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**CONSUMPTION OF MEDICINES AND DRUGS AMONG
COLLEGE STUDENTS: TEN YEARS OF FOLLOW-UP**

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Consumption of medicines and drugs among college students: ten years of follow-up

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**Consumption of medicines and drugs among college
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Abstract

Substance abuse and self-medication in adolescents and young adults are major public health concerns. With the objective of studying the prevalence of consumption of medicines and its association with alcohol, tobacco and cannabis use among Spanish university students, we carried out a cohort study between November 2005 and March 2015. Alcohol consumption was measured using the Alcohol Use Disorders Identification Test (AUDIT), after assessing its validity. Multilevel logistic regressions for repeated measures were generated to obtain adjusted odds ratios.

Our study has revealed that prevalence of binge drinking, risky alcohol consumption, and tobacco and cannabis was reduced significantly during the follow-up period, while use of medicines without medical prescription increased. We found a strong association between consumption of medicines without prescription and alcohol and cannabis use. Education for health and preventive activities should be reinforced in youth to decrease these high levels of poly-consumption. Strategies for handling stress during university should be provided, with greater emphasis on females.



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1 Introduction





1 Introduction

Adolescence and early adulthood constitute a period of vital cycle especially vulnerable for alcohol and other drugs abuse. It extends from 12 to 25 years old, and in terms of neuro development, it is characterized for structural and biochemical changes in the Nervous System. These changes are associated with age-appropriated behaviors such as: higher levels of social interaction; exploration of new sensations, activities, and games; which involve higher incidences of risk behaviors as alcohol and other drugs abuse (Cohen-Gilbert, Jensen & Silveri, 2014).

Functional neuroimaging studies performed during twenties, show changes in neural networks related to cognitive tasks, rewards processing and emotional regulation. In neural networks recruited for executive functions, the activity is located in prefrontal cortex. Changes do not conclude till late thirties and are related to attention tasks, inhibitory control, working memory, and problem resolution, as well as, executive functions in general (Cohen-Gilbert et al., 2014).

Substance abuse in young people is a serious public health concern, especially in regard to cannabis and highly prevalent forms of alcohol risky consumption such as binge drinking (Hibell et al., 2012; Kraus et al., 2016). Abuse of these substances has been associated with neurocognitive alterations in the still developing young brain (Cservenka & Brumback, 2017; Silveri, Dager, Cohen-Gilbert, &

Sneider, 2016) and also with other major social problems such as traffic accidents and unsafe sex (Marshall, 2014).

Binge Drinking (BD) is the most prevalent pattern of alcohol consumption among young people in western societies (Plant A., Plant, L., Miller, Gmel, & Kuntsche, 2009) and it consists on a pattern of drinking that brings a person's blood alcohol concentration (BAC) to .08 grams percent or above (NIAAA, 2004). A high proportion (20-60%) of adolescents and young adults in several European countries undertake BD and the phenomenon has come to be considered a major public health concern (Hanewinkel et al., 2012).

Alcohol, tobacco and cannabis consumption among teenagers and young adults is provoking great concern in our country, because of the high prevalence observed and also due to the trend of some patterns of consumption (Delegación del Gobierno para el Plan Nacional sobre Drogas, 2018). For example, in case of alcohol, despite of the recent reduction of the prevalence of weekly consumption, (World Health Organization, 2018), high prevalence and BD continue to represent important health issues for adolescents (Observatorio Europeo de las Drogas y las Toxicomanías, 2018).

According to the last *Encuesta sobre Alcohol y Drogas en España* (EDADES 2015-2016) (Delegación del Gobierno para el Plan Nacional sobre Drogas, 2018), alcohol is the psychoactive substance most consumed by young adults from 15 to 24 years old. 87.5% of them, consumed alcohol drinks once in their lives and 2 out of the 3 recognize alcohol consumption the last 30 days. Furthermore,

especially harmful patterns of consumption, as BD, reach important levels: 35% of man between 20 to 24 years old and 34.5% between 25 and 29. For woman, data suggest levels around 25% and 20% respectively. If we are aware to the evolution of consumption during the last 15 days, data show us that in 2003, first available data, 5% of young adults, practiced binge drinking, compare to 17.9% reached in the last survey (Delegación del Gobierno para el Plan Nacional sobre Drogas, 2018).

In recent years, associations have been shown between BD and cannabis and cognitive (Parada et al., 2011; Mota et al., 2013; Doallo et al., 2014), structural (López-Caneda et al., 2013) and neurofunctional (López-Caneda et al., 2013; López-Caneda et al., 2012; Crego et al., 2012; Crego et al., 2010) damage in adolescents and young adults.

In regard to cognitive development, students with stable trends of BD consumption during long periods or that increasing over time, showed reduced verbal memory capacity and greater difficulties in executive processes of working memory (SOPT) (Mota et al., 2013) and in planning (Parada et al., 2011).

At the structural level, differences in terms of grey matter volume at dorsolateral prefrontal cortex have also been found. BD students presented greater volume of grey matter at this region, and it is correlated with mistakes in working memory (SOPT) and with the amount and speed of alcohol intake (Mota et al., 2013).

In terms of neurofunctional development, the harmful effects of alcohol intermittent intake consist on: lower neuropsychological performance in tasks that involve inhibitory control, cognitive interference, sustained attention, verbal working memory or verbal and visual episodic declarative memory (Hermens, Lagopoulos, Tobias-Webb, De Regt, Dore, Juckes, et al., 2013; Welch, Carson & Lawrie, 2013). All of these processes are dependent on prefrontal cortex.

In regard to psychophysiological activity, BD students, when resolving go/no go tasks, presented greater No-Go-P3 amplitudes than those non BD. This suggests an affectation of neural networks involved in inhibitory processes (Mota et al., 2009).

Besides cognitive and neurofunctional effects, BD has been associated in Spain with social costs such as poor academic achievement (Mota et al., 2010), increased consumption of medicines (Caamaño-Isorna et al., 2011), increased incidence of traffic accidents (Caamaño-Isorna, Moure-Rodríguez, Corral Varela, & Cadaveira, 2017), more alcohol-related injuries (Moure-Rodríguez et al., 2014), and higher levels of participation in unsafe sex (Moure-Rodríguez, Doallo, Juan-Salvadores, Corral, Cadaveira, & Caamaño-Isorna, 2016).

Tobacco is the second drug in prevalence of consumption: 25.3% of men and 22.4% of women between 15 and 64 years old expressed daily consumption of tobacco during the last 30 days. These levels increased to 38.7% and 29.7% in young adults between 25 and 34

years old. It has to be noted that prevalence of daily tobacco consumption in adults between 15 to 34 years old, decreased from 41.4% to 32.9% in man, and from 36.5% to 26.5% in woman (Delegación del Gobierno para el Plan Nacional sobre Drogas, 2018).

Cannabis, the third most consumed drug, constitutes the first one between the illegal drugs. Prevalence of cannabis consumption, during the last 12 months, reached 25.4% in man and 4.2% in woman. Related to the trend of consumption over the previous 20 years, the prevalence increased from 7.5% to 9.5%, measured as prevalence of consumption during the last 12 months, for the age group from 15 to 64 years old (Delegación del Gobierno para el Plan Nacional sobre Drogas, 2018).

In relation to pharmaceutical preparations, the Encuesta Nacional de Salud (*Encuesta sobre Alcohol y Drogas en España* (EDADES 2015-2016) reveals that 39% of man and 52.5% of woman consumed medications during the last two weeks. Regarding use of medicines with or without medical prescription, we found the following data: 13.2% of man and 19.1% of woman consumed medicines without medical prescription compare to 23.2% and 25.7% of them, that consumed medicines prescribed by a doctor.

1.1 Alcohol Use Disorders Identification Test

The impact of BD in recent years and the lack of studies involving binge drinking causality therefore justify the need for detecting this pattern of drinking. The Alcohol Use Disorders Identification Test

(AUDIT) (Saunders, Aasland, Babor, de la Fuente & Grant, 1993), is one of the most frequently used alcohol use disorders screening tools. Two short forms of the test, AUDIT-C (comprising the first three questions of the full test) and AUDIT-3 (the third question), were developed for use in busy clinical situation (Bush et al 1998; Gordon, Maisto, McNeil, Kraemer, & Conigliaro, 2001). The AUDIT has been validated in different countries and in different age groups in various settings the general population in Primary Care (Dawson, Grant, Stinson, & Zhou, 2005), elderly people and war veterans (Bradley et al., 2003; Aalto, Alho, Halme, & Seppä, 2011), and underage and college students (Kokotailo et al., 2004; Cortés-Tomás, Giménez Costa, Motos-Sellés, & Sancerni Beitia, 2016; Demartini & Carey, 2012).

However, AUDIT should be validated in each country and subgroup of populations under study, for the following reasons. First of all, question three of the AUDIT, which specifically asks about the BD pattern, considers consumption of 6 alcoholic drinks on one occasion as the the diagnostic threshold. However, the average amount of alcohol in one alcoholic drink differs between countries and even between ages, because of the types of beverages that different age groups tend to consume (Parada et al., 2011). Moreover, NIAAA defines BD as an episodic drinking pattern that results in a blood alcohol concentration (BAC) of .8 g/l (NIAAA 2004). However, the relationship between the amount of alcohol consumed and the BAC depends on the sex and weight of each individual (Hustad & Carey, 2005).

Secondly, differences in drinking patterns between binge drinkers and non-binge drinkers may modify the sensitivity and specificity of the diagnostic test due to they were originally created to diagnose risk or hazardous consumption as well as alcohol dependence; and these profiles differ across countries (Leefflang, Rutjes, Reitsma, Hooft & Bossuyt, 2013). Finally, we cannot rule out the possibility that sociocultural differences between societies are associated with differences between subjects regarding recognition of alcohol abuse (Midanik, 1988); this issue is very important when self-reported data are used. For these reasons, it would be good to validate AUDIT across different countries and subpopulations to solve these sociocultural differences in reporting alcohol consumption habits. To date, the AUDIT and its short versions have been validated in university students in Spain by García Carretero, Novalbos Ruiz, Martínez Delgado & O'Ferral González (2016) and Cortés-Tomás, Gimenez Costa, Motos Sellés, Sancerni Beitia & Cadaveira Mahía (2017).

1.2 Consumption of medicines and alcohol, tobacco and cannabis

Consumption of medicines is becoming an increasing pattern in western societies and it could be understood as a need of adult population to take care of their health (Caamaño-Isorna, Figueiras, Lado Lema & Gestal-Otero, 2000) and a better health education. But using medication without a medical prescription could involve some risks for health and young adults are a sensitive group of users (Hibell

et al., 2012; Hanewinkel et al., 2012; Doallo et al., 2014). Recent reports as Spanish National Health Survey (Instituto Nacional de Estadística, 2011) show that 20% of general population is taken medication without medical prescription, and according to Hibell (2012) 9% of adolescents are consumers of medication concomitantly to other usual drugs. Prevalence of self-medication in youth could be even higher in the United States (Lipari, Williams & Van Horn, 2017; McCabe, Cranford, Morales & Young, 2006).

Pharmacoepidemiological studies have been carried out on university populations, and have shown that use of medication, with or without medical prescription (Lipari et al., 2017; Nargiso, Ballard & Skeer 2015; Drazdowski et al., 2016), is increasing and in many occasions is linked with alcohol risky consumption (RC), binge drinking (BD), and other drug misuse, as tobacco and cannabis. It is also related with suicidal ideation and suicidal attempts, according to different studies (Zullig, Divin, Weiler, Haddox & Pealer, 2015; Guo et al., 2016; Tucker, Ewing, Miles, Shih, Pedersen, & D'Amico, 2015).

Furthermore, BD and RC along cannabis use has been associated with social costs for young adults such as increase of traffic accidents, (Caamaño-Isorna et al., 2016) more alcohol-related injuries (Moure-Rodriguez et al., 2014) and higher levels of participation in unsafe sex (Moure-Rodriguez et al., 2016). Recently, science literature has started to study the relationships between BD and self-medication in this population (Silvestri, Knight, Britt & Correia, 2015; McCabe, Veliz & Patrick, 2017).

In Spain, several studies have also shown a high prevalence of self-medication among young people (Morales-Suárez-Varela, Llopis-González, Caamaño-Isorna, Gimeno-Clemente, Ruiz-Rojo & Rojo-Moreno, 2009; Carrasco-Garrido et al., 2014). Additionally, cross-sectional studies have revealed an association between the consumption of medicines without medical prescription and the consumption of alcohol, tobacco and cannabis (Nargiso et al., 2015; Caamaño-Isorna et al., 2011; (Caamaño-Isorna, Tomé-Otero, Takkouche & Figueiras, 2004).

1.3 Non-medical use of prescription drugs and consumption of alcohol, tobacco and cannabis

Non-medical use of prescription drugs (NMUPD) is a specific type of medicine consumption that refers to have taken sleeping medication, sedative or anxiety medication/ stimulant medication/ or pain medication in the past 15 days without medical prescription. NMUPD criteria were adapted from those used by Boyd and colleagues (Boyd, McCabe, Cranford & Young, 2007). In the last few years, pharmacoepidemiological studies involving university students have shown that the non-medical use of prescription drugs (NMUPD) is common in this population (Collins, Abadi, Johnson, Shamblen & Thompson, 2011; Drazdowski, 2016; Lipari et al., 2017; Nargiso et al., 2015). NMUPD has increased steadily among young people in the last decade (usually linked to self-treatment or experimentation), and the consequent incidence of unintentional overdoses has reached epidemic levels (Boyd, Cranford & McCabe, 2016; Novak et al.,

2016; Tapscott & Schepis, 2013). In addition, NMPDU is a risk factor for suicide (Divin & Zullig, 2014; Guo et al., 2016), negative sexual behavior (Clayton, Lowry, Basile, Demissi &, Bohm, 2017; Parks, Frone, Murave & Boyd, 2017) and poor social functioning (Trucker et al., 2015).

Recent studies indicate that NMPUD is associated with binge drinking and polydrug use (e.g. including cannabis) (McCabe et al., 2017; Silvestri et al., 2015). In other studies, students who engaged in binge drinking were between three and four times more likely to report NMUPD (McCabe et al., 2017; Silvestri et al., 2015). Similarly, in Spain several studies have shown that high consumption of both medically prescribed and non-prescribed medicines are associated with consumption of alcohol, tobacco and cannabis among young people (Caamaño-Isorna et al., 2010; Carrasco-Garrido et al., 2014; Morales-Suárez-Varela et al., 2009).

The epidemiological data on the association between NMUPD and alcohol, tobacco, and cannabis use among college students in Europe remains insufficient to date. Indeed, the lack of longitudinal studies hampers analysis of the changes in this association during adolescence and adulthood, in which a decline in binge drinking is expected (O Malley, 2004).

Another aspect given little attention is the role of the age of drinking onset in this relationship, which -given the tendency for young people to start drinking alcohol at an early age- deserves further attention in the context of NMUPD (Marshall, 2014). Findings regarding sex-

related differences and this association are inconsistent, which may be partly explained by differences in the populations investigated, with some studies reporting a greater risk in females and others in males (Shehnaz et al., 2014). This is of particular importance considering that females may be particularly vulnerable to the long-term consequences of alcohol abuse (Retson et al., 2016).

Furthermore, accessibility, a key explanatory factor for the use of medical drugs, varies significantly between countries (Nargiso et al., 2015). Further epidemiological studies are thus necessary to enable context-dependent conclusions to be drawn and transcultural extrapolations to be made. Ultimately, addressing these gaps may have important implications for public health prevention strategies by improving their focus.





2 Objectives

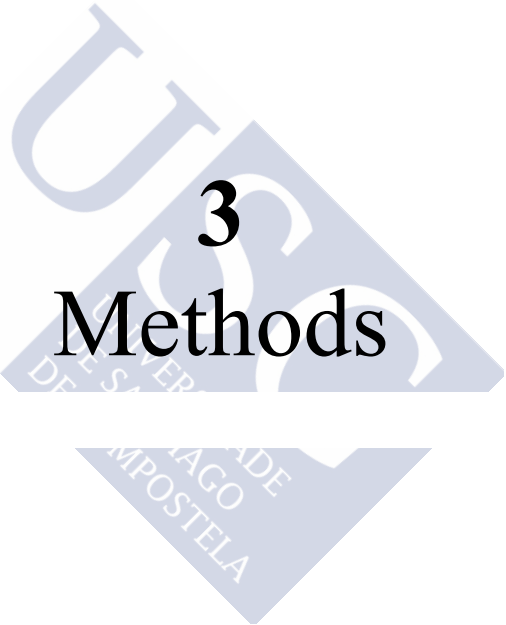




2 Objectives

1. To assess the validity of the AUDIT, AUDIT-C and AUDIT-3 for detecting binge drinking in university students in Spain, in order to facilitate diagnosis of binge drinking in this population.
2. To determine the prevalence of use of medical drugs, both with or without medical prescription, among Spanish university students and its association with the main patterns of alcohol, tobacco and cannabis use.
3. To determine the prevalence of non-medical use of prescription drugs among university students in Spain and to analyse the association between non-medical use of prescription drugs and the most prevalent patterns of alcohol, tobacco and cannabis consumption among young adults, as well as the explanatory role of the age of drinking onset.
4. To identify the longitudinal trajectories of consumption in both males and females during the transition to adulthood. We also examined the potential variations in the long-term patterns of consumption in relation to whether or not the participants already partook in NMUPD at the beginning of the study, separately for males and females.





3 Methods



3 Methods

3.1 Validation of AUDIT, AUDIT-C and AUDIT-3

3.1.1 Design, population and sample

A cross-sectional validation study of a diagnostic test was carried out. The study population comprised first-year university students aged from 18 to 19 years, that were 268 women and 161 men (n=429), (percentage representative from the presence of women at Spanish Universities) Data were collected by means of a questionnaire completed by students in the classroom and also by personal interview.

This study was approved by the Bioethics Committee of the Universidade de Santiago de Compostela. Subjects were informed both verbally and in written format as part of the questionnaire that participation was voluntary, anonymous, and the possibility to opt-out was available at any time. Subjects were informed that they were free to fill or refuse to fill the questionnaire. Where personal interviews were conducted, written informed consent was provided to and signed by each respective participant. This procedure was approved by the Bioethics Committee.

3.1.2 Data collection procedures

A cross-sectional study was carried out among students at the Universidad Complutense de Madrid (Spain) in order to assess the neurocognitive consequences of BD. We used cluster sampling to select the participants. One of the first-year classes (students aged 18-19 years) was randomly selected from each of the university faculties/schools. All students present in the class on the day of the survey were invited to participate in the study (n=3068).

A self-report questionnaire was completed in the classroom by the participating students. A one-week alcohol timeline followback was used and the students were asked to indicate the type and number of drinks consumed on each day of a usual week in the last six months and the times when the drinking took place. Alcohol intake was converted into grams of alcohol on the basis of the Spanish standard drink unit (1 unit beer/wine = 10g; 1 unit hard liquor = 20g) (Parada et al., 2011). The students were asked to provide their weight to enable estimation of the blood alcohol concentration (BAC) and were also asked at what age they started drinking.

Psychopathological symptoms were measured using the validated Spanish version of the Symptom Check List-Revised (SCL-90-R) (Derogatis, 1983). This questionnaire was completed in the classroom by the participating university students the same day. This questionnaire asks about psychopathological symptoms during the past week. The Global Severity Index (GSI) score reflects the overall severity of the symptoms and is the best indicator of distress.

Taking into account the alcohol consumption reported by the university students, we calculated the BACs for each person according to Widmark's formula (Hustad & Carey, 2005) [$BAC = a / (p \times r)$], where a is the alcohol consumed in grams, p is body weight in Kg, and r is the body water/fat ratio (.68 in males and .55 in females). We assumed alcohol metabolism rates of .15 g/h for males and .18 g/h for females. In order to estimate the number of hours that each BD session lasted, we considered the rate of alcohol consumption during each session. This rate was previously calculated by linear regression of a sample of 267 BD sessions described by 68 students in the same population. The rate of consumption was not sex dependent. The number of hours that each BD session lasted was finally estimated as $Hours = (.045 \times \text{alcohol grams}) - .303$ ($R^2 = .665$).

We examined the responses of all questionnaires and applied the following exclusion criteria to select the study participants: being teetotal (536 subjects), complete information about alcohol consumption not given (1055 subjects), Spanish not spoken as maternal language (112 subjects), information about sex (72 subjects) or weight (84 subjects) not supplied, having a GSI score above 80 percentile (506 subjects), and not expressing a desire to participate in the second phase (862 subjects). We selected all remaining subjects as participants and classified them as follows: 268 women (183 binge drinkers - BAC higher than .8 g/l- and 85 non-binge drinkers - BAC lower than .8g/l-) and 161 men (92 binge drinkers and 69 non-binge drinkers, with the same criterion). The sizes of samples are within the

ranges proposed by Flahault et al. (2005) as enabling assessment of the validity of the diagnostic tests.

The subjects were interviewed personally and invited to complete the AUDIT questionnaire. The AUDIT includes ten questions grouped in three domains: 1) Hazardous Alcohol Use: exploring frequency and quantity and frequency of binge drinking; that corresponds with 1st 2nd and 3rd questions; 2) Dependence Symptoms: asking for impaired control over drinking, increased salience of drinking, and morning drinking; which corresponds with 4th, 5th and 6th questions and 3) Harmful Alcohol Use: related to feeling guilty after drinking, blackouts and alcohol-related injuries, and recommendation to stop drinking, according to 7th 8th 9th 10th questions respectively. Questions 1 to 8 admit 5 answers with possible scores ranging from 0 to 4. Questions 9 and 10 have 3 possible answer categories each of which score 0, 2 or 4 points. The overall scores therefore range from 0 to 40 (Saunders et al., 1993). Final score allows, depending on the cut-off points, the identification of risk consumption as well as alcohol dependence. Spanish validation (Rubio Valladolid, Bermejo Vicedo, Caballero Sánchez-Serrano & Santo-Domingo Carrasco, 1998) in Primary Care, established the cut-off points of risk consumption in 9 for males and 6 for females.

3.1.3 Definition of variables

3.1.3.1 *Gold Standard*

Binge drinkers. Students that report episodic drinking patterns that results in a blood alcohol concentration (BAC) $\geq .8$ g/l reached at least once per week calculated with Widmark's formula (Flahault, Cadilhac & Thomas, 2005) and using data from a self-report questionnaire on alcohol consumption.

3.1.3.2 *Diagnostic tests*

AUDIT-3. This consists of the third AUDIT question: How often do you drink 6 or more alcohol drinks on one occasion? "Never" to "Daily or almost daily". The score ranges from 0 to 4.

AUDIT-C. This test includes the three first AUDIT questions: How often do you have a drink containing alcohol? "Never" to "4 or more times a week"; How many drinks containing alcohol do you have on a typical day when you are drinking? "1 or 2" to "10 or more"; and How often do you drink 6 or more alcohol drinks on one occasion? "Never" to "Daily or almost daily". The score ranges from 0 to 12.

AUDIT. This includes all questions from the test, and the possible score ranges from 0 to 40 points.

3.1.4 Statistical analysis

Internal consistency was analyzed using Cronbach's alpha. Factor Analysis was used to assess the construct validity by extracting Principal Components with Varimax rotation.

We calculated the sensitivity and specificity of all three diagnostic tests for both sexes. We also included positive likelihood ratio (PLR) and negative likelihood ratio (NLR). Finally, we calculated the area under the curve (AUC) for the different diagnostic tests, to compare the effectiveness of each (Handle & McNeil, 1983). The AUC values were calculated using the method proposed by Hanley and McNeil (1983). Data were analyzed using SPSS v20.

In order to define the best cut-off point for each test, the Positive Predictor Value (PPV) and the Negative Predictor Value (NPV) were calculated (on the basis of Bayes Theorem) for the most common prevalence in the sample population (Plan Nacional sobre Drogas, 2014) which is around 40% for both sexes (Plan Nacional sobre Drogas, 2014). The calculations were carried out with Epidat 4.1. The results were analyzed separately for males and females to determine how weight and rate of alcohol metabolism affect the classification of participants into binge drinkers or non-binge drinkers relative to the gold standard.

3.2 Consumption of medicines and alcohol, tobacco and cannabis

3.2.1 Design, population and sample

We carried out a cohort study among university students (Compostela Cohort 2005, Spain), between November 2005 and March 2015. We used cluster sampling to select the participants. Thus, at least one of the first-year classes was randomly selected from each of the 33 university faculties/schools (a total of 53 classes). The number of classes selected in each university faculty or school was proportional to the number of students. All students present in the class on the day of the survey were invited to participate in the study (n=1382).

This study was approved by the Bioethics Committee of the University of Santiago de Compostela. Subjects were informed both verbally and in writing, as part of the questionnaire, that participation was voluntary, anonymous, and the possibility to opt-out was available at any time.

3.2.2 Data collection procedures

Researchers visited each first-year classroom in November 2005 and invited all students present in the class to participate in the study (1st questionnaire). In November 2007, the same team of researchers visited the third-year classroom in order to follow-up with the students (2nd questionnaire). The questionnaires were linked using birth date, sex, school, and class. Students who provided a phone

number in the first or second questionnaire were further evaluated by phone at 9.5- year follow-ups (March 2015). On all three occasions, alcohol use was measured with the Galician validated version of the Alcohol Use Disorders Identification Test (AUDIT). (Saunders et al., 1993; Varela, Braña, Real & Rial, 2005) In addition to the AUDIT, we used another questionnaire that asked about age of onset of alcohol use, tobacco and cannabis consumption, and use of medicines. The subjects were asked about their use of different medicines, with and without prescription, during the previous 15 days, using the Spanish National Health Survey questions regarding this topic (Instituto Nacional de Estadística, 2003).

3.2.3 Definition of variables

3.2.3.1 Independent variables

Binge drinking (BD). This is a dichotomous variable generated from the third AUDIT (Varela et al., 2005) question “How often do you have 6 or more alcoholic drinks per occasion?”, which was coded as follows: never=0, less than once a month=0, once a month=1, once a week=1, daily or almost daily=1. The sensitivity and specificity of this question with this cut-off value are respectively .72 and .73, and the area under the curve is .767 (95% CI: .718 - .816) (Tuunanen, Aalto, & Seppä, 2007).

Risky consumption (RC). Dichotomous variable generated from AUDIT score. A different cut-off value was established according to gender: ≥ 5 for women; and ≥ 6 for men. These cut-offs are

recommended in the Galician validated version of the AUDIT.

Age of onset of alcohol consumption. Four categories were defined for age of onset of use (after 16 years old, at 16, at 15, before the age of 15).

Cannabis consumption at the beginning of the study and at 2 years of follow-up was measured with the question “Do you consume cannabis when you go out? never; sometimes; most of the times; always”. The categories were recategorized into NO (“never”) and YES (“sometimes” or “most of the time” or “always”). At 9 years of follow up, cannabis consumption was measured using the European Addiction Severity Index (EuropASI) (Kokkevi & Hartgers, 1995).

Tobacco consumption at the beginning of the study and at 2 years of follow-up was also measured as a dichotomous variable: NO/YES. At 9 years of follow up, we also used the European Addiction Severity Index (EuropASI) (Kokkevi & Hartgers, 1995).

3.2.3.2 *Dependent variables*

(1) *Use of medicines with medical prescription.* Dichotomous variable: NO, when the students did not consume any medicine with medical prescription in the previous 15 days; and YES, when they consumed at least one medicine with medical prescription in the previous 15 days.

(2) *Use of medicines without medical prescription.* Dichotomous variable: NO, when the students did not consume any medicine without medical prescription in the previous 15 days; and YES, when

they consumed at least one medicine without medical prescription in the previous 15 days.

(3) *Non-medical use of prescription drugs (NMUPD)*: Categorized as a dichotomous variable (“YES” refers to have taken sleeping, sedative or anxiety medication/ stimulant medication/ or pain medication in the past 15 days without medical prescription; and “NO” refers to the other cases. NMUPD criteria were adapted from those used by Boyd and colleagues (Boyd et al., 2007).

3.2.4 Statistical analysis

We used multilevel logistic regression for repeated measures to obtain adjusted Odds Ratios (OR) for independent variables from the use of medicines models. Confidence intervals of 95% (95% CI) were calculated. These models are more flexible than traditional models and therefore allow us to work with correlated data. In our data, we have potentially three measures of the same subject (at the ages of 18, 20, and 27).

Maximal models were generated, including all theoretical independent variables. From these maximal models, final models were generated. Final models included all significant variables or non-significant variables when their exclusion changed the OR of other variables by more than 10%. Data were analyzed using Generalized Linear Mixed Models in SPSS v.20 statistical software.



4

Results



4 Results

4.1 Validation of AUDIT, AUDIT-C and AUDIT-3

The questionnaire response rate in the classroom was 99%. The main characteristics of the male and female samples according to the alcohol consumption profiles are shown in Table 1 and 2.

Table 1. Main characteristics of the female sample for validation of AUDIT.

	Binge drinkers (n=183)	Non-Binge drinkers (n=85)
Age of onset of alcohol consumption mean [95%CI]	15.0 (14.8 – 15.1)	16.2 (15.9 – 16.5)
Alcohol consumption per week (grams)		
Quartile 1	95	0
Quartile 2	140	0
Quartile 3	200	30
mean [95%CI]	163.6 (149.3 – 177.9)	15.5 (10.8 – 22.1)
Number of binge drinking sessions per week:		
Quartile 1	1	
Quartile 2	2	
Quartile 3	2	
mean [95%CI]	1.7 (1.6 – 1.8)	
Alcohol consumption during binge drinking session of maximum consumption (grams):		
Quartile 1	60.0	
Quartile 2	80.0	
Quartile 3	100.0	
mean [95%CI]	86.7 (82.5 – 90.0)	
Blood Alcohol Concentration during binge drinking session of maximum consumption (grams/litre):		
Quartile 1	1.64	0
Quartile 2	2.13	0
Quartile 3	2.61	0
mean [95%CI]	2.19 (2.07 – 2.30)	.02 (.00 – .05)
Duration of one binge drinking session (hours):		
Quartile 1	2.40	
Quartile 2	3.30	
Quartile 3	3.97	
mean [95%CI]	3.32 (3.15 – 3.49)	
Weight, Kg Mean [95%CI]	56.4 (55.4 – 57.3)	57.3 (55.4 – 59.1)
Global Severity Index Mean [95%CI]	.36 (.33 – .38)	.29 (.26 – .33)

Table 2. Main characteristics of the male sample for validation of AUDIT.

	Binge drinkers (n=92)	Non-Binge drinkers (n=69)
Age of onset of alcohol consumption Mean [95%CI]	15.2 (14.9 – 15.4)	16.1 (15.8 – 16.4)
Alcohol consumption per week (grams) Quartile 1	120	0
Quartile 2	200	0
Quartile 3	300	75
mean [95%CI]	230.9 (202.0 – 259.7)	50.8 (26.2 – 75.4)
Number of binge drinking sessions per week Quartile 1	1	
Quartile 2	2	
Quartile 3	2	
mean [95%CI]	1.6 (1.5 – 1.8)	
Alcohol consumption during binge drinking session of maximum consumption (grams): Quartile 1	80.0	
Quartile 2	112.5	
Quartile 3	140.0	
mean [95%CI]	119.7 (110.0 – 129.4)	
Blood Alcohol Concentration during binge drinking session of maximum consumption (grams/litre): Quartile 1	1.16	0
Quartile 2	1.58	0
Quartile 3	2.09	0
mean [95%CI]	1.70 (1.57 – 1.84)	.09 (.03 – .14)
Duration of one binge drinking session (hours): Quartile 1	3.30	
Quartile 2	4.19	
Quartile 3	5.66	
mean [95%CI]	4.67 (4.29 – 4.04)	
Weight, Kg Mean [95%CI]	71.7 (69.7 – 73.6)	73.2 (70.5 – 75.9)
Global Severity Index Mean [95%CI]	.28 (.25 – .31)	.29 (.26 – .33)

The average age of women and men in our sample was 18.6 (95 % CI: [18.5 – 18.7]) and 18.8 (95% CI: [18.7 – 18.8]), respectively. The mean age of onset of alcohol consumption was 15.8 (95% CI: [15.6 – 15.9]) for women and 16.0 (95% CI: [15.8 – 16.2]) for men.

The average amount of alcohol consumed per binge drinking session was 86.7g (95% CI: [83.3 – 91.7]) among females and 119.7g (95% CI: [110.0 – 129.4]) among males; the amount was less than 1g in non-binge drinkers of both sexes. The differences in consumption by binge drinkers and non-binge drinkers are also reflected in the number grams of alcohol consumed per week: respectively 165.2g and 17.2g in females and 230.9g and 50.8g in males. Finally, the Global Severity Index (GSI) scores indicated that the sample population did not have any psychopathological symptoms. The GSI scores were similar in binge drinkers and non-binge drinkers.

The internal consistency of the AUDIT was .75. Construct validity analysis showed three principal components explaining 54.3% of the variability. The variables associated with each component and their correlations were as follows: Component 1 (variables: 1st .75; 2nd .80; 3rd .77; 7th .57; and 8th .68), Component 2 (4th .60; 6th .50; and 9th .77) and Component 3 (5th .51; and 10th .82). For AUDIT-C, Cronbach's alpha was .80 and construct validity analysis revealed one principal component explaining 71.3% of the variability.

Table 3 and Figure 1 depict the effectiveness of three diagnostics tests in the female students. The three versions of the AUDIT yielded high values for the AUC. For a prevalence of 40%, the best cut-off for the

AUDIT test was ≥ 4 . This test detected 77.5% of BD females and 88.8% of the non-BD. The sensitivity increased slightly when the cut-off was changed to 3, but the specificity was much lower. Similar results were obtained for AUDIT-C, with improved specificity and sensitivity when the cut-off point was set at 3. In the case of AUDIT-3, identification of the non-BD students was much better, with a cut-off score ≥ 1 , although the test was less sensitive. Finally, the AUC that included most BD women was generated by the AUDIT-C test: .95 (95% CI: [.93 – .97]), followed by AUDIT and AUDIT-3.

Table 3: Effectiveness of AUDIT, AUDIT-C and AUDIT-3 in detecting binge drinking in female university students.

	Area under the curve (95% CI)	Cut-off	Sensitivity %	Specificity %
AUDIT	.94 (.91 – .97)	≥ 1	100	25.6
		≥ 2	100	61.6
		≥ 3	93.2	77.9
		≥ 4	84.2	83.7
AUDIT-C	.95 (.93 – .97)	≥ 1	100	26.4
		≥ 2	97.2	69.0
		≥ 3	82.8	92.8
		≥ 4	55.8	100
		≥ 5	23.2	100
AUDIT-3	.75 (.70 – .81)	≥ 1	56.1	94.0
		≥ 2	12.8	100

^a Calculated for a hypothetical prevalence of binge drinking of 40%

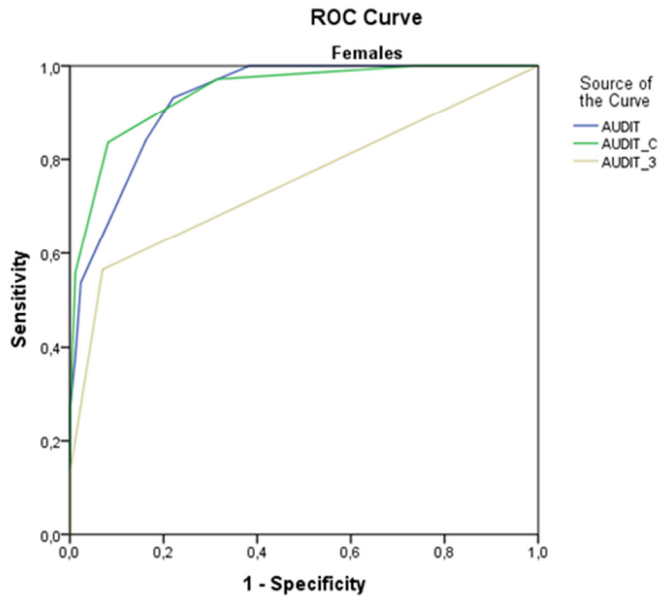


Figure 1: ROC curves for AUDIT, AUDIT- C and AUDIT-3 among female students who practice binge drinking. Area Under Curve for AUDIT was .93 (95%CI: [.90 –.97]), for AUDIT-C .94 (95%CI: [.92 – .97]); and for AUDIT-3 .75 (95%CI: [.70 –.81]).

For men, the effectiveness also varied for different cut-off points. The results suggest that cut-off scores of ≥ 4 on the AUDIT and ≥ 4 on the AUDIT-C are optimal for males, and AUDIT-3 is consistent with a cut-off point ≥ 2 .

The AUDIT-C provided the best result for the AUC: .88 (95% CI: [.82 – .94]), followed by AUDIT and AUDIT-3, as in females. These data are shown in Table 4 and Figure 2.

Table 4. Effectiveness of AUDIT, AUDIT-C and AUDIT-3 in detecting binge drinking in male university students.

	Area under the curve (95% CI)	Cut-off	Sensitivity %	Specificity %
AUDIT	.84 (.78 – .90)	≥2	100	50.7
		≥3	96.7	59.4
		≥4	83.7	72.5
		≥5	73.9	75.4
AUDIT-C	.88 (.82 – .94)	≥2	100	53.6
		≥3	94.6	63.8
		≥4	77.2	81.2
		≥5	49.5	94.2
AUDIT-3	.79 (.72 – .86)	≥1	77.2	73.9
		≥2	39.1	95.7

^a Calculated for a hypothetical prevalence of binge drinking of 40%

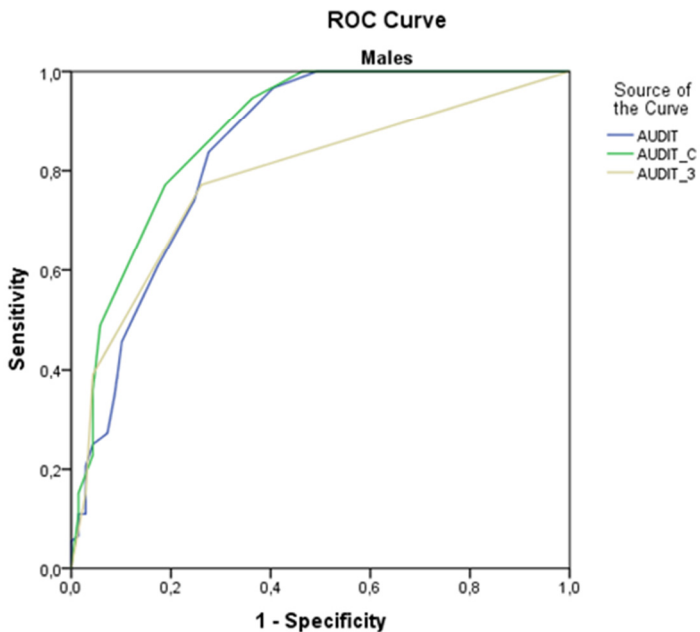


Figure 2: ROC curves for AUDIT, AUDIT- C and AUDIT-3 among male students who practice binge drinking. Area Under Curve for AUDIT was .84 (95%CI: [.78 – .90]), for AUDIT-C .88 (95%CI: [.82 – .94]); and for AUDIT-3 .79 (95%CI:[.72 – .86]).

Tables 5 and 6 also show results for Positive and Negative Predictor Values. These were best for the optimal cut-off point for the three versions of AUDIT and were estimated for a prevalence of 40%. These tables also include Positive and Negative Likelihood Ratios for different cut-off points.

Table 5. Positive and Negative Likelihood Ratios of AUDIT, AUDIT-C and AUDIT-3 for different cut-off points in detecting binge drinking in female university students.

	Cut-off	Positive Likelihood ratio	Negative Likelihood Ratio	Positive Predictor Value ^a %	Negative Predictor Value ^a %
AUDIT	≥1	1.34	.00	47.2	99.7
	≥2	2.60	.00	63.4	99.9
	≥3	4.22	.09	73.8	94.5
	≥4	5.17	.19	77.5	88.8
AUDIT-C	≥1	1.36	.00	47.5	99.8
	≥2	3.14	.04	67.6	97.4
	≥3	10.45	.18	88.5	89.0
	≥4	558.0	.44	99.7	77.2
	≥5	232.0	.77	99.4	63.1
AUDIT-3	≥1	9.35	.47	86.2	76.3
	≥2	128.00	.87	98.9	63.2

^a Calculated for a hypothetical prevalence of binge drinking of 40%

Table 6. Positive and Negative Likelihood Ratios of AUDIT, AUDIT-C and AUDIT-3 for different cut-off points in detecting binge drinking in male university students.

	Cut-off	Positive Likelihood ratio	Negative Likelihood Ratio	Positive Predictor Value ^a %	Negative Predictor Value ^a %
AUDIT	≥2	2.03	.00	57.5	99.9
	≥3	2.38	.06	61.4	96.4
	≥4	3.04	.22	67.0	87.0
	≥5	3.00	.35	66.7	81.3
AUDIT-C	≥2	2.15	.00	58.9	99.9
	≥3	2.61	.08	63.5	94.7
	≥4	4.11	.28	73.2	84.2
	≥5	8.53	.54	85.1	73.7
AUDIT-3	≥1	2.96	.31	66.4	82.9
	≥2	9.09	.64	85.8	70.2

^a Calculated for a hypothetical prevalence of binge drinking of 40%

Finally, we identified the best diagnostic test and calculated the AUC and optimal cut-off point in order to identify "heavy" binge drinkers, as those who reach $BAC \geq 2.61$ (tertile 3). For males, the AUDIT-C provided the best result for the AUC: .87 (95% CI: [.78 – .95]), with an the optimal cut-off point of ≥ 6 , a sensitivity of 100% and a specificity of 61.6%; while for females, the AUDIT-C also provided the best result for the AUC: .83 (95% CI: [.78 – .89]), with an optimal cut-off point of ≥ 4 , sensitivity of 77.3% and a specificity of 69.5%.

4.2 Consumption of medicines and alcohol, tobacco and cannabis

The description of the initial sample, the two-year follow-up sample, and the nine-year follow-up sample at the beginning of the study for women and men are summarised in Table 7 and 8. There were no significant differences between samples.

Table 7. Description of the women initial sample and follow-up samples at the beginning of the study. Compostela Cohort 2005.

	Percentage or mean (95%CI)		
	Initial (18-19 years old) n =992	2-year follow-up (20-21 years old) n =669	9.5-year follow-up (27-28 years old) n =325
Age of onset of alcohol use			
After 16 years old	19.0 (16.5 – 21.8)	17.9 (14.9 – 21.3)	14.5 (10.5 – 19.2)
At 16 years old	38.9 (35.6 – 42.2)	38.1 (34.1 – 42.2)	36.6 (30.9 – 42.6)
At 15 years old	25.6 (22.7 – 28.7)	25.9 (22.3 – 29.6)	28.3 (23.0 – 34.0)
Before age of 15 years	16.5 (14.0 – 19.7)	18.1 (15.0 – 21.5)	20.7 (16.0 – 25.9)
AUDIT^a score (mean)	5.4 (5.2 – 5.7)	5.6 (5.1 – 5.8)	5.3 (4.9 – 5.8)
Binge drinking (%)			
Never	61.2 (58.2 – 64.3)	61.3 (57.7 – 65.1)	60.0 (54.8 – 65.4)
Less than once a month	20.9 (17.8 – 23.9)	20.9 (17.3 – 24.7)	22.5 (17.2 – 27.9)
Monthly	9.8 (6.7 – 12.8)	9.1 (5.5 – 12.9)	9.8 (4.6 – 15.3)
More frequently	8.2 (5.1 – 11.2)	8.7 (5.1 – 12.5)	7.7 (2.5 – 13.1)
Cannabis consumption	18.6 (16.2 – 21.1)	19.0 (15.9 – 22.0)	18.8 (14.4 – 23.2)
Tobacco consumption	31.0 (28.1 – 34.0)	31.5 (27.9 – 35.1)	32.9 (27.7 – 38.2)

^a Alcohol Use Disorders Identification Test

Table 8. Description of the men initial sample and follow-up samples at the beginning of the study. Compostela Cohort 2005.

	Percentage or mean (95%CI)		
	Initial (18-19 years old) n =371	2-year follow-up (20-21 years old) n =206	9.5-year follow-up (27-28 years old) n =90
Age of onset of alcohol use			
After 16 years old	18.1 (12.5 – 24.1)	16.8 (9.2 – 24.7)	18.2 (7.8 – 30.3)
At 16 years old	36.9 (31.2 – 42.8)	41.0 (33.5 – 49.0)	48.1 (37.7 – 60.1)
At 15 years old	21.6 (15.9 – 27.5)	20.2 (12.7 – 28.2)	20.8 (10.4 – 32.8)
Before age of 15 years	23.4 (17.8 – 29.4)	22.0 (14.4 – 30.0)	13.0 (2.6 – 25.1)
AUDIT^a score (mean)	7.8 (7.2 – 8.4)	7.4 (6.6 – 8.2)	7.1 (6.0 – 8.2)
Binge drinking (%)			
Never	39.1 (34.0 – 44.7)	43.2 (36.4 – 50.6)	45.6 (35.6 – 56.5)
Less than once a month	25.3 (20.2 – 31.0)	20.4 (13.6 – 27.8)	21.1 (11.1 – 32.1)
Monthly	12.7 (7.5 – 18.3)	14.6 (7.8 – 22.0)	15.6 (5.6 – 26.5)
More frequently	22.9 (17.8 – 28.6)	21.8 (15.0 – 29.2)	17.8 (7.8 – 28.8)
Cannabis consumption	27.0 (22.3 – 31.6)	27.7 (21.3 – 34.0)	24.4 (15.0 – 33.9)
Tobacco consumption	27.5 (22.8 – 32.2)	21.8 (16.0 – 27.7)	24.4 (15.0 – 33.9)

^a Alcohol Use Disorders Identification Test

The prevalence of risky consumption, binge drinking, tobacco consumption and cannabis consumption at baseline and after 2 years and 9 years are shown in Table 9 and 10. There was a significant reduction in the consumption of all substances and the specific patterns of consumption in the intervening period. Prevalence of consumption for males remains higher than for females for all drugs, except for tobacco consumption.

Table 9. Prevalence of alcohol, tobacco and cannabis consumption at the beginning of the study, and at 2-year and 9-year follow-up among females. Compostela Cohort 2005.

	Percentage (95%CI)		
	Initial	2-year follow-up	9.5-year follow-up
Risky consumption	51.5	52.2	20.9
Binge drinking. Never	61.2	56.4	60.0
Less than once a month	20.9	26.9	22.5
More frequently	17.9	16.7	17.5
Cannabis consumption	18.6	16.1	4.0
Tobacco consumption	31.0	19.4	16.9

Table 10. Prevalence of alcohol, tobacco and cannabis consumption at the beginning of the study, and at 2-year and 9-year follow-up among males. Compostela Cohort 2005.

	Percentage (95%CI)		
	Initial	2-year follow-up	9.5-year follow-up
Risky consumption	58.0	62.2	31.1
Binge drinking			
Never	39.1	34.5	45.6
Less than once a month	25.3	26.7	21.1
More frequently	35.6	38.8	33.4
Cannabis consumption	27.0	19.9	8.9
Tobacco consumption	27.5	19.4	10.1

Table 11 presents the proportions of subjects consuming the different medicines with or without medical prescription during the last 15 days at baseline and at 2 and 9 years. The proportions of subjects consuming drugs without medical prescription on the total of subjects consuming drugs are shown in Table 12. Proportions of subjects consuming medication for pain, fever, colds and flus increase over time at the expense of medication without medical prescription. However, anxiolytics, sedatives, antidepressants and stimulants decrease and subjects remain consuming them under medical supervision.

Table 11. Proportions of subjects that have used medicines during the previous 15 days. Compostela Cohort 2005.

	Percentages (%)					
	Subjects consuming drugs with medical prescription			Subjects consuming drugs without medical prescription		
	at 18y	at 20y	at 27y	at 18y	at 20y	at 27y
Medication for pain or fever	7.9	6.3	12.0*	15.9	19.0	36.9*
Anxiolytics, sedatives	1.9	1.7	3.4	3.0	2.6	1.0
Antidepressants, stimulants	.9	2.4	1.4*	.5	.3	.0
Medication for colds, flu	12.4	4.7	8.2*	21.7	15.2	15.7*
Antibiotics	11.5	5.7	6.7*	3.1	1.4	.2*
Vitamins, minerals, tonics	5.3	2.6	5.3*	6.8	8.1	9.2
Contraceptives ^a	12.4	25.9	39.7*	3.2	4.6	6.8*
Any medication ⁺	31.2	27.7	32.5	35.5	33.3	49.6*

^a Out of the total number of female students

⁺ Contraceptives excluded

* Comparison of proportions, $p < .05$

Table 12. Proportions of subjects consuming drugs without prescription on the total of subjects consuming drugs. Compostela Cohort 2005.

	Percentages (%)		
	at 18y	at 20y	at 27y
Medication for pain or fever	67.2	75.6	76.1
Anxiolytics, sedatives	61.2	60.5	22.2*
Antidepressants, stimulants	36.8	12.5	.0*
Medication for colds, flu	64.0	77.8	67.0
Antibiotics	21.5	19.2	3.4*
Vitamins, minerals, tonics	56.4	75.5	64.4
Contraceptives ^a	20.6	15.2	14.7
Any medication ⁺	61.3	61.9	70.8

^a Out of the total number of female students

⁺ Contraceptives excluded

* Comparison of proportions, $p < .05$

Table 13 and 14 present proportions of subjects consuming medical drugs during the last 15 days in relation to age of onset of use of alcohol, RC, BD and tobacco use at 18, 20 and 27 years. Females are more prevalent users of medication than males throughout the follow-up period. A total of 50% of university students consume drugs without medical prescription, at the end of the follow up period, compare to 35% who did it at the beginning.

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Table 13. Use of medicines at 18, 20 and 27 years old by profiles of substance use among females. Compostela Cohort 2005.

	Percentage of subjects (%)		
	at 18y	at 20y	at 27y
Age of onset of use of alcohol			
After 16 years old	54.9	52.9	70.0
At 16	59.7	51.1	73.3
At 15	67.9	57.3	73.1
Before the age of 15	67.6*	62.9	77.2
Alcohol risky consumption. No	58.0	51.9	71.2
Yes	64.4*	58.5	80.9
Binge drinking. No	60.2	54.0	72.8
Yes	66.6	61.6	81.2
Cannabis consumption. No	58.4	55.1	72.1
Yes	74.1	56.5	100*
Tobacco consumption. No	57.7	55.5	71.1
Yes	68.8*	56.2	83.6*
Total	61.3	55.3	73.2

* p<.05 among categories

Table 14. Use of medicines at 18, 20 and 27 years old by profiles of substance use among males. Compostela Cohort 2005.

	Percentage of subjects (%)		
	at 18y	at 20y	at 27y
Age of onset of use of alcohol			
After 16 years old	48.3	41.4	71.4
At 16	50.0	46.5	43.2
At 15	42.0	60.0	68.8
Before the age of 15	56.0	50.0	70.0
Alcohol risky consumption. No	45.5	41.6	58.1
Yes	50.2	50.4	60.7
Binge drinking. No	48.1	48.4	58.3
Yes	48.5	45.0	61.1
Cannabis consumption. No	46.9	42.4	59.8
Yes	52.0	65.9*	50.0
Tobacco consumption. No	44.6	42.8	58.0
Yes	57.8*	65.0*	66.7
Total	48.2	47.1	58.9

* p<.05 among categories.

Proportions of subjects consuming the different medicines with or without medical prescription during the last 15 days are shown in Tables 15 and 16. In general, the prevalence of use of medicines without medical prescription among cannabis, tobacco, RC and BD users is greater than among non-users.

Prevalence among subjects beginning to use alcohol at a younger age is also higher. There are no significant differences for use of medicines with medical prescription.

Table 15. Use of medicines with and without medical prescription at 18, 20 and 27 years old by profiles of substance use among females. Compostela Cohort 2005.

	Percentage of subjects (%)					
	Use of medicines with medical prescription			Use of medicines without medical prescription		
	at 18y	at 20y	at 27y	at 18y	at 20y	at 27y
Age of onset of use of alcohol						
After 16 years old	35.4	32.7	35.5	26.8	29.8	42.5
At 16	29.9	27.6	32.7	36.4	30.8	50.5
At 15	36.2	26.7	29.5	43.0	35.1	56.4
Before the age of 15	39.4	30.5	40.4	45.8*	41.0*	54.4
Alcohol risky consumption. No	34.9	32.0	34.2	31.0	30.3	49.0
Yes	32.9	28.7	32.4	42.3*	37.2	60.3
Binge drinking. No	34.5	29.1	33.7	34.6	33.2	51.1
Yes	30.9	30.4	37.5	46.6*	37.5	56.2
Cannabis consumption. No	32.8	30.3	33.0	33.8	33.0	51.3
Yes	38.4	24.1	53.8	49.7	38.9*	53.8
Tobacco consumption. No	32.5	28.6	33.7	34.1	34.7	47.8
Yes	37.0	32.3	34.5	42.9*	30.8	69.1*
Total	33.9	29.3	33.8	36.8	33.9	51.4

* $p < .05$ among categories.

Table 16. Use of medicines with and without medical prescription at 18, 20 and 27 years old by profiles of substance use among males. Compostela Cohort 2005.

	Percentage of subjects (%)					
	Use of medicines with medical prescription			Use of medicines without medical prescription		
	at 18y	at 20y	at 27y	at 18y	at 20y	at 27y
Age of onset of use of alcohol						
After 16 years old	25.9	10.3	35.7	27.6	34.5	42.9
At 16	28.0	19.7	24.3	33.1	31.0	32.4
At 15	17.4	22.9	31.2	27.5	40.0	56.2
Before the age of 15	25.3	34.2*	30.0	40.4	26.3	50.0
Alcohol risky consumption. No	26.3	19.5	29.0	26.3	29.9	4.9
Yes	21.9	24.8	25.0	36.3*	30.2	46.4
Binge drinking. No	24.3	25.4	27.8	31.0	30.2	43.1
Yes	22.7	18.8	27.8	34.1	30.0	44.4
Cannabis consumption. No	24.0	20.6	26.8	30.3	26.7	43.9
Yes	23.0	31.7	37.5	37.0	43.9*	37.5
Tobacco consumption. No	23.4	22.3	25.9	29.7	25.9	43.2
Yes	24.5	25.0	44.4	38.2	47.5*	44.4
Total	23.7	22.8	27.8	32.1	30.1	43.3

* p<.05 among categories.

Concerning use of medicines without medical prescription among women, the multivariate logistic regression models showed that RC (OR=1.35; 95%CI:[1.08 – 1.69]) and cannabis consumption (OR=1.35; 95% CI:[1.03 – 1.77]) are risk factors, while beginning to use alcohol at an older age (OR=.61; 95% CI: [.43 – .83]) constitutes a protective factor (Table 17).

Regarding to men, bivariate logistic regression shows use of medicines without medical prescription is associated with tobacco

consumption (OR=1.61; 95% CI:[1.11 – 1.35]) and with cannabis consumption (OR=95% CI:[.99 – 2.09]) (Table 17).

Table 17. Influence of age of onset of alcohol consumption, alcohol, tobacco and cannabis use of medicines without medical prescription. Logistic regression. Compostela Cohort 2005.

	Odds ratio (95% Confidence Interval)		
	Women		Men
	Bivariate	Multivariate ^a	Bivariate
Age of onset of use of alcohol			
Before the age of 15	1	1	1
At 15	.88 (.66 – 1.18)	.92 (.68 – 1.23)	.92 (.55 – 1.56)
At 16	.69 (.52 – .90)	.65 (.57 – .99)	.83 (.52 – 1.32)
After 16 years old	.51 (.36 – .71)	.61 (.43 – .83)	.80 (.46 – 1.40)
Alcohol risky consumption.			
No	1	1	1
Yes	1.34(1.12 – 1.61)	1.35(1.08 – 1.69)	1.24(.89 – 1.72)
Binge drinking.			
No	1		1
Yes	1.33(1.04 – 1.70)		1.04(.74 – 1.46)
Cannabis consumption.			
No	1	1	1
Yes	1.49 (1.17 – 1.91)	1.35 (1.03 – 1.77)	1.43 (.99 – 2.09)
Tobacco consumption.			
No	1		1
Yes	1.27 (1.03 – 1.56)		1.61 (1.11 – 1.35)
Age of the subjects.			
18 years-old	1	1	1
20 years-old	.88 (.71 – 1.08)	.83 (.67 – 1.04)	.91 (.63 – 1.32)
27 years-old	1.82 (1.41 – 2.34)	2.04 (1.52 – 2.73)	1.62 (1.01 – 2.60)

^a Adjusted by the all variables included in the column.

Regarding to use of medicines with medical prescription among women, the multivariate logistic regression models showed that just age of onset of use of alcohol at 16 (OR=.73; 95% CI:[.54 – .97]) is a

protective factor. Finally, concerning use among men, no variables considered showed effect on use of medicines with medical prescription (Table 18).

Table 18. Influence of age of onset of alcohol consumption, alcohol, tobacco and cannabis use of medicines with medical prescription. Logistic regression. Compostela Cohort 2005.

	Odds ratio (95% Confidence Interval)		
	Women		Men
	Bivariate	Multivariate ^a	Bivariate
Age of onset of use of alcohol			
Before the age of 15	1	1	1
At 15	.81 (.60 – 1.10)	.81 (.60 – 1.10)	.65 (.36 – 1.18)
At 16	.73 (.55 – .98)	.73 (.54 – .97)	.82 (.50 – 1.34)
After 16 years old	.92 (.66 – 1.28)	.91 (.66 – 1.27)	.71 (.39 – 1.32)
Alcohol risky consumption.			
No	1		1
Yes	.91(.76 – 1.10)		.90(.63 – 1.29)
Binge drinking.			
No	1		1
Yes	.94(.72 – 1.22)		.82(.56 – 1.21)
Cannabis consumption.			
No	1		1
Yes	1.08 (.84 – 1.40)		1.17 (.77 – 1.78)
Tobacco consumption.			
No	1		1
Yes	1.21 (.98 – 1.50)		1.13 (.75 – 1.72)
Age of the subjects.			
18 years-old	1	1	1
20 years-old	.81 (.65 – 1.00)	.78 (.62 – .98)	.95 (.63 – 1.43)
27 years-old	1.00 (.77 – 1.30)	.98 (.73 – 1.30)	1.24 (.73 – 2.08)

^a Adjusted by the all variables included in the column.

4.3 Non-medical use of prescription drugs and consumption of alcohol, tobacco and cannabis

The proportion of NMUPD in relation to age of onset of alcohol use, risky consumption, binge drinking, cannabis and tobacco use at the ages of 18, 20 and 27 years is shown in Table 19. In general, the prevalence of NMUPD was greater among drug users (cannabis, tobacco, risky consumption, and binge drinkers) than among non-users.

Table 19. Prevalence of non-medical use of prescription drugs at 18, 20 and 27 years old in relation to the substance use profiles of the subjects. Compostela Cohort 2005.

	Proportion of subjects (%)					
	Females			Males		
	at 18y	at 20y	at 27y	at 18y	at 20y	at 27y
Age of onset of use of alcohol						
After 16 years old	12.2	19.2	40.0	15.5	10.3	35.7
At 16	17.0	19.0	36.6	16.9	14.1	16.2
At 15	23.5	24.7	43.6	8.7	17.1	31.2
Before the age of 15	26.8*	27.6	45.6	18.7	15.8	40.0
Alcohol risky consumption. No	15.8	18.4	37.0	14.7	16.9	29.0
Yes	21.7*	26.1*	50.5*	15.3	14.0	25.0
Binge drinking. Never	16.3	21.2	36.2	15.9	16.9	35.1
Less than once a month	21.7	21.7	48.1	13.8	18.2	22.9
More frequently	24.2*	27.7	43.8	15.2	11.2	22.2
Cannabis use. No	17.1	20.9	39.7	14.4	15.2	30.5
Yes	26.5*	30.6*	38.5	17.0	14.6	
Tobacco use. No	17.7	21.7	35.2	14.1	12.7	29.6
Yes	21.4	25.4	58.2*	17.6	25.0*	11.1
Total	18.9	22.4	39.7	15.1	15.0	27.8

* $p < .05$ between categories

The prevalence of NMUPD was highest in females with risky alcohol consumption (Table 19) and tended to increase over time. In addition, the prevalence of NMUPD was higher in females who started to consume alcohol before the age of 15 than in those who began consuming alcohol after this age.

The trends in the prevalence of NMUPD during the study period for students who had consumed and students who had not consumed NMUPD at the beginning of the study are shown in Fig. 3 (females) and Fig. 4 (males). The prevalence rates were higher throughout the study in students who already partook in NMUPD at the beginning of study in both males and females. The prevalence of NMUPD was higher in both groups (already users or not) in both sexes in early adulthood (27-28 years old). At age 27 the difference between those who started university already partaking in NMUPD and those who did not partake in NMUPD was 19 percent points for females (see Figure 3) and 24 percent points for males (see Figure 4).

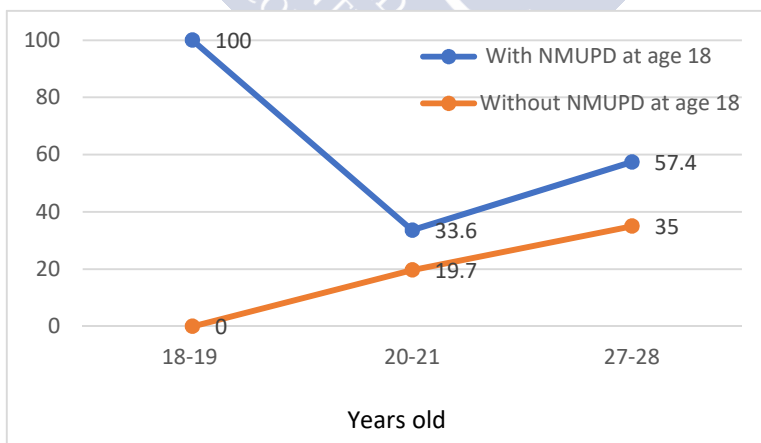


Figure 3. Trends in non-medical use of prescription drugs (NMUPD) (%) among women who already partook and who did not partake in this type of drug use at the beginning of the study. Compostela Cohort 2005.

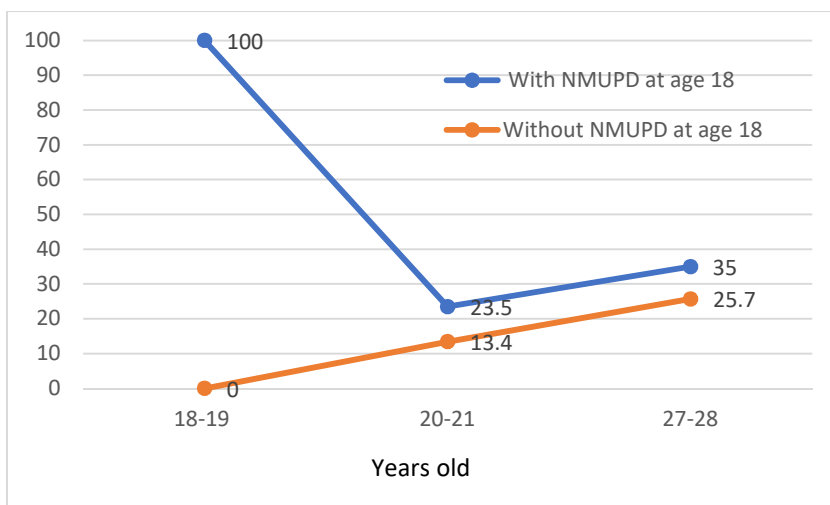


Figure 4. Trends in non-medical use of prescription drugs (NMUPD) (%) among men who already partook and who did not partake in this type of drug use at the beginning of the study. Compostela Cohort 2005.

Among females, the multivariate logistic regression models showed that risky alcohol consumption (OR=1.43; 95% CI: [1.10 – 1.86]) and cannabis consumption (OR=1.33; 95% CI: [.99 – 1.81]) are risk factors for NMUPD. Later onset of alcohol use at 16 (OR= .63; 95% CI: [.48 – .90]) and after 16 (OR= .66; 95 CI%: [.42 – .94]) constitutes a protective factor. Finally, the bivariate analysis revealed that a high frequency of binge drinking is also associated with NMUPD (OR=1.38; 95%CI: [1.04 – 1.84]) (Table 20).

Among males, there was no association between substance use or the age of drinking onset and NMPUD. The statistical models were rerun without including the stimulants medication for both sexes, and the findings did not differ. The final model also showed that the risk of consuming NMUPD increases with age in both sexes. The risk of

incidence of NMUPD in women at age 27 is three times the risk at age 18 years, whereas in men the risk is twice as high for the same ages (Table 20).

Table 20: Influence of age of onset of alcohol use and substance use in the non-medical use of prescription drugs. Logistic regression. Compostela Cohort 2005.

	Odds ratio (95% Confidence Interval)		
	Females		Males
	Bivariate	Multivariate ^a	Bivariate
Age of onset of use of alcohol			
Before the age of 15	1	1	1
At 15	.85 (.62 – 1.18)	.89 (.64 – 1.24)	.66 (.33 – 1.32)
At 16	.59 (.43 – .80)	.63 (.48 – .90)	.81 (.46 – 1.45)
After 16 years old	.49 (.33 – .72)	.66 (.42 – .94)	.81 (.40 – 1.62)
Alcohol risky consumption			
No	1	1	1
Yes	1.31 (1.06 – 1.62)	1.43 (1.10 – 1.86)	.86 (.57 – 1.30)
Binge drinking			
Never	1		1
Less than once a month	1.27 (.99 – 1.64)		.89 (.54 – 1.49)
More frequently	1.38 (1.04 – 1.84)		.75 (.46 – 1.22)
Cannabis use			
No	1	1	1
Yes	1.48 (1.13 – 1.93)	1.33 (.99 – 1.81)	.96 (.59 – 1.58)
Tobacco use			
No	1		1
Yes	1.23 (.97 – 1.56)		1.36 (.85 – 2.17)
Age of the subjects			
18 years-old	1	1	1
20 years-old	1.24 (.98 – 1.56)	1.19 (.91 – 1.55)	1.00 (.62 – 1.61)
27 years-old	2.83 (2.16 – 1.73)	3.45 (2.50 – 4.74)	2.16 (1.25 – 3.73)

^a Adjusted by all variables included in the column





5

Discussion



5 Discussion

5.1 Validation of AUDIT, AUDIT-C and AUDIT-3

The study results show that AUDIT, AUDIT-C and AUDIT-3 are valid screening tools for binge drinking in young male and female university students, and that AUDIT-C is the best option. In relation to reliability, our findings are consistent with those of other authors who tested the validity of these tests in Primary Care (Dawson et al., 2005), in male and female war veterans (Bradley et al., 2003; Tuunanen et al., 2007) and in university and school (underage) students (Cortés-Tomás et al., 2016; Demartini & Carey, 2012).

The study findings show that AUDIT-C is more accurate than AUDIT and AUDIT-3 for classifying university students as BD or non-BD. We propose cut-off values of ≥ 3 for females and ≥ 4 for males. These cut-off values have also been used by other authors in studies conducted in similar populations (Gordon et al., 2001; Cortés-Tomás et al., 2016).

For the full AUDIT, we confirm that a cut-off point of ≥ 4 is optimal for identifying BD, with no differences in males and females. This cut-off is consistent with results reported in previous studies carried out with similar populations (Chung et al., 2000). Nonetheless, our findings differ slightly from those of other studies (Kokotailo et al., 2004; Cortés-Tomás et al., 2016; Reinert & Allen, 2007). There are

three four possible reasons for these differences: 1) the different sociocultural environments in diverse studies, which may be associated with differences in whether the subjects recognize alcohol abuse (Midanik, 1988); 2) the quantity of alcohol in one SDU differs across the countries, and the numbers of SDU required to reach a BAC of .8 g/l may also differ (Parada et al., 2011); 3) differences in drinking patterns between binge drinkers and non-binge drinkers across unlike populations: this aspect modifies the sensitivity and specificity of the diagnostic test (Leeftang et al., 2013); and 4) the gold standard used in the studies. We calculated the blood alcohol concentration by taking into account sex and weight of participants according to Hustad and Carey (2005). The third version of the test considered, AUDIT-3, performed well with a cut-off ≥ 1 for females and ≥ 2 for males. However, the sensitivity and specificity of this diagnostic test were lower than those of the other versions of the test.

In order to better understand the utility of the three diagnostic tests considered, we calculated positive and negative likelihood ratios (Dujardin, Van den Ende, Van Gompel, Unger, & Van der Stuyft, 1994). All tests produced reasonably good positive and negative likelihood ratios. AUDIT-C was optimal for detecting BD, particularly with a cut-off ≥ 3 and females and ≥ 4 in males, as it yielded the best positive and negative likelihood ratios for both sexes, followed by AUDIT and AUDIT-3. This indicates the usefulness of the diagnostic tests considered.

Finally, we also calculated Positive and Negative predictor values for all three diagnostic tests. High values of both parameters were

obtained for females and males and in the three tests, and the AUDIT-C produced the highest values. Estimates of the prevalence of BD among university students were conservative relative to the reports by the Spanish Drug Observatory (Plan Nacional sobre Drogas, 2014), which indicated that the current prevalence of binge drinking in this age group rose to 51% in 2015.

There are several limitations and strengths in our study. In relation to the limitations: 1) data were collected by self-reported questionnaires, which can lead to under or overestimation of alcohol consumption and also other variables such as weight and age of onset of alcohol use (Midanik, 1988). However, this type of test has been shown to produce reliable results when used with young adults and adolescents (Winters, Stinchfield, Henly & Schwartz, 1990), and any misrepresentative results would probably affect descriptive rather than analytical findings (Rothman, Greenland & Lash, 2008); 2) weight was also determined in a the same self-report questionnaire rather than being accurately measured; and 3) we used Widmarck's formula (Hustad & Carey, 2005) to estimate BAC rather than testing blood extracted from students. Finally, and in relation to the strengths: 1) we used a one-week alcohol timeline follow back; and 2) the cut-off points differed in relation to gender, confirming the tendency reported in other studies.

In view of the study's findings, we conclude that AUDIT-C is the best tool for determining binge drinking use among young male and female university students. AUDIT and AUDIT-C may be used to identify "heavy" binge drinkers among both male and female university

students. These findings can potentially contribute to the ability of busy clinicians to perform routine screenings inasmuch as our findings show that shorter versions of AUDIT can be used to detect the binge drinking patterns of alcohol consumption.

5.2 Consumption of medicines and alcohol, tobacco and cannabis

Our findings reveal a very high intake of medicines among university students, most of them without a medical prescription that increases over time. On the contrary, for both patterns of alcohol consumption and for tobacco and cannabis we can appreciate a significant reduction. Consumption of medicines without prescription shows a significant association with consumption of alcohol, tobacco and cannabis. No associations were found for use of medicines with prescription.

The proportion of subjects that have consumed medicines without prescription at the end of 9.5-year follow-up is higher than initially, in order to 10 percentage points. This proportion is significantly higher than that revealed by the Spanish National Health Survey. (Instituto Nacional de Estadística, 2017) These results have also been found by other authors in studies conducted in similar populations (Caamaño-Isorna et al., 2000; Morales-Suárez-Varela et al., 2009; Carrasco-Garrido et al., 2014). This high prevalence could be explained in part because of the period of collecting data which was at November 2005, November 2007, and March 2015.

The high proportion of pharmacists who dispense drugs without a prescription in Spain (Caamaño-Isorna et al., 2004) may explain part of this high prevalence of self-medication (Caamaño-Isorna et al., 2000) that is similar to other countries for the same population (Caamaño-Isorna et al., 2000). This added to the young need for self-affirmation (Caamaño-Isorna et al., 2000) and personal autonomy (Hemwall, 2010) could increase self-medication.

In our study, significant differences between the consumption of medication for pain or fever, anxiolytics and sedatives, antidepressants and stimulants, antibiotics and contraceptives have been found between the initial study and the 9.5-year follow-up. These differences may be due to the multiple indications for which these drugs can be prescribed, in case of medication for fever, pain, colds and flu (Instituto Nacional de Estadística, 2017).

In relation to anxiolytics and sedatives the consumption is more prevalent than initially, but as medication prescribed by a medical staff. Emphasize that at the beginning of the study, 61.2% of anxiolytics and sedatives were consumed without medical prescription compared to 22.2% of consumption of this medication without prescription at the end of the follow-up. Similar tendencies occur for antidepressants and stimulants. This growing trend of anxiolytic consumption was found by other investigations (Fernández García, Olry de Labry Lima, Ferrer Lopez & Bermúdez Tamayo, 2018).

Consumption of vitamins, minerals and tonics remain high and stable all over the period. This could be related to the easy accessibility to

this kind of product, the erasing reputation of alternative medicines, and the common belief that this medication is not real treatment. (Nargiso et al., 2015) Finally, females present higher prevalence of consumption of medicines. Similar results have been found by other studies (Caamaño-Isorna et al., 2000, Sung, Richter, Vaughan, Johnson, & Thom, 2005; Figueiras, Caamaño-Isorna & Gestal-Otero, 2000; Boyd et al., 2007).

Our results indicate the use of medicines without medical prescription shows a significant association with the alcohol, tobacco and cannabis use. Our results are consistent with those of previous studies (Silvestri et al., 2015; McCabe et al., 2017) that found an association between BD and cannabis with the consumption of medicines without a medical prescription (Caamaño-Isorna et al., 2004; Caamaño-Isorna et al., 2011; McCabe et al., 2006).

After 9.5 years, cannabis and RC for females and cannabis and tobacco consumption for males still present an association to medicine consumption without prescription. The findings for females are consistent with previous studies that found interaction between being female, RC and self-medication pattern. (Caamaño-Isorna et al, 2011) Additionally, the latest onset of alcohol use is also a protective factor for the use of medicines without prescription for females, as other investigations also concluded. (McCabe et al., 2006)

Use of medicines without medical prescription is significantly higher among 27 year old students, according to other studies (McCabe et al., 2006). In this way, more differences by gender were found. Females at

27 years old present double risk of consumption of drugs without prescription and the results are consisted with those of previous investigations (Caamaño-Isorna et al., 2000).

Our study presents three main limitations: 1) As in other cohort studies, the loss of subjects at follow-up can lead to selection bias. Nonetheless, there were no significant differences among participants throughout the study period, suggesting the absence of such bias; 2) the third question of the AUDIT does not allow for gender differences, so that the prevalence of BD in women is underestimated in this study, by not taking into account women who drink 5 drinks on a single occasion. However, this only affects descriptive outcomes and not the statistical findings; and 3) Questions related to self-reported data for collecting prevalence of consumption of medicines, tobacco and cannabis that could underestimate these variables, however this underestimation would affect only descriptive results.

Our findings reveal a very high intake of medicines among university students, most of them without a medical prescription that increases over time. On the contrary, alcohol, tobacco and cannabis consumption decrease with age. Consumption of medicines without prescription shows a significant association with consumption of alcohol, tobacco and cannabis. Probably, this consumption of medicines is another form of poly-consumption of drugs (Lipari et al., 2017).

Further studies should be carry out to clarify questions related to parental use or peers use of medication without medical prescription,

mental health problems, and academic success. It is necessary to create preventive campaigns for students on self-medication and concomitant drug consumption.

5.3 Non-medical use of prescription drugs and consumption of alcohol, tobacco and cannabis

The aim was to determine the longitudinal prevalence of NMUPD during the transition to adulthood in university students -taking gender into account- and how NMUPD is associated with patterns of tobacco, cannabis, and alcohol use (binge drinking and risky consumption) and the effect of early drinking onset. The findings indicate that cannabis use and, in particular, risky alcohol consumption are risk factors for NMUPD among female students. Early onset of alcohol use was also a risk factor for NMUPD in females. However, no such association was found in males. Additionally, NMUPD was significantly higher at the age of 27, in both males and females.

Overall, the data revealed a high prevalence of NMUPD among the university students. Evidence from several studies has shown that non medically prescribed drugs are readily accessible to young people, and the main sources seem to be family and friends (McCabe, Teter & Boyd, 2005; Meisel & Goodie, 2015; Novak et al., 2016; Ross-Durow, McCabe & Boyd, 2013). The following reasons are often given to explain this type of drug abuse: for self-realization and recreational purposes, for relieving pain and anxiety, for combatting depression and for alleviating sleep-related problems (Drazdowski,

2016; Moure-Rodríguez et al., 2016; Parks et al., 2017). Another context-dependant factor is that pharmacists do not seem to demand medical prescriptions from younger and/or more educated customers, such university students (Caamaño-Isorna et al., 2004).

Regarding sex-related effects, we observed striking differences between males and females. In males there was no association between substance use and NMUPD. On the contrary, in women, NMUPD is associated with risky consumption of alcohol (even binge drinking in bivariate analysis). Risky drinking seems to be transculturally associated with NMUPD in young people (Ford & Arrastia, 2008; Ford, 2009; McCabe et al., 2006, 2017; McCauley et al., 2011; Silvestri et al., 2015). Although some studies have reported a higher prevalence of NMUPD in males, many studies have indicated that females are at a greatest risk (Nargiso et al., 2015; Shehnaz, Agarwal & Khan, 2014), (for a systematic review, see Young, Glover & Havens, 2012). Such differences may vary depending on the drugs investigated, the characteristics of the sample and the dose/frequency of drug use (Shehnaz et al., 2014), although further studies are needed for confirmation. Excessive alcohol consumption may lead to dysregulation of the stress response, particularly in females (Retson, Sterling & Van Bockstaele, 2016), which hypothetically may contribute to a maladaptive coping style including the self-prescribed use of non-medically prescribed drugs to deal with emotional distress (as self-medication seems to be the most common motive in females (Shehnaz et al., 2014) during adolescence). In addition to the cognitive alterations (e.g. memory deficits) that result from risky

drinking during young adulthood (Silveri et al., 2016), the possible interactions between these substances- together with the cognitive impairments associated with NMUPD-(Lader, 2011) may lead both to greater reinforcement of their addictive potential and to serious medical consequences (Compton & Volkow, 2006; Weathermon & Crabb, 1999).

Our findings showed that delaying the age of drinking onset seems to act as a protective factor, in accordance with previous findings (McCabe et al., 2006; McCabe, West, Morales, Cranford & Boyd, 2007). Multiple hypotheses have been proposed to explain this association (e.g. the “gateway” hypothesis, the “common-model factor”) (Fiellin, Tetrault, Becker, Fiellin D.A. & Hoff, 2013; Kandel, Yamaguchi & Chen, 1992). However, testing of these hypotheses is hampered by the lack of prospective studies beginning before drinking onset. This result adds support to a large body of literature highlighting the risks associated with early age of onset of drinking, such as future psychopathological symptoms and alcohol dependence (Carbia, Corral, García-Moreno, Cadaveira & Caamaño-Isorna, 2016; Hingson, Heeren & Winter, 2006; Hingson & Zha, 2009).

With respect to age-related changes, the prevalence of NMUPD in early adulthood (27 years) was higher than at younger ages (18 years) in both sexes, as also indicated in the Spanish National Health survey (Instituto Nacional de Estadística, 2017). In females, the risk of NMUPD was three times higher at age 27 years than at age 18 years, and in men the risk was two times higher for the same ages. It is possible that NMUPD may increase with age (Shehnaz et al., 2014),

although few studies have covered the period of emerging adulthood. The fact that NMUPD increased throughout the study while other substance use decreased may be related to common transitions in social roles. Risky alcohol use in young people usually peaks during university years and decreases thereafter, probably due to the abandonment of the “campus alcohol culture” (peer pressure, availability/opportunity, normalization etc.) and the acquisition of new adult roles linked to greater responsibilities, work and family (Borsari & Carey, 2001; Moure-Rodríguez., Piñeiro, Corral-Varela, Rodríguez-Holguín, Cadaveira, & Caamaño-Isorna, 2016). Conversely, greater social acceptance of NMUPD in adulthood and misconceptions about the safety of the drugs involved may partly explain the longitudinal trends observed in this study (Hu, Griesler, Wall &, Kandel, 2017; Martins & Ghandour, 2017).

In this epidemiological study, a great effort was made to follow a large cohort of university students over a nine-year period. Nonetheless, the study is not without limitations. First, the use of self-reported questionnaires may lead to misrepresentation (under or overestimation) of the problem (Midanik, 1988). However, this type of test has been shown to produce reliable results when used with young adults and adolescents (Winters et al., 1990), and any misrepresentative results would probably affect descriptive rather than analytical findings (Rothman et al., 2008). Secondly, the loss of subjects over the follow-up period is a problem inherent to longitudinal designs and may lead to selection bias. However, the

absence of significant differences between the initial sample and the follow-up sample suggests the lack of such bias.

In conclusion, NMUPD is prevalent among university students. Risky alcohol consumption and early onset of alcohol use were associated with a higher prevalence of NMUPD in females, whereas no such association was found in males. The prevalence of NMUPD increased with age in both sexes. Prevention efforts should aim to educate university students regarding the potential effects of these drugs and their interactions. Strategies for handling stress during the university period should also be provided, with greater emphasis on females. In addition, pharmacists and parents should be alerted to the risk of NMUPD. Finally, the present study highlights the protective effect of delaying the age of drinking onset, beyond the typical alcohol-related problems.



6 Conclusions



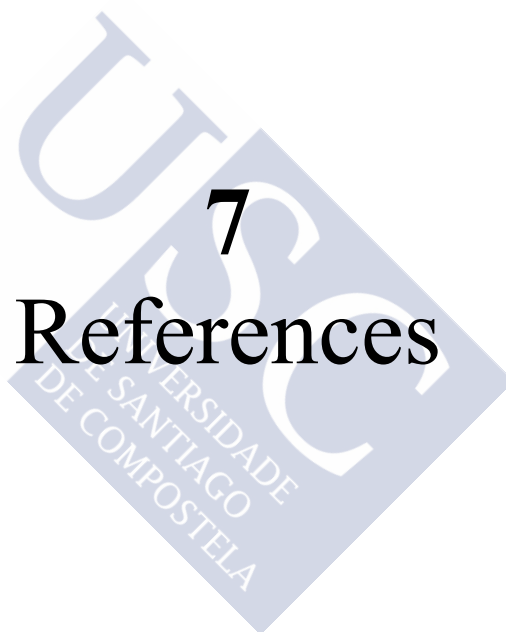


6 Conclusions

1. In view of the study's findings, we conclude that AUDIT-C is the best tool for determining binge drinking use among young male and female university students.
2. AUDIT and AUDIT-C may be used to identify "heavy" binge drinkers among both male and female university students. These findings can potentially contribute to the ability of busy clinicians to perform routine screenings in as much as our findings show that shorter versions of AUDIT can be used to detect the binge drinking patterns of alcohol consumption.
3. Our findings reveal a very high intake of medicines among university students, most of them without a medical prescription that increases over time. On the contrary, alcohol, tobacco and cannabis consumption decrease with age.
4. In general, the prevalence of use of medicines without medical prescription among cannabis, tobacco, RC, and BD users is greater than among non-users. Prevalence among subjects beginning to use alcohol at a younger age is also higher. There are no significant differences for use of medicines with medical prescription.
5. Risky alcohol consumption and cannabis consumption constitute both risk factors of use of medicines without medical prescription

for females, and older onset of alcohol use is a protective factor. For males, just tobacco and cannabis consumption are risk factors of use of medicines without medical prescription.

6. The prevalence of non-medical use of prescription drugs (NMUPD) increased with age in both sexes. Females are more prevalent on NMUPD than males. Students who already partook in NMUPD at the beginning of study in both males and females, maintain higher prevalence of consumption throughout the study.
7. Cannabis consumption and Risky alcohol consumption constitute both risk factors of NMUPD for females, and older onset of alcohol use is a protective factor. However, no such association was found in males.
8. Further studies should be carry out to clarify questions related to parental use or peers use of medication without medical prescription, mental health problems, and academic success. It is necessary to create preventive campaigns for students on self-medication and concomitant drug consumption.
9. Strategies for handling stress during the university period should also be provided, with greater emphasis on females. In addition, pharmacists and parents should be alerted to the risk of NMUPD. Finally, the present study highlights the protective effect of delaying the age of drinking onset, beyond the typical alcohol-related problems.



7

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7 References

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8
Abstract
in Galician language



8 Abstract in Galician language

8.1 Introducción

O abuso de substancias en adultos xoves é un serio problema de saúde pública, en especial o abuso de cannabis e as diversas formas de consumo de alcohol de risco, como por exemplo o Consumo Intensivo de Alcohol (CIA) ou *Binge Drinking (BD)*, como se coñece na literatura anglosaxona. O abuso destas substancias asociouse a alteracións neurocognitivas xa que o cerebro do adolescente e o adulto xoven aínda están en período de desenvolvemento. Tamén se asociou coa maior incidencia de problemas sociais como os accidentes de tráfico ou as relacións sexuais de risco.

O BD é o patrón de consumo máis prevalente entre adultos xoves nas sociedades occidentais e consiste nun patrón de consumo que acadar uns niveis de alcohol en sangue de 0,08 gramos ou superiores. Unha alta porcentaxe de adolescentes e adultos xoves de moitos países europeos (20-60%) practican este tipo de consumo, polo que se considera un problema moi preocupante para a saúde pública.

O consumo de alcohol, tabaco e cannabis entre os adolescentes e adultos xoves ven suscitando gran preocupación no noso país, debido tanto ás elevadas prevalencias observadas como á tendencia dalgúns patróns de consumo. No caso do alcohol, por exemplo, aínda que nos últimos anos as prevalencias de consumo semanal de alcohol entre os

adolescentes e adultos xoves europeos parecen declinar, as elevadas prevalencias e o BD seguen representando importantes problemas de saúde.

De acordo ao recollido na última Encuesta sobre Alcohol y Drogas en España, o alcohol é a substancia psicoactiva máis consumida entre os adultos xoves de entre 15 e 24 anos. O 87,5% deles consumiu bebidas alcohólicas nalguna ocasión e aproximadamente 2 de cada 3 recoñecen ter tomado alcohol nos últimos 30 días.

Ademais, patróns de consumo de alcohol especialmente dañinos como o Binge Drinking acadan cifras importantes nesta idade: 35% nos varóns entre 20 e 24 anos; 34,5% nos varóns entre 25 e 29 anos; mentres nas mulleres os datos situanse no 25% e no 20% respectivamente. Se atendemos á evolución do consumo nos últimos 15 anos os datos mostran que no ano 2003, primeiro dato dispoñible, o 5% dos adultos xoves practicaran binge drinking fronte ao 17,9% medido na última enquisa.

O tabaco é a segunda droga máis consumida: o 25,3% dos homes e o 22,4% das mulleres entre 15 e 64 anos manifestan ter consumido tabaco a diario nos últimos 30 días. Estes valores soben ao 38,7% e 29,4% para o rango de idade de 25 a 34 anos. Cabe sinalar que a prevalencia de consumo diario de tabaco entre os adultos entre 15 e 34 anos varóns pasou do 41,4% ao 32,9%, mentres entre as mulleres pasouse do 36,5% ao 26,5%.

O cannabis, terceira droga máis estendida por prevalencia de consumo, constitúe a primeira entre as drogas ilegais. A prevalencia

de consumo de cannabis nos últimos 12 meses sitúase nos homes no 25,4% mentres que nas mulleres é do 4,2%. En canto á evolución do consumo nos últimos 20 anos pasamos do 7,5% ao 9,5%, medido como prevalencia de consumo nos últimos 12 meses para o grupo de idade 15-64 anos.

En canto ao consumo de fármacos, a Encuesta Nacional de Salud (*Encuesta sobre Alcohol y Drogas en España*, EDADES 2015-2016) mostra que o 39% dos homes e o 52,8% das mulleres consumiron medicamentos nas últimas dúas semanas. En canto ao consumo con ou sen prescrición médica encontramos os seguintes datos: o 13,2% dos homes e o 19,1% das mulleres consumiron fármacos sen prescrición médica comparado co 23,2% e o 25,7% respectivamente, que consumiron medicamentos prescritos por un médico.

O *non-medical use of prescription drugs (NMUPD)* é un tipo de consumo de fármacos que engloba o uso de: pastillas para dormir/sedantes/ansiolíticos ou estimulantes ou analxésicos que son consumidos sen prescrición médica.

Existen estudos recentes que relacionan o NMUPD co Binge drinking e o consumo doutras drogas. En España, diversos estudos demostraron que o consumo de medicamentos con ou sen prescrición médica está asociados co consumo de alcohol, tabaco e cannabis entre os universitarios.

Os datos epidemiolóxicos que relacionan o NMUPD co consumo de alcohol, tabaco e cannabis en estudantes universitarios europeos, segue a ser insuficiente. De feito, a escaseza de estudos lonxitudinais

dificulta a análise dos cambios nestas asociacións ao longo da adolescencia e idade adulta, onde cabe esperar un descenso dos patróns de consumo.

8.2 Obxectivos

1. Estimar a validez do AUDIT, AUDIT-C e AUDIT-3, para detectar BD en estudantes universitarios en España, coa intención de facilitar un diagnóstico de consumo intensivo nesta poboación.
2. Determinar a prevalencia do consumo de fármacos, con ou sen prescrición médica, entre os estudantes universitarios españois e a súa asociación con outros patróns de consumo como son o alcohol, o tabaco e o cannabis.
3. Determinar a prevalencia de *non-medical use of prescription drugs* (NMUPD), entre os estudantes universitarios españois, e analizar a súa asociación cos patróns de consumo máis prevalentes: alcohol, tabaco e cannabis en os adultos xoves; así como o papel que desenvolve a idade de inicio de consumo.
4. Identificar as traxectorias lonxitudinais de consumo para homes e mulleres durante o período de transición á idade adulta. Tamén estudamos as variacións potenciais dos patróns de consumo a longo prazo en relación coa práctica do NMUPD, para homes e mulleres.

8.3 Métodos

Validación do AUDIT, AUDIT-C e AUDIT-3

Deseño, poboación e mostra

Levou a cabo un estudo de validación de carácter transversal sobre un test diagnóstico. A poboación do estudo comprendeu a estudantes de primeiro ano de carreira de entre 18 e 19 anos, dos que 268 eran mulleres e 161 homes (n=429). Os datos foron recollidos mediante cuestionarios que foron completados polos estudantes nas aulas, e tamén mediante entrevistas persoais.

Recollida de datos

Un cuestionario autoadministrado foi cuberto nas aulas polos estudantes participantes. Utilizouse un diario de consumo semanal de alcohol, e os alumnos anotaron o tipo e o número de bebidas alcohólicas consumidas cada día nunha semana habitual dos últimos seis meses, e o momento no que o consumo tivo lugar. As cantidades ingeridas de alcohol convertéronse en gramos de alcohol en relación á Unidade de Bebida Estándar (UBE) para España (1 unidade cervexa/viño = 10 g; 1 unidade de espirituoso/licor = 20 g). Preguntóuselles aos estudantes o seu peso, para permitir a estimación da concentración de alcohol en sangue acadada (BAC), e a idade de inicio de consumo de alcohol.

A sintomatoloxía psicopatolóxica foi medida mediante a versión validada española do Symptom Check List-Revised (SCL-90-R).

Tendo en conta a cantidade de alcohol referida polos estudantes, calculamos as BAC para cada persoa, de acordo coa fórmula de Widmark [$BAC = a / (p \times r)$], onde a é o consumo de alcohol en gramos, p o peso corporal en Kilogramos, e r a relación auga corporal/ratio graxa (0,68 en homes e 0,55 en mulleres). Coa intención de estimar o número de horas de duración de cada sesión de BD, consideramos a taxa de alcohol consumido durante cada sesión. Esta taxa foi previamente calculada mediante regresión lineal a partir dunha mostra de 267 BD sesións descritas por 68 estudantes da mesma mostra. O número de horas de duración de cada sesión foi finalmente estimado como $\text{Horas} = (0,045 \times \text{gramos de alcohol}) - 0,303$ ($R^2 = 0,665$). Os suxeitos foron entrevistados persoalmente e invitados a cumprimentar o cuestionario Alcohol Use Disorders Identification Test (AUDIT).

Definición de variables

Gold Standard

Binge drinkers ou bebedores compulsivos. Estudantes que reportan patróns de consumo episódicos, que resultan en acadar concentracións de etanol en sangue $\geq 0,8$ gr/l polo menos unha vez por semana, calculados mediante a fórmula de Widmark e utilizando os datos do cuestionario autoreportado de consumo de alcohol.

Tests diagnósticos

AUDIT-3. Consiste na terceira pregunta do AUDIT test: ¿Con que frecuencia bebes 6 ou máis bebidas alcohólicas nunha soa ocasión?

Coas seguintes respostas: De “Nunca” ata “Diariamente ou case a diario”. Rango de puntuación: de 0 a 4.

AUDIT-C. Este test inclúe as primeiras tres preguntas do AUDIT test: ¿Con que frecuencia consumes bebidas que conteñan alcohol? De “Nunca” ata “4 ou máis veces por semana”, “Cantas bebidas que conteñan alcohol tomas nun día típico no que bebes?”, “ 1 ou 2” a 10 ou máis”, e ¿Con que frecuencia bebes 6 ou máis bebidas alcohólicas nunha soa ocasión? “Nunca” a “Diariamente ou case a diario”. Rango de puntuación: de 0 a 12.

AUDIT. Inclúe todas as preguntas do test, e a posible puntuación vai de 0 a 40 puntos.

Análise estadística

Calculamos a sensibilidade e a especificidade dos tres tests diagnósticos para ambos sexos. Tamén incluimos a Razón de Verosimilitude Positiva (PLR) e a Razón de Verosimilitude Negativa (NLR). Finalmente, calculamos a área baixo a curva (AUC) para os distintos tests diagnósticos, coa intención de comparar a súa efectividade. Os valores das AUC calculáronse utilizando o método proposto por Hanley e McNeil (1983). Os datos foron tratados co paquete estadístico SPSS v20.

Consumo de fármacos e alcohol, tabaco e cannabis

Deseño, poboación e mostra

Levou a cabo un estudo de cohortes entre estudantes universitarios (Cohorte Compostela 2005, España), entre Novembro de 2005 e Marzo de 2015. Utilizamos a mostraxe por conglomerados para seleccionar aos participantes (n=1382).

Procedementos de recollida de datos

Os investigadores visitaron as aulas de primeiro ano de carreira en Novembro de 2005 e invitaron a todos os alumnos a participar no estudo (1º cuestionario). En Novembro de 2007, o mesmo grupo de investigadores visitou as aulas de terceiro de carreira coa intención de seguir aos estudantes (2º cuestionario). Os estudantes que aportaron o seu número de teléfono no primeiro ou segundo cuestionario foron novamente avaliados por teléfono aos 9 anos de seguimento (Marzo de 2015). Nas tres ocasións, o consumo de alcohol foi medido coa versión galega validada do AUDIT.

Definición das variables

Variables independentes

Consumo intensivo de alcohol ou Binge Drinking (BD). Variable dicotómica xerada a partir da terceira pregunta do AUDIT “¿Con que frecuencia bebes 6 ou máis bebidas alcohólicas nunha soa ocasión?”

que foi codificada da seguinte maneira: nunca=0, menos dunha vez ao mes=0, mensualmente=1, unha vez á semana=1, a diario ou case a diario=1.

Consumo de risco (RC). Variable dicotómica xerada a partir da puntuación do AUDIT. Establecéronse distintos puntos de corte para ambos sexos: ≥ 5 para mulleres; e ≥ 6 para homes.

Idade de inicio de consumo de alcohol. Definíronse catro categorías para a idade de inicio de consumo: (despois dos 16 anos, aos 16, aos 15, e antes dos 15 anos).

O consumo de cannabis ao inicio e aos 2 anos de seguimento mediuse mediante a pregunta: ¿"Consumes cannabis cando saes? "Nunca; Ás veces; A maioría das veces; Sempre". As categorías foron recategorizadas en Non ("nunca") e Si ("ás veces", ou "a maioría das veces", ou "sempre"). Aos 9 anos de seguimento, o consumo de cannabis foi medido utilizando o European Addiction Severity Index (EuropASI).

O consumo de tabaco ao inicio do estudo e aos dous anos de seguimento foi tamén medido como variable dicotómica: Non/Si. Aos 9 anos de seguimento utilizamos tamén o EuropASI.

Variables dependentes

(1) *Uso de medicamentos con prescripción médica.* Variable dicotómica: "Non", cando os estudantes non consumiron ningunha

medicación con prescripción médica; e “Si”, cando consumiron polo menos un fármaco con prescripción médica nos últimos 15 días.

(2) *Uso de medicamentos sen prescripción médica.* variable dicotómica: “Non”, cando os estudantes non consumiron ningún tipo de medicación sen prescripción médica no últimos 15 días, e “Si”, cando consumiron polo menos un fármaco sen prescripción médica nos últimos 15 días.

(3) *Non-medical use of prescription drugs (NMUPD).* Categorizada como variable dicotómica. “Si” refírese a ter consumido fármacos para durmir/sedantes/ansiolíticos ou estimulantes ou analxésicos os 15 días previos, sen prescripción médica; e “Non” refírese ao resto dos casos.

Análise estadística

Utilizamos regresións loxísticas multinivel para medidas repetidas para obter Razóns de Odd (Odds Ratios, OR) para as variables independentes dos modelos de uso de medicamentos. Calculáronse intervalos de confianza do 95% (95% CI). Estes modelos son máis flexibles que os modelos tradicionais e permítenos traballar con datos correlacionados. Nos nosos datos, temos tres medidas potenciais de cada suxeito (ás idades de 18, 20 e 27 anos).

8.4 Resultados

Validación do AUDIT, AUDIT-C e AUDIT-3

As tres versións do AUDIT mostran valores elevados para as curvas AUC. Para unha prevalencia do 40% o mellor punto de corte para o AUDIT foi ≥ 4 . Este test detectou o 77,5% das mulleres BD e o 88,8% das non BD. A sensibilidade incrementouse lixeiramente cando o punto de corte foi 3, pero a especificidade foi moito máis baixa. Atopáronse resultados similares para o AUDIT-C, que incrementou a sensibilidade e especificidade cando o punto de corte foi establecido en 3. No caso do AUDIT-3, a identificación dos alumnos non BD foi moi superior, cun punto de corte ≥ 1 , aínda que o test foi menos sensible.

Para os homes, a efectividade variou para diferentes puntos de corte. Os resultados suxiren que o punto de corte ≥ 4 para o AUDIT e ≥ 4 para o AUDIT-C son óptimos para homes, e o AUDIT-3 foi consistente no punto de corte ≥ 2 .

Consumo de medicamentos e alcohol, tabaco e cannabis

A prevalencia de consumo de risco, consumo intensivo, consumo de tabaco e cannabis ao inicio e aos 2 e 9 anos de seguimento amosou un descenso significativo durante o período de intervención.

En relación ao uso de medicamentos sen precripción médica entre as mulleres, os modelos de regresión loxística multivariable amosaron

que o consumo de risco de alcohol RC (OR=1,35; [95%CI: 1,35 – 1,69]) e o consumo de cannabis (OR=1,35; [95%CI: 1,03 – 1,77]) son factores de risco, mentres que o inicio tardío de consumo de alcohol (OR=0,61; [95%CI: 0,43 – 0,83]) constitúe un factor protector. En relación ao homes, os modelos de regresión loxística bivariada mostraron que o uso de medicamentos sen prescripción médica está asociado ao consumo de tabaco (OR=1,68; [95%CI:1,11 – 1,35]) e ao consumo de cannabis (OR=1,43; [95%CI: 0,99 – 2,09]).

Non-medical use of prescription drugs (NMUPD) e consumo de alcohol, tabaco e cannabis

En xeral, a prevalencia de NMUPD foi superior entre os consumidores de drogas (cannabis, tabaco, consumo de risco de alcohol e consumo intensivo) que nos non consumidores.

Nas mulleres, os modelos de regresión loxística multivariable amosaron que o consumo de risco de alcohol (OR=1,43;[95%CI:1,10 – 1,86]) e o consumo de cannabis (OR=1,33; [95%CI: 0,99 – 1,81]) son factores de risco para NMUPD. O inicio tardío do consumo de alcohol aos 16 (OR=0,63; [95%CI: 0,48 – 0,90]) e despois dos 16 (OR=0,66; [95%CI: 0,42 – 0,94]) constitúen factores protectores. Finalmente, a análise bivariante revelou que altas frecuencias de consumo intensivo de alcohol están relacionadas con NMUPD (OR=1,38; [95%CI: 1,04 – 1,84]).

Nos homes, non se atopou asociación entre consumo de sustancias e a idade de inicio de consumo de alcohol co NMUPD. Os modelos

estadísticos recalculáronse incluíndo fármacos estimulantes para ambos sexos, e os resultados foron similares. O modelo final mostra tamén que o risco de NMUPD incrementábase coa idade para ambos sexos. O risco de incidencia de MNUPD nas mulleres aos 27 anos triplícase con respecto aos 18, e nos homes duplícase.

8.5 **Discusión**

Validación do AUDIT, AUDIT-C e AUDIT-3

Os resultados do estudo mostran que o AUDIT, o AUDIT-C e o AUDIT-3 son ferramentas válidas de cribado de consumo intensivo de alcohol para homes e mulleres xóvenes estudantes universitarios, e que o AUDIT-C é a meller opción. En relación á fiabilidade, os nosos resultados son similares aos atopados por outros autores que estudaron a validez destes tres tests en Atención Primaria, en homes e mulleres veteranos de guerra, na universidade e en estudantes menores de idade.

Os resultados do estudo amosan que o AUDIT-C é máis preciso que o AUDIT e o AUDIT-3 para clasificar estudantes universitarios en BD ou non-BD. Propoñemos como puntos de corte ≥ 3 para mulleres e ≥ 4 para homes. Estes puntos de corte tamén foron encontrados por outros investigadores en estudos realizados en poboacións similares.

No caso de AUDIT, confirmamos que o punto de corte ≥ 4 é óptimo para identificar BD, sen encontrar diferenzas significativas entre homes e mulleres. Este punto de corte, é consistente con resultados ofrecidos por estudos previos no mesmo grupo de poboación. Sen

embargo, os resultados difiren lixeiramente comparados co outros investigadores. Encontramos catro posibles razóns para estas diferencias: 1) os diferentes ambientes socioculturais dos estudos, que poderían estar asociados en como os suxeitos recoñecen o consumo de alcohol; 2) a cantidade de alcohol dunha UBE diverxe entre os distintos países, e o número de UBE que son necesarias para acadar BAC de 0,8 g/l tamén pode variar; 3) diferencias de patróns de consumo entre os bebedores compulsivos BD e non BD dos diferentes países: este aspecto modifica a sensibilidade e a especificidade dos tests diagnósticos, e 4) o gold estándar utilizado nos estudos. Calculamos a concentración de alcohol en sangue, de acordo coa fórmula de Hustad e Carey (2005). A terceira versión do test, o AUDIT-3, obtén bos resultados para o punto de corte ≥ 1 en mulleres e ≥ 2 en homes. Sen embargo, a sensibilidade e a especificidade deste test foi inferior á atopada noutras versións do test (AUDIT-C, AUDIT).

Existen no noso estudo algunhas limitacións e algunhas fortalezas. No que se refire ás limitacións: 1) os datos recollidos son autodeclarados mediante cuestionarios, o que pode supoñer unha sobreestimación do consumo de alcohol e tamén doutras variables como o peso e a idade de inicio de consumo; 2) o peso foi determinado no mesmo cuestionario en vez de ser medido directamente nos suxeitos; e 3) utilizamos a fórmula de Widmarck para estimar as BAC no canto de realizar controis analíticos de etanol en sangue nos estudantes. Para rematar, e en relación coas fortalezas: 1) utilizamos un diario semanal de consumo de alcohol, e 2) aportamos puntos de corte para ambos sexos, confirmando a tendencia demostrada tamén por outros estudos.

Consumo de fármacos e alcohol, tabaco e cannabis

Os resultados revelan un alto consumo de medicamentos entre os estudantes universitarios, maioritariamente sen prescrición médica, e que aumenta co tempo. Pola contra, para ambos patróns de consumo de alcohol e para o tabaco e o cannabis apreciamos unha redución significativa. O consumo de medicamentos sen prescrición médica mostras unha importante asociación co consumo de alcohol, tabaco e cannabis. Non se atopou asociación para o uso de medicamentos con prescrición.

A proporción de suxeitos que consumiron fármacos sen prescrición tras os 9 anos de seguimento, foi superior á inicial, arredor dun 10%. Esta proporción é significativamente máis elevada que a atopada na Encuesta Nacional de Salud de España. Os mesmos resultados foron descritos por outros autores en estudo realizados en poboacións similares. Esta alta prevalencia podería ser explicada en parte polo período no que foron recollidos os datos, que foi Novembro de 2005, Novembro de 2007 e Marzo de 2015.

Os resultados indican que o uso de fármacos sen prescrición medica está asociado co consumo de alcohol, tabaco e cannabis. Resultados similares foron topados noutros estudos. Tras 9 anos de seguimento, o cannabis e o consumo de risco de alcohol nas mulleres e o cannabis e consumo de tabaco nos homes, presentou asociación co consumo de medicamentos sen prescrición médica. Os achazos son similares en estudos previos onde houbo asociación entre ser muller, consumo de risco de alcohol e automedicación.

O noso estudo presenta tres importantes limitacións: 1) como outros estudos de cohortes, a perda de suxeitos ao longo do seguimento pode incluír un sesgo de selección. Sen embargo, non se atoparon diferenzas significativas entre os estudantes ao longo do estudo, suxerindo a ausencia deste sesgo; 2) a terceira pregunta do AUDIT non fai diferenzas específicas entre homes e mulleres polo que a prevalencia de BD en mulleres está infraestimada neste estudo ao non ter en conta ás mulleres que consomen 5 bebidas alcohólicas nunha soa ocasión; e 3) as preguntas relacionadas cos datos autoreportados para calcular prevalencias de consumo de fármacos, tabaco e cannabis poderían estar infraestimadas, aínda que esta infraestimación só afectaría aos resultados descritivos.

Non-medical use of prescription drugs (NMUPD) e consumo de alcohol, tabaco e cannabis

O obxectivo deste estudo era determinar a prevalencia lonxitudinal do NMUPD durante a transición cara á idade adulta en estudantes universitarios- tendo en conta a perspectiva de xénero-; estudar se o NMUPD está asociado con patróns de consumo como o tabaco, o cannabis e o alcohol (binge drinking e consumo de risco); e estudar o efecto do inicio temprano de consumo de alcohol. Os resultados indican que o uso de cannabis e, en particular, do consumo de risco de alcohol, son factores de risco para NMUPD nas mulleres universitarias. O inicio temprano de consumo de alcohol tamén é un factor de risco para MNUPD nas mulleres. Pola contra, esta

asociación non se atopou nos homes. Asimismo, NMUPD foi significativamente máis elevado á idade de 27 anos, tanto para homes como para mulleres.

Neste estudo epidemiolóxico, realizouse un gran esforzo para acadar o seguimento dunha ampla cohorte de estudantes universitarios, ao longo de 9 anos. Con todo, o estudo non está exento de limitacións. Primeiramente, a utilización de cuestionarios autoreferenciados, pode derivar nunha incorrecta estimación (infra ou sobrestimación) do problema. Aínda así, está demostrado que este tipo de tests aportan datos fiables cando son utilizados en adultos xoves e adolescentes, e calquera tipo de variación na estimación afectaría con maior probabilidade aos datos descritivos do que aos resultados analíticos. Segundo, a perda de suxeitos ao longo do período de seguimento é un problema inherente aos estudos de deseño lonxitudinal e pode xerar sesgos de selección. Sen embargo, a ausencia de diferenzas significativas entre a mostra inicial e a mostras en seguimento suxire a ausencia deste sesgo.

8.6 Conclusións

1. En vista dos resultados do estudo, concluímos que o AUDIT-C é a mellor ferramenta para determinar binge drinking entre homes e mulleres xoves universitarios.
2. O AUDIT e o AUDIT-C poden utilizarse para identificar “heavy” binge drinkers, tanto en homes como en mulleres universitarias. Este achado pode contribuir a facilitar a labor dos profesionais

clínicos nos cribados rutinarios, xa que os resultados mostran que as versións breves do AUDIT detectan correctamente patróns binge drinking de consumo de alcohol.

3. Os resultados revelan un consumo elevado de medicamentos entre estudantes universitarios, maioritariamente sen prescrición médica, que aumenta ao longo dos anos. Pola contra, o consumo de alcohol, tabaco e cannabis redúcese coa idade.
4. En xeral, a prevalencia do uso de medicamentos sen prescrición entre os consumidores de cannabis, tabaco, consumidores de risco de alcohol e BD, é superior que nos non consumidores. A prevalencia entre os suxeitos que se iniciaron no consumo de alcohol máis precozmente é tamén superior. Non hai diferenzas significativas para o uso de medicamentos con prescrición.
5. O consumo de cannabis e o consumo de risco de alcohol son ambos factores de risco do uso de medicamentos sen prescrición médica nas mulleres, e a idade tardía de inicio de consumo de alcohol é un factor protector. Para os homes, só o consumo de tabaco e o consumo de cannabis son factores de risco do uso de medicamentos sen prescrición.
6. A prevalencia de non-medical use of prescription drugs (NMUPD) aumentou coa idade en ambos sexos. As mulleres presenta prevalencias máis elevadas de NMUPD que os homes. Os estudantes que xa practicaban NMUPD ao inicio do estudo, tanto homes como mulleres, manteñen prevalencias máis elevadas de consumo ao longo do estudo.

7. O consumo de cannabis e o consumo de alcohol de risco son factores de risco de NMUPD en mulleres, e a idade tardía de inicio de consumo de alcohol é un factor protector. Sen embargo, non se atopou asociación entre os diversos consumos e o NMUPD nos homes.
8. Deberían realizarse máis estudos de investigación para aclarar como inflúe o consumo de medicamentos sen prescrición médica no ámbito cercano aos estudantes (pais e amigos), a relación entre o consumo e as enfermidades mentais, e o éxito académico dos estudantes universitarios.
9. Debería proveerse aos estudantes de estratexias para combater a tensión durante os estudos universitarios, con especial fincapé nas mulleres universitarias. Ademáis, é importante concienciar a farmacéuticos e pais do risco que supón o NUNMPD. Para rematar, o presente estudo evidencia o efecto protector que supón retrasar o inicio do consumo de alcohol, mais alá dos problemas de saúde relacionados co alcohol.





9

Annex



9 Annex

9.1 Annex 1. Questionnaire for validating the AUDIT.

Titul	Grupo	n cuest
A	M1	001



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Facultad de Psicología
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Dpto. Psicología Clínica e Psicobiología
Facultad de Psicología
Campus vida, s/n, 15782 - Compostela



Dtp. de Psicología Básica II (Procesos Cognitivos)
Campus de Somosaguas, 28223 - Pozuelo de
Alarcón (Madrid)

Estimado colaborador/a:

En las siguientes páginas encontrarás algunas preguntas sobre el consumo de alcohol y algunos aspectos que le rodean. Para tu tranquilidad has de saber que **tus respuestas sólo se utilizarán con fines de investigación científica** y que sólo tendrán acceso a las mismas las personas de nuestro equipo investigador encargadas de la introducción de datos en el ordenador (*según el art 5 de la LOPD -15/1999 de 13 de diciembre*-).

Está garantizado el anonimato de tus respuestas, por ello, te rogamos que contestes con la **mayor sinceridad posible**. Es preferible carecer de un dato que tener un dato falso. Gracias a colaboraciones desinteresadas como la tuya podemos mejorar nuestro conocimiento sobre la sociedad.

Si te surge alguna duda mientras rellenas este cuestionario NO DUDES EN PREGUNTAR a la persona de nuestro equipo que está presente en el aula.

Muchas gracias por tu colaboración.

ALICIA BUSTO MIRAMONTES

Fecha de nacimiento: _____

P1. Sexo: 1. Mujer 2. Hombre

P2. Peso: _____ P3. Talla: _____

P4. Nota media de bachiller/FP (numérica): _____

P5. ¿Con quién convives en la actualidad? Señala con una **X** la situación actual. ADEMÁS, si esta situación dura menos de un año, señala con una **P** la situación anterior.

Padre y madres biológicos	Padre separado y pareja
Padre y madre de adopción	Madre sola
Madre separada	Padre solo
Madre separada y pareja	Centro de acogida
Padre separado	Otras (_____)

P6. ¿Has nacido en España? Sí NO P7. ¿Tu padre? Sí NO P8. ¿Tu madre? Sí NO

En caso negativo, ¿Qué tiempo lleváis viviendo en España? (especifica si son meses o años): P9. Tú: _____,

P10. Tu padre: _____, P11. Tu madre: _____

P12. ¿El español es tu lengua materna? Sí NO

P13. Indica la edad en la que decidiste beber POR VOLUNTAD PROPIA: _____

P14. Actualmente, ¿consumes alcohol?

SI (he CONSUMIDO EN LOS ÚLTIMOS 6 MESES)	SI (HE CONSUMIDO HACE MÁS DE 6 MESES)	NO CONSUMO
1. Número de consumiciones /copas que sueles tomar _____ 2. Número de consumiciones /copas que tomas en un día de celebración o especial (Fiestas patronales, cumpleaños, nochevieja...)? : _____	3. ¿Cuándo fue la última vez que consumiste? _____ 4. En ese momento, qué solías consumir (p.e. 2 cervezas + 1 cubata +...): _____ _____	5. Elige la opción que más se te ajusta: a) No he consumido nunca b) Sólo he consumido en ocasiones muy puntuales

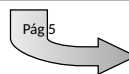
SIGUE ADELANTE



SIGUE ADELANTE



CONTINUA EN PREGUNTA P19



P15. Indica en la siguiente tabla cuántos días al mes has consumido alcohol en los últimos SEIS meses.

AGOSTO	Nunca	1 día	2 días	3 días	4 días	5 días	6 días	7 días	8 días	9 ó más
JULIO	Nunca	1 día	2 días	3 días	4 días	5 días	6 días	7 días	8 días	9 ó más
JUNIO	Nunca	1 día	2 días	3 días	4 días	5 días	6 días	7 días	8 días	9 ó más
MAYO	Nunca	1 día	2 días	3 días	4 días	5 días	6 días	7 días	8 días	9 ó más
ABRIL	Nunca	1 día	2 días	3 días	4 días	5 días	6 días	7 días	8 días	9 ó más
MARZO	Nunca	1 día	2 días	3 días	4 días	5 días	6 días	7 días	8 días	9 ó más

P16. Indica en las siguientes tablas la hora aproximada en la que te tomas alguna consumición (en casa o fuera) y en qué consiste la misma (especifica el tipo de bebida: ej. cubata de VODKA, de GINEBRA...); si ALGÚN DIA NO CONSUMES, DÉJALO EN BLANCO.

Fijate en el ejemplo: Yo los miércoles me tomo una cerveza a las 20h y dos a las 21h, y luego un cubata de vodka a las 23h, otro de ginebra a las 00, otro de whisky a las 1:30, y dos chupitos de licor de melocotón a las 3h.

En caso de que haga más de 6 meses que no consumes rellena la tabla recordando lo que sueles hacer cuando consumes.

Miércoles (ejemplo)	Jueves	Viernes	Sábado	Domingo
Antes de las 14h				
14h				
16h				
18h				
20h	1 cerv			
21h	2 cerv			
22h				
00h	1 cubata vodka			
	1 cubata ginebra			
02h	1 cubata de whisky			
04h	2 chupitos de licor melocotón			
06h				
08h				

P17. ¿Cuánto hace que estás consumiendo de la manera que has detallado en LA TABLA ANTERIOR (P4)?: _____ (especifica si es n° de meses o años)

P18. ¿Cuántos días al mes sueles realizar este consumo? _____

P19 ¿Sueles consumir otras sustancias? (deja EN BLANCO la fila de aquellas sustancias NO CONSUMIDAS)

	CANTIDAD DE CONSUMO					Vía de consumo más habitual	¿Cuántas veces has intentado reducir o dejar tu consumo?	Máximo periodo de no consumo
	Periodo de CONSUMO REGULAR		En el último mes		Máximo consumo en hora (Gramos, Unidades ...)			
	Frecuencia	Cantidad	Nº días que has consumido (1 a 30)					
EDAD Inicio consumo	1. Menos de una vez al año 2. Pocas veces al año 3. Pocas veces al mes 4. Fines de semana 5. Cuatro o cinco veces por semana 6. Cada día	<i>(patros, gramos, rayas...)</i> consumida (Especifica al día, a la semana...)				1. Oral 2. Esnifada 3. Inyectada 4. Fumada 5. Inhalada	Responde con un NÚMERO	Duración mayor (nº de días, meses o años) de tiempo sin consumir
Cannabis								
Tabaco								
Medicamentos (con receta)								
Medicamentos (SIN receta)								
Anfetaminas								
MDMA (Éxtasis)								
Cocaína								
Otros								

LEE ATENTAMENTE LA LISTA QUE SE PRESENTA A CONTINUACIÓN. SON PROBLEMAS O MOLESTIAS QUE CASI TODO EL MUNDO SUFRE ALGUNA VEZ. INDICA SI A TI TE HA PASADO ALGUNA VEZ EN LAS ÚLTIMAS SEMANAS, INCLUYENDO EL DÍA DE HOY.

	Nada	Un poco	Moderadamente	Bastante	Mucho
1. Dolores de cabeza	0	1	2	3	4
2. Nerviosismo o agitación interior	0	1	2	3	4
3. Pensamientos, palabras o ideas no deseadas que no se le van de la mente	0	1	2	3	4
4. Sensaciones de desmayo o mareo	0	1	2	3	4
5. Pérdida del deseo o del placer sexual	0	1	2	3	4
6. Juzgar a otras personas crítica o negativamente	0	1	2	3	4
7. Pensar que otra persona puede controlar sus pensamientos	0	1	2	3	4
8. La impresión de que la mayoría de sus problemas son culpa de los demás	0	1	2	3	4
9. Dificultad para recordar las cosas	0	1	2	3	4
10. Preocupaciones acerca del desaseo, el descuido o la desorganización	0	1	2	3	4
11. Sentirse fácilmente irritado o enfadado	0	1	2	3	4
12. Dolores en el corazón o en el pecho	0	1	2	3	4
13. Sentir miedo de los espacios abiertos o de la calle	0	1	2	3	4
14. Sentirse bajo de energías o decaído	0	1	2	3	4
15. Pensamientos o ideas de acabar con su vida	0	1	2	3	4
16. Oír voces que otras personas no oyen	0	1	2	3	4
17. Temblores	0	1	2	3	4
18. La idea de que no se puede fiar de la mayoría de las personas	0	1	2	3	4
19. Falta de apetito	0	1	2	3	4
20. Llorar fácilmente	0	1	2	3	4
21. Timidez o incomodidad con el sexo opuesto	0	1	2	3	4
22. La sensación de estar atrapado o como encerrado	0	1	2	3	4
23. Tener miedo de repente y sin razón	0	1	2	3	4
24. Arrebatos de cólera o ataques de furia que no logra controlar	0	1	2	3	4
25. Miedo a salir de casa solo	0	1	2	3	4
26. Culparse a sí mismo de lo que pasa	0	1	2	3	4
27. Dolores en la parte baja de la espalda	0	1	2	3	4
28. Sentirse incapaz de lograr cosas	0	1	2	3	4
29. Sentirse solo	0	1	2	3	4
30. Sentirse triste	0	1	2	3	4
31. Preocuparse demasiado por las cosas	0	1	2	3	4
32. No sentir interés por las cosas	0	1	2	3	4
33. Sentirse temeroso	0	1	2	3	4
34. Ser demasiado sensible o sentirse herido con facilidad	0	1	2	3	4
35. La impresión de que los demás se dan cuenta de sus pensamientos	0	1	2	3	4
36. La sensación de que los demás no le comprenden o no le hacen caso	0	1	2	3	4
37. La impresión de que la gente es poco amistosa o que usted no les gusta	0	1	2	3	4
38. Tener que hacer las cosas muy despacio para estar seguro de que las hace bien	0	1	2	3	4

	Nada	Un poco	Moderadamente	Bastante	Mucho
39. Que el corazón le palpita o le vaya muy deprisa	0	1	2	3	4
40. Náuseas o malestar en el estómago	0	1	2	3	4
41. Sentirse inferior a los demás	0	1	2	3	4
42. Dolores musculares	0	1	2	3	4
43. Sensación de que otras personas le miran o hablan de usted	0	1	2	3	4
44. Dificultad para conciliar el sueño	0	1	2	3	4
45. Tener que comprobar una y otra vez lo que hace	0	1	2	3	4
46. Encontrar difícil el tomar decisiones	0	1	2	3	4
47. Sentir temor a viajar en coche, autobús, metro, tren, etc.	0	1	2	3	4
48. Dificultad para respirar	0	1	2	3	4
49. Sentir calor o frío de repente	0	1	2	3	4
50. Tener que evitar ciertas cosas, lugares o actividades por que le dan miedo	0	1	2	3	4
51. Que se le quede la mente en blanco	0	1	2	3	4
52. Entumecimiento u hormigueo en alguna parte del cuerpo	0	1	2	3	4
53. Sentir un nudo en la garganta	0	1	2	3	4
54. Sentirse desesperanzado con respecto al futuro	0	1	2	3	4
55. Tener dificultad para concentrarse	0	1	2	3	4
56. Sentirse débil en alguna parte del cuerpo	0	1	2	3	4
57. Sentirse tenso o agitado	0	1	2	3	4
58. Pesadez en los brazos o las piernas	0	1	2	3	4
59. Pensamientos sobre la muerte o el hecho de morir	0	1	2	3	4
60. El comer demasiado	0	1	2	3	4
61. Sentirse incómodo cuando la gente le mira o habla acerca de usted	0	1	2	3	4
62. Tener pensamientos que no son suyos	0	1	2	3	4
63. Sentir el impulso de golpear, herir o hacer daño a alguien	0	1	2	3	4
64. Despertarse de madrugada	0	1	2	3	4
65. Tener que repetir las mismas acciones tales como tocar, contar, lavar, etc.	0	1	2	3	4
66. Sueño inquieto o desvelarse fácilmente	0	1	2	3	4
67. Tener fuertes deseos de romper algo	0	1	2	3	4
68. Tener ideas o creencias que los demás no comparten	0	1	2	3	4
69. Sentirse muy cohibido entre otras personas	0	1	2	3	4
70. Sentirse muy incómodo entre mucha gente, p.ej. en el cine, en las tiendas	0	1	2	3	4
71. Sentir que todo requiere un gran esfuerzo	0	1	2	3	4
72. Ataques de terror o pánico	0	1	2	3	4
73. Sentirse incómodo comiendo o bebiendo en público	0	1	2	3	4
74. Tener discusiones frecuentes	0	1	2	3	4
75. Sentirse nervioso cuando se encuentra solo	0	1	2	3	4
76. El que otros no reconozcan adecuadamente sus logros	0	1	2	3	4
77. Sentirse solo aunque esté con más gente	0	1	2	3	4
78. Sentirse tan inquieto que no puede ni estar sentado tranquilo.	0	1	2	3	4
79. La sensación de ser inútil o de no valer nada	0	1	2	3	4
80. Pensamientos de que va a pasar algo malo	0	1	2	3	4
81. Tener deseos de gritar o de tirar cosas	0	1	2	3	4
82. Tener miedo de desmayarse en público	0	1	2	3	4

	Nada	Un poco	Moderadamente	Bastante	Mucho
83. La impresión de que la gente intentaría aprovecharse de usted si les dejara	0	1	2	3	4
84. Tener pensamientos sobre el sexo que le inquietan bastante	0	1	2	3	4
85. La idea de que debería ser castigado por sus pecados	0	1	2	3	4
86. Pensamientos o imágenes estremecedoras que le dan miedo	0	1	2	3	4
87. La idea de que algo anda mal en su cuerpo	0	1	2	3	4
88. No sentirse cercano o íntimo con nadie	0	1	2	3	4
89. Sentimientos de culpabilidad	0	1	2	3	4
90. La idea de que algo anda mal en su mente	0	1	2	3	4

Si resultas seleccionado para la segunda fase de este estudio (remunerada con 10€) cómo prefieres que contactemos contigo:

SMS (indicar Móvil): _____

Correo electrónico: _____

Teléfono (indicar número): _____

Otros: _____

Autorizo que desde secretaria se facilite el resumen de mi expediente de notas al finalizar este curso académico. El mismo sólo podrá ser consultado por los investigadores y destruido una vez consultadas las notas, **garantizando en todo momento el anonimato:**

Firmado: _____

DNI: _____

9.2 Annex 2. Compostela Cohort, 2005. Initial questionnaire



Área de Psicoloxía
Área de Medicina Preventiva
Unidade de tratamento do alcoholismo do Complexo
Hospitalario Universitario de Santiago de Compostela

CUESTIONARIO SOBRE PADRONS DE CONSUMO DE ALCOHOL

O cuestionario que che presentamos pretende coñecer os padróns de consumo de alcohol e os factores asociados en estudantes universitarios.

Nunha segunda fase seleccionaremos aleatoriamente a algunhas persoas, ás que pediremos que nos dediquen unhas horas para facer algunhas probas. A participación nesta segunda fase será gratificada con 15€.

INSTRUCCIÓNS: Este cuestionario é **anónimo** e **confidencial**, polo que che pedimos que respondeste coa maior sinceridade; só desesa forma os resultados serán útiles. Tenta responder a todas as preguntas e lee con calma as opcións de resposta, xa que non todas as cuestións se responden do mesmo xeito.

MOITAS GRAZAS POLA TÚA COLABORACIÓN

Data de nacemento:	Sexo:				
(Marca cun X)	Nunca	Menos de 1 vez ao mes	2 ou 3 veces ao mes	2 ou 3 veces por semana	4 ou máis veces por semana
¿Con que frecuencia tomas algunha bebida alcohólica (cervexa, viño, licores, etc.)?	1 ou 2	3 ou 4	5 ou 6	De 7 a 9	10 ou máis
¿Cantas consumicións de bebidas alcohólicas adoitas tomar durante un día de consumo normal?	Nunca	Menos de 1 vez ao mes	1 vez ao mes	1 vez á semana	Diariamente ou case
¿Con que frecuencia tomas 6 ou máis bebidas alcohólicas nunha única ocasión?					
¿Con que frecuencia no último ano sentiches non ser quen de parar de beber unha vez que empezaches?					
non puidiches facer o que se esperaba de ti debido á bebida?					
necesitaches beber antes de almorzar para recuperar te despois de beber moito o día anterior?					
tiveches remordementos ou sentimentos de culpa por ter bebido?					
non puidiches recordar o que sucedeu a noite anterior porque estiveras bebendo?					
	Non	Sí, pero non no último ano		Sí, durante o último ano.	
¿Ti ou algunha outra persoa resultastes feridos porque ti beberas?					
¿Algún familiar, amigo, médico ou profesional sanitario amosou preocupación polo teu consumo de bebidas alcohólicas ou suxeríuche que deixaras de beber?					

Proxecto financiado polo Ministerio de Sanidad y Consumo e pola Dirección Xeral de Investigación da Xunta de Galicia.
Coa colaboración do Vicerreitorado de Calidade e Planificación Estratéxica.

¿Con que frecuencia realizas as seguintes actividades? (Indica o número de veces ao mes. Por exemplo, ningún xoves= 0, un xoves ao mes=1, dous xoves= 2, tres xoves= 3, todos os xoves= 4)

	Luns	Martes	Mércores	Xoves	Venres	Sábado	Domingo
Ocio en casa (lectura, TV, consola, ordenador/internet, ...)							
Actividades deportivas e de natureza (fútbol, ximnasia, pasear, montaña...)							
Actividades culturais (cine, teatro, exposicións, concertos, ...)							
Sair de marcha (sair de copas, ir a pubs, festas, ...)							
Facer botellón (na túa casa ou de amigos, na rúa, ...)							
Actividades académicas fóra das clases (estudar, facer traballos, etc)							

¿Cales destas substancias consumes e con que frecuencia? (Marca cun X)

	Cando saes de marcha				Noutras situacións (ao saír de clase, cas comidas, na casa...)			
	Nunca	De cando en vez	As máis das veces	Sempre	Nunca	De cando en vez	As máis das veces	Sempre
Alcohol								
Alucinógenos								
Anfet/Speed								
Cannabis								
Cocaína								
Éxtasis/Pastillas								
Heroína								
Tabaco								

Na última semana ¿cales das seguintes bebidas bebiches e en que cantidade¹?

¹ Especifica número según a dose que figura entre paréntese. Se tes dúbidas pregunta aos enquisadores.

	Luns	Martes	Mércores	Xoves	Venres	Sábado	Domingo
Vinho (copa)							
Calimochu (vaso grande)							
Cervexa (caña)							
Cubata o similar (tubo)							
Licores o combinados de alcohol (tubo)							

Cando saes de marcha ou botellón e tomas bebidas alcohólicas, ¿con que rapidez as bebes?

- Varias bebidas alcohólicas por hora: 1 2 3 4 5 6 7 ó+ (marca cun X o número)
- Unha bebida alcohólica en dúas horas.
- Unha bebida alcohólica en tres ou máis horas.

¿En que situacións bebes alcohol? (marca cun X todas as que consideres)

- Nunca bebo alcohol
- En ocasións especiais
- Cando estou cos amigos
- Coas comidas
- Estando solo cando me apetece
- Cando saio de marcha

¿Cantas veces estiveches borracho (sensación de mareo, dificultades para falar, camiñar....)?

Nos últimos 15 días.....veces.
 Nos últimos 2 meses.....veces.
 Nos últimos 6 meses.....veces.

¿Que porcentaxe das veces que bebes chegas a emborracharte? O.....% das veces.**Cando saes de marcha e bebes, ¿cales son os motivos principais polos que bebes?** (Tenta numeralos por importancia, sendo 1 o máis importante)

- Para facer cousas que senón non faría.
- Para sentirme importante.
- Porque o fan os meus amigos.
- Para divertirme.
- Porque está de moda.
- Porque mellora/facilita as relacións con outros.
- Para experimentar sensacións novas/fortes.
- Porque me gusta o sabor.
- Porque me apetece.

Segundo a túa opinión, ¿cales cres que son os principais efectos que produce o consumo de alcohol? (Tenta numeralos por importancia, sendo 1 o máis importante)

- Aumenta a diversión.
- Facilita relacionarse.
- Fai sentirse máis relaxado/tranquilo.
- Permite olvidar problemas.
- Produce irritabilidade.
- Produce ansiedade.
- Permite aguantar máis.
- Fai sentirse deprimido.
- Produce confusión.
- Problemas de sono.
- Produce excitación/nerviosismo.
- Agresividade.
- Perda de control.
- Pesadez.

¿Poderías dicir en que medida consumen alcohol as seguintes persoas de teu contorno?

	Moito	Bastante	Pouco	Nada
Compañeiros de estudos				
Amigos				
Parella				
Pai				
Nai				
Irmáns/ás				
A sociedade				
Ti mesmo				

¿Tes algún familiar ou amigo con problemas co alcohol?

- Un familiar de 1º ou 2º grao (pais, irmáns, avós)
- Un familiar máis lonxano (tíos, primos).
- Un amigo.
- Non, ningún.

¿Desde que idade consumes bebidas alcohólicas? Desde os.....anos.**¿Atopácheste algunha vez nalgunha das seguintes situacións como consecuencia de consumir alcohol?**

- Problemas familiares.
- Problemas coa parella.
- Problemas con amigos.
- Problemas con veciños.
- Accidentes de tráfico.
- Detención da policía.
- Pelexas con agresión física.
- Rotura de mobiliario urbano.
- Ter relacións sexuais sen protección
- Ter relacións non desexadas (*non o terías feito*).
- Nunca tiven ningún problema.

De entre as seguintes consecuencias sinala as que che ocorreran algunha vez ao beber alcohol.

- Caídas.
- Tambalearme ao andar.
- Quedarme durmido.
- Palpitacións.
- Vómitos.
- Diarrea ou dores de barriga.
- Temblores.
- Levarme a urxencias.
- Desmaios
- Mareos
- Peleas
- Ningunha

¿Como te sintes cando consumes alcohol? (Marcar un máximo de tres)

- Máis divertido/a.
- Máis charlatán/a.
- Máis deprimido/a.
- Máis torpe.
- Máis irritable.
- Máis sociable.
- Máis "plasta".
- Máis desinhibido.
- Máis animado.
- Máis cansado.
- Máis somnolento, amodorrado.
- Non me sinto distinto a cando non bebo.

Sinala cómo te atopas ao día seguinte de saír e beber alcohol.

- Máis áxil.
- Cústame máis durmir.
- Teño máis apetito.
- Teño dor de cabeza.
- Non recordo nada do ocorrido.
- Paso de ir a clase.
- Case non como nada.
- Con máis sede do normal.
- Cansado.
- Igual ca sempre.

Respecto ao ano pasado, ¿canto alcohol bebes cando saes? Máis Menos Igual

Despois das tres primeiras copas, ¿notas máis as gañas de seguir bebendo? Sí Non

¿Perdiches clases, prácticas ou calquera actividade académica debido á bebida? Sí Non

¿Interferiu a bebida coa túa preparación para os exames? Sí Non

Durante as últimas 2 semanas ¿Consumiches algún dos seguintes medicamentos?

	Con receita médica	Sen receita médica
Antibióticos		
Medicamentos para o catarro, gripe, gorraxa...		
Anticonceptivos		
Antidepressivos, estimulantes		
Laxantes		
Medicamentos para a dor e/ou febre		
Medicamentos para adelgazar		
Medicamentos hormonais substitutivos		
Tranquilizantes, relaxantes, somníferos		
Vitaminas, minerais, tónicos		
Medicamentos para alteracións dixestivas		
Medicamentos para a alerxia		
Medicamentos para a diabetes		
Medicamentos para a reuma, corazón, tensión arterial, colesterol		

¿Consumes algún medicamento, complexo vitamínico, etc en época de exames ou de moito traballo?

- Sí. Cal/es (nome comercial):
-
-
- Non

¿Consumes algún medicamento, complexo vitamínico, etc despois dunha noite de marcha?

- Sí. Cal/es (nome comercial):
-
- Non

¿Onde vives durante o curso universitario?

- Na casa dos meus pais ou familiares.
- Nunha residencia de estudantes.
- Nun piso de estudantes.
- Nunha pensión.
- Casa propia.

Sinala o nivel de estudos do teu:

	Pai	Nai
Primarios (escolaridade básica, EXB).		
Medios (bacharel, FP, etc.)		
Superiores (diplomado, licenciado, etc.)		

¿Como cres que é o nivel económico da túa familia?

- Moi alto.
- Alto.
- Medio.
- Baixo.
- Moi baixo.

¿Cal é o lugar da túa residencia habitual?

- Urbano, cidade ou vila grande (Vigo, Ferrol, Vilalba, Vilagarcía, ...)
- Semiurbano (entorno da cidade ou vila)
- Rural interior (zona agrogandeira)
- Rural costa (zona mariñeira)

¿Cal é a nota que obtiveches na selectividade e a túa nota de acceso á universidade?

- Nota do exame de selectividade.....
- Nota de acceso á universidade.....

Se resultas seleccionado para a segunda fase do estudo (remunerada con 15 €), como prefires que contactemos contigo:

- SMS (indicar móbil: _ _ _ _ _)
- Correo electrónico (.....)
- Teléfono (indicar número: _ _ _ _ _)
- Outros:

GRAZAS POLA TÚA COLABORACIÓN

Se queres facer calquera consulta sobre o tema deste estudo podes dirixirte a: mcorral@usc.es

9.3 Annex 3. Compostela Cohort, 2005. 2 years of follow-up questionnaire.



Área de Psicoloxía
 Área de Medicina Preventiva
 Unidade de Tratamento do Alcoholismo do Complexo
 Hospitalario Universitario de Santiago de Compostela

QUESTIONARIO SOBRE PADRÓNS DE CONSUMO DE ALCOHOL

O cuestionario que che presentamos pretende coñecer os padróns de consumo de alcohol e os factores asociados en estudantes universitarios.

INSTRUCCIÓNS: Este cuestionario é **anónimo** e **confidencial**, polo que che pedimos que respostes coa maior sinceridade; só desesa forma os resultados serán útiles. Tenta responder a todas as preguntas e lee con calma as opcións de resposta, xa que non todas as cuestións se responden do mesmo xeito.

MOITAS GRAZAS POLA TÚA COLABORACIÓN

Data de nacemento: ----/-----/-----	Sexo: <input type="radio"/> Muller <input type="radio"/> Varón
-------------------------------------	--

(Marca cun X)	Nunca	Menos de 1 vez ao mes	2 ou 3 veces ao mes	2 ou 3 veces por semana	4 ou máis veces por semana
¿Con que frecuencia tomas algunha bebida alcohólica (cervexa, viño, licores, etc.)?					
	1 ou 2	3 ou 4	5 ou 6	De 7 a 9	10 ou máis
¿Cantas consumicións de bebidas alcohólicas adoitas tomar durante un día de consumo normal?					
	Nunca	Menos de 1 vez ao mes	1 vez ao mes	1 vez á semana	Diariamente ou case
¿Con que frecuencia tomas 6 ou máis bebidas alcohólicas nunha única ocasión?					
¿Con que frecuencia no último ano sentiches non ser quen de parar de beber unha vez que empezaches?					
non puidiches facer o que se esperaba de ti debido á bebida?					
necesitaches beber antes de almorzar para recuperararte despois de beber moito o día anterior?					
tiveches remordementos ou sentimentos de culpa por ter bebido?					
non puidiches recordar o que sucedeu a noite anterior porque estiveras bebendo?					
	Non	Sí, pero non no último ano		Sí, durante o último ano.	
¿Ti ou algunha outra persoa resultastes feridos porque ti beberas?					
¿Algún familiar, amigo, médico ou profesional sanitario amosou preocupación polo teu consumo de bebidas alcohólicas ou suxeríuche que deixaras de beber?					

Proxecto financiado polo Ministerio de Sanidad y Consumo e pola Dirección Xeral de I+D+I da Xunta de Galicia.
 Coa colaboración do Vicerreitorado de Calidade e Planificación Estratéxica.

Fumas:

- Si. _____ Cigarrillos/día
 Non

¿Cales destas substancias consumes e con que frecuencia? (Marca cun X)

	Cando saes de marcha			
	Nunca	De cando en vez	As máis das veces	Sempre
Alcohol				
Cannabis				
Tabaco				
Cocaína				
Pastillas				
	Noutras situacións (ao saír de clase, cas comidas, na casa...)			
	Nunca	De cando en vez	As máis das veces	Sempre
Alcohol				
Cannabis				
Tabaco				
Cocaína				
Pastillas				

Cando saes de marcha ou botellón e tomas bebidas alcohólicas, ¿con que rapidez as bebes?

- Unha bebida alcohólica en tres ou máis horas.
 Unha bebida alcohólica en dúas horas.
 Varias bebidas alcohólicas por hora:
 1 2 3 4 5 6 7 ó + (marca cun X o número)

¿Que porcentaxe das veces que bebes chegas a emborracharte? O.....% das veces.

¿Desde que idade consumes bebidas alcohólicas? (non a primeira vez que o probaches)
 Desde os.....anos.

¿Poderías dicir en que medida consumen alcohol as seguintes persoas de teu contorno?

	Moito	Bastante	Pouco	Nada
Compañeiros de estudos				
Amigos				
Parella				
Pai				
Nai				
Irmáns/ás				
A sociedade				

Ti mesmo _____

¿Tes algún familiar ou amigo con problemas co alcohol?

- Un familiar de 1º ou 2º grao (pais, irmáns, avós)
 Un familiar máis lonxano (tíos, primos).
 Un amigo.
 Non, ningún.

Cal é o teu peso _____ Kg E a túa talla _____ m

Segues algun tipo de dieta alimenticia

- Si. Dende hai _____ meses
 Non

Cantas horas de calquera actividade física ou deporte realizas á semana: _____ horas

Nos últimos doce meses, cómo dirías que foi a túa saúde?

- Moi boa
 Boa
 Regular
 Mala
 Moi mala

Durante os últimos doce meses, algunha enfermidade ou problema de saúde, limitou dalgún xeito as túas actividades habituais?

- Si
 Non

Durante as últimas dúas semanas, tiveches que reducir ou limitar as túas actividades habituais polo menos a metade dun día, por algunha dor ou síntoma?

- Si. Nº de días:.....
 Non

Durante as últimas dúas semanas, vicheste obrigado a quedar máis da metade dun día en cama por motivos de saúde? (Se estiveches hospitalizado considera tamén os días pasados no hospital).

- Si. Nº de días:.....
 Non

Canto tempo fai que realizaches a última consulta médica por algún problema, molestia ou enfermidade? (Non inclúas, o dentista nin a realización de probas diagnósticas como radiografías, análises, ..., nin as consultas realizadas durante as hospitalizacións.)

- Fai catro semanas ou menos
 Fai máis de catro semanas e menos de un año
 Nº de meses.....
 Fai un ano ou mais. Nº de anos.....
 Nunca fuches ao médico

Cantas veces consultaches cun médico nas últimas catro semanas por algún problema, molestia ou enfermidade?

Nº de veces

Durante as últimas 2 semanas, ¿consumiches algún dos seguintes medicamentos?

	Con receita médica	Sen receita médica
Antibióticos		
Medicamentos para catarro, gripe, gorxa...		
Anticonceptivos		
Antidepresivos, estimulantes		
Laxantes		
Medicamentos para a dor e/ou febre		
Medicamentos para adelgazar		
Tranquilizantes, relaxantes, somníferos		
Vitaminas, minerais, tónicos		
Medicamentos para a alerxia		
Outros		

Durante as últimas dúas semanas, ¿consumiches algún dos seguintes medicamentos?

	Con receita médica	Sen receita médica
Aspirina		
Ibuprofeno		
Paracetamol		

¿Consumes algún medicamento, complexo vitamínico, etc en época de exames ou de moito traballo?

- Non
 Sí.

¿Consumes algún medicamento, complexo vitamínico, etc despois dunha noite de marcha?

- Non
 Sí.

¿Onde vives durante o curso universitario?

- Na casa dos meus pais ou familiares.
 Nunha residencia de estudantes.
 Nun piso de estudantes.
 Nunha pensión.
 Casa propia.

¿Como cres que é o nivel económico da túa familia?

- Moi alto.
 Medio Alto.
 Medio Baixo.
 Moi baixo.

¿Cal é o lugar da túa residencia habitual (familiar)?

- Urbano, cidade ou vila grande (Vigo, Ferrol, Vilalba, Vilagarcía, ...)
 Semiurbano (entorno da cidade ou vila)
 Rural interior (zona agrogandeira)
 Rural costa (zona mariñeira)

¿Que notas sacaches o ano pasado, curso 2006-2007?

Número de Aprobados: _____
Número de Notables: _____
Número de Sobresalientes: _____
Número de Matrículas: _____

Cubriches este cuestionario ou un cuestionario similar hai tres anos cando ías en primeiro?

- Si
 Non
 Non sei

Por favor indicamos o teu móbil ou correo electrónico para o seguimento:

- Teléfono (indicar número: _ _ _ _ _)
 Correo electrónico (.....)

GRAZAS POLA TÚA COLABORACIÓN

Se queres facer calquera consulta sobre o tema deste estudo podes dirixirte a: mcerral@usc.es



9.4 Annex 4. Compostela Cohort, 2005. 9.5 years of follow-up questionnaire.



Tífono: _____ FECHA DE CONTACTO: _____
 Id: _____ SEXO: _____ Facultad: _____ FNAC: _____

FECHA PREFERENCIA: (día/hora)

AUDIT	FECHA REALIZACIÓN:				
	Nunca	Una o menos veces al mes	De 2 a 4 veces al mes	De 2 a 3 veces a la semana	4 o más
¿Con que frecuencia consumes alguna bebida alcohólica?	1 o 2	3 o 4	5 o 6	De 7 a 9	10 o más
¿Cuántas consumiciones sueles hacer en un día de consumo normal?					
	Nunca	Menos de una vez al mes	Mensualmente	Semanalmente	A diario o casi
¿Con qué frecuencia tomas 6 o más bebidas alcohólicas en un solo día?					
¿Con que frecuencia en el último año fuiste incapaz de parar de beber una vez habías empezado?					
¿Con que frecuencia en el último año no pudiste hacer lo que se esperaba de ti por haber bebido?					
¿Con cuanta frecuencia en el último año precisaste beber en ayunas para recuperarse después de beber mucho el día anterior?					
¿Con que frecuencia en el último año has tenido remordimientos o sentimientos de culpa por beber?					
¿Con que frecuencia en el último año no pudiste recordar lo ocurrido la noche anterior porque estuviste bebiendo?					
	No	Sí, pero no en el último año		Sí, en el último año	
¿Habeis resultado heridos tu u otra persona porque hubierais bebido?					
¿Algún familiar, amigo, médico... mostró preocupación por tu consumo de alcohol o le sugirió que dejase de beber?					

EuropASI

FECHA

LUGAR DE RESIDENCIA ACTUAL: 1. Ciudad grande (> 100.000) 2. Mediana (10-100.000) 3. Pequeña (rural) (< 10.000)

1. USO DE DROGAS /ALCOHOL

Ahora le voy a preguntar si consume o ha consumido de forma habitual alguna de estas sustancias(3veces/sem)	Edad de inicio	A lo largo de la vida	Ultimo mes
Tabaco			
Cannabis			
Otras drogas			
Ha sufrido alguna vez sobredosis por drogas?	NO	Sí, veces:	
¿Alguna vez ha recibido tratamiento para desintoxicación o deshabituación de drogas?	NO	Sí, veces:	
Cuánto dinero diría usted que ha gastado en el último mes en:	Alcohol:	Otras drogas:	

2. EMPLEO/RECURSOS

Título académico superior obtenido	Secundaria/FP	Diplomatura	Licenciatura	Doctorado	
Cuanto duro el período más largo de empleo regular?					
Cuanto duro el periodo más largo de desempleo?					
Cual ha sido su patrón de empleo usual en los últimos 3 años:					
T.Completo	TParcial (horario regular)	TParcial (horario irreg)	Estudiante	Desempleado	Otros
¿Cuál es la principal fuente de ingresos que tiene?	Empleo	Paro	Filia o amigos		
Necesita una segunda fuente para mantenerse?					
Considera que su puesto de trabajo está en consonancia con su formación?					

3. RELACIONES FAMILIARES/SOCIALES

Convivencia actual	Pareja	Pareja e hijos	Hijos	Padres	Amigos	Solo			
Desde cuándo?									
¿Alguna de las personas con las que convives tiene problemas relacionados con?	Alcohol	Otras drogas	No						
Está satisfecho con la forma en que utilice su tiempo libre?	Si	No	Indiferente						
Cuantos amigos íntimos tiene?									
Ha tenido períodos en que ha experimentado problemas serios con:									
	Pareja	Madre	Hermanos	Pareja	Hijos	Otro fiar	Amigos	Vecinos	Comp .trabajo
Ult mes									
Alguna vez									
Considera que ese/esos problemas están relacionados con el consumo de sustancias?								Si	No

4. SALUD FISICA

Cuántas noches ha estado hospitalizado por problemas de salud física?	
Hace cuanto tiempo estuvo hospitalizado por última vez por problemas de salud física?	
Padece algún problema de salud física crónico que continua interfiriendo en su vida? (s/n)	
Está tomando alguna medicación prescrita de forma regular para un problema de salud física? (s/n)	
Cuanto le han molestado o preocupado estos problemas médicos en el último mes? (0-4)	

5. CONSUMO DE FÁRMACOS

¿Consumión en lo últimos 15 días?	Con receta médica	Sin receta médica
Antibióticos		
Medicamentos para catarro, gripe, garganta		
Anticonceptivos		
Antidepresivos, estimulantes		
Laxantes		
Medicamentos para a dolor o fiebre		
Medicamentos para adelgazar		
Tranquilizantes, relajantes, somníferos		
Vitaminas, minerales, tónicos		
Medicamentos para a alergia		
Otros		

6. SALUD MENTAL

Dígame si ha experimentado alguno de estos síntomas durante al menos 2 semanas	Ult mes	Largo de la vida
Depresión intensa?		
Ansiedad o tensión intensa?		
Problemas para comprender, concentrarse o recordar?		
Alucinaciones?		
Problemas para controlar conductas violentas?		
Recibió medicación prescrita por un especialista problemas emocionales o psicológicos?		
Ideación suicida grave?		
Cuántas veces intento suicidarse?		
Cuántos días en el último mes ha experimentado esos problemas psicológ/emocionales?		
Cuanto le han preocupado o molestado en el último mes estos problemas?		