

# Alcoholism and its treatment approach from a citizen perspective

## *El alcoholismo y su abordaje desde una perspectiva ciudadana*

ANTONI GUAL\*, JOSÉ ÁNGEL ARBESÚ\*\*, JOSÉ ZARCO\*\*\*, HUGO LÓPEZ-PELAYO\*, LAIA MIQUEL\*, JULIO BOBES\*\*\*\*.

\* Grup de Recerca en Addiccions Clínic. Hospital Clínic de Barcelona. IDIBAPS. Universitat de Barcelona. Red de Trastornos adictivos (RETICS); \*\*Médico de Familia. Coordinador Área de Neurociencias de Semergen. Centro de Salud de la Eria. Oviedo; \*\*\*Médico de Familia. Coordinador Grupo de Intervención en Drogas semFYC. CS Ibiza. SERMAS; \*\*\*\*Área de Psiquiatría – Universidad de Oviedo – Centro de Investigación Biomédica en Red área de Salud Mental (CIBERSAM).

### Abstract

*Introducción:* El objetivo del estudio es describir el consumo de alcohol de la población general española, conocer la opinión que tienen los ciudadanos de su consumo, del alcoholismo y de su abordaje terapéutico.

*Métodos:* Estudio descriptivo transversal mediante encuesta telefónica que se realizó en mayo de 2015. Se seleccionó una muestra representativa de la población adulta española a quien se le preguntó acerca de su patrón de consumo de alcohol, percepción de riesgo, opinión acerca del alcoholismo, y consecuencias del consumo, y abordaje terapéutico. Se diseñó un cuestionario ad hoc utilizando el AUDIT-C para determinar el patrón de consumo. Se realizó un análisis descriptivo e inferencial según las características socio-demográficas.

*Resultados:* El 22,1% presentan un consumo de riesgo, siendo mayor en los hombres y los jóvenes. Mayoritariamente el alcoholismo es considerado una enfermedad y más del 75% de los ciudadanos coinciden que el alcohol tiene consecuencias negativas en la salud a nivel sociolaboral y familiar. La percepción de riesgo que tienen los ciudadanos de su consumo es mayor de lo esperado (37,6%). El 67,7% considera al médico de familia capacitado para atender los problemas relacionados con el consumo de alcohol, sobre todo entre las mujeres y los ciudadanos de mayor edad.

*Conclusiones:* El consumo de riesgo es muy prevalente entre los ciudadanos españoles sobre todo entre los jóvenes (31,8%). Existe una alta autopercepción de riesgo del consumo de alcohol. La mayoría de ciudadanos coinciden que el médico de familia está capacitado para tratar el alcoholismo.

*Palabras clave:* alcohol; detección; prevención; tratamiento; percepción de riesgo.

### Resumen

*Introduction:* The main objective of the study is to describe alcohol consumption in the general Spanish population, to discover citizens' opinion on their alcohol consumption, on alcoholism and on treatment approaches.

*Methods:* In 2015 a cross-sectional study was carried out by means of a telephone survey. A representative sample was selected. Participants were asked about their alcohol consumption, their perception of risk regarding their pattern of alcohol consumption, about their opinion on alcoholism, alcohol consequences and the treatment approach. A questionnaire was designed. The Alcohol Use Disorders Identification Test-C was used to define the pattern of alcohol intake. A descriptive and an statistical inference analysis were done.

*Results:* 22.1% were classified as risky drinkers, with a higher proportion in young males. The majority of individuals think that alcoholism is an illness, and more than 75% agree that alcohol has negative consequences on health, social functioning, occupational functioning and family relationships. Furthermore, the perception of risk that citizens have regarding their own drinking pattern is high (37.6%). 67.7% considered that the general practitioner can manage alcoholism, with females and older people believing this most strongly.

*Conclusions:* Alcohol consumption is very prevalent in the Spanish population, especially in young people (31.8%). The perception of alcohol risk is high. The majority agree with the fact that general practitioners are well prepared for treating alcohol problems.

*Keywords:* alcohol; screening; prevention; treatment; risk perception.

*Received: November 2015; Accepted: February 2016*

#### Send correspondence to:

Antoni Gual Solé. Teléfono: 932275400. Unidad de Conductas Adictivas. Hospital Clínic de Barcelona, calle Villarroel 170, 08036, Barcelona. E-mail: [tgual@clinic.ub.es](mailto:tgual@clinic.ub.es).

**A**lcohol consumption is the third biggest risk factor in terms of worldwide morbi-mortality (World Health Organization, 2011). It is also responsible for 6.8%-9.6% of disability adjusted life years (Degenhardt et al., 2013; Patel et al., 2015) and for more than 200 illnesses and conditions (World Health Organization, 2011). Worrying changes have been observed in recent years in alcohol consumption patterns in Spain, for example the rise in binge drinking, mainly among women. Binge drinking is also one of the most serious prognostic factors in alcoholism (Dawson, Li, & Grant, 2008; Gmel, Kuntsche, & Rehm, 2011). This consumption pattern requires more specific treatments than the normal short intervention (Rubio et al., 2015), and need to include two factors heavily linked to binge drinking: the subject's expectations regarding alcohol consumption, and the perception of risk which this substance can have on the individual's health (Cortés, Gimenez-Costa, Motos, & Cadaveira, 2014). These two aspects have been little explored in the general population. The few studies of risk perception regarding alcohol consumption focus on aspects other than self-perception of the subject's own consumption of alcohol, such as a comparison between the perception of risks involved in alcohol consumption as opposed to other substances (Delegación del Gobierno para Plan Nacional sobre Drogas, 2013), or the risk perception of alcohol consumption in the general population (Bischof, Bischof, Meyer, & Rumpf, 2015; Karlsson, 2012). There has been no research into the self-perception of risk or the concern of the citizens regarding their own consumption of alcohol, despite this being considered to be a relevant prognostic marker (Bertholet, Faouzi, Studer, Daepfen, & Gmel, 2013; Bischof et al., 2015).

Alcoholism is a chronic disease (Erdozain & Callado, 2014) with an estimated prevalence of 5.4% and 1.5% among adult European men and women respectively, which amounts to around 12 million people affected in Europe alone. In Spain, it is estimated that 202,010 citizens suffer from this pathology (1.2% of men and 0.2% of women) (Rehm, Shield, Rehm, Gmel, & Frick, 2012). These figures are equivalent to other treatable chronic medical conditions such as schizophrenia (0.3-0.8%) (Ayuso-Mateos, Gutierrez-Recacha, Haro, & Chisholm, 2006; Moreno-Küstner et al., 2016) or HIV (0.3%) (UNAIDS, 2014).

Alcoholism is a health problem with far-reaching social implications. It is extremely stigmatizing, to a greater degree than other mental disorders such as schizophrenia or depression (Schomerus et al., 2011), or medical diseases in which lifestyle habits play an important role, for example diabetes mellitus or hypertension. The stigma has clinical relevance in that it has been linked to lower self-efficacy in rejecting alcoholic beverages (Schomerus et al., 2011). In general, it should be borne in mind that greater acceptance of people with mental disorder in society has a positive influence on their prognosis, with the suicide rate, for exam-

ple, being reduced to general population levels (Schomerus et al., 2015). Furthermore, viewing mental disorders as a continuum appears to be linked to lower levels of stigmatization (Schomerus, Matschinger, & Angermeyer, 2013). With regard to alcohol consumption, the term "heavy use over time" has recently been proposed with the aim of reducing the stigmatizing label of alcoholism and give greater importance to the quantity of alcohol consumed over time, which is the factor with a direct link with morbi-mortality (Rehm et al. 2013). DSM-V diagnostic criteria also incorporate the idea of a continuum in psychiatric diagnoses with the aim of reducing the stigma attached to mental health.

The stigma surrounding the disease is among the reasons behind the low treatment access rates (15.3%) (Hasin & Grant, 2015; Luoma et al., 2007; Wolstenholme et al., 2013), despite being a medical condition for which effective pharmacological treatments and psychological interventions are available (Kaner et al., 2009; Rösner et al., 2010; Smedslund et al., 2011). Treatment access rates in Spain are slightly higher than among our European neighbors (7.6%), though still much lower than for other mental illnesses such as schizophrenia (82.2%), major depression (54.6%), bipolar (60.1%), general anxiety (37.7%) or obsessive-compulsive disorders (75.4%) (Robert, Saxena, Levav, & Saraceno, 2004).

The aims of this study are: 1) to describe the pattern of alcohol consumption in the target population; 2) to describe and explore citizens' perceptions of their own levels of alcohol consumption and the associated sociodemographic and clinical factors; 3) to describe and explore the beliefs of citizens regarding alcoholism and its effects, as well as the opinions of health professionals in charge of dealing with alcoholism. We expect to find a pattern of consumption similar to that observed in the general population and a low perception of risk regarding citizens' own consumption. Understanding what citizens think of their own consumption, what their opinions are regarding alcoholism and its consequences, and the factors involved are necessary elements to better understand the stigma surrounding the illness and, thus, design effective population-based prevention strategies.

## Methods

### *Study design and population*

A transverse observational descriptive study was carried out. The sample was taken from the target adult population (18 to 65 years of age) throughout Spain. A representative sample of 4250 individuals was selected (2136 men and 2114 women) from the Spanish population using a stratified random sampling approach with homogenous fixing for each autonomous community and proportionally adjusted for sex and age. The sample yielded a sampling fraction of 0.14% with a sampling error of 1.3% (confidence interval

of 95.5%). The baseline data for the sampling frame was the ongoing census of Spain's National Statistics Institute on January 1, 2014. A total of 13.6% of those contacted by telephone refused to take part in the survey, and 0.2% did not complete the telephone survey.

### Assessment

Individuals were assessed by telephone. The questionnaire design included socioeconomic data (age, sex, level of income, and employment) and the level of consumption. AUDIT-C was used to determine the quantity and frequency of consumption. A standard drink unit (SDU) was considered to be equivalent to 10 grams of pure alcohol (Gual, Martos, Lligoña, & Llopis, 1999).

Based on the results obtained by AUDIT-C, the level of drinking risk was determined by the following criteria: 1) no consumption (0 points), low risk (1-3 points, or 4 points but all on the first question), moderate risk (4 or 5 points), high risk (6 or 7 points), very high risk (8-12 points). Subjects were also asked how they perceived their own level of risk and how worried they were about their own consumption. In addition, they were asked for their opinion about alcoholism, whether or not it was an illness or a vice, and about its positive or negative effects on physical or mental health, and on family, social and work environments. Finally, citizens were asked as to the type of health professional who should treat alcohol problems (specialist, primary health-care personnel or others), and about their perception of primary health-care professionals and their role in the treatment of alcohol consumption.

### Statistical analysis

The data were weighted by age, sex and autonomous community of origin. A descriptive analysis was carried out, with continuous quantitative variables described by their means and categories by number of subjects and percentages. Responses of the type "doesn't know/didn't answer" were excluded from the analysis.

In order to compare categorical variables across groups, Chi-square or Fischer exact tests were used depending on the distribution of the variables. A value of  $p < 0.05$  was set to establish statistical significance with application of the Bonferroni correction for multiple comparisons. Bivariate analysis was carried out on the sociodemographic data and risk level of alcohol consumption as independent variables, with other variables considered as dependent. A variety of multivariate analyses were run to determine the relationship between self-perception of risk relating to own consumption (very low and low vs moderate, high and very high), perception of own consumption, opinions held on the concept of alcoholism, the place where it should be treated and by which healthcare professionals, and the sociodemographic and clinical variables. The following variables were recategorized: age (using 35 as the cut-off in the

Table 1. Sociodemographic data of patients interviewed and results of the citizen survey (n=4250)

	n (%)
<b>Sex (men)</b>	2136 (50.3)
<b>Age (years)</b>	
≤ 35	1450 (34.1)
> 35	2800 (65.9)
<b>Educational level</b>	
Primary	920 (21.7)
Secondary	1527 (36)
University	1790 (42.3)
<b>Employment</b>	
Employed	2381 (56.2)
Student	443 (10.4)
Other situation	1415 (33.4)
<b>Income level</b>	
Equal to or below €2000/month	2440 (63.3)
Above €2000/month	1412 (36.7)
<b>Risky consumption according AUDIT-C</b>	
No consumption	938 (22.5)
Low risk	2310 (55.4)
Moderate risk	664 (15.9)
High risk	205 (4.9)
Very high risk	51 (1.2)
<b>Self-perception of risk of drinking</b>	
Very low, low	2433 (73.8)
Moderate	811 (24.6)
High, very high	54 (1.6)
<b>Have you worried at some point about the amount of alcohol you consume?</b>	
Yes	345 (37.6)
<b>In your opinion, what is alcoholism?</b>	
A vice	361 (8.5)
An illness	3623 (87.1)
Both	174 (4.2)
<b>If you knew someone with alcoholism, where should s/he go for treatment?</b>	
Primary care	1333 (33.5)
Specialized care	1209 (30.4)
Other	1436 (36.1)
<b>Do you consider that the GP is the right health professional to deal with alcohol problems?</b>	
Yes	2764 (67.6)
<b>Negative consequences of alcohol consumption (agree completely)</b>	
Mental health problems	3381 (79.7)
Physical health problems	3326 (78.3)
Accidents	3901 (91.9)
Problems in the family environment	3617 (85.1)
Problems at work	3528 (83.1)
Problems in the social environment	3045 (71.8)

same way as was done in the EDADES study), occupational activity, level of income, level of alcohol consumption risk, alcohol consumption frequency, amount of alcohol consumed per sitting, frequency of binge drinking, perception of alcohol consumption, negative and positive alcohol consequences.

### Results

A total of 4250 citizens were interviewed. The sociodemographic characteristics of the sample can be seen in Table 1.

#### Alcohol consumption pattern and high-risk consumption

Alcohol consumption in the previous year was reported by 77.5% (n=3230), with 23.6% drinking on more than two days per week, 5.1% consuming more than 4 SDUs per sitting, and 10.7% drinking more than 5 SDUs once a month or more frequently. Figure 1A shows how consumption increases with age in both sexes, although more sharply in the case of men, while young men drink a larger amount per sitting (Figure 1B). In terms of binge drinking, it can be seen that the number of people never doing this grows with age, although it is more prevalent among men (Figure 1C).

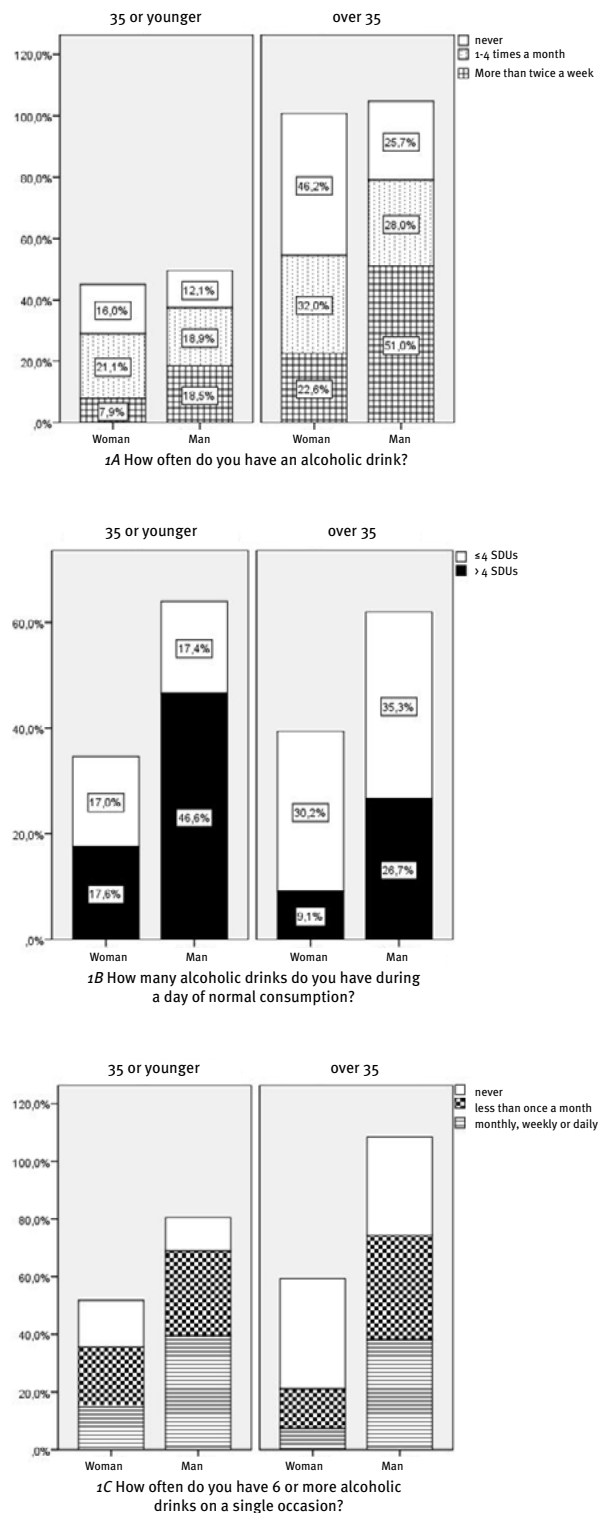
We can see statistically significant differences on comparing frequency of consumption and quantity consumed by sex, age (Table 2), occupational and income levels. Those who typically drink less frequently are students (17.6% versus 23.8% versus 25.1%,  $\chi^2=79.2$ ,  $p<.001$ ), and those with an income above €2000 drink the greatest number of times per week (27.3% versus 21.2%,  $\chi^2=59.5$ ,  $p<.001$ ). Students drink more than 4 SDUs more frequently than people in work or other occupational situations (12.2% versus 4.3% versus 4%,  $\chi^2= 42.9$ ,  $p<.001$ ). No statistically significant differences, however, were found in relation to income levels. Men and younger people consume 5 drinks or more per sitting proportionally more often (Table 2), as do students (24.3% versus 8.8% versus 9.2%,  $\chi^2=115.9$ ,  $p<.001$ ).

Of those who reported their own alcohol consumption pattern, 22.1% met the risky consumption criteria, with 32.7% of men and 11.3% of women being high-risk drinkers ( $\chi^2=227.8$ ,  $p<.001$ ). Young people make up 31.8% of high-risk drinkers, compared to 17% of those over 35 years of age ( $\chi^2=119.2$ ,  $p<.001$ ). Given that they are in the youngest group of drinkers, students also presented the highest percentage of risky consumption, while no differences were found as a function of income level.

#### Self-perception of consumption

When asked about how they saw their own alcohol consumption, 73.8% said that it was low or very low. Table 3 shows that being male with high-risk consumption increases the likelihood of considering one's own consumption as risky. Table 1 shows that 37.6% expressed concern about their own alcohol consumption, with men being twice as likely to

Figure 1. AUDIT-C according to sex and age



worry about this than women (Table 2). However, when adjusted for sociodemographic and high-risk consumption variables, it can be seen that men are less likely to worry about their own consumption than women (OR=0.65 CI95% 0.46-0.92). There were no significant differences for the rest of the variables analyzed.

Table 2. Differences of sex and age in the variables studied (n=4250)

	Sex				x <sup>2</sup>	p-value	Age				x <sup>2</sup>	p-value
	Women		Men				≤35		>35			
	n	%	n	%			n	%	n	%		
<b>How often do you have an alcoholic drink?</b>												
Never	584	27.7	355	16.7	216.2	<.001	264	18.2	675	24.2	77.1	<.001
1-4 times/month	1219	57.8	1080	50.7			920	63.5	1379	49.4		
More than twice a week	305	14.5	695	32.6			264	18.3	736	26.4		
<b>How many alcoholic drinks do you have during a day of normal consumption?</b>												
≤4 SDUs	1458	97	1627	93.1	27.3	<.001	1062	90.9	2023	97.1	61.7	<.001
> 4 SDUs	44	3	122	6.9			107	9.1	59	2.9		
<b>How often do you have 6 or more alcoholic drinks on a single occasion?</b>												
Never	1155	76.5	972	54.9	180.6	<.001	591	49.9	1535	73.3	182.6	<.001
Less than once a month	227	18.3	525	29.7			402	34	19.1	24.1		
Monthly, weekly or daily	78	5.2	272	15.4			190	16.1	160	7.6		
<b>Risky consumption according to AUDIT-C</b>												
No risk	1837	88.7	1411	67.3	277.8	<.001	976	68.2	2272	83	119.2	<.001
Risky	234	11.3	686	32.7			455	31.8	466	17		
<b>Have you worried at some point about the amount of alcohol you consume?</b>												
Yes	70	29.7	275	40.3	8.1	0.004	171	37.9	174	37.2	0.1	0.79
<b>In your opinion, what is alcoholism?</b>												
A vice	122	5.9	239	11.5	43.2	<.001	179	12.6	182	6.6	48.2	<.001
An illness	1874	90.2	1749	84			1195	84.4	2427	88.5		
Both	81	3.9	94	4.5			42	3	132	4.8		
<b>If you knew someone with alcoholism, where should s/he go for treatment ?</b>												
Primary care	681	34.2	652	32.8	14.6	.001	377	28	956	36.4	36.1	<.001
Specialized care	551	27.7	658	33.1			478	35.4	731	27.8		
Other	758	38.1	678	34.1			494	36.6	941	35.8		
<b>Do you consider that the GP is the right health professional to deal with alcohol problems ?</b>												
Yes	1310	64.2	1453	71	21.8	<.001	875	62	1889	70.6	31.6	<.001

Note. Values of  $p \leq (.05/12) = .0042$  are considered statistically significant. SDU: Standard Drink Unit.

### Opinions about alcohol

The great majority (87.1%) believe that alcoholism is an illness or an addiction, while 8.7% see it as a vice. Citizens on incomes below €2000 (10% versus 5.5%,  $\chi^2 = 36.7$ ,  $p < .001$ ) and students (13.3% versus 7.2% versus 9.8%, respectively;  $\chi^2 = 26.9$ ,  $p < .001$ ) are the groups who more frequently categorize alcoholism as a vice (Table 2).

The multivariate analysis confirms that the probability of seeing alcoholism as an illness is double in women and people over 35 years of age (OR=2.5 (CI95% 1.9-3.2); (OR=2.1 (CI95% 1.6-2.8)). Those with only a primary education are

less likely than university students to see alcoholism as an illness (OR= 0.31 CI95% 0.2-0.4).

The majority of those surveyed did not consider alcohol to be beneficial (n=2478, 59%), with 37.3 (n=1567) believing it to be good if consumed in moderation, while 3.7% (n=158) thought it was always beneficial.

Table 1 shows the percentage of citizens surveyed who agree completely (point 5 on the Likert scale) with the questions relating to the negative consequences of alcohol consumption. More than 70% believe it has negative consequences.

Table 3. Link between the perception of risk regarding consumption (very high/high/moderate versus very low/low) and the sociodemographic and clinical variables

	OR	CI 95%	
		Minimum	Maximum
Age (above 35 years of age vs younger people)	0.8	0.6	1.0
Sex (Men in relation to women)	1.3	1.1	1.6
Education(1)	1.0	0.7	1.3
Education(2)	1.1	0.8	1.4
Income	1.2	1.0	1.5
Employment(1)	0.8	0.6	1.1
Employment (2)	1.0	0.7	1.5
High-risk consumption	7.2	5.9	8.7
Constant	0.2		

Note. OR: Odds ratio. CI: Confidence Interval. Education(1): Primary versus secondary education; education(2): university versus primary. Employment(1): employed versus students; employment(2): others versus students.

### Opinions about healthcare professionals treating alcoholic patients

The general practitioner is seen by 67.7% (n=2764) to be suitable for treating alcoholism, with 33.5% (n=1333) declaring that someone suffering from alcoholism should go to a primary care facility, while 30.4% (n=1209) think that they should go to a specialized medical service (psychologist, psychiatrist, mental health or drug addiction centers) and 36.1% (n=1936) to other facilities or services. The chief reason for visiting the GP as a suitable professional was the fact that they could refer the patient to the relevant specialist (35.2%, n=974), followed by familiarity with the patient's situation and medical record (19%, n=526), with the third reason put forward being that they are professionals with the qualifications to deal with alcoholism (18.6%, n=515). Just over half of those surveyed (57.8%, n=2417) confirmed that their GP had asked them on some occasion about their alcohol consumption.

Women, older people, employed people (69.4% versus 60.4% versus 66%,  $\chi^2=14.3$ ,  $p=.001$ ) and those with higher income levels (71.6% versus 64.4%,  $\chi^2=20.7$ ,  $p<.001$ ) more frequently consider primary healthcare professionals as suitable for treating alcoholism (Table 2). After adjusting for the various sociodemographic and clinical variables, we find that these differences are maintained for those over 35 years of age (OR=1.3 CI95% 1.2-1.6) and people in higher income brackets (OR=1.2 CI95% 1.1-1.5), with a slightly higher likelihood, however, that men will find primary care professionals to be suitable for treating alcoholism (OR=1.3 CI95% 1.2-1.6).

Men above 35 years of age and in work (63.6% versus 34.2% versus 55.2%,  $\chi^2 = 136.4$ ,  $p<.001$ ), remember more frequently having been asked about their alcohol consumption by a primary healthcare professional. There were no statistically relevant difference with regard to level of income.

## Discussion

Alcohol consumption is highly prevalent among the Spanish population (77.5% in the last year), with a high level of risky drinking (22.1%). Citizens are aware of the detrimental effects of alcohol, and the perception of risk regarding one's own consumption is greater than expected (37.6%). There are differences in alcohol consumption patterns depending on age and sex. Women consume less and drink less frequently than men. Younger people drink greater amounts but less frequently. Men and high-risk drinkers are more likely to view their own consumption as being high, although women tend to worry more about the alcohol they drink. Men, young people, and those with lower educational and income levels are more likely to see alcoholism as a vice. The majority of citizens believe that people with alcohol related problems should go to primary healthcare facilities for treatment, and they also believe that professionals working there are well prepared to treat this disease.

The prevalence of alcohol consumption found in our study matches the findings in the 2013 report from the Spanish Survey on Alcohol and Drugs (EDADES: Encuesta sobre Alcohol y Drogas en España) (78.3%). Our data for men and women (83.3% and 72.3% respectively) also match the EDADES survey (83.2% and 73.4%) (Delegación del Gobierno para Plan Nacional sobre Drogas, 2013). Subjects under 35 years of age have a greater tendency to drink than those above 35, especially in the form of binge drinking (16.1% versus 7.6%), and these results are similar to those in the EDADES survey (22.1% versus 11.0%) (Delegación del Gobierno para Plan Nacional sobre Drogas, 2013). Population data show that there are differences in consumption patterns in terms of age and sex. Men drink more than women and the drink patterns change with age. Younger people tend to drink less frequently but in larger amounts, while the opposite is true among those over 35. These data coincide with previous studies (Delegación del Gobierno para Plan Nacional sobre Drogas, 2013; Miquel et al., 2015; Motos Sellés, Cortés Tomás, Giménez Costa, & Cadaveira Mahía, 2015). The level of high-risk consumption, however, is considerably higher (22.1%) than that found in the EDADES survey (4.9%), although it must be remembered that the criteria as to what constitutes high-risk drinking is different in both surveys. While in our study AUDIT-C was used, the EDADES study used the full version of AUDIT (10 questions and a cut-off score of 8). Furthermore, our findings are similar to those of other research in the Spanish primary healthcare context, i.e. 18.3% (Segura García, Gual Solé, Montserrat Mestre, Bueno Belmonte, & Colom Farran, 2006). High-risk consumers are more frequently found among men and the under-35s, which is similar to the findings of the EDADES survey (Delegación del Gobierno para Plan Nacional sobre Drogas, 2013). Being young and male as predictors of high-risk drinking are constant variables in various studies and cultures as diverse as Malaysia, Australia,

USA, UK, Korea, Spain or Brazil (Antai, Lopez, Antai, & Anthony, 2014; French, Sargent-Cox, Kim, & Anstey, 2014; Mutalip, Kamarudin, Manickam, Abd Hamid, & Saari; Silveira et al., 2012). In our study we found a greater proportion of high-risk drinkers among students when compared to other occupations, which matches prior research (Arrieta Vergara, 2009; Miquel et al., 2015), although these differences are measured by age.

The perception of risk regarding the consumption of a substance (e.g. alcohol) is usually measured through comparison with other substances (Hampson, Severson, Burns, Slovic, & Fisher, 2001; Slovic, 1983) or by considering the risk of consumption in general rather than one's own. Drinking is seen as risky behavior by 80-90% of those surveyed in different countries (Delegación del Gobierno para Plan Nacional sobre Drogas, 2013; Karlsson, 2012). In our case, the perception of risk is much lower, although it is true that we are referring to the risk of subjects' own consumption rather than any specific behavior in the population as a whole (26.2% think their alcohol consumption is moderate to high, and 37.6% worry about their level of consumption). Our figures show that it is men and students who are more concerned about their drinking patterns. The fact that men have a more pronounced sense of risk has already been reported in earlier studies (Bischof, Bischof, Meyer, & Rumpf, 2015), and yet this does not agree with the data from the EDADES study (Delegación del Gobierno para Plan Nacional sobre Drogas, 2013). This may again be due to the fact that our study focuses on the perception of own risk. Thus it would seem that women are more concerned about risky patterns of consumption in general, but that men are more worried about the risk to themselves. More complex analyses and future research should explore this relationship between the perception of risk relating to one's own consumption and consumption in general. It is worth pointing out that this is not a minor point and that risk perception of alcohol consumption has been linked to consumption patterns and the risk of developing problems in the future (Haug, Ulbricht, Hanke, Meyer, & John; Robinson, Jones, Christiansen, & Field, 2014).

The majority of those surveyed see alcoholism as an illness (87.1%). This statistic is substantially better than that reported in many other countries, for example in Germany (52-56%) or Brazil (18.8%) (Peluso & Blay, 2008; Schomerus et al., 2013; Schomerus, Matschinger, & Angermeyer, 2014). Alcoholism is most frequently viewed as a vice by men, young people, students, people with lower academic and income levels. In other countries this level of stigmatization is only exceeded among women, which suggests that they tend to perceive more stereotypes (Schomerus, Matschinger, Lucht, & Angermeyer, 2014). If this were confirmed by studies focusing on this particular aspect, it would mean that this population group would need to be specifically included in new strategies to reduce stigmatization and improve access

to treatment. The widespread perception in our study of alcoholism as an illness is not reflected in greater access to treatment. An alternative explanation is that while the majority of patients see that treatment for alcoholism is only focused on abstinence, this is not an objective that 45.7% initially set for themselves (Adamson, Heather, Morton, & Raistrick, 2010; Heather, Adamson, Raistrick, & Slegg, 2010); some studies suggest that this is one of the principal barriers to treatment (Wallhed Finn, Bakshi, & Andreasson, 2014).

Not many people believe alcohol to be beneficial (41%), with men, those in higher income brackets and high-risk drinkers being more likely to label it thus. The perception of the negative effects of alcohol consumption on physical and mental health, and its consequences for social, family and work relationships is always above 70%. It seems that identifying alcohol as positive does not rule out an appreciation of the negative effects of consumption. At the same time, this highlights the contrast between perceiving the value of "social" drinking and the stigma of "excessive" consumption.

Citizens believe primary healthcare doctors to be professionals prepared to treat alcoholism and its associated problems. Men, people in higher income brackets and older people believe that someone suffering from alcoholism should first see their GP. The differences observed in the study match the fact that older people in general make more use of primary healthcare than younger people (Cherpitel, 1999; Rodríguez Artalejo et al., 2000). It thus appears logical that those who receive more primary healthcare and know their GPs better also see them as suitable for managing alcoholism. People trust their family doctors to take responsibility for the treatment of the disease or refer patients to specialized centers when necessary, and thus believe the primary healthcare system to be the first level of treatment in guaranteeing the health of the citizens. In the case of alcohol, primary healthcare professionals should be ready to identify and treat patients with high-risk or hazardous consumption based on scientific evidence and approach treatment in such a way as to offer patient-centered care (Bradley & Kivlahan, 2014; Smedslund et al., 2011). In less than 10 years (2006-2015) the percentage of Spanish patients remembering that their GP had asked them about their alcohol consumption has risen from 48.9% to 57.8% (Segura Garcia et al., 2006). This may reflect the multiple efforts made to improve early identification of risky alcohol consumption, especially in the primary healthcare system (Colom, Scafato, Segura, Gandin, & Struzzo, 2014; Keurhorst et al., 2013; López-Pelayo et al., 2014).

Our study suffers from some weaknesses. Given the transversal nature of the research, causal interpretations are limited; nevertheless, the majority of studies in Spain (EDADES, ESTUDES, Encuesta Nacional de Salud) and Europe (EMCDDA) use similar methodologies. Furthermore, it is based on the self-reports of citizens, which, even though it is a metho-

dology recommended for pivotal pharmaceutical studies, limits the reliability of the data (EMCDDA, 2015; “New drug to treat alcoholism,” 2004). Finally, nor does it gather data on the perception of alcoholism or of one’s own drinking with validated instruments due to the lack of such instruments for the type of assessment attempted in our study. The main advantages of our study are the size and representativeness of our sample. In addition, it explores issues not frequently addressed in prior research such as the perception of one’s own alcohol consumption and the role of the GP in treating alcoholism, which is all useful in improving access to treatment and successful care. It also suggests that certain population groups are more susceptible to treatment for reducing the stigmatization of alcohol related disorders. In conclusion, drinking patterns are determined by age and sex of those surveyed, with young men displaying a more episodic pattern of consumption, while men over 35 are more regular consumers. This matches the observation that there are more high-risk drinkers among young men. People who took part in the survey presented a higher than expected level of self-perception regarding the risks of alcohol consumption. Despite the stigma surrounding the illness, citizens generally see it as an illness rather than vice, believe primary health-care professionals to be qualified to address problems with alcohol, and consider that alcohol consumption also has important negative effects in different contexts.

### Acknowledgements

Overall funding for this study was provided by Lundbeck. The sponsor did not have any influence on data collection, analysis or interpretation, and did not intervene in the writing of the paper.

The study has also been financed by the RD12/0028/0016 project, which is part of the National Plan for R,D&I (Plan Nacional de I+D+I) and co-financed by the ISCIII Subdirecció General for Evaluation and the European Regional Development Fund (ERDF).

With the backing of the Secretariat for Universities and Research of the Department of Economics and Knowledge, Government of Catalunya, file number 2014SGR649.

### Conflict of interests

Antoni Gual has received financial support from Lundbeck, DyA Pharma and TEVA and was paid fees by Lundbeck, DyA Pharma and Abbvie which were unconnected to the research while carrying out the study. Julio Bobes has received research grants, and has acted as consultant, advisor or lecturer for the following companies: AB-Biotics, Adamed, Almirall, AstraZeneca, Bristol-Myers Squibb, Ferrer, Glaxo-Smith-Kline, Hoffman La Roche, Janssen-Cilag, Lilly, Lundbeck, Merck, Novartis, Organon, Otsuka, Pfizer, Pierre-Fabre, Sanofi-Aventis, Servier, Schering-Plough and Shi-

re, has obtained research funding from the Spanish Ministry of Economics and Competitiveness, the Center for Biomedical Research and Metal Health Network (CIBERSAM) and the Carlos III Health Institute, the Spanish Ministry of Health, Social Services and Equality - National Plan for Drugs and the 7th Framework Programme of the European Union.

José Ángel Arbesú Prieto has acted as an advisor and received funding for research, publication and training from the following companies: Almirall, AstraZeneca, Glaxo-Smith-Kline, Lilly, Lundbeck, Merck, Pfizer, Servier, Esteve. Hugo López-Pelayo has received training funds from Lundbeck, Janssen, Pfizer, Lilly, Rovi and Esteve; and has also received fees from Lundbeck and Janssen. Laia Miquel has received fees from Lundbeck. José Zarco Montejo has acted as advisor and has received funding for consultancy, research, publications and carrying out training activities for Lundbeck and Lilly.

### References

- Adamson, S. J., Heather, N., Morton, V., & Raistrick, D. (2010). Initial preference for drinking goal in the treatment of alcohol problems: II. Treatment outcomes. *Alcohol and Alcoholism, 45*, 136–42. doi:10.1093/alcal/agq005
- Antai, D., Lopez, G. B., Antai, J., & Anthony, D. S. (2014). Alcohol drinking patterns and differences in alcohol-related harm: a population-based study of the United States. *BioMed Research International, 2014*, 853410. doi:10.1155/2014/853410
- Arrieta Vergara, K. M. (2009). Consumo patológico de alcohol entre los estudiantes de la Universidad de Cartagena, 2008. *Revista de Salud Pública, 11*, 878-886.
- Ayuso-Mateos, J. L., Gutierrez-Recacha, P., Haro, J. M., & Chisholm, D. (2006). Estimating the prevalence of schizophrenia in Spain using a disease model. *Schizophrenia Research, 86*, 194–201. doi:10.1016/j.schres.2006.06.003
- Bertholet, N., Faouzi, M., Studer, J., Daeppen, J.-B., & Gmel, G. (2013). Perception of tobacco, cannabis, and alcohol use of others is associated with one’s own use. *Addiction Science & Clinical Practice, 8*, 15. doi:10.1186/1940-0640-8-15
- Bischof, G., Bischof, A., Meyer, C., & Rumpf, H.-J. (2015). Alcohol-related risk perception in primary care patients screening positive for unhealthy alcohol consumption. *Addiction Science & Clinical Practice, 10*, O9. doi:10.1186/1940-0640-10-S2-O9
- Bradley, K. A., & Kivlahan, D. R. (2014). Bringing patient-centered care to patients with alcohol use disorders. *Journal of the American Medical Association, 311*, 1861–1862. doi:10.1001/jama.2014.3629
- Cherpitel, C. J. (1999). Emergency room and primary care services utilization and associated alcohol and drug use in the United States general population. *Alcohol and Alcoholism, 34*, 581–589.



- Colom, J., Scafato, E., Segura, L., Gandin, C., & Struzzo, P. (2014). Brief interventions implementation on alcohol from the European health systems perspective. *Frontiers in Psychiatry*, *5*, 161. doi:10.3389/fpsy.2014.00161
- Cunningham, J. A., Neighbors, C., Wild, T. C., & Humphreys, K. Normative misperceptions about alcohol use in a general population sample of problem drinkers from a large metropolitan city. *Alcohol and Alcoholism*, *47*, 63–66. doi:10.1093/alcalc/agr125
- Dawson, D. A., Li, T.-K., & Grant, B. F. (2008). A prospective study of risk drinking: at risk for what? *Drug and Alcohol Dependence*, *95*, 62–72. doi:10.1016/j.drugalcdep.2007.12.007
- Degenhardt, L., Ferrari, A. J., Calabria, B., Hall, W. D., Norman, R. E., McGrath, J., ... Vos, T. (2013). The global epidemiology and contribution of cannabis use and dependence to the global burden of disease: results from the GBD 2010 study. *PLoS One*, *8*, e76635. doi:10.1371/journal.pone.0076635
- Delegación del Gobierno para Plan Nacional sobre Drogas. (2013). *Encuesta sobre alcohol y drogas en población general España, EDADES 2011-2012*.
- EMCDDA. (2015). *European Drug Report 2015: Trends and Developments*.
- Erdozain, A. M., & Callado, L. F. (2014). Neurobiological alterations in alcohol addiction: a review. *Adicciones*, *26*, 360–370.
- French, D. J., Sargent-Cox, K. A., Kim, S., & Anstey, K. J. (2014). Gender differences in alcohol consumption among middle-aged and older adults in Australia, the United States and Korea. *Australian and New Zealand Journal of Public Health*, *38*, 332–339. doi:10.1111/1753-6405.12227
- Garnett, C., Crane, D., West, R., Michie, S., Brown, J., & Winstock, A. (2015). Normative misperceptions about alcohol use in the general population of drinkers: a cross-sectional survey. *Addictive Behaviors*, *42*, 203–206. doi:10.1016/j.addbeh.2014.11.010
- Gmel, G., Kuntsche, E., & Rehm, J. (2011). Risky single-occasion drinking: bingeing is not bingeing. *Addiction (Abingdon, England)*, *106*, 1037–1045. doi:10.1111/j.1360-0443.2010.03167.x
- Gual, A., Martos, A. R., Lligoña, A., & Llopis, J. J. Does the concept of a standard drink apply to viticultural societies? *Alcohol and Alcoholism (Oxford, Oxfordshire)*, *34*, 153–160.
- Hampson, S. E., Severson, H. H., Burns, W. J., Slovic, P., & Fisher, K. J. (2001). Risk perception, personality factors and alcohol use among adolescents. *Personality and Individual Differences*, *30*, 167–181. doi:10.1016/S0191-8869(00)00025-8
- Hasin, D. S., & Grant, B. F. (2015). The National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) Waves 1 and 2: review and summary of findings. *Social Psychiatry and Psychiatric Epidemiology*, *50*, 1609–1640. doi:10.1007/s00127-015-1088-0
- Haug, S., Ulbricht, S., Hanke, M., Meyer, C., & John, U. Overestimation of drinking norms and its association with alcohol consumption in apprentices. *Alcohol and Alcoholism*, *46*, 204–209. doi:10.1093/alcalc/agg103
- Heather, N., Adamson, S. J., Raistrick, D., & Slegg, G. P. (2010). Initial preference for drinking goal in the treatment of alcohol problems: I. Baseline differences between abstinence and non-abstinence groups. *Alcohol and Alcoholism*, *45*, 128–135. doi:10.1093/alcalc/agg096
- Kaner, E. F. S., Dickinson, H. O., Beyer, F. R., Campbell, F., Schlesinger, C., Heather, N., ... Pienaar, E. D. (2009). Effectiveness of brief alcohol interventions in primary care populations. *Cochrane Database of Systematic Reviews*. Retrieved from <http://www.scopus.com/inward/record.url?eid=2-s2.0-77950228136&partnerID=tZOTx3y1>
- Karlsson, P. (2012). Personal experiences of drinking and alcohol-related risk perceptions: The importance of the subjective dimension. *Nordic Studies on Alcohol and Drugs*, *29*, 413–428. doi:10.2478/v10199-012-0036-5
- Keurhorst, M. N., Anderson, P., Spak, F., Bendtsen, P., Segura, L., Colom, J., ... Laurant, M. G. H. (2013). Implementing training and support, financial reimbursement, and referral to an internet-based brief advice program to improve the early identification of hazardous and harmful alcohol consumption in primary care (ODHIN): study protocol for a cluster randomised controlled trial. *Implementation Science*, *8*, 11. doi:10.1186/1748-5908-8-11
- López-Pelayo, H., Wallace, P., Segura, L., Miquel, L., Díaz, E., Teixidó, L., ... Gual, A. (2014). A randomised controlled non-inferiority trial of primary care-based facilitated access to an alcohol reduction website (EFAR Spain): the study protocol. *BMJ Open*, *4*, e007130. doi:10.1136/bmjopen-2014-007130
- Luoma, J. B., Twohig, M. P., Waltz, T., Hayes, S. C., Roget, N., Padilla, M., & Fisher, G. (2007). An investigation of stigma in individuals receiving treatment for substance abuse. *Addictive Behaviors*, *32*, 1331–1346. doi:10.1016/j.addbeh.2006.09.008
- Cortés, M.T., Giménez, J.A., Motos, P., & Cadaveira, F. (2014). The importance of expectations in the relationship between impulsivity and binge drinking among university students. *Adicciones*, *26*, 134–145.
- Miquel, L., Rodamilans, M., Giménez, R., Cambras, T., Canudas, A. M., & Gual, A. (2015). Alcohol consumption in college students from the pharmacy faculty. *Adicciones*, *27*, 190–197.
- Moreno-Küstner, B., Mayoral, F., Navas-Campaña, D., García-Herrera, J. M., Angona, P., Martín, C., & Rivas, F. (2016). Prevalence of schizophrenia and related disorders in Malaga (Spain): results using multiple clinical databases. *Epidemiology and Psychiatric Sciences*, *25*, 38–48. doi:10.1017/S2045796014000614
- Motos Sellés, P., Cortés Tomás, M. T., Giménez Costa, J. A., & Cadaveira Mahía, F. (2015). Predictors of weekly

- alcohol drinking and alcohol-related problems in binge-drinking undergraduates. *Adicciones*, 27, 119–131.
- Mutalip, M. H. B. A., Kamarudin, R. B., Manickam, M., Abd Hamid, H. A. B., & Saari, R. B. Alcohol consumption and risky drinking patterns in Malaysia: findings from NHMS 2011. *Alcohol and Alcoholism*, 49, 593–599. doi:10.1093/alcalc/agu042
- New drug to treat alcoholism (2004). *FDA Consumer*. United States.
- Patel, V., Chisholm, D., Parikh, R., Charlson, F. J., Degenhardt, L., Dua, T., ... Whiteford, H. (2015). Addressing the burden of mental, neurological, and substance use disorders: key messages from Disease Control Priorities, 3rd edition. *Lancet*. doi:10.1016/S0140-6736(15)00390-6
- Peluso, E. de T. P., & Blay, S. L. (2008). Public perception of alcohol dependence. *Revista Brasileira de Psiquiatria*, 30, 19–24.
- Rehm, J., Marmet, S., Anderson, P., Gual, A., Kraus, L., Nutt, D. J., ... Gmel, G. Defining substance use disorders: do we really need more than heavy use? *Alcohol and Alcoholism*, 48, 633–640. doi:10.1093/alcalc/agt127
- Rehm, J., Shield, K. D., Rehm, M. X., Gmel, G., & Frick, U. (2012). *Alcohol consumption, alcohol dependence and attributable burden of disease in Europe: Potential gains from effective interventions for alcohol dependence*. CAMH: Canada.
- Riou Franca, L., Dautzenberg, B., Falissard, B., & Reynaud, M. (2010). Peer substance use overestimation among French university students: a cross-sectional survey. *BMC Public Health*, 10, 169. doi:10.1186/1471-2458-10-169
- Robert, K., Saxena, S., Levav, I., & Saraceno, B. (2004). The treatment gap in mental health care. *Bulletin of the World Health Organization*, 82, 858-866.
- Robinson, E., Jones, A., Christiansen, P., & Field, M. (2014). Perceived peer drinking norms and responsible drinking in UK university settings. *Substance Use & Misuse*, 49, 1376–1384. doi:10.3109/10826084.2014.901390
- Rodríguez Artalejo, F., de Andrés Manzano, B., Guallar-Castillón, P., Puente Mendizabal, M. T., González Enríquez, J., & del Rey Calero, J. (2000). The association of tobacco and alcohol consumption with the use of health care services in Spain. *Preventive Medicine*, 31, 554–561. doi:10.1006/pmed.2000.0734
- Rösner, S., Hackl-Herrwerth, A., Leucht, S., Vecchi, S., Srisurapanont, M., & Soyka, M. (2010). Opioid antagonists for alcohol dependence. *The Cochrane Database of Systematic Reviews*, 12, CD001867. doi:10.1002/14651858.CD001867.pub2
- Rubio, G., López-Rodríguez, J. A., Zuluaga, P., Ponce, G., Martínez-Gras, I., & Jiménez-Arriero, M. Á. (2015). Clinical and Demographic Characteristics of Binge Drinkers Associated with Lack of Efficacy of Brief Intervention and Medical Advice. *Adicciones*, 27, 90–98.
- Schomerus, G., Corrigan, P. W., Klauer, T., Kuwert, P., Freyberger, H. J., & Lucht, M. (2011). Self-stigma in alcohol dependence: consequences for drinking-refusal self-efficacy. *Drug and Alcohol Dependence*, 114, 12–17. doi:10.1016/j.drugalcdep.2010.08.013
- Schomerus, G., Evans-Lacko, S., Rüscher, N., Mojtabai, R., Angermeyer, M. C., & Thornicroft, G. (2015). Collective levels of stigma and national suicide rates in 25 European countries. *Epidemiology and Psychiatric Sciences*, 24, 166–71. <http://doi.org/10.1017/S2045796014000109>
- Schomerus, G., Lucht, M., Holzinger, A., Matschinger, H., Carta, M. G., & Angermeyer, M. C. The stigma of alcohol dependence compared with other mental disorders: a review of population studies. *Alcohol and Alcoholism*, 46, 105–112. doi:10.1093/alcalc/agg089
- Schomerus, G., Matschinger, H., & Angermeyer, M. C. (2013). Continuum beliefs and stigmatizing attitudes towards persons with schizophrenia, depression and alcohol dependence. *Psychiatry Research*, 209, 665–669. doi:10.1016/j.psychres.2013.02.006
- Schomerus, G., Matschinger, H., & Angermeyer, M. C. (2014). Attitudes towards alcohol dependence and affected individuals: persistence of negative stereotypes and illness beliefs between 1990 and 2011. *European Addiction Research*, 20, 293–299. doi:10.1159/000362407
- Schomerus, G., Matschinger, H., Lucht, M. J., & Angermeyer, M. C. (2014). Changes in the perception of alcohol-related stigma in Germany over the last two decades. *Drug and Alcohol Dependence*, 143, 225–231. doi:10.1016/j.drugalcdep.2014.07.033
- Segura Garcia, L., Gual Solé, A., Montserrat Mestre, O., Bueno Belmonte, A., & Colom Farran, J. (2006). [Detection and handling of alcohol problems in primary care in Catalonia]. *Atencion Primaria*, 37, 484–488.
- Silveira, C., Siu, E., Wang, Y., Viana, M., Andrade, A., & Andrade, L. (2012). Gender differences in drinking patterns and alcohol-related problems in a community sample in São Paulo, Brazil. *Clinics*, 67, 205–212. doi:10.6061/clinics/2012(03)01
- Slovic, P. (1983). Perception of risk/behavioral perspective. *AJR. American Journal of Roentgenology*, 140, 601–602. doi:10.2214/ajr.140.3.601
- Smedslund, G., Berg, R. C., Hammerstrøm, K. T., Steiro, A., Leiknes, K. A., Dahl, H. M., & Karlsen, K. (2011). Motivational interviewing for substance abuse. *The Cochrane Database of Systematic Reviews*, 5, CD008063. <http://doi.org/10.1002/14651858.CD008063.pub2>
- UNAIDS. (2014). *UNAIDS Gap Report 2014*.
- Wallhed Finn, S., Bakshi, A.-S., & Andreasson, S. (2014). Alcohol consumption, dependence, and treatment barriers: perceptions among nontreatment seekers with alcohol dependence. *Substance Use & Misuse*, 49, 762-769. doi:10.3109/10826084

- Wolstenholme, A., Drummond, C., Deluca, P., Davey, Z., Elzerbi, C., Gual, A., ... Baena, B. (2013). *Report on the mapping of European need and service provision for early diagnosis and treatment of alcohol use disorders*.
- World Health Organization. (2011). *Global status report on alcohol and health*.