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## Review Article

# Substance Use among Adolescents in Spain: A Brief Report

## Abstract

**Introduction:** The consumption of alcohol and illegal drugs is a worldwide public health problem of great social impact when it affects adolescents.

**Aims:** Evaluate the data published by official statements in Spain regarding the consumption of alcohol and drugs of abuse in adolescents.

**Methods:** the data published in Spain by STUDES (Survey on Drug Use among Secondary School Students) have been consulted. The survey is done periodically every two years. The prevalence of these consumptions as well as trends and evolution over time are shown. These data are collected from the population surveys of high school students in the field of adolescence and published within the Spanish National Drug Plan throughout the country. Data were collected between 2014 -2015 and published in 2016. The emergence of consumption of new psychoactive drugs is also evaluated. The alerts and controls established by the Spanish government for the detection of new synthetic drugs such as cathinones, synthetic cannabinoids and others drugs of recent appearance are stated out.

**Results:** The prevalence of alcohol consumption in adolescent students in the last twelve months from 2012-2014 is high. These data are compared with those of other countries inside and outside the European Union. There are different trends in illicit drugs in a period between 1994 and 2014. The consumption of hypnotic substances increases, stable tendency of the consumption of cocaine and moderate decrease of the consumption of cannabis as well as the ecstasy, amphetamines, hallucinogens and heroine.

**Conclusions:** the data are of interest in epidemiology and public health. Education in schools, voluntary treatment of consumers, police and customs controls and advertising campaigns are required to control and minimize this problem.

## Introduction

Alcohol and illegal drug consumption is a public health problem with major legal, health and economic importance in all countries where restrictions to use are considered in prevention policies. Its impact on young adolescents and students is of major social importance.

Controlled studies, meta-analyses and reviews of the topic assess this problem. Mamat et al. [1], in a meta-analysis of 16 articles, highlight the prevalence of psychotropic substances among students, observing an increase in their use and their relationship to other factors, such as stress or increased academic workload.

Twenty-six papers in international peer-reviewed journals indicate a prevalence of hazardous drinking in college students. The situation in Australia, Europe and South America appears

to be similar to that of North America but lower than in Africa and Asia [2]. Another systematic review of databases was conducted to identify articles on latent classes of adolescent polysubstance use [3].

A review of 106 studies published in different countries between 1988 and 2013 on alcohol and illegal drug consumption among medical students found a high prevalence of alcohol of 24%, followed by cannabis 11.8%, stimulants 7.7% and cocaine 2.1% [4].

In Spain, the most reliable data are published by the Delegación del Gobierno para el Plan Nacional sobre Drogas (Government Department for the National Drug Plan), in conjunction with the Autonomous Communities. A survey on drug use among secondary school students aged 14 to 18 throughout Spain (ESTUDES) [5], is carried out every two years, and is now in its 11th edition. In 2014/15, 37,486

students from 941 public and private schools participated. Data were collected between 2014 -2015 and published in 2016. The aims of the survey are to establish the situation and trends in drugs consumption patterns and associated factors, as well as opinions and attitudes regarding drugs. Spanish data reported by official statements are very reliable as they include large samples, periodical series, flexibility, specific modules and international comparability. The latest results of the survey indicate the prevalence and consumption of alcohol and illegal drugs in the last 12 months as shown in Table 1.

Trends in a number of countries have been compared and results published at European and other international levels, although strict comparison is difficult as there are numerous biases and differences between samples and their potency and variations in customs or permissiveness and the age groups considered, among other factors.

In Europe, recent studies used a large international adolescent sample to research different indicators and substances. Insights into substance use are provided by patterns among adolescents, showing figures of 16.1% for low alcohol users, 11.2% for alcohol and marihuana users and 4.7% for polysubstance users; however prevalence rates vary for each country [6].

In Belgium, drug use was studied among students in three different periods (2005, 2009 and 2013) to assess differences. In these periods, alcohol and cannabis consumption dropped but there were no changes with regard to stimulant medication, sedatives, cocaine or amphetamines [7].

In Padova (Italy), marijuana and stimulant use was assessed in a sample of 171 students from 5th and 8th grade; showing almost 5% of males had had experience with then. [8].

Internationally, a sample of 2512 secondary school students found 9.2% had consumed alcohol and other drugs and 16.7% had consumed multiple substances. This consumption was studied in association with other co-variables such as depression and social factors [9]. In another study, a cohort study of 2524 10th grade students found 26% had consumed marijuana, 8% other illicit drugs and 35% alcohol [10].

A different profile of urban American Indian adolescents showed a minority using alcohol, tobacco and/or marijuana (17%) and other illicit drugs and prescription drugs in combination (6%), while another group reported different combinations but rarely alcohol use (4%), occurring in three patterns of combination [11].

Substance use among adolescents in California revealed that alcohol and cannabis were the most prevalent [12], while in countries such as Brazil, among students aged 10-22 years, use of alcohol and energy drinks (19%), solvents (11.2%) and marijuana (4.8%) were notable [13]. In this country, trends over different years (1996-2001-2009) indicate an increase in consumption of amphetamines and tranquillisers and a drop in alcohol consumption, from 72.9% to 62.1% [14].

In Spain, there are not many studies on the topic and regularly published data come mainly from the aforementioned

official bodies. However, a number of local studies have been carried out, such as Vazquez et al. [15] in Valladolid published in 2014, on a representative sample of 2412 school students from 2012. Table 2 compares data from the Spanish studies with the latest results of the ESTUDES programme. It includes, Vazquez [15], Font Mayola [16], Secades [17] and Saiz [18], where a drop in alcohol consumption over time was observed, although the figures remain high.

Table 3 shows the official data and trends in consumption for different substances in Spain from 1994 to 2014. Alcohol has a high prevalence and a stable trend. Consumption of hipnosedatives showed an upward trend (from 1994 to 2012), as well as prescribed hipnosedatives consumption since 2010; cannabis use showed a downward trend, as did that of hallucinogens, ecstasy, volatile inhalants, amphetamines and heroin. Cocaine use remained stable (since 2010). Comparison of

**Table 1:** Survey ESTUDES 2014/2015: comparison years 2012-2014.

prevalence % in last 12 months	2012	2014
alcohol	81.9	76.8
cannabis	26.6	25.4
hipnosedatives	11,6	10.8
Hipnosedatives ( no prescription)	5.8	5.3
cocaine	2.5	2.8
ectasy	2.2	0.9
hallucinogens	2	1.2
amphetamines	1.7	0.9
inhalants	1.2	0.7
Heroine	0,7	0.5

**Table 2:** Studies carried out in Spain in adolescents: comparison among them and STUDES 2014/2015.

age years	Author	Alcohol %	Illicit Drugs %	PMD*%	Country
14-18 2014-2015	ESTUDESv	76.8	Cannabis 25.4 Hipnosedatives 10,8 Hipnosedatives 5.3 Cocaine 2.8 Ecstasy 0.9 Hallucinogens 1.2 Amphetamines 0.9 Inhalants 0.7 Heroine 0.5		Spain
12-17 2013	Font-Mayolas 2013 [16]	18.8	Cannabis 10.5 Cocaine 0.7		Gerona
13-18 2012	Vazquez 2014 [15]	77.2	Cannabis 17 Cocaine 1 Amphatamines1.9 Inhalants 0.7	1.3	Valladolid
14-18 2001	Secades 2001 [17]	85.4	Cannabis 33.5 Cocaine 5 Amphetamines 6.5 Heroine 0.9	8,8	Oviedo
15,8 1998-1999	Saiz 2001 [18]	84.9	Cannabis 2.8 Cocaine 4.9 Amphetamines 5.7 Opites 1.1 Ecstasy 2.7	7.2	Oviedo

\*PMD: psychoactive medicinal drugs.

**Table 3:** Results Survey ESTUDES 2014/2015: students 14-18 years. Trends of consumption of Substances by Year (in the last 12 months %).

	1994	1996	1998	2000	2002	2004	2006	2008	2010	2012	2014
alcohol	82.7	82.4	83.8	77.3	75.6	81	74.9	72.9	73.6	81.9	76.8
hipnosedatives							7.4	10.1	9.8	11.6	10.8
hipnosedatives no prescription	4.4	4.5	4.7	5	4.5	4.7	4.8	5.7	5.6	5.8	5.3
cannabis	18.2	23.4	25.7	28.8	32.8	36.6	29.8	30.5	26.4	26.6	25.4
cocaine	1.8	2.7	4.5	4.8	6.2	7.2	4.1	3.6	2.6	2.5	2.8
amphetamines	3.5	4.4	3.4	3.5	4.1	3.3	2.6	2.5	1.6	1.7	0.9
ecstasy	3.2	4.1	2.5	5.2	4.3	2.6	2.4	1.9	1.7	2.2	0.9
heroine	0.3	0.4	0.6	0.4	0.3	0.4	0.8	0.7	0.6	0.7	0.5
hallucinogens	4.4	5.6	4	4.2	3.2	3.1	2.8	2.7	2.1	2	1.2

these data with those from a previous study covering the period 1987–2004 on alcohol, tobacco and cannabis consumption among 13 to 14-year-old students show an increase in cannabis use [19].

### New psychoactive drugs

With regard to illicit drugs, there is a notable new trend in consumption of “designer drugs”, whose popularity and accessibility have increased in recent years, especially over the Internet, in Spain, Europe and the rest of the world, representing a global youth phenomenon. Two groups of such substances are synthetic cannabinoids and cathinones. Bretteville-Jensen et al. [20] describe in the general population a prevalence of synthetic cathinones of 4%. Among students the prevalence varies from 1–20% and 2–10% for synthetic cannabinoids. In Nevada, use of new synthetic cannabinoids was found to be 17.3%, according to a survey dating from 2013 [21].

In Spain, the trend in consumption of these new psychoactive substances from the ESTUDES study show figures for occasional use of spice 0.8%, ketamine 0.7%, mephedrone 0.55% and salvia 0.7%. In total, 4% of the sample had consumed them on at least one occasion and 53.7% had never heard of them. In Australia, the study of Champion et al among students indicated that 3% had tried them, 2.4% synthetic cannabinoids and 0.4% stimulants [22].

Trends in psychoactive medicinal drug consumption have been studied in among students, showing stimulants have a high non-medical and illicit commercial use, whose impact was studied by Silvestri and Correia among 959 students, assessing non-medical use of these prescriptions [23].

### Legal aspects

In Spain, the Delegación del Gobierno para el Plan Nacional sobre Drogas is the body responsible for obtaining data and following changes in trends on alcohol and illicit drug use. The system ensures correct operation of the Sistema Español de Alerta Temprana (Spanish Early Warning System, SEAT) and compliance with the Council Decision of the European Union (2005/387/JAI) in relation to member states. The Observatorio Español sobre la Droga y las Toxicomanías (Spanish Observatory of Drugs and Drug Addiction, OEDT) is responsible for coordinating the SEAT with other bodies, including non-

governmental organisations (NGOs). With regard to new drugs, the SEAT develops and maintains a rapid early warning system for the detection, exchange of information, assessment and response to the appearance of new psychoactive substances that could generate a public health problem. The OEDT is responsible for coordinating national actions and communicating with other international bodies. The SEAT is an active member of the European Early Warning System (EWS).

With regard to the situation of new psychoactive substances, the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) is currently monitoring over 450 such substances. In 2014, the EWS reported a total of 101 new active substances: 31 cathinones, 30 synthetic cannabinoids, 9 phenethylamines, 5 opioids, 5 tryptamines, 4 benzodiazepines, 4 arylalkylamines and 12 other substances not included in the above groups. Since 2005, the EMCDDA has issued 117 public health alerts relating to new psychoactive substances, over 70% of them in the last 5 years. In 2014, there were 16 European alerts and risk alerts have been carried out on 6 psychoactive substances. In Spain in 2015, SEAT provided the EMCDDA with information on 17 new psychoactive substances detected for the first time in Spain. Of these, 1 belonged to the synthetic cannabinoids group, 4 to the cathinones group and 6 to the phenethylamines group. The other substances were from the arylalkylamine 2, arylcyclohexylamine 2, benzodiazepine 1 and other groups 1. Of the 17 substances detected for the first time in Spain, 3 also appeared for the first time in Europe (1 cathinone, 1 phenylethylamine and 1 alprazolam precursor). In 2014, the new substances 4-methylamphetamine (4-MA) and 5-(2-aminopropyl) indole (5-IT) underwent controls in Spain. In 2015, the Plan Nacional sobre Drogas website issued two alerts (ALFA-PVP “Flakka” and PMMA “Superman”) [24].

In Spain, the results from the ESTUDES projects reflect a moderate decrease in drug consumption with regard to the previous situation; however alcohol consumption remains very high in absolute terms and in comparison to some of the aforementioned countries, although such comparison is not exhaustive.

The conclusions of ESTUDES project regarding to policies and effective measures against drugs, according to the respondents in surveys, are: education in schools; voluntary treatment of consumers; police and customs controls; and advertising campaigns.

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