospital. These variables can not easily be considered as a proxy for violence or propensity to delinquency in general and the link with alcohol related fight is somewhat mechanic.

Truancy and average marks in school were included in the analysis as proxy for poor social competence, which can lead to violence. According to some authors, not succeeding at school may be encourage pupils to search for another source of individual reinforcement: drug use, transgression and violence in general may be seen as good means to gain some value among the group of peers during adolescence (Agnew, 1985, 1995; Fagan, 1990). Other sociologists think that drug use (including alcohol) and interpersonal violence may express psychological tension and discomfort and to cope with them by regaining some self esteem (Hoffmann et Su, 1997). This aspect was not considered here.

The gap between genders in violent behaviours and especially active violence is described in abundant literature (Butler, 1990; Chesney-Lind, 1997; Payne, 1996) : according to Chesney-Lind, feminine violence is more exceptional and requires specific circumstances to occur, compared to what is seen among men. Such result has been observed in a previous analysis of the Espad 1999 data as well as in another general survey among adolescents in France (Lagrange et Legleye, 2007). Our study does not compare the associated risk factors for alcohol related fight among gender, but points out that the gap between genders varies in France and Italy. Following our results, girls in Italy appear to be more violent because of alcohol than boys, which is not the case in France. These results call for further research. Our comparison between countries with multivariate logistic regression among boys only proves that French boys fight more often than Italian ones: OR=1,4 (1,17-1,79). The contrary is observed among girls: the corresponding odds ratio for French girls is 0.5 (0.41-0.68). This

result is not surprising because girls and boys present similar rates for our dependent variable in Italy, whereas alcohol related fight is more common among boys in France (see Table 1).

The choice of the indicators for describing alcohol patterns of use may be criticised. But the results remained unchanged when using alcohol use during the last 30 days instead as during the last 12 months. But we choose to use the longer period in order to cover the same timeframe than the outcome variable. Our analysis takes into account the possibility of interaction of the main three potential drinking patterns by using three kind of indicators. The use of binary variables provides simple and very readable statistics but hides many aspects of the problem and provides a poor adjustment on the patterns of use. The clustering analysis provides synthetic indicators which summarise combined aspects of the drinking habits. Then the use of the principal components provides a very precise adjustment on the drinking patterns with no risk of multicollinearity and hidden interactions. As a consequence, the results are more reliable but the number of significant association decreases and the results concerning the association with patterns of alcohol use as risk factors are less readable, despite a clear signification. The combination and comparison of these three classical methods provides a clear view of the phenomenon.

As many authors noticed [Stafström, 2007; Graham *et al.*, 1998; Rossow, 2001], the alcohol intake could have been introduced in the model. But the questions were optional : French questionnaire does not have the amount of Premix whereas it is a very popular drink in Italy (REF). Such asymmetry in the measurement should alter the reliability of the results. Moreover, the total amount of alcohol we could estimate for beer, wine and spirits prove to be highly correlated to the frequency of binge drinking during last 30 days. As this amount is only available for the last drinking occasion, we preferred not to use it.

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