ORIGINAL

Cannabis use in adult population in Galicia: Prevalence and associated characteristics

Consumo de cannabis en población adulta en Galicia: Prevalencias y características asociadas

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Abstract

Cannabis is the most widely consumed illegal drug in Spain, with consumption concentrated mainly in adolescence and early adulthood. The objectives were to estimate the prevalence of cannabis use, cannabis use disorder (CUD) and dependent use in the Galician population aged 16 years and over, and to characterize cannabis users and cannabis dependent users. Data are from two cross-sectional studies from the Risk Behavior Information System conducted in 2017 (n = 7,841) and 2018 (n = 7,853). The Cannabis Abuse Screening Test (CAST) was used to identify users with CUD and/or dependent use. Prevalences were estimated and regression models were fitted to identify variables associated with cannabis use and dependent use. In 2017-2018, 2.7% (95% CI: 2.5-3.0) of the Galician population aged 16 years and over consumed cannabis at the time of the survey, with this prevalence being 9% in the 16-24 years age group. Prevalence decreased with age and was higher in males in all age groups. The prevalence of CUD in users was 69.5% (95% CI 61.1-78.1) and of dependent use it was 49.2% (95% CI 46.6-53.9). Tobacco use was the major determinant of being a cannabis user [OR = 19.8 (95% CI 13.8-28.4)] and daily cannabis use of being a dependent user [OR = 5.5 (95% CI 3.2-9.5)]. Cannabis use among the Galician population is high, especially among young people aged 16-24 years, who show the highest probability of dependent use. Prevention measures should be aimed especially at the younger population aged 16 years to curb its use and the development of consequences such as CUD and dependent use.

Keywords: cannabis, cannabis use disorder, dependence, prevalence, adult

Resumen

El cannabis es la droga ilegal más consumida en España con un consumo que se concentra principalmente en la adolescencia y primeros años de la edad adulta. Los objetivos de este estudio fueron estimar la prevalencia de consumo de cannabis, de trastorno por consumo de cannabis (CUD) y de consumo dependiente (CD) en la población gallega ≥16 años y caracterizar a los consumidores y a los consumidores dependientes. Los datos proceden de dos estudios transversales del Sistema de Información sobre Conductas de Riesgo realizados en 2017 (n = 7.841) y 2018 (n = 7.853). Se utilizó el test de adicción al cannabis (CAST) para identificar a los consumidores con CUD y/o CD. Se estimaron prevalencias y se ajustaron modelos de regresión para identificar variables asociadas al consumo y CD de cannabis. El 2,7% (IC 95%: 2,5-3,0) de la población gallega ≥16 años consumía cannabis en el momento de la encuesta (2017-2018), siendo esta prevalencia del 9% en el grupo de 16-24 años. La prevalencia disminuye con la edad y es superior en hombres en todos los grupos etarios. La prevalencia de CUD en los consumidores fue del 69,5% (IC 95% 61,1-78,1) y de CD del 49,2% (IC 95% 44,6 -53,9). Consumir tabaco es el mayor determinante para ser consumidor de cannabis [OR = 19,8 (IC 95% 13,8-28,4)] y consumir diariamente cannabis para ser consumidor dependiente [OR = 5,5 (IC 95% 3,2-9,5)]. El consumo de cannabis entre la población gallega es bajo, aunque entre los jóvenes de 16-24 años, que son los que muestran más probabilidad de CD, la prevalencia es elevada. Las medidas de prevención deben dirigirse especialmente a la población más joven de 16 años para frenar su consumo y el desarrollo de consecuencias como el CUD y el CD.

Palabras clave: cannabis, trastorno por consumo de cannabis, dependencia, prevalencia, adulto

Cannabis is the most widely used illicit drug in Europe. According to data from the latest report by the European Monitoring Centre for Drugs and Drug Addiction, in 2021 the prevalence of cannabis use in the previous year was 7.7% in Europe, a prevalence five times higher than that of other illicit substances (European Monitoring Centre for Drugs and Drug Addiction, 2021). Continuous use of cannabis can lead to the development of mental illnessess, respiratory and cardiovascular diseases (Cohen, Weizman & Weinstein, 2019), and early onset is associated with suicidal ideation, depression, or schizophrenia (Gobbi et al., 2019; Godin & Shehata, 2022). In addition, it is during adolescence and in the first years of adult life that cannabis use prevalence is higher (Observatorio Español de las Drogas y las Adicciones, 2020).

Recent decades have seen changes in the legal and social frameworks around cannabis. At the legal level, several countries, including Canada and 18 federal states of the United States (USA), have legalized its use in the adult population for recreational purposes. This legislative change has caused a decrease in the risk perception associated with cannabis and a rise in the prevalence of its use (Carliner, Brown, Sarvet & Hasin, 2017; Kondo et al., 2019; Levy, Mauro, Mauro, Segura & Martins, 2021). In fact, between 2002 and 2014 in the USA, the prevalence of perceived high risk fell by more than 17 percentage points and the prevalence of perceived no risk rose by almost 10 points (Carliner et al., 2017). Moreover, the increase in the prevalence and acceptance of cannabis use has led to a dramatic increase of its availability on the market (Kondo et al., 2019).

In Spain, where cannabis use is currently not legal, perception of the risk associated with use in the adult population increased by 3.8 percentage points between 2017 and 2019 among regular users (81.5% and 85.3 %, respectively) and remains stable among occasional users (66.1% and 66.3%, respectively) (Observatorio Español de las Drogas y las Adicciones, 2020). Nevertheless, among the youngest, risk perception has decreased in parallel with the increase in the prevalence of use in recent years (Observatorio Español de las Drogas y las Adicciones, 2021).

In Spain, the EDADES study (Survey on Alcohol and other Drugs in Spain) has been monitoring the development of drug use in the population aged 15 to 64 years since 1995. The information provided by this study has cannabis as the most used illicit substance in Spain. In 2019-2020, the last year for which information is available, the prevalence of lifetime consumption reached a historic maximum, with 37.5% of Spaniards reporting that they had used cannabis at some time in their lives. The prevalence of use in the previous month decreased from 9.1% in 2017 to 8.0% in 2019-2020, and that of daily use increased to 2.9%, having remained stable in 2015 and 2017 (2.1%). Cannabis use

is more prevalent among men and decreases with age. In Spain, it begins at 18.5 years of age (18.1 years in men and 19.1 in women), making it the illicit drug with the earliest age of onset (Observatorio Español de las Drogas y las Adicciones, 2020).

The detailed characterization of cannabis use and the description of types of users and their patterns of use is essential for planning public health policies. In Galicia, until now, EDADES was the only available source for studying the epidemiology of cannabis in the adult population. Although this study reports basic information on the characteristics of cannabis use, the limited size of the sample in each Autonomous Community does not allow a detailed analysis based on the different characteristics associated with use. In addition, the age limit of the study population is 64 years.

The objectives of this study were to estimate the prevalence of cannabis use (global, daily and occasional), the prevalence of cannabis use disorder and dependent use in the Galician population aged 16 years and over, as well as to characterize users and dependent users.

Methods

Study design and population

The Risk Behaviours Information System (SICRI) focuses on conducting quasi-annual cross-sectional studies on representative samples of the population aged 16 and over living in Galicia, using a CATI system (computer-assisted telephone interview) (Servicio Galego de Saúde, 2005).

The 2017 and 2018 surveys (SICRI 2017-2018) were designed to ensure representativeness of the population by gender and age groups: 16 to 24, 25 to 44, 45 to 64, and 65 and over. Stratified random sampling was used, with the health card database, covering approximately 98% of the resident population, used as a sampling frame. Field work was carried out between January and December 2017 and October and November 2018.

Procedure

Specific questions were included allowing the prevalence of cannabis use to be estimated. Use was attributed to an affirmative answer to the question "Do you smoke cannabis or marijuana?". Those who answered affirmatively were asked about the frequency of use: daily, at least once a week, a few days a month or less than once a month.

Instruments

Using the cannabis addiction test CAST, an acronym for the *Cannabis Abuse Screening Test* (Legleye et al., 2015), those with a cannabis use disorder (CUD) and dependent users were identified. The CAST has high internal consistency (Cronbach's Alpha = 0.74) (Legleye et al., 2015) and has been validated in the Spanish population, also with high

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internal consistency (0.75) and construct validity with a good fit with two latent factors (Cuenca-Royo et al., 2012). The CAST comprises six questions that assess the frequency of different events associated with cannabis use in the last 12 months: smoking before midday; smoking alone; memory problems when using; disapproval from relatives or friends; intention to reduce or stop consumption; and social problems such as arguments or accidents linked to consumption. All questions have five response options: never (0 points), rarely (1 point), sometimes (2 points), quite often (3 points) and very often (4 points). The total score ranges from 0 to 24 points, and a person with 3 or more points on the CAST has a CUD and a person with 5 or more points is classified as a dependent user (Legleye et al., 2015).

For the characterization, Internet use was classified with the CERI questionnaire (Questionnaire of Internet Related Experiences), validated in the Spanish population. The CERI classifies those with a score <18 points as normal Internet users, and those with 18 or more points as risky or problematic use (Beranuy, Chamarro, Graner & Carbonell, 2009).

Data analysis

To characterize users, sociodemographic, health status, and behaviour-related variables were analyzed. Sociodemographic variables analyzed were: gender (men, women), age group (16-24, 25-44, 45 and over); country of birth (Spain, another country); area of residence (rural, semi-urban and urban); employment status at the time of the survey (employed, unemployed, housework, pensioner or student); educational level (basic: primary education or less, intermediate: secondary education, and higher: university); and living together with a partner (yes, no). Regarding health status variables, the analysis included self-perception of health status at the time of the survey (very good, good, normal and bad/very bad) and the weight status according to the Body Mass Index (BMI) classified as underweight (<18.5 kg/m²), normal weight (18.5-24.9 kg/m²), overweight (25.0-29.9 kg/m²), and obese (≥30 kg/m²). Finally, the variables related to risk behaviours were current tobacco use (smoker, ex-smoker, never smoker), alcohol use in the last 4 weeks (yes, no), and Internet use (no use, normal use, problematic or risky use).

The prevalence of global, daily and occasional cannabis use was estimated by gender, age group and tobacco smoking at the time of the interview and the prevalence of CUD and dependent users in the general population and in users.

The adjusted odds ratios (OR) of being a cannabis user or a dependent user were estimated using two multivariate logistic regression models that included sociodemographic, health status, and behaviour-related variables that were significantly associated with the response variable (p < 0.05).

The analysis was performed with Stata v14.2 and sample design was taken into account in the calculations. Both prevalence and OR are presented with 95% confidence intervals (95% CI).

Results

In the SICRI-2017, 7,841 people aged 16 and over living in Galicia were interviewed, and in the SICRI-2018, 7,853 people were interviewed (total sample: 15,694). The response rate was 78% in 2017 and 70% in 2018.

The prevalence of cannabis use in Galicia in 2017-2018 was 2.7% (95% CI 2.5-3.0), and was higher in men [men: 4.2% (95% CI 3.7-4.6) vs. women: 1.4% (95% CI 1.2-1.6)]. Prevalence decreased with age: 8.7% (95% CI 7.8-9.6) in the population aged 16 to 24 years, 5.1% (95% CI 4.4-5.7) in the population aged 25 to 44 years, and 1.5% (95% CI 1.1-1.9) in those aged 45 years or above. In the population over 64 years of age, the prevalence of use was practically nil, in both men and women. The highest prevalence was observed in men aged 16-24 years [11.3% (95% CI 9.9-12.8)] and 25-44 years [7.5% (95% CI 6.3-8.7)] and in women aged 16-24 years [5.9% (95% CI 4.8-6.9)] (Figure 1). Cannabis use was closely linked to tobacco use, with cannabis use prevalence in smokers at 10.7% (95% CI 9.1-12.2), as opposed to 1.1% in ex-smokers (95% CI 0.7-1.5) and 0.4% in never smokers (95% CI 0.2-0.6).

Considering the frequency of use, 2.0% (95% CI 1.7-2.2) of the population reported that they used cannabis occasionally compared to 0.7% (95% CI 0.6-0.9) reporting daily use. The prevalence of use, both occasional and daily, was higher in men. The two age groups in which users were concentrated (16-24 and 25-44 years old) had similar daily use prevalence, although the prevalence of occasional use was twice as high in users aged between 16 and 24 years (Table 1).

CUD was found in 1.9% (95% CI 1.6-2.2) of the Galician population, with 1.3% (95% CI 1.2-1.5) being dependent users. By gender, the percentage of men with CUD was four times higher than in women [(men: 1.5% (n = 233) vs. women 0.4% (n = 66)]. Restricting this analysis to cannabis users, the prevalence of CUD and dependent use was 69.5% (95% CI 61.1-78.1) and 49.2% (95% CI 44.6- 53.9), respectively.

The probability of using cannabis increased with being male, aged between 16 and 44 years, living in an urban environment, not living with a partner, having poor or very poor self-perceived health status, being underweight, being a smoker or ex-smoker, drinking alcohol and having problematic internet use (Figure 2). On the other hand, the risk of being a dependent cannabis user was linked to being male, aged between 16 and 44 years, with a BMI of below 25 kg/m², being a smoker and using cannabis daily (Figure 3).

Figure 1
Prevalence and 95% confidence intervals of cannabis use by gender and age group (16-24, 25-44, 45 and over)
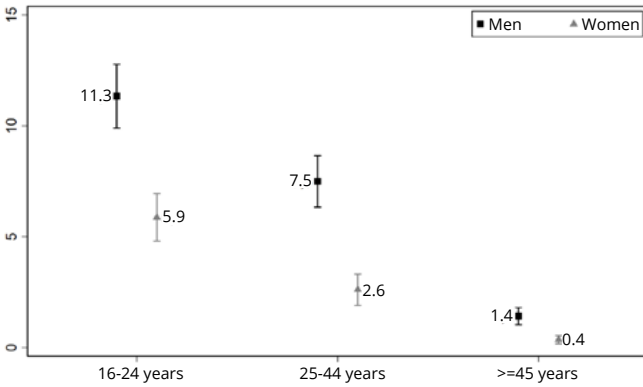

Table 1
Prevalence of daily and occasional cannabis use in the Galician population aged 16 years and over, by gender and age group, and in tobacco smokers. Prevalences are shown with 95% confidence intervals (95% CI)

	Daily cannabis use		Occasional cannabis use		
	%	IC 95%	%	IC 95%	
Global	0.8	0.6	0.9	2.0	1.7	2.2
Men	1.2	1.0	1.5	2.9	2.5	3.3
Women	0.3	0.2	0.4	1.1	0.9	1.3
16-24 years	2.5	2.0	3.0	6.2	5.4	7.0
25-44 years	1.5	1.1	1.9	3.5	3.0	4.1
Tobacco smoker	3.4	2.8	4.0	7.0	6.1	7.9

Figure 2
Characteristics associated with cannabis use in the Galician population aged 16 years and over. Odds ratios (OR) and their 95% confidence intervals (95% CI)
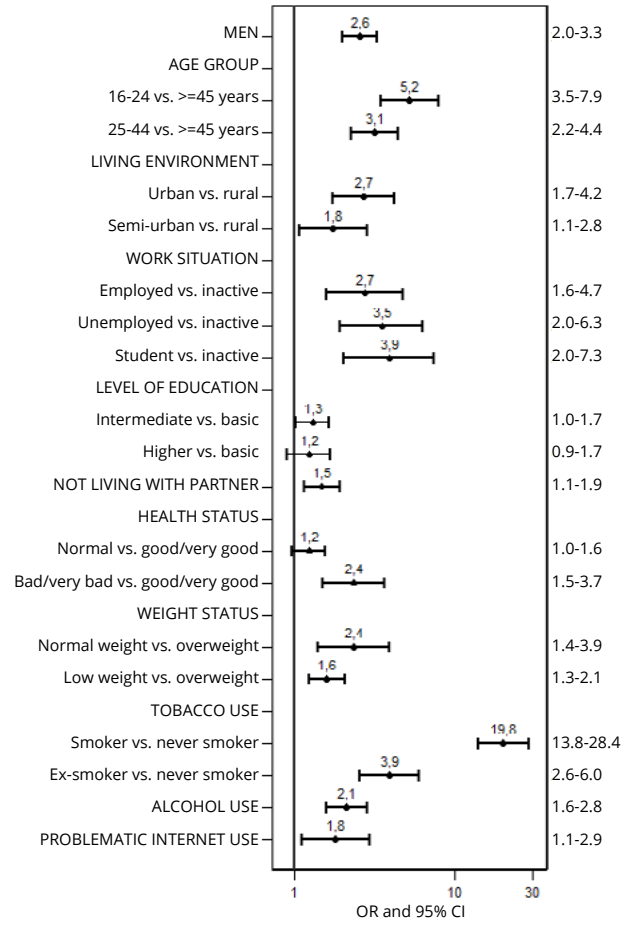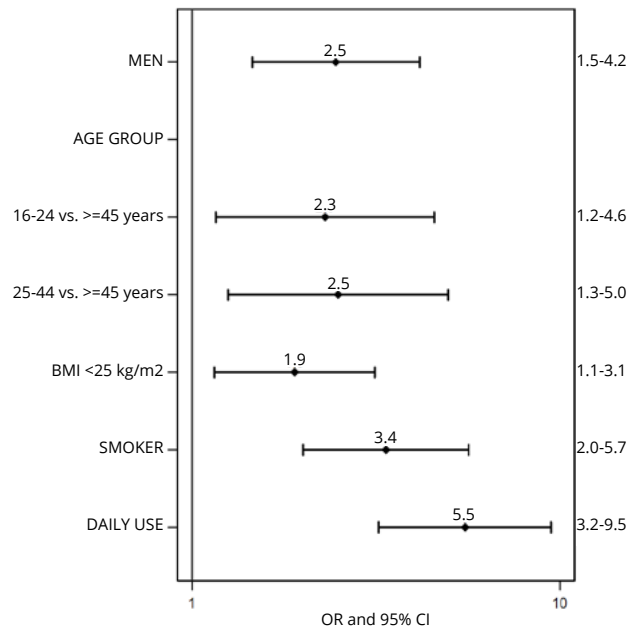

Figure 3
Characteristics associated with dependent cannabis use in Galician users aged 16 years and over. Odds ratios (OR) and their 95% confidence intervals (95% CI)

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Discussion

In 2017-2018, 2.7% of Galicians aged 16 and over used cannabis at the time of the survey, with men aged 16 to 24 years being the group with the highest prevalence of use. CUD was found in 69.5% of Galician cannabis users, with 49.2% being dependent users. Being male, aged between 16 and 44 years, with a BMI of below 25 kg/m^2 and being a tobacco smoker increased the probability of being both a cannabis user and a dependent consumer.

Approximately three in every 100 Galicians aged 16 years and over reported using cannabis on a daily and occasional basis at the time of the survey. This value was lower than the prevalence of use in the previous month estimated by EDADES in 2017 in the population aged 15 to 64 for Spain (9.1%) and Galicia (7.0%) (Observatorio Español de las Drogas y Adicciones, 2019). Restricting the population age range in our study 16-64 years (similar age range to that of the EDADES study), a prevalence of 3.8% (95% CI 3.4-4.1) was obtained. Both the prevalence of use estimated by EDADES and in the present study show Galicia below the national average (Observatorio Español de las Drogas y las Adicciones, 2019).

In order to compare the results of this study with the EDADES estimates for Galicia, three methodological aspects of both studies must be taken into account. Firstly, the target population of EDADES is aged between 15-64 years, while the SICRI includes the population aged 16 and over. Moreover, the time period referring to cannabis use is different, with EDADES asking about use in the previous month, while SICRI asks about current use, that is, at the time of the survey. Finally, the techniques used to carry out the survey differ in both studies. In EDADES, the questionnaire is self-completed at the respondent's home in the presence of a field worker, although the latter does not have access to the participant's answers. In the SICRI, the collection of information is carried out through a telephone survey. The fact that the questions in the SICRI are asked directly by the interviewer may result in an underestimation of the prevalence of use associated with the concealment of information.

Many of the studies estimating the prevalence of cannabis use are carried out in the young population, and it is infrequent that use is assessed in people over 64 years of age. Both in this and previous studies (Hasin et al., 2015; Mauro et al., 2018), the prevalence in the population over 64 years of age was anecdotal. In Spain, it may be associated with the fact that cannabis use became popular in the 1970s among the younger population (Fuente et al., 2006). On the other hand, Manthey, Freeman, Kilian, López-Pelayo & Rehm (2021) observed that, despite the fact that the prevalence of use is higher in younger adults, there was an increase in the prevalence of use in middle-aged adults (35-64 years) in Spain during the period 2010-2019. It is important to note that as the population ages, the number of middle-aged users could increase. For this reason, primary prevention and detoxification treatments should also be aimed at this population.

Continued use of cannabis is associated with disorders such as CUD (Hasin, Shmulewitz & Sarvet, 2019), defined as "the inability to stop using cannabis even when it is causing physical or psychological harm" (Connor et al., 2021). It is estimated that more than 22 million people in the world meet CUD criteria, of which 15 million are men (GBD 2016 Alcohol and Drug Use Collaborators, 2018). In European countries such as the United Kingdom or France, the prevalence of CUD in 2019 was approximately 2%, while in Germany or Sweden it did not exceed 1% (Kroon, Kuhns, Hoch & Cousijn, 2020), and in the United States it was estimated at 2.6% (Hasin et al., 2016). In Galicia, the prevalences are lower. One of the reasons for these differences may be the legislative measures each country applies in relation to cannabis use (Kroon et al., 2020).

CUD prevalence is higher in men (Hasin et al., 2019; Kerridge, Pickering, Chou, Saha & Hasin, 2018). One explanation may be that, although men start using cannabis earlier and the probability of developing CUD is therefore greater than in women, in the latter the time between the first use of cannabis and the development of CUD is shorter. This phenomenon is known as the telescopic effect and, as in cannabis, it is also observed in the use of other substances (Hernandez-Avila, Rounsaville & Kranzler, 2004; Sherman, Baker & McRae-Clark, 2016).

One of the issues involved in describing problems associated with cannabis use is the great heterogeneity that exists both in the terminology and the instruments used for diagnosis or classification. Regarding terminology, different authors employ the labels problematic cannabis use (Rial et al., 2022), risky use (Seidel, Morgenstern & Hanewinkel, 2020), cannabis abuse (Legleye, Piontek, Kraus, Morand & Falissard, 2013) or cannabis dependence (Bastiani et al., 2013). In terms of instruments, there are many that allow the classification of the population based on whether or not they present CUD, and within the instruments themselves, there are different cut-off points for classification (Carr et al., 2022). In fact, a systematic review on the prevalence of CUD concluded that prevalences of CUD in consumers aged 18 years and older varied depending on the diagnostic instrument used. Thus, using AUDADIS (*Alcohol Use Disorder and Associated Disabilities Interview Schedule*), the prevalence of CUD was estimated at between 36.1% in 2001-2002 and 30.6% in 2012-2013, while with DSM-IV it was estimated at 15.0% in 2008 and 9.3% in 2017 (Leung, Chan, Hides, & Hall, 2020). This difference depending on the tool used was also observed in a study carried out in Ireland (Millar, Mongan, Smyth, Perry & Galvin, 2021b). Such considerable heterogeneity when classifying people with CUD makes it very difficult to compare the results obtained in different studies.

Both in Spain and in other countries, the study of cannabis use and its relationship with different sociodemographic and behavioural variables in the adult population has been limited since most studies have focused on the adolescent and young adult population. Most of the sociodemographic and behavioural variables linked to cannabis use in other studies, mainly in the United States, coincide with those in our study (Hasin et al., 2019; Jeffers, Glantz, Byers & Keyhani, 2021; Millar et al., 2021a) Thus, it has been observed that age is one of the sociodemographic variables that most influences cannabis use, with young adults being those with a greater likelihood of use (Hasin et al., 2019; Jeffers et al., 2021; Miller et al., 2021a). In the Spanish population, this has been associated with coping with negative feelings, followed by other reasons such as enhancing positive feelings, avoiding social rejection or increasing social cohesion (Casajuana Kögel et al., 2021). In addition, cannabis use at these ages may often be motivated by the need to feel part of a peer group, and the fact of having few or inadequate social, assertiveness or coping skills in these situations can favour the onset of use (Carr et al., 2022). A further reason that could explain this greater probability of use in the younger population may be the lower perception of risk at these ages (Pacek, Mauro & Martins, 2015). Designing measures to prevent the initiation of cannabis use in young people is therefore vital since it has been observed that early initiation of use increases the probability of developing dependence in adulthood (George, Hill & Vaccarino, 2018).

Being male has been another characteristic associated with a higher likelihood of cannabis use, both in our study and in previous studies (Jeffers et al., 2021; Millar et al., 2021a). Men engage in more risk behaviours than women (Byrnes, Miller & Schafer, 1999; Harris, Jenkins & Glaser, 2006) and the perception of risk associated with substance use is lower (Arias-de la Torre et al., 2021). In addition, as occurs with other substances such as alcohol, social and cultural factors can also play a role (Bosque-Prous et al., 2015; Pacek et al., 2015; Ronay & Kim, 2006). On the other hand, in this study it was estimated that being a man increases the probability of developing dependence on cannabis use by 2.5 times. This is in line with the results of previous studies which observed that men were more likely to end up developing cannabis dependence at some point in their lives compared to women (Feingold, Livne, Rehm & Lev-Ran, 2020). One explanation may be that men use cannabis products with a higher concentration of cannabinoid substances such as THC or CBD and use a greater number of routes of administration, behaviours that have been linked to the development of cannabis use dependence (Baggio et al., 2014; Daniulaityte et al., 2018).

The use of other substances such as tobacco or alcohol is associated with an increased risk of cannabis use and dependence (Weinberger et al., 2021). Indeed, in our study, being a smoker was the strongest determinant for being a cannabis user and the second strongest for being a dependent user. This relationship is mainly due to the fact that, in Spain, as in the rest of Europe, the most widespread pattern of cannabis use is together with tobacco in the form of joints (Casajuana et al., 2017; Schauer, Rosenberry & Peters, 2017; Schwitzer et al., 2016). For this reason, it is important that prevention programs are carried out at an early age and assess not only the use of cannabis, but also that of tobacco (Observatorio Español de las Drogas y las Adicciones, 2019).

Early onset of cannabis use has been found to increase the likelihood of developing CUD and cannabis dependence (Connor et al., 2021), and daily cannabis use increases the probability of dependent use. Previous studies have indicated that 17.0% of cannabis smokers and 19.0% of daily users met the criteria for being dependent users (Cougle, Hakes, Macatee, Zvolensky & Chavarria, 2016). Using cannabis daily is therefore established as one of the strongest predictors of the development of cannabis use dependence (Kroon et al., 2020).

The study presented here has limitations. First, cannabis use may be underestimated, since concealment of drug use due to social desirability bias (De Leeuw, 2008), among other things, has been documented. In the analysis of the problems associated with cannabis use, the CAST scale was used; although it is an instrument with proven screening capacity in adults, it has limitations such as the fact that the cut-off points are not universal (Legeye, Karila, Beck & Reynaud, 2007; Legleye et al., 2015). In addition, the results obtained in this study refer to an Autonomous Community of Spain (Galicia) and thus cannot be generalized to the entire Spanish population.

On the other hand, the study also has strengths, among them the large sample size that allows us to characterize cannabis use in detail at the level of an Autonomous Community with representative data by gender and age group. A further strength is that this study does not exclude advanced ages.

Although the overall prevalence of cannabis use is low in Galicia, 9% of young people between 16 and 24 years of age report that they used cannabis at the time of the survey, this being the age group with the highest prevalence of use. Measures to prevent cannabis use at an early age that promote healthy lifestyles are needed. In addition, such measures should offer leisure and healthy-use alternatives mainly to young men, who are those with higher prevalence.

Conflict of interests

The authors declare no conflict of interest.

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