

Epidemiology of Alcohol Abuse Among Spanish Immigrant Populations

Epidemiología del abuso de alcohol entre la población inmigrante en España

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Abstract

In recent years, the immigrant population has substantially increased in Spain. However, there is a lack of information in the knowledge of alcohol abuse among Spanish immigrants. We describe the epidemiology of alcohol abuse among foreign-born immigrants versus Spanish natives. We carried out a cross-sectional study that uses data from the European Survey of Health on the General Population of Spain of 2009. A sample of 22,188 subjects was analyzed (of whom, 3,162 were foreign). Proxies of problematic alcohol consumption were the prevalence of excessive average consumption and the prevalence of excessive episodic consumption (*binge drinking*). Descriptive analysis of the population, determination of area of origin with major alcohol consumption and related factors for each kind of consumption, separating immigrant and native population, were performed. The immigrant profile was heterogeneous, though predominantly aged between 35 and 54, and were living with their family and working. 3.4% of immigrants and 3.2% of natives were considered excessive drinkers; 8.9% and 10%, respectively, reported binge drinking in the last year. Immigrants from Northern and Western Europe, and Latin America, Andean countries had significantly a higher report of frequent alcohol consumption and/or binge drinking compared to native. On the contrary, born in Africa was a protective factor. Unemployment was the most relevant related factor, being more important in the immigrant population. The excessive alcohol consumption in immigrants is dissimilar; the interventions must be adapted to their social situation, environments and areas of origin.

Key words: Immigrant status; Alcohol abuse; Alcohol dependence; Excessive drinking.

Resumen

A pesar del gran incremento de la población inmigrante en los últimos años, su uso de alcohol está poco estudiado. Se describe la epidemiología del consumo de riesgo de alcohol en la población inmigrante residente en España, frente a la nativa. Se emplearon datos de 22188 respondientes a la Encuesta Europea de Salud de 2009, de los que 3162 eran extranjeros. Como indicadores de consumo problemático se usó la prevalencia de consumo excesivo promedio y el consumo excesivo episódico. Se realizaron análisis descriptivo de la población, determinación de zonas de procedencia con mayor consumo de alcohol y factores relacionados para cada tipo de consumo separando población inmigrante de autóctona. El perfil sociodemográfico del inmigrante fue heterogéneo, aunque predominantemente de entre 35 y 54 años, que vive en familia y trabaja. Se consideraron bebedores excesivos promedio al 3,4% de los inmigrantes por el 3,2% de los nativos, y bebedores excesivos episódicos en el último año el 8,9% frente al 10%. Los inmigrantes procedentes de Europa del Norte y del Oeste, y América latina, países andinos, fueron aquellos que presentaron mayores razones de prevalencia de bebedores de riesgo que la población nativa. Por el contrario, proceder de África fue un factor protector. De los factores relacionados con un mayor consumo, destaca el desempleo, siendo más relevante en la población inmigrante. El consumo excesivo de alcohol en inmigrantes es muy heterogéneo, debiendo adecuarse las intervenciones sobre el mismo a su situación social, diferentes entornos y áreas de procedencia.

Palabras clave: Inmigración, Uso de alcohol, Dependencia de alcohol, Consumo excesivo de alcohol.

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Alcohol consumption is one of the principal factors of risk of illness and early death worldwide (World Health Organization (WHO), 2014; Lim et al., 2012). It is related to the risk of dependency, hepatic cirrhosis, high accident rates and other major health problems (Anderson P, 2012). However, despite the enormous weight of illnesses associated with alcohol consumption, public health interventions to reduce its impact continue to be insufficient (WHO, 2014). Many consequences of problematic alcohol consumption depend on the patterns of quantity or volume, and on the frequency with which it occurs. Basically, two types of harmful alcohol consumption (HAC) are differentiated: high weekly excessive average consumption (EAC) (WHO, 2000), and excessive episodic consumption (EEC), known also in the literature as binge drinking, which implies heavy alcohol consumption over short periods (Valencia-Martin, Galan, and Rodriguez-Artalejo, 2007). Although both types of consumption have common consequences, such as hypertension, pancreatitis and hepatic pathology, EEC is more closely related to traffic accidents and episodes of violence (WHO, 2014). The factors that determine alcohol consumption are multiple; either individual, such as educational levels or genetic traits (Martínez-Hernández, Mari-Klose, Julia, Escapa, and Mari-Klose, 2012), group or contextual. Among the latter, economic development, cultural level, the availability of alcohol or the effectiveness of social or health policies of each country are important (WHO, 2010; Babor et al., 2007; Rehm, Rehm, Shield, Gmel and Gual, 2013). These factors determine the differences in the level of consumption among population groups or nations (Anderson P, 2012). In this sense, the enormous geographic mobility between countries observed in recent years poses new social and health challenges. There are often inequalities in the level and the determining health factors between the country of origin of the immigrant and the host country. These differences have variable effects on the health of immigrants and natives (MacPherson and Gushulak, 2001). While it is often assumed that immigrants have a poorer level of health, the “healthy immigrant effect” is well documented: the recently-arrived who have mean levels of health that are higher than their peers in the country of origin or even better than that of their peers in the host country (De Maio, 2010). Nevertheless, this is not necessarily so for the most mutable factors that determine health such as alcohol use patterns (Gutmann, 1999). The epidemiology of alcohol consumption among immigrants in Spain has scarcely been studied despite the significant increase in this population. In recent years, the non-autochthonous population has quadrupled to the extent that they now represent 10% of the population resident in Spain (Permanent Immigration Observatory [OPI in its Spanish initials], 2006). Some studies indicate that immigrants have a lower prevalence of alcohol consumption than the native population (Carrasco-Garrido, de Miguel, Barrera, and Jimenez-García, 2007). At the same

time they point out that this is not homogeneous and that it depends on the country of origin (Marsiglia, Kulis, Luengo, Nieri, and Villar, 2008). Regarding their risk factors, studies carried out outside Spain show that they are heterogeneous. Immigrants acquire patterns of their country of origin, while at the same time their alcohol consumption may increase owing to processes of maladaptation, such as the process of acculturation or migratory stress, related to the new host country (Mills and Caetano, 2012; Zamboanga, Schwartz, Jarvis, and Van, 2009).

The objective of this study is to determine, separately for the autochthonous population and for immigrants in Spain, the prevalence of excessive average and episodic alcohol consumption, as well as socio-demographic factors associated with these indicators.

Method

Design, population and data collection

The data analyzed in this study come from the 2009 European Survey of Health, framed within the proposal of the European Commission to create a European system of health information. The survey has as an objective to provide information on the health of the population resident in Spain in a way that is harmonized and comparable with the rest of Europe, with the aim of planning and evaluating interventions in matters of health (National Statistics Institute (INE in its Spanish initials), 2009).

The survey was aimed at the overall group of persons resident in main family households throughout Spain. The participants were selected by means of a three-stage sampling with stratification of the units in the first stage. These were the census tracts that existed in January of 2008, whose selection was carried out by probability proportional to their size. The second-stage units were the main family households of the selected sections and were obtained from the Continuous Register Statistics. The selection of households was carried out by means of a systematic sampling with random start and equal selection probabilities for each household in the tract. Finally, within each household one adult person (over the age of 16) was selected (with the same probability) from those that comprised the household. To facilitate estimations with an acceptable degree of reliability at national and regional (that of autonomous communities) level, 1927 census tracts, and 12 households per tract, were selected. Data collection took place between April 2009 and March 2010 by means of computer assisted personal interviews (CAPI), except for the questions concerning “spending from your own pocket”, and consumption of tobacco, alcohol and drugs, which were self-administered with the aim of preserving confidentiality and facilitating truthfulness in responses. The present study was carried out on all the participants in the survey with the exception of those whose country of origin and/or their alcohol consumption were unknown (n=22.188).

Variables and Definitions

Of the five sections on the questionnaire, for this study the modules concerning socio-demographic characteristics, state of health and factors determining the same were analyzed. Regarding variables of interest, an "immigrant" was considered to be a person whose country of origin (of birth) was not Spain. In view of the heterogeneity of the countries of origin and the impossibility of carrying out a country-by-country analysis of the data, these were grouped into areas of origin following the classification used by the United Nations Organization (WHO, 2006): Europe (subdivided into North, South, East and West); Latin America (subdivided into the Southern Cone and the Andean Region); Central America, the Caribbean and Mexico; Africa; other countries and Spain. The dependent variables were: excessive average consumption, defined as the average consumption over the last 12 months $>40\text{g/day}$ (men) or $>20\text{g/day}$ (women) of pure alcohol, and excessive episodic consumption, defined as the consumption at least once in the last 12 months of six alcoholic drinks or more on the same occasion.

The independent variables analyzed were: gender, age (16-34, 35-54 and 55 or over), area of residence in Spain (South: Andalusia, Murcia, the Canary Islands, Ceuta and Melilla; East, Region of Valencia, Catalonia and the Balearic Islands; Centre, Madrid, Castilla-La Mancha and Extremadura; and North), size of the municipality of residence, domestic or familial situation (living alone, with a partner, with or without children, and others), educational level, employment situation, perceived state of health, self-referred bouts of anxiety or depression over the last 12 months, exposure to violence or vandalism, smoking and consuming cannabis, cocaine, amphetamines, ecstasy or similar substances over the last 12 months.

Analysis

Firstly, a descriptive analysis of the characteristics of the sample group, stratifying by area of origin, was carried out. The relationships between the different areas (including Spanish origin) and between foreign and autochthonous origin were analyzed by means of Chi-square test correlations (Table 1). Later, to evaluate the influence of the area of origin on the indicators of alcohol consumption (EAC and EEC), Poisson regression models with robust variance were adjusted, obtaining adjusted prevalence ratios (aPR) for each area of origin in relation to the autochthonous population and the corresponding confidence intervals at 95% (CI95%) (Spiegelman and Hertzmark, 2005). The adjustment variables that were introduced for each of the models (EAC and EEC) were those that showed $p < 0.10$ in the bivariate analysis with the overall sample group. Finally, and separately for immigrants and autochthonous population, the factors related to each one of the indicators of alcohol consumption considered were identified, using once again

Poisson regression models with robust variance and the aPR as a measure of effect. The independent variables included in each of the models were those that showed a $p < 0.05$ in the previous bivariate analyses. In the regression models for samples of immigrants, additional adjustments were made by area of origin.

Results

Characteristics of the Sample

The immigrants who live in Spain, analyzed as a whole, are above all young people aged between 16 and 34, who reside in the east of Spain, in large urban areas, with their families, who work and have secondary-level studies; approximately half of them are women. Their state of health is good or very good, with a self-referred prevalence of depression in the last year that is lower than that of the autochthonous population (55.5% and 10.1% respectively) and are little exposed to violence. If we compare this profile with that of the autochthonous populations, what is highlighted is their low age (16.1% were over 55 as opposed to 36.1% of the autochthonous population) and a higher educational level (22.6% had studied at university level as opposed to 11.7% of the autochthonous population).

Stratifying by area of origin, more heterogeneous characteristics are observed, with the areas that are furthest away from the average profile described being: Northern Europe –where the population over 55 (53.4%), residency in smaller populations of fewer than 10,000 inhabitants and the inactive employment situation predominated– and Africa, where the immigrants with only primary studies predominated.

Disparities in alcohol consumption between natives and immigrants of different origins

The prevalence of excessive average consumption (EAC) of alcohol among immigrants and natives was of 3.4% and 3.2% respectively while the prevalence of excessive episodic consumption (EEC) was of 8.9% among immigrants as opposed to 10.0% among natives. The differences in these prevalences according to the area of origin were notable, with the first varying between 7.0% for Northern Europe and 0.5% for Africa (in fact only two people from this area indicated EEC), and the second between 15.0% and 2.7% for the same areas of origin (Table 1). Adjusting for the confounding factors identified in the bivariate analysis, immigrants from Northern and Eastern Europe were those who presented a greater risk of EEC than the autochthonous population (aPR=0.16%; CI95% 0.04-0.67). regarding EAC, the areas of origin with a risk that was significantly greater than that of the natives were Northern Europe (aPR1.81 CI95% 1.25-2.62); and those with a significantly lower risk were from Africa (aPR=0.20 CI95% 0.11-0.37) and Eastern Europe (aPR=0.74 CI95% 0.58-0.96) (Tabla 2).

Table 1. Socio-demographic characteristics and prevalence of risky alcohol consumption of the whole population by country of origin

Area of origin														
	Eastern Europe ¹ (n=524)	Northern Europe ² (n=220)	Southern Europe ³ (n=126)	Western Europe ⁴ (n=243)	Latin America Southern Cone ⁵ (n=383)	Latin America Andean Region ⁶ (n=854)	Central America, Caribbean and Mexico ⁷ (n=184)	Africa ⁸ (n=475)	Other countries ⁹ (n=153)	Spain (n=19025)	Abroad (n=3162)	Total (n=22188)	p-value [*] between areas ^{**}	p-value [*] Spain Vs. Abroad
Male	47,1%	51,8%	67,2%	44,9%	50,4%	42,2%	31,0%	56,9%	54,2%	49,2%	49,5%	49,0%	<0,001	0,117
Age														
16-34 years	56,5%	19,5%	35,7%	25,1%	59,3%	54,6%	40,2%	59,4%	52,9%	27,8%	44,8%	31,0%		
35-54 years	39,3%	27,1%	42,1%	49,4%	35,2%	40,6%	46,2%	34,9%	36,6%	36,1%	39,1%	36,5%		
55 and over	4,2%	53,4%	22,2%	25,5%	5,5%	4,8%	13,6%	5,7%	10,5%	36,1%	16,1%	32,6%	<0,001	<0,001
Area of residence in Spain														
South of Spain ¹	16,0%	41,6%	22,2%	22,6%	20,4%	18,7%	23,2%	32,6%	22,2%	25,4%	24,4%	25,1%		
East of Spain ¹	34,4%	52,1%	35,7%	51,9%	46,5%	34,4%	28,6%	39,8%	48,4%	27,6%	41,3%	29,3%		
North of Spain ¹	17,9%	2,3%	23,8%	11,1%	13,1%	13,8%	21,1%	14,1%	14,4%	27,0%	14,6%	25,2%		
Centre of Spain ¹	31,7%	4,1%	18,3%	14,4%	20,1%	33,1%	27,0%	13,5%	15,0%	20,0%	19,7%	20,4%	<0,001	<0,001
Size of town/city of residence														
<10 000 inhabitants	18,3%	34,8%	19,0%	18,1%	6,3%	6,6%	6,0%	18,1%	3,9%	21,7%	14,6%	20,5%		
10 000 - 50 000 inhabitants	30,2%	30,3%	39,7%	34,2%	32,1%	23,8%	27,7%	27,1%	26,8%	25,6%	30,2%	26,0%		
>50 000 inhabitants	51,5%	34,8%	41,3%	47,7%	61,6%	69,7%	66,3%	54,8%	69,3%	52,7%	55,2%	53,5%	<0,001	<0,001
Living situation														
Alone	6,9%	16,4%	16,7%	16,0%	7,3%	4,7%	8,2%	7,1%	7,8%	9,0%	10,1%	8,9%		
With partner and/or children	66,9%	78,6%	67,5%	73,3%	64,2%	63,9%	66,8%	62,2%	54,9%	79,2%	66,5%	77,3%		
Other	26,3%	5,0%	15,9%	10,7%	28,5%	31,5%	25,0%	30,7%	37,3%	11,7%	23,4%	13,7%	<0,001	<0,001
Educational level														
Primary studies or lower	17,6%	9,5%	32,0%	11,2%	14,4%	18,2%	17,4%	50,8%	24,8%	39,2%	21,8%	36,8%		
Secondary	67,4%	55,0%	50,8%	53,9%	65,4%	65,7%	60,3%	43,0%	39,2%	44,1%	55,7%	46,2%		
University studies	15,1%	35,5%	17,2%	34,9%	20,2%	16,0%	22,3%	6,1%	35,9%	16,7%	22,6%	17,0%	<0,001	<0,001
Employment situation														
Employed	60,5%	36,7%	54,4%	50,8%	60,0%	60,7%	52,2%	42,3%	68,0%	46,5%	54,0%	47,7%		
Unemployed	22,1%	10,4%	17,6%	14,9%	18,9%	22,0%	26,6%	30,2%	21,3%	11,6%	20,5%	13,0%		
Other ⁸	17,4%	52,9%	28,0%	34,3%	21,1%	17,3%	21,2%	27,4%	10,7%	41,9%	25,6%	39,3%	<0,001	<0,001
Excessive Average Consumption ^a	4,8%	7,0%	1,7%	6,9%	1,7%	3,4%	4,5%	0,5%	0,0%	3,2%	3,4%	3,2%	<0,001	0,362
Excessive Episodic Consumption ^b	10,4%	15,0%	5,0%	11,7%	11,8%	13,3%	7,8%	2,7%	2,1%	10,0%	9,9%	10,0%	<0,001	0,478
Perceived state of health ^c														
Good or very good	76,0%	86,8%	78,6%	79,0%	83,3%	79,6%	78,9%	85,5%	81,7%	69,2%	81,0%	70,9%		
Regular, poor or very poor	24,0%	13,2%	21,4%	21,0%	16,7%	20,4%	21,1%	14,5%	18,3%	30,8%	19,0%	29,1%	<0,001	<0,001
Bouts of Anxiety or Depression ^c	4,2%	0,9%	8,7%	3,7%	7,6%	7,1%	8,2%	4,2%	3,3%	10,1%	5,3%	9,4%	<0,001	<0,001
Exposure to delinquency, violence or vandalism ^c														
Very exposed	2,9%	2,7%	4,0%	1,3%	2,9%	7,0%	4,3%	3,8%	5,9%	3,5%	3,9%	3,6%		
Somewhat exposed	12,5%	17,3%	19,8%	15,8%	12,3%	13,4%	16,2%	11,3%	14,4%	14,8%	14,8%	14,6%		
Not exposed	84,7%	80,0%	76,2%	82,9%	84,9%	79,6%	79,5%	84,8%	79,7%	81,7%	81,4%	81,8%	<0,001	0,032
Smokes every day	52,4%	18,0%	40,8%	34,2%	27,1%	12,0%	19,2%	18,4%	14,8%	26,3%	26,3%	25,3%	<0,001	0,144
Consumption of cannabis, cocaine, amphetamines, ecstasy o similar ^c														
Yes	3,0%	9,4%	21,4%	8,9%	9,0%	4,1%	1,1%	5,1%	4,4%	5,4%	7,4%	5,4%	<0,001	0,031
No	97,0%	90,6%	78,6%	91,1%	91,0%	95,9%	98,9%	94,9%	95,6%	94,6%	92,6%	94,6%	<0,001	0,031

* Note. For Chi-square tests; **Spain was analyzed as an area; α In the last 12 months; β Students or persons in training with unpaid internship, retired, declared unfit for work, homemakers and others

1. a male drinker of >40g/day or female drinker of >20g/day of Alcohol; b Has drunk 6 or more alcoholic drinks on the same occasion at least once in the last 12 months.

1 Czech Rep, Bulgaria, Hungary, Poland, Romania, Rep. of Moldova, Russian Federation, Ukraine; 2 Denmark, Finland, Lithuania, Norway, Sweden, United Kingdom of Great Britain and Northern Ireland, Isle of Man; 3 Andorra, Bosnia-Herzegovina, Croatia, Greece, Italy, Portugal, Serbia and Montenegro, Slovenia; 4 Belgium, France, Germany, Switzerland; 5 Argentina, Brazil, Chile, Uruguay, Paraguay; 6 Colombia, Ecuador, Peru, Venezuela; 7 Belize, Costa Rica, Cuba, Dominica, Guatemala, Honduras, Martinique, Mexico, Nicaragua, Panama, Puerto Rico, Dominican Republic, Trinidad and Tobago; 8 South Africa, Algeria, Burkina Faso, Burundi, Cameroon, Cabo Verde, Ivory Coast, Egypt, Gabon, Gambia, Ghana, Guinea, Equatorial Guinea, Guinea-Bissau, Mauritania, Mali, Morocco, Mozambique, Nigeria, Senegal, Western Sahara, Tunisia; 9 Afghanistan, Armenia, Bangladesh, Belarus, Canada, China, United States of America, The Philippines, Georgia, India, Iran, Iraq, Israel, Japan, Jordan, Pakistan, Republic of Korea, Syria, Sri Lanka, Uzbekistan.

I Andalusia, Murcia, Canarias, Ceuta-Melilla; II Valencia, Baleares, Cataluña; III Aragón, Rioja, Navarra, País Vasco, Cantabria, Asturias, Galicia, Castilla-La Mancha, Extremadura.

Table 2.

Disparity in prevalences of excessive alcohol consumption (average and episodic) between native Spaniards and immigrants of different origins

	Excessive average drinker							Excessive episodic drinker						
	N	%	cPR	aPR ^{1,2}	95%	CI	p-value	N	%	cPR	aPR ¹	95%	CI	p-value
Area of Country of Origin														
Spain	566	3,1	1	1				1814	10,0	1	1			
Eastern Europe	23	4,8	1,33	1,02	0,65	1,59	0,934	52	10,4	1,00	0,74*	0,58	0,96	0,021
Northern Europe	13	7	2,14**	2,28**	1,29	4,05	0,005	31	15,0	1,30	1,81**	1,25	2,62	0,002
Southern Europe	2	1,7	0,53	0,27	0,06	1,11	0,069	6	5,0	0,51	0,15**	0,05	0,46	0,001
Western Europe	15	6,9	2,16**	2,12**	1,29	3,49	0,003	26	11,7	1,17	1,10	0,78	1,55	0,576
Latin America Southern Cone	6	1,7	0,6	0,55	0,26	1,16	0,115	44	11,8	1,22	0,87	0,67	1,12	0,279
Latin America Andean Region	27	3,4	1,1	1,36	0,93	1,99	0,113	110	13,3	1,32**	1,24*	1,03	1,50	0,020
Mexico, Central America and Caribbean	8	4,5	1,37	1,77	0,90	3,48	0,101	14	7,8	0,82	1,04	0,64	1,70	0,865
Africa	2	0,5	0,16	0,16	0,04	0,67	0,012	11	2,7	0,25**	0,20**	0,11	0,37	0,000
Other countries	0	0		N.A			N.A	3	2,1	0,21**	0,20**	0,07	0,61	0,005

Note. cPR: Crude Prevalence Ratio; aPR: Adjusted Prevalence Ratio. 95% CI: Confidence Interval at 95%. * $p > 0,05$, ** $p < 0,01$ N.A: Non-applicable
Analysis adjusted by: (1) Gender, Age, Area of Residence, Size of Municipality, Domestic/Family Situation, Educational Level, Employment Situation, Perceived State of Health, Anxiety or Depression, Smokes daily and has consumed other substances in the last year. (2): Exposure to vandalism or delinquency.

Factors associated with alcohol consumption in natives and immigrants

Several factors are associated with a greater prevalence of EAC in both natives and immigrants: being under the age of 34 and taking illegal drugs. A greater exposure to violence, living in the Centre of Spain and being unemployed are associated with a greater prevalence in the immigrant population but not so in the native population (Table 3).

Regarding EEC, four factors related to a greater prevalence of the same were identified in both populations: being a man, being below the age of 35, smoking every day and taking other drugs. In addition, solely in the immigrant population were these factors identified as being related to a greater prevalence: living in urban areas with more than 50,000 inhabitants as opposed to those of fewer than 10,000, being unemployed, enjoying good health, living alone and being exposed to vandalism (Table 4).

Discussion

The prevalence of excessive average alcohol consumption is greater among the native population, while that of excessive episodic consumption is greater among the immigrant population, even though neither of these differences are significant. There are, however, great disparities within the immigrant population if the area of origin is looked at in detail. Then it can be observed that the immigrants from European countries, especially those from Western and Northern Europe, show prevalences that are greater than those of the autochthonous population while the prevalences of those coming from Africa are lower. These disparities, which coincide with the findings of other studies (Adrian, 1996; Conde and Herranz, 2004), persist after adjusting for other possible confounding factors, for which reason they would not be attributable simply to different socio-demographic patterns.

This heterogeneity in consumption in the so-called “immigrant population” is one of the principal messages of this study. The arrival of immigrants to Spain, which has occurred in a way that could hardly be described as staggered, has given rise to an image of a “collective” with very few differences within it. This does not correspond to reality and does not help when it comes to setting up social intervention programs that are adjusted to the different subgroups (Conde and Herranz, 2004). The profiles of these persons vary greatly from one to another area of origin. From the profile of the older person, possibly already retired, essentially originating from European countries, with a good socio-economic level that predominates in Spain’s coastal regions to the profile of the young, male immigrant who has come from a developing country and who belongs to what has been called the category of “economic immigrant” (OPI, 2006). It is highly possible that these profiles have a correlation with alcohol consumption, for which reason it would be necessary to confirm this by means of studies designed ad hoc to adjust policies to the needs of the most vulnerable groups.

This study also focused on the factors related to the patterns of consumption studied. Highlighted globally is the scarce coincidence between the factors associated with EAC between immigrants and natives, while the number of common factors that are associated with EEC is much greater between the two populations. The greater vulnerability of the over-35s for each patterns is clear, both among immigrants and among natives. This is the age at which alcohol consumption has most risen, especially in the form of EEC (Donath et al., 2011; Valencia-Martin et al., 2007). For that reason this study does nothing more than emphasize the need to prioritize interventions aimed at young people, whatever their origin. As well as this, there are other specific aspects that contribute to the vulnerability of the immigrant population in relation to the consumption of alcohol, and that

Table 3.

Factors associated with excessive average alcohol consumption between immigrants and natives

	Immigrants					Natives				
	n	%	cPR	aPR	CI95%	n	%	cPR	aPR	CI95%
Gender										
Man	43	3,2	1			355	4,1	1		
Woman	54	3,5	1,2	1,1	0,7-1,7	211	2,3	0,6*	0,8*	0,7-1
Age										
16-34	57	3,9	1			210	4,2	1		
35-54	28	2,5	0,6*	0,5*	0,3-0,9	226	3,5	0,8*	0,8	0,6-1,1
55 and over	12	3,8	0,9	0,9	0,5-1,6	131	2,1	0,4*	0,7*	0,5-1
Area of residence in Spain										
South ^I	17	2,5	1			160	3,5	1		
East ^{II}	36	3,2	1,4	1,3	0,7-2,4	75	1,6	0,4*	0,4*	0,3-0,6
North ^{III}	13	3,0	1,3	1,7	0,9-3,8	184	3,8	1,1	1,1	0,8-1,3
Centre ^{IV}	30	4,7	1,9*	2*	1,1-3,9	147	4,2	1	1,0	0,8-1,3
Size of town/city of residence										
<10 000 inhabitants	14	3,6	1			148	3,8	1		
10 000 - 50 000 inhabitants	23	2,7	0,7			121	2,7	0,7*	0,8	0,6-1,0
>50 000 inhabitants	60	3,6	1,0			297	3,2	0,9	0,8	0,6-1,0
Living Situation										
Alone	15	6,2	1			61	3,8	1		
Other forms of co-habitation	28	3,7	0,6	0,6	0,3-1,1	80	4,2	1,1	1,0	0,7-1,4
With partner and/or children	54	2,9	0,5*	0,8	0,4-1,6	426	3,0	0,8*	0,8*	0,6-1
Educational level										
Primary studies or lower	10	1,6	1			172	2,6	1		
Secondary (including baccalaureate and professional studies)	64	3,7	2,2*	1,4	0,7-2,7	290	3,7	1,5*	1,2	1-1,5
University studies	23	4,2	2,5*	1,5	0,7-3,1	104	3,5	1,5*	1,4*	1-1,8
Employment situation										
Employed	48	3,0	1			319	3,8	1		
Unemployed	37	6,0	2*	2,2*	1,5-3,3	106	5,1	1,3*	1,1	0,9-1,4
Others ^β	12	1,9	0,7	0,4*	0,2-0,8	137	1,9	0,5*	0,7*	0,6-0,9
Perceived state of health^α										
Good or very good	84	3,6	1			443	3,6	1		
Regular, poor or very poor	12	2,2	0,6			123	2,4	0,7*	0,9	0,7-1,1
Bouts of anxiety or depression^α										
Si	3	2,0	1			24	1,4	1		
No	93	3,4	1,7			543	3,4	2,4*	1,9*	1,3-3,0
Exposure to delinquency, violence or vandalism^α										
A lot	9	7,8	1			23	3,8	1		
Some	11	2,9	0,3*	0,4*	0,2-0,5	100	3,9	0,8	0,8	0,5-1,3
None	75	3,2	0,4*	0,5	0,2-1,1	443	3,1	0,7*	0,8	0,5-1,2
Smokes daily										
No	63	2,9	1			226	1,7	1		
Yes	33	5	1,4			340	7	5*	3,1*	2,6-3,8
Consumption of cannabis, cocaine, amphetamines, ecstasy or similar^α										
No	81	3,0	1			409	2,5	1		
Yes	15	9,4	2,94*	2,1*	1,5-3,3	150	15,7	9,3*	4,2*	3,3-5,2

Note. cPR: Crude Prevalence Ratio; aPR: Adjusted Prevalence Ratio; * $p < 0,05$; α In the last 12 months; β Students or persons in training with unpaid internship, pensioners or retired, unfit for work, homemakers and others. I Andalucía, Murcia, Canarias, Ceuta-Melilla; II Valencia, Baleares, Cataluña; III Aragón, Rioja, Navarra, País Vasco, Cantabria, Asturias, Galicia, Castilla-León; IV Madrid, Castilla-La Mancha, Extremadura.

have to be borne in mind: 1) As has been seen in other studies (Spanish Ministry of Health, Social Services and Equality), immigrants living in the Centre of Spain constitute a target group for messages aimed at the prevention of EAC. 2) Among immigrants, unemployment is associated to heavier consumption, although the strength of association is greater in EAC. The most important reason for emigrating is usually to work (Skarlund, Ahs, and Westerling, 2012), and the impact of being employed, or not, seems to influence notably on the alcohol consumption of this population, as has already been indicated (So and Wong, 2006). The relationship between deteriorating health, alcohol consumption and unemployment is multidirectional. Each one of these factors may be a cause or a consequence of the others (Skarlund et al., 2012). And if this occurs in any population,

it is particularly important in that of immigrants, whose employment situation and support networks are usually more unstable (Gutmann, 1999). 3) Among the non-natives, exposure to violence is associated with a heavier alcohol consumption both in EAC and in EEC. It is appropriate to ask once again whether this factor is a cause or an effect, but it could give rise to an interpretation of greater vulnerability. 4) The prevalence of EEC is greater among immigrants who live in large cities. It is possible that this is because it is in them that immigrants find environments with more people of the same origin as them, which would increase their social network and, as a consequence, their EEC. In any case, it does lead to reflect on whether the leisure options that are available in Spain may not meet the demands of the immigrant population.

Table 4.

Factors associated with excessive episodic alcohol consumption between immigrants and natives

	Immigrants					Natives				
	n	%	cPR	aPR	CI95%	n	%	cPR	aPR	CI95%
Gender										
Man	194	13,7	1			1405	15,7	1		
Woman	102	6,5	0,4*	0,5*	0,4-0,6	408	4,4	0,2*	0,3*	0,3-0,4
Edad										
16-34	176	11,8	1			957	18,0	1		
35-54	106	9,1	0,8*	0,8*	0,6-0,9	684	10,2	0,5*	0,7*	0,6-0,8
55 and over	15	4,6	0,4*	0,3*	0,2-0,6	173	2,7	0,1*	0,3*	0,2-0,3
Area of residence in Spain										
South ^I	66	9,4	1			462	10,0	1		
East ^{II}	107	9,1	0,9	1,0	0,8-1,6	339	6,8	0,7*	0,7*	0,6-0,8
North ^{III}	37	8,4	0,9	0,9	0,7-1,5	528	10,8	1,1	1,2*	1-1,3
Centre ^{IV}	87	13,0	1,4*	1,1	0,8-1,6	485	13,5	1,4*	1,3*	1,1-1,5
Size of town/city of residence										
<10 000 inhabitants	24	6,1	1			398	10,1	1		
10 000 - 50 000 inhabitants	78	9,0	1,4	1,3	0,8-2,1	430	9,3	0,9		
>50 000 inhabitants	195	11,3	1,8*	1,6*	1,1-2,5	986	10,3	1,0		
Living Situation										
Alone	35	13,8	1			143	8,7	1		
Other forms of co-habitation	92	11,9	0,9	0,9	0,6-1,3	1464	10,1	1,2*	0,9	0,8-1,1
With partner and/or children	169	8,6	0,7*	0,7*	0,5-0,9	207	10,5	1,2*	1,0	0,8-1,3
Educational level										
Primary studies or lower	34	5,4	1			369	5,4	1		
Secondary (including baccalaureate and professional studies)	206	11,6	2,2*	1,4	0,9-2	1045	12,7	2,4*	1,4*	1,2-1,6
University studies	54	9,6	1,8*	1,3	0,8-2	400	12,8	2,5*	1,8*	1,5-2,0
Employment situation										
Employed	153	9,2	1			1099	12,7	1		
Unemployed	88	14,0	1,5*	1,4*	1,1-1,8	302	14,0	1,1	1,0	0,8-1,1
Others ^β	54	8,0	0,8	1,1	0,8-1,7	400	5,5	0,4*	0,9	0,8-1,1
Perceived state of health^α										
Good or very good	252	10,4	1			1535	11,9	1		
Regular, poor or very poor	44	7,7	0,6*	0,7*	0,5-0,9	279	5,3	0,4*	0,9	0,8-1
Bouts of anxiety or depression^α										
Yes	10	6,4	1			72	4,1	1		
No	286	10,1	1,6			1742	10,6	2,8*	1,4*	1,1-1,9
Exposure to delinquency, violence or vandalism^α										
A lot	21	17,6	1			52	8,4	1		
Some	41	10,1	0,5*	0,6	0,3-1	301	11,2	1,2		
None	233	9,5	0,5*	0,6*	0,3-0,9	1461	9,9	1,3		
Smokes daily										
Yes	121	16,1	1			865	18,2			
No	176	7,9	0,5*	0,5*	0,4-0,7	944	7,1	0,4*	0,6*	0,5-0,7
Consumption of cannabis, cocaine, amphetamines, ecstasy or similar^α										
No	249	9,1	1			1360	8,1	1		
Yes	45	26,2	2,9*	2*	1,4-2,7	432	42,6	5,1*	2,4*	2,1-2,7

Note. cPR: Crude Prevalence Ratio; aPR: Adjusted Prevalence Ratio; * $p < 0,05$; α In the last 12 months; β Students or persons in training with unpaid internship, pensioners or retired, unfit for work, homemakers and others. I Andalucía, Murcia, Canarias, Ceuta-Melilla; II Valencia, Baleares, Cataluña; III Aragón, Rioja, Navarra, País Vasco, Cantabria, Asturias, Galicia, Castilla-León; IV Madrid, Castilla-La Mancha, Extremadura.

Immigrants have different behavior patterns, values and perceptions regarding the consumption of drugs which are related to those prevailing in their countries of origin (Daniel Ulloa et al., 2014). The migratory process brings up new situations and opportunities (Alaniz, 2002). The consumption of substances is not extraneous to the process of acculturation or adaptation to the culture of the host country (Zemore, 2007). And in this process both the culture of the country of origin and that of the host country, in this case, Spain, play a role. In this sense, it would be useful to make, as has been done in other countries (Delva et al., 2005; Susmann, 2005) interventions that find a balance between the positive reinforcement of safety measures "of origin" and the identification of those processes and situations that may increase the risk of excessive alcohol consumption. As well

as this, alcohol consumption cannot be analyzed in isolation. It bears a close relationship with the general processes of integration. So much so that some authors analyze it in a wider context and as a symptom or indicator of integration processes. (Conde and Harranz, 2004). Research into this population must stay up to date. The massive arrival of immigrants to Spain has slowed down in recent years, but the majority of those who came, did so with the intention of staying (INE, 2013).

One limitation of this study is that its cross-sectional design does not allow for the direction of association to be known nor to establish causality. Regarding the variable of origin, we do not know how long it has been since they arrived in Spain. There have been descriptions of how the patterns of alcohol consumption among the immigrant po-

pulation approach those of the autochthonous population as the years pass living in the host country (De La Rosa et al., 2012). This is a variable that is not contemplated in the survey and which should be borne in mind for any future studies. Nevertheless, the great majority of the immigrants who were in Spain in 2010, the end date of this survey, had arrived in the country in the years immediately preceding this date (INE, 2013), which may mean that the results were not so different. In this sense, some studies similar to this one carried out in other environments found no differences according to the length of time spent in the host country (Szaflarski, Cubbins, and Ying, 2011). Another limitation was the impossibility of giving the results according to the countries of origin and not just the areas. Despite the large sample, this is insufficient for a “country-by-country” analysis. It would be recommendable for the areas highlighted as those of greater alcohol consumption (Northern and Western Europe, and Latin America in terms of excessive episodic consumption) to be subject to more detailed research so as not to fall into the trap of dealing with these populations as “collectives”. Even employing this variable according to areas and not countries, some contribute such a small sample that the relative results have to be interpreted with great caution.

Another shortfall is in the gathering of other variables regarding substance use. They are not profound and did not allow for more thorough analyses than those presented to determine their relationship with alcohol consumption (though this was well collected, and detailed). This is one of the problems derived from this type of wide population surveys which, on the other hand, give us an enormous sample size. Finally, homeless people were not included owing to the data collection strategy. This is a population that, where alcohol consumption is concerned, could be especially relevant.

Beyond the limitations, the current study provides a first approximation to the epidemiology of alcohol abuse among the immigrant population living in Spain, at the same time as identifying subgroups among which it might be advisable to carry out specific interventions. In order to plan possible preventive strategies in the present and the future. The increase in immigrant population in Spain demands an integral approach to their health problems and, in this context, alcohol abuse is a priority.

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Conflict of interests

The authors declare that no potential conflict of interests exists with the publication of this article.

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