

Economic crisis and changes in drug use in the Spanish economically-active population

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ABSTRACT

Aims To examine changes in the use of alcohol, cannabis and hypnotics/sedatives between two periods (pre-crisis and crisis), and to identify differences in the change between employed and unemployed individuals. **Design** Using cross-sectional data from four editions of the Spanish Household Survey on Alcohol and Drugs we selected economically active individuals aged 16-64 years (total sample=62,440) and defined two periods, pre-crisis (P1=2005-2007) and crisis (P2=2009-2011). Poisson regression models with robust variance were fitted to obtain prevalence ratios (PR) of heavy and binge drinking, and multinomial regression models to obtain relative risk ratios (RRR) of cannabis and hypnotic/sedative use, between the two periods, also considering the interaction between period and employment status. **Findings** While the prevalence of alcohol use remained stable, heavy drinking declined in P2 in men both overall (PR=0.73;95%CI:0.67-0.79) and in the two age groups (16-34 and 35-64), and in women also overall (PR=0.86;95%CI:0.75-0.99) and in the older age group. In contrast, binge drinking increased overall in men (PR=1.17;95%CI:1.12-1.22) and in women (PR=1.62;95%CI:1.49-1.76), and in both age groups. No differences in the change were observed between employed and unemployed individuals. Overall cannabis use remained stable in P2, but unemployed men and women of the older age group were more likely to have increased sporadic use compared to their employed counterparts (RRR=2.24;95%CI:1.36-3.68 and RRR=3.21;95%CI:1.30-7.93, respectively). Hypnotic/sedative use remained stable in P2 in men, but unemployed men were less likely to have increased heavy use in P2 compared to employed men (RRR=0.69;95%CI:0.49-0.97). In women, heavy use increased in P2 overall and in the older age group, irrespective of employment status. **Conclusion** In a period of economic recession heavy drinking decreased and binge drinking increased in Spain. Sporadic cannabis use increased among older unemployed men and women. Heavy use of hypnotics/sedatives increased among employed men while older women increased use irrespective of employment status.

Keywords Alcohol use, cannabis use, hypnotics and sedatives, economic recession, unemployment

INTRODUCTION

The global financial crisis that began in 2007/2008, with the collapse of large financial institutions and the fall of stock markets worldwide, triggered the worst global economic recession since World War II. In Spain, after more than a decade of continuous growth, by the end of 2007 the economy began to show signs of collapse following the fall of the housing market. The economy experienced a rapid contraction and this had a devastating impact on employment. Unemployment rates rose from 8.3% in 2007 to 20.1% in 2011 and up to 26.4% in 2013 [1].

Economic downturns have been associated with increased psychological distress, use of mental health facilities and suicide rates [2-4]. There is also extensive evidence that both unemployment and the fear of unemployment have adverse consequences for the health of individuals [5-8]. Although those who become unemployed during a recession may have worse health compared with others, those who remain employed may also be affected through a loss of income or job security [9,10]. Recent research on the health effects of the economic crisis in the Spanish population has found an increase in the prevalence of poor mental health among men [11], a negative impact of unemployment on self-assessed health and mental health [12], and an increase in mental health disorders, including alcohol-related disorders, in people attending primary care centres [13].

Poor mental health is a predictor of health-compromising behaviours [14] and unemployment has been associated with increased unhealthy behaviours, including substance use [15,16]. Therefore, it could be hypothesized that an increase in either poor mental health or unemployment as a result of the economic crisis has resulted in an increase in the use of addictive substances.

The relationship between alcohol use and economic conditions is not straightforward. Some studies have found an association between unemployment peaks and significant declines in alcohol use [17,18] and alcohol problems [19], concluding that alcohol consumption increases in periods of economic growth, and that changes during economic downturns are mostly driven by decreases in heavy drinking [18]. Conversely, other studies have found binge drinking to increase with deteriorating macroeconomic conditions [20-22], even among those who remained employed [20], and despite an overall decline in the prevalence of alcohol use.

Research on changes in substance use in periods of economic downturn has chiefly focused on alcohol, overlooking other substances. The few studies that have analysed the effects of macroeconomic circumstances on illicit drug use suggest that young individuals might use

them more frequently during periods of recession with high unemployment rates [23-25]. It has been argued that recessions would directly lead to more drug dealing, mostly due to the lack of legal employment opportunities. Moreover, with less income available some people may start selling to help pay for their own drugs. An increase in the number of people selling drugs would make it easier to obtain drugs and the price may also be lower due to greater competition, all leading to increases in drug use [24]. Besides, people would tend to use more cannabis to cope with increasing levels of anxiety and distress in a deteriorating economic context, and with more free time available the relative value of drug use may be greater [19,20,23].

The use of prescription drugs such as hypnotics and sedatives typically lacks the social-recreational component of alcohol or cannabis and their use can be more easily linked to poor mental health. Therefore, an increase in their use might be indicative of increased levels of anxiety and distress. Moreover, it has been argued that the use of prescribed mood-altering drugs is more common among groups of people who are less likely to use alcohol or other drugs, e.g. women [26].

The objectives of this study were to analyse changes in the use of alcohol, cannabis and hypnotics/sedatives between 2005-2007, when Spanish economy was still growing, and 2009-2011, with the recession in progress, using representative samples of economically active men and women; and to identify differences in the change between employed and unemployed individuals.

METHODS

Study population

All data were drawn from the Spanish Household Survey on Alcohol and Drugs (EDADES). EDADES is a biennial nationwide representative survey of the population aged 15 to 64 years to monitor its use of drugs. A tri-stage clustered probability sample without substitution is applied considering census tracts, homes and individuals. The sample is disproportional by regions with respect to their population and by age, oversampling young population. Response rates of about 50% for each edition are taken into account in the original sample size calculation. Using data from four editions (2005, 2007, 2009 and 2011), for the purpose of this study we selected those individuals over 15 years old currently working or unemployed at the time of the survey, after excluding all economically inactive individuals (students, homemakers, pensioners and disabled), obtaining a total sample size of 62,440 (2005=18,446; 2007=15,071; 2009=13,048 and 2011= 15,875).

Dependent variables

Substance use data came from the survey's self-administered standardised questionnaire with separate modules for each substance. Two measures of alcohol use were employed. The first one was the daily average of alcohol intake in the last 30 days calculated in grams of pure ethanol, considering the standard drink unit that varies for each kind of drink, the number of units and their frequency, and differentiating between weekday and weekend consumption. Individuals reporting any drinking were classified according to their daily average of alcohol intake: men consuming up to 39.99g and women consuming up to 23.99g were categorised as moderate drinkers (reference category), and those who reported daily averages above these levels (≥ 40 g for men and ≥ 24 g for women) were categorised as heavy drinkers [27]. The second measure of binge drinking registered those reporting having had five or more drinks on a single drinking occasion (within two hours) at least once in the previous month in editions 2005 and 2007. Editions 2009 and 2011 used different levels for men and women to define binge drinking (five or more drinks for men and four or more for women). No binge drinking was taken as reference category.

The use of cannabis and of hypnotics/sedatives was estimated from the question that registers the number of days the individual has used the substance in the last 30 days. Individuals reporting no use were categorised as non-users (reference category), those having used it from 1 to 9 days were categorised as sporadic users, and those reporting use from 10 to 30 days as heavy users. Use of hypnotics/sedatives was recorded regardless of a mediating prescription.

Independent variables

A variable was created to identify the two periods of study. Individuals from editions 2005 and 2007 were classified as pre-crisis or Period 1 (reference category) and individuals from editions 2009 and 2011 as crisis or Period 2. Regarding employment status, individuals were classified as currently working (reference category) or unemployed.

The following covariates were considered: age; educational level grouped into three categories: up to primary school, secondary level, and university degree (reference category); self-reported health collapsed into poor health including very poor, poor and fair, and good health including good and very good (reference category); and partner status (reference category: partnered).

Statistical analysis

Poisson regression models with robust variance were fitted to obtain the prevalence ratio (PR) and 95% confidence interval (CI) of heavy and binge drinking, between period and employment status. Non-drinkers were excluded from the analyses. Multinomial regression models were used to obtain the relative risk ratios (RRR) and 95%CI of cannabis and hypnotics/sedatives use (three-category variables: no use, light use and heavy use). Analyses were done separately for men and women and further stratified by age groups (16-34 and 35-64). The interaction between period (pre-crisis or crisis) and employment status (employed or unemployed) was also included in the models if statistically significant. The models were adjusted for the covariates. Analyses were performed applying sample weights to restore the proportionality of the sample using SPSS statistical software v.18©.

RESULTS

Descriptive characteristics of the sample are presented in table 1. In the total sample of 62,440 individuals (58% men), the percentages of unemployed rose from 9.8% for men and 15% for women in Period 1 to 28% and 26%, respectively, in Period 2. Higher rates of unemployment were found among the younger age group, those with low educational level, those reporting poor health and the non-partnered. In men, while the prevalence of non-drinking was similar between periods (around 25%), mean alcohol use among drinkers differed significantly (16.9 g/day in Period 1 and 15.1 g/day in Period 2, $p < .001$). Differences between periods were also observed in the prevalence of heavy drinking (6.9% and 5.2%, $p < 0.001$) and binge drinking (19.3% and 22%, $p < .001$). In women, differences in mean alcohol use among drinkers were also significant between periods (7.7 g/day in Period 1 and 7.1 g/day in Period 2, $p = .002$), with similar prevalence of non-drinking (around 46%). Significant differences between periods were also found in heavy drinking (3.3% and 2.8%, $p = .013$) and in binge drinking (7.1% and 10.1%, $p < .001$). Regarding employment status, higher prevalence of non-drinking, heavy drinking and binge drinking were observed among unemployed men, especially in Period 2. In the case of women, a higher prevalence of non-drinkers was also found among the unemployed, whereas binge drinking was more prevalent among the employed, but only in Period 1. See Appendix table A1 for detailed figures by age groups.

In men, no significant differences between periods were found for cannabis (5.6% and 5.2% for sporadic use and 6.0% and 5.7% for heavy use, respectively), while in women differences between periods were significant for sporadic use (3.1% in Period 1 and 2.4% in Period 2, $p < .001$), but not for heavy use (around 2%). Conversely, differences between periods for hypnotics/sedatives were significant for both sporadic use (1.2% in Period 1 and 1.6% in Period 2, $p = .005$) and heavy use (1.8% and 2.1%, respectively, $p = .005$) in men, while in women

differences were non-significant for sporadic use (2.1% and 2.4%), while they were significant for heavy use (3.7% and 5.4%, $p < .001$). Regarding employment status, higher prevalence of sporadic and heavy use of both cannabis and hypnotics/sedatives was observed among unemployed men in both periods. In the case of women, significant differences between employed and unemployed were found for sporadic and heavy use of cannabis only in Period 2, and for heavy use of hypnotics/sedatives in both periods.

The results of the adjusted Poisson regressions (table 2) showed that for both men and women, heavy drinking displayed a significant downward trend in Period 2 overall (PR=0.73; 95%CI 0.67-0.79 in men and PR=0.86; 95%CI 0.75-0.99 in women), and in both age groups in men (PR=0.79; 95%CI 0.69-0.91 in the younger age group and PR=0.69; 95%CI 0.62-0.77 in the older), but only in the older age group in women (PR=0.73; 95%CI 0.59-0.90). Significant differences were also observed between employed and unemployed men with increased likelihood of heavy drinking among the group of unemployed men overall (PR=1.21; 95%CI 1.09-1.34) and in the older age group (PR=1.35; 95%CI 1.17-1.55), while no significant differences were found for heavy drinking between employed and unemployed women.

In contrast, binge drinking displayed a significant upward overall trend for both men and women (PR=1.17; 95%CI 1.12-1.22 in men and PR=1.62; 95%CI 1.49-1.76 in women), and in both age groups, with no differences between employed and unemployed men, while differences in women were only significant among the younger age group, where unemployed women were less likely to engage in binge drinking (PR=0.87; 95%CI 0.78-0.98). No significant interactions were observed between period and employment status for heavy or binge drinking in either men or women, indicating no differences in the change between periods among employed and unemployed individuals.

In the adjusted multinomial regression models (table 2), sporadic cannabis use presented a significant interaction between period and employment status in men and women overall, whereby unemployed individuals were more likely to have increased sporadic use of cannabis in Period 2 compared to their employed counterparts (RRR=1.40; 95%CI 1.10-1.77 in men and RRR=1.68; 95%CI 1.17-2.41 in women). This interaction was also observed among the older age group in both men (RRR=2.24; 95%CI 1.36-3.68) and women (RRR=3.21; 95%CI 1.30-7.93). There was a decrease in Period 2 in younger women, while sporadic use of cannabis was more likely among unemployed men. Regarding heavy cannabis use, differences between periods were not significant, while it was significantly more likely among unemployed men both overall and by age group, and overall and in the older group only in women.

No changes in sporadic use of hypnotics/sedatives were observed between periods in either men or women, though unemployed men were more likely to engage in sporadic use than employed men overall (RRR=1.64; 95%CI 1.33-2.02) and by age group (table 2). Besides, sporadic use was less likely among unemployed women, both overall (RRR=0.76; 95%CI 0.61-0.94) and in the younger age group compared to their employed counterparts. Regarding heavy use of hypnotics/sedatives, although it was also more likely among unemployed men, a significant interaction between employment status and period overall revealed that unemployed men were less likely to have increased heavy use compared to employed men in Period 2 (RRR=0.69; 95%CI 0.49-0.97), but this interaction did not show up in the age-stratified analyses. For women the results showed an increase of heavy use of hypnotics/sedatives in Period 2 overall (RRR=1.32; 95%CI 1.17-1.49) and in the older age group (RRR=1.37; 95%CI 1.20-1.57), with a higher likelihood among the unemployed, overall and in both age groups.

DISCUSSION

This study of changes in drug use based on representative samples of the Spanish economically active population in a period of economic recession reveals that for both men and women, irrespective of employment status, there was a reduction in heavy drinking in Period 2, except for the younger group of women who did not experience changes. In contrast, binge drinking increased for both men and women and in both age groups, also irrespective of employment status. On the other hand, while cannabis use remained mostly unchanged between the two periods of study, unemployed men and women were more likely to have increased sporadic use of cannabis in Period 2, overall and among the older age group, compared to their employed counterparts. Conversely, employed men were more likely to have increased heavy use of hypnotics/sedatives overall compared to the unemployed while in women it increased overall and in the older age group, irrespective of employment status.

Despite manifest differences in the levels of consumption, overall alcohol use trends between men and women are similar. However, heavy drinking did not register changes in the group of younger women, in line with a registered increase of alcohol use among the younger cohorts of women [28]. Differences in consumption between employed and unemployed individuals were also noticeable by sex. While unemployed men were more likely to engage in heavy drinking, there were no differences between employed and unemployed women. Moreover, while there were no differences among employed and unemployed men for binge drinking, employed women of the younger age group were more likely to engage in binge drinking than their unemployed counterparts. These results illustrate persistent differences in men's and women's drinking behaviour as well as changes linked to gender roles [29].

Our results match those found in other studies in the United States that have registered a decrease in the prevalence of heavy alcohol use in periods of economic recession [17,18], and also those that have registered an increase of binge drinking [20-22]. The disparity of results related to drinking patterns could be explained by competing hypotheses dealing with the effects of economic downturns on alcohol abuse, described by Catalano [30]. According to this perspective, less income available to purchase alcohol might be behind the decrease of heavy drinking, a regular pattern of excessive drinking. Conversely, binge drinking, a pattern of excessive drinking involving intoxication, would increase as a means to deal with anxiety and emotional distress related to job loss, whether real or threatened, and to financial hardship.

Other studies considering drinking practices among countries argue that a process of change in the pattern of alcohol use is taking place in Mediterranean countries such as Spain, where alcohol has been traditionally embedded in daily life and wine drunk regularly with meals. This change would involve a decrease in the daily use of wine in parallel with an increase of other types of drinks and of binge drinking episodes, with a tendency towards a homogenisation of drinking patterns across countries [31]. A decrease in the daily average of alcohol use has been observed in Spain since the late eighties, currently making binge drinking the most common pattern of excessive drinking [32]. This broader perspective of drinking trends helps us to understand how any influence of economic conditions would develop within these secular changes. The fact that no differences in the change were observed in our study between employed and unemployed individuals would emphasise the relevance of general trends in alcohol use.

Although alcohol dependence or alcohol-related problems were not measured in this study, the exposure to excessive alcohol use in periods of economic downturn may intensify adverse consequences for population health, particularly among the most vulnerable [33]. An increase of alcohol-related disorders reported in this period may already be reflecting this situation [13].

Our results differ from those of other studies that have registered an increase in cannabis use among young individuals in periods of recession [23-25]. According to our results, both sporadic and heavy use remained stable among the younger age-group, and sporadic use even decreased among younger women. As an illegal but increasingly tolerated substance, cannabis use has become very common in Spain. The prevalence of last-month use had been growing steadily since the late nineties and reached a peak in 2005 when it began to show signs of stabilisation [34]. Preventive measures set up in 2004 that included an informative strategy to

increase awareness of the risks associated with its use in the general population, and an educational plan addressed to school-age individuals and key social agents [35], may have favoured this change of trend.

However, our results indicate that unemployed men and women of the older age-group were more likely to have increased sporadic use of cannabis than their employed counterparts. Cannabis use is much more prevalent among young people and it could be argued that the lack of employment opportunities in this period had no impact on the use of the drug among this group in a context of high youth unemployment in Spain. Besides, older people may have initiated or increased use as a way to cope with anxiety in a situation of unemployment, when the relative value of drug use is greater due to the availability of more free time.

Steady increases in the use of hypnotic and sedative drugs have been reported in Spain since the nineties [36]. The use of prescription drugs of this type is more prevalent among older women and our results also point to an increase in heavy use among this group in the period studied, with no differences in the increase by employment status. Conversely, employed men were more likely to have increased heavy use in this period compared with their unemployed counterparts. A study of the relation between work-related stress factors and the use of hypnotics/sedatives in the Spanish working population revealed that those reporting precarious working conditions, including insecurity concerning the future of the job, were more likely to use this type of drugs, especially men [37].

It has been suggested that men are more affected than women by changes in the economic cycle [38,39]. Likewise, other studies posit that psychotropic drug use in men would be influenced by specific socio-occupational factors while in women there would be specific medical factors [40]. It could be argued that difficulties perceived in the environment and/or threat of job loss would lead to an increase in the prevalence of poor mental health among older men as described in other studies [11], subsequently increasing their use of psychotropic drugs. Unemployment has affected women to a lesser extent compared to men, however, it has also been contended that in periods of economic crisis women tend to intensify their work, as the production of household goods and services would increase to make up for the loss of income [41]. Therefore, more research including information on domestic workload is necessary in order to better understand women's health and their use of these prescription drugs in times of recession.

Some limitations of this study need to be mentioned. The first is that differences in drug use between two periods have been analysed using cross-sectional data of different individuals.

Therefore, it is not possible to establish a causal chain between an individual employment status and his use of substances. Secondly, database information deficits prevented us from taking into account possible clustering effects due to the sample design which may have biased the estimates. However, as this would typically affect results with borderline significance and most of the associations obtained were robust, we believe the impact of this limitation on our results would be very small. Another limitation is the possibility of reporting bias affecting the validity of self-reported measures of drug use. In the case of alcohol, survey measures tend to underestimate the amount of alcohol consumed [42]; however, other studies suggest that both sporadic and heavy drinkers are likely to declare the actual amount [43]. The design of the EDADES questionnaire permitted an accurate calculation of the average alcohol use per day. However, regarding binge drinking, editions 2005 and 2007 used a single measure for the two sexes while in 2009 and 2011 the question included separate measures. This may have resulted in an underestimation of the prevalence of binge drinking among women in the former editions, thus affecting the differences observed between periods. Changes in the data collection between editions may also have affected reported use of hypnotics/sedatives. In the 2005 and 2009 editions information on the use of these substances was collected in a joint module together with other substances, while in 2007 and 2011 they had independent modules. However, the under-reporting derived from shared modules would affect both periods of study alike. Besides, the inclusion in 2011 of the main generic names and commercial brands for these substances in the question may have helped respondents to identify them leading to higher reporting levels. However, while we would expect this change in the question to help sporadic users to recall use, registered increases were stronger in heavy use. Lastly, the high rate of non-response might be affecting prevalence estimates as persons unavailable or refusing to participate may share specific characteristics with respect to drug use. However, this selection bias would affect both periods similarly. Similarly, unemployed individuals could be over-represented in our sample as they would be more available to participate in the survey.

Some caution has to be applied as to the generalisation of the results of this research as different contexts in other countries or settings may lead to different effects [44]. The changes in drug use in a period of economic recession identified in this study have to be understood in a broader context considering ongoing developments and policies related with each substance [45]. The effects of economic instability on health and on health-related behaviours might also depend on the level of social protection as it has also been argued that the effects of

unemployment on mental health would be less in countries with strong employment protection systems compared to those where they are poor [6].

In conclusion, our results indicate the persistence of overall trends in the patterns of alcohol, cannabis and hypnotic/sedative use in the period of economic recession, but also point to some deviations on these trends that may be attributed to the effects of deteriorating economic conditions. Policies to limit alcohol availability and the maintenance of social systems to protect individuals in situations of unemployment and economic hardships, and strategies to guarantee secure employment conditions are important to prevent mental health deterioration and substance abuse during economic recessions.

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Table 1. Descriptive characteristics of the sample by period and working status

	MEN						WOMEN							
	Period 1 2005-2007		Period 2 2009-2011		Period 1 2005-2007		Period 2 2009-2011		Period 1 2005-2007		Period 2 2009-2011			
	Total	Total	Employed	Unemployed	Employed	Unemployed	Total	Total	Employed	Unemployed	Employed	Unemployed		
<i>N</i>	18712	16303	16616	2096	11534	4769	14805	12620	12367	2438	9122	3498		
%	58,6	56,7	90,2	9,8	72,2	27,8	41,1	43,3	85,0	15,0	74,0	26,0		
<i>Age mean</i>	38,4 (SD11,2)	39,4 (SD 11,0)	38,8 (SD11,0)	35,2 (SD12,3)	40,2 (SD10,7)	37,4 (SD11,5)	37,0 (SD10,8)	38,8 (SD10,8)	37,2 (SD10,7)	35,6 (SD11,5)	39,4 (SD10,5)	37,2 (SD11,4)		
	%	%	%	%	%	%	%	%	%	%	%	%		
Age groups			p<.001		p<.001				p<.001		p<.001			
<i>16 to 34</i>	40,5	36,3	86,9	13,1	66,1	33,9	45,8	38,6	83,0	17,0	69,8	30,2		
<i>35 to 64</i>	59,5	63,4	92,4	7,6	75,7	24,3	54,2	61,4	86,7	13,3	76,6	23,4		
Education			p<.001		p<.001				p<.001		p<.001			
<i>Low</i>	16,2	17,8	84,4	15,6	58,8	41,2	13,1	13,9	79,3	20,7	64,0	36,0		
<i>Intermediate</i>	62,5	64,3	90,5	9,5	71,9	28,1	60,3	61,2	84,1	15,9	71,7	28,3		
<i>High</i>	21,4	17,9	93,8	6,2	86,6	13,4	26,6	24,8	89,9	10,1	85,1	14,9		
Self-reported health			p<.001		p<.001				p<.001		p<.001			
<i>Good</i>	88,3	88,6	89,2	80,0	90,1	84,9	86,9	86,3	87,7	82,8	88,0	81,6		
<i>Poor</i>	11,7	11,4	10,8	20,0	9,9	15,1	13,1	13,7	12,3	17,2	12,0	18,4		
Partnered			p<.001		p<.001				p=.002		p<.001			
<i>Yes</i>	60,1	61,1	93,9	6,1	77,4	22,6	59,7	60,7	85,8	14,2	75,1	24,9		
<i>No</i>	39,9	38,9	84,7	15,3	64,0	36,0	40,3	39,3	83,9	16,1	72,3	27,7		
Substance use			p-value						p-value					
Alcohol use			p=.001			p<.001					p=.305			
<i>Mean g/day</i>	16,9 (SD 20,3)	15,1 (SD 21,7)	p<.001	16,7 (SD 19,8)	19,3 (SD 25,0)	14,5 (SD 21,4)	16,9 (SD 22,3)	7,7 (SD 10,9)	7,1 (SD 11,6)	p=.002	7,6 (SD 10,9)	8,0 (SD 10,9)	7,0 (SD 11,8)	7,4 (SD 10,7)
<i>Non-drinking</i>	25,4	25,6	p=.705	24,4	34,8	23,3	31,4	46,4	45,6	p=.163	45,6	50,9	44,0	50,1
<i>Heavy drinking (≥40g/≥24g)</i>	6,9	5,2	p<.001	6,8	8,0	4,7	6,6	3,3	2,8	p=.013	3,3	3,3		2,7
<i>Binge drinking(at least once)</i>	19,3	22	p<.001	19,0	21,6	21,1	24,2	7,1	10,1	p<.001	7,2	6,0	10,1	10,1
Cannabis use			p=.001		p<.001					p=.805		p<.001		
<i>Sporadic (1-9 days)</i>	5,6	5,2	p=.164	5,4	7,2	4,4	7,4	3,1	2,4	p<.001	3,2	3,1	2,1	3,4
<i>Heavy (10-30 days)</i>	6,0	5,7	p=.344	5,4	11,3	4,4	9,3	2,0	1,9	p=.588	1,9	2,3	1,6	2,5
Hypnotics/sedatives use			p=.004		p<.001					p=.065		p=.041		
<i>Sporadic (1-9 days)</i>	1,2	1,6	p=.005	1,1	1,9	1,3	2,1	2,1	2,4	p=.097	2,2	1,6	2,6	2,0
<i>Heavy (10-30 days)</i>	1,8	2,1	p=.005	1,5	4,1	1,8	3,1	3,7	5,4	p<.001	3,3	5,6	4,6	7,8

N from raw data; % from weighted data. P-values correspond to X² or T-Student tests.

Table 2. Prevalence ratios (PR) of heavy and binge drinking and relative risk ratios (RRR) of cannabis and hypnotics/sedatives use by period and activity (total and by age group) in men and women*.

		MEN				WOMEN			
		ALCOHOL		ALCOHOL		ALCOHOL		ALCOHOL	
		Heavy drinking	Binge drinking	Heavy drinking	Binge drinking	Heavy drinking	Binge drinking	Heavy drinking	Binge drinking
		PR (CI95%)	p-value	PR (CI95%)	p-value	PR (CI95%)	p-value	PR (CI95%)	p-value
<i>Poisson regression models (non-drinkers excl.): Heavy drinking vs moderate drinking. Binge drinking vs no binge drinking.</i>									
Total									
Period (ref. pre-crisis)	<i>Crisis</i>	0.73 (0.67-0.79)	p<.001	1.17 (1.12-1.22)	p<.001	0.86 (0.75-0.99)	p=.039	1.62 (1.49-1.76)	p<.001
Activity (ref. employed)	<i>Unemployed</i>	1.21 (1.09-1.34)	p<.001	1.03 (0.98-1.08)	p=.293	1.02 (0.86-1.21)	p=.836	0.94 (0.86-1.04)	p=.235
16-34 years old									
Period (ref. pre-crisis)	<i>Crisis</i>	0.79 (0.69-0.91)	p=.001	1.17 (1.10-1.23)	p<.001	0.99 (0.82-1.19)	p=.883	1.64 (1.49-1.82)	p<.001
Activity (ref. employed)	<i>Unemployed</i>	1.04 (0.89-1.23)	p=.604	1.00 (0.94-1.07)	p=.904	0.96 (0.76-1.19)	p=.686	0.87 (0.78-0.98)	p=.026
35-64 years old									
Period (ref. pre-crisis)	<i>Crisis</i>	0.69 (0.62-0.77)	p<.001	1.17 (1.10-1.25)	p<.001	0.73 (0.59-0.90)	p=.003	1.57 (1.37-1.81)	p<.001
Activity (ref. employed)	<i>Unemployed</i>	1.35 (1.17-1.55)	p<.001	1.07 (0.98-1.16)	p=.127	1.07 (0.82-1.40)	p=.629	1.07 (0.90-1.27)	p=.450
<i>Multinomial regression models: Three categories (sporadic use and heavy use vs non-use).</i>									
		CANNABIS		CANNABIS		CANNABIS		CANNABIS	
		Sporadic use	Heavy use	Sporadic use	Heavy use	Sporadic use	Heavy use	Sporadic use	Heavy use
		RRR (IC95%)	p-value	RRR (IC95%)	p-value	RRR (IC95%)	p-value	RRR (IC95%)	p-value
Total									
Period (ref. pre-crisis)	<i>Crisis</i>	0.90 (0.81-1.01)	p=.069	0.94 (0.86-1.03)	p=.198	0.77 (0.64-0.91)	p=.003	1.11 (0.92-1.32)	p=.274
Activity (ref. employed)	<i>Unemployed</i>	1.04 (0.86-1.27)	p=.677	1.52 (1.37-1.69)	p<.001	0.84 (0.64-1.11)	p=.223	1.13 (0.92-1.39)	p=.237
Interaction Activity/Period	<i>Unemployed/Crisis</i>	1.40 (1.10-1.77)	p=.006+			1.68 (1.17-2.41)	p=.005+		
16-34 years old									
Period (ref. pre-crisis)	<i>Crisis</i>	0.95 (0.84-1.07)	p=.372	0.95 (0.85-1.06)	p=.347	0.79 (0.66-0.94)	p=.008	1.16 (0.94-1.43)	p=.159
Activity (ref. employed)	<i>Unemployed</i>	1.24 (1.08-1.43)	p=.002	1.54 (1.36-1.74)	p<.001	1.01 (0.83-1.25)	p=.897	0.97 (0.77-1.24)	p=.830
35-64 years old									
Period (ref. pre-crisis)	<i>Crisis</i>	0.87 (0.73-1.04)	p=.132	0.87 (0.74-1.03)	p=.102	0.92 (0.67-1.27)	p=.610	0.88 (0.62-1.25)	p=.487
Activity (ref. employed)	<i>Unemployed</i>	0.77 (0.49-1.21)	p=.261	1.48 (1.21-1.81)	p<.001	0.62 (0.27-1.41)	p=.253	1.66 (1.11-2.50)	p=.014
Interaction Activity/Period	<i>Unemployed/Crisis</i>	2.24 (1.36-3.68)	p=.001+			3.21 (1.30-7.93)	p=.011+		
<i>Multinomial regression models: Three categories (sporadic use and heavy use vs non-use).</i>									
		HYPNOTICS/SEDATIVES		HYPNOTICS/SEDATIVES		HYPNOTICS/SEDATIVES		HYPNOTICS/SEDATIVES	
		Sporadic use	Heavy use	Sporadic use	Heavy use	Sporadic use	Heavy use	Sporadic use	Heavy use
		RRR (IC95%)	p-value	RRR (IC95%)	p-value	RRR (IC95%)	p-value	RRR (IC95%)	p-value
Total									
Period (ref. pre-crisis)	<i>Crisis</i>	1.17 (0.97-1.40)	p=.095	1.19 (0.99-1.42)	p=.062	1.15 (0.98-1.35)	p=.091	1.32 (1.17-1.49)	p<.001
Activity (ref. employed)	<i>Unemployed</i>	1.64 (1.33-2.02)	p<.001	2.27 (1.73-2.97)	p<.001	0.76 (0.61-0.94)	p=.013	1.57 (1.37-1.79)	p<.001
Interaction Activity/Period	<i>Unemployed/Crisis</i>			0.69 (0.49-0.97)	p=.032+				
16-34 years old									
Period (ref. pre-crisis)	<i>Crisis</i>	1.29 (0.93-1.78)	p=.129	0.87 (0.63-1.22)	p=.426	1.17 (0.88-1.55)	p=.287	1.12 (0.86-1.45)	p=.405
Activity (ref. employed)	<i>Unemployed</i>	1.68 (1.19-2.37)	p=.003	2.23 (1.58-3.14)	p<.001	0.62 (0.42-0.92)	p=.017	1.64 (1.24-2.16)	p=.001
35-64 years old									
Period (ref. pre-crisis)	<i>Crisis</i>	1.10 (0.88-1.37)	p=.414	1.12 (0.94-1.33)	p=.217	1.14 (0.93-1.38)	p=.201	1.37 (1.20-1.57)	p<.001
Activity (ref. employed)	<i>Unemployed</i>	1.63 (1.25-2.13)	p<.001	1.69 (1.39-2.06)	p<.001	0.85 (0.65-1.10)	p=.208	1.57 (1.35-1.82)	p<.001

* Adjusted for age, educational level, self-reported health and partnership.

† Model including interaction Activity*Period

APPENDIX.-

Table A1. Prevalence of substance use by age group and period.

	16 to 34 years old			35 to 64 years old		
	2005-2007	2009-2011	p-value	2005-2007	2009-2011	p-value
	%	%		%	%	
MEN						
Mean g/day	12.7 (S D 19.9)	11.2 (SD 19.6)	p<.001	12.6 (SD 18.4)	11.3 (SD 19.9)	p<.001
Non-drinking	25.7	26.1	p=.611	25.2	25.3	p=.877
Heavy drinking (≥40 g)	7.4	5.5	p<.001	6.6	5.1	p<.001
Binge drinking (at least once)	26.7	30.2	p<.001	14.2	17.2	p<.001
Cannabis sporadic use (1-9 days)	9.5	9.0	p=.288	2.9	3.1	p=.370
Cannabis heavy use (10-30 days)	10.7	11.1	p=.410	2.7	2.6	p=.626
Hypnotics/sedatives sporadic use (1-9 days)	1.0	1.4	p=.015	1.4	1.7	p=.118
Hypnotics/sedatives heavy use (10-30 days)	1.1	1.1	p=.811	2.2	2.7	p=.011
WOMEN						
Mean g/day	4.6 (SD 9.6)	4.5 (SD 11.0)	p=.588	3.7 (SD 8.2)	3.4 (SD 7.9)	p=.067
Non-drinking	44.8	44.5	p=.745	47.8	46.3	p=.055
Heavy drinking (≥24 g)	4.0	4.0	p=.986	2.7	2.0	p=.005
Binge drinking (at least once)	9.9	15.3	p<.001	4.6	6.9	p<.001
Cannabis sporadic use (1-9 days)	5.5	4.1	p=.001	1.1	1.3	p=.258
Cannabis heavy use (10-30 days)	3.2	3.5	p=.387	0.9	0.8	p=.669
Hypnotics/sedatives sporadic use (1-9 days)	1.6	1.8	p=.451	2.5	2.8	p=.308
Hypnotics/sedatives heavy use (10-30 days)	1.9	2.4	p=.088	5.1	7.3	p<.001