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A cannabis reader: global issues and local
experiences

Perspectives on cannabis controversies, treatment and
regulation in Europe

Editors

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Chapter 3

Patterns of cannabis use among students in Europe

Keywords: adolescent prevalence – cannabis – epidemiology – Europe – ESPAD
– schools – survey

Setting the context

Cannabis is the most used illicit drug among adolescents in Europe. The European School Survey Project on Alcohol and Other Drugs (ESPAD) is the key transnational instrument for comparing adolescent cannabis consumption in Europe. This chapter provides a summary of recent ESPAD findings on cannabis.

Use of alcohol, illegal drugs and other substances among young people is of great concern in all countries. Acute consequences can be harmful for the individual and negatively affect the development and future well-being of an adolescent. Another concern is that the heavier the use in adolescence, the larger the risk an individual may encounter substance-related problems in the future⁽¹⁾.

The literature is plentiful on suggested associations between early-onset drug consumption and wider psychosocial problems, both in late adolescence and in later adulthood⁽²⁾. However, cannabis is usually placed in a wider psychosocial context of risk factors, and direct causal links are not attributed to the drug. Still, studies among youth detention centres and school drop-outs, for example, highlight associations between delinquent behaviour and high prevalence of intensive drug or alcohol consumption⁽³⁾.

⁽¹⁾ For a wider discussion of risk factors and cannabis use, see Coggans, this monograph.

⁽²⁾ A review of psychosocial correlates with ESPAD data (Bulgaria, Croatia, Greece, Romania, Slovenia and United Kingdom) was recently carried out (Kokkevi et al., 2007).

⁽³⁾ A study in Spain by the Centro de Estudios sobre Promoción de la Salud (CEPS, 2004) of a sample of youths at protection and reform centres found approximately one-third reported weekly cannabis use. Two Dutch studies (Korf et al., 2005; Vreugdenhil, 2003) also reported high prevalence of cannabis use among youths in detention centres (see Dutch National Focal Point, Netherlands National report, 2006).

Moving from deviant patterns to normative behaviour, studies have suggested correlations between cannabis use and impaired educational performance, and (less strongly) occupational performance, interpersonal relationships, mental health issues and suicide⁽⁴⁾.

There is also a strong economic argument for building strong epidemiological data to inform cannabis prevention activities⁽⁵⁾. With school drug prevention budgets in the larger Member States running to tens of millions of euros, it is not surprising that debate in the area is lively. Points of contention include: the 'gateway' or 'stepping stone' theory (cannabis use as a risk factor for use of 'harder' drugs)⁽⁶⁾; effects on adolescent neurological development (including some genetic predisposition debate); means to evaluate the efficacy of programmes⁽⁷⁾; polydrug patterns in adolescents, in particular correlations to alcohol, tobacco and inhalant misuse; the dangers of episodic or 'binge' patterns; the role to be played by prevention actors (peers, teachers, family, drugs workers, police); and delivery of drug prevention in the context of general health programmes (smoking, alcohol, sex education, obesity, healthy lifestyles)⁽⁸⁾.

Beyond the enormous volume and varied quality of school prevention and harm reduction materials (websites, brochures, films, cartoons, posters), a number of recent European publications have sought to distil the research literature into practical publications. Resources include practical guidelines for teachers and parents⁽⁹⁾, screening instruments⁽¹⁰⁾ and grey literature (see Appendix). On the internet, the *Drugs*

(4) A useful synthesis is given by Hall and Pacula (2003); see further reading list. Key studies include: Lynskey and Hall (2000); Macleod et al. (2004); the ESTUDES project (Spain, 2004); and Silva and de Deus (2005).

(5) For a wider discussion of prevention in Europe, see Burkhart, this monograph.

(6) For a concise analysis of the gateway theory, see 'What is the current evidence for cannabis as a gateway drug?' in the 2006 Australian publication *Evidence-based answers to cannabis questions: a review of the literature* (Copeland et al., 2006). Longer analysis can be found in Chapter 10 of *Cannabis use and dependence* (Hall and Pacula, 2003).

(7) The EU-Dap study (Austria, Belgium, Germany, Greece, Italy, Spain, Sweden) has reported on evaluation mechanisms for school-based drug prevention programs (Faggiano et al., 2005) — see www.eudap.net. A strong introduction to the principles of school drug prevention evaluation is the Australian government's *Principles for school drug education* (2004) and its series of eight monographs, *Innovation and good practice in drug education* (2003).

(8) A long-running study in the area of general health concerns is the WHO's *Health behaviour in school-aged children*. See www.hbsc.org/

(9) Publications include: *Unplugged*, a teaching manual produced in the context of the EU-Dap project (www.eudap.net); in Germany, *Schule und Cannabis* (BZgA, 2004) and materials for the *Bekifft in der Schule* project (SuchtPräventionsZentrum Hamburg, 2004); in Switzerland, *Ecoles et cannabis* (OFSP, 2004); in France, *Repérage précoce de l'usage nocif de Cannabis* (INPES, 2006); in the United Kingdom, *School drug policy: a review process* (Blueprint, UK Home Office, 2004) and *Advice for teachers on delivering drug education* (Drug Education Forum, 2004). A Rowntree Foundation study of cannabis supply routes to adolescents is scheduled for 2008 (see www.jrf.org.uk/knowledge/wip/record.asp?ID=804400).

(10) For a discussion of screening instruments, see Beck and Legleye, this monograph.

Education Forum's newsblog⁽¹¹⁾ has evolved into a strong channel for practitioner information and debate in the area. Cross-border cooperation training (study visits, staff exchange) in school drug programmes is likely to benefit from funding under a current European Commission programme on drugs prevention and information⁽¹²⁾.

Further reading

- Drugs in Focus No. 5: *Drug prevention in EU schools* (EMCDDA, 2002) — includes a short reading list.
- Drugs in Focus No. 10: *Drug use amongst vulnerable young people* (EMCDDA, 2004) — includes a short reading list.
- EMCDDA website on school-based universal prevention
www.emcdda.europa.eu/index.cfm?nnodeid=1578
- ESPAD website
www.espad.org/
- Hall, W., Pacula, R. (2003), 'Adolescent psychosocial outcomes', Chapter 11 in *Cannabis Use and Dependence: Public Health and Public Policy*, Cambridge University Press.
- McBride, N. (2005), 'The evidence base for School Drug Education Interventions', in Stockwell, T., Gruenewald, P. J., Toumbourou, J. W., Loxley, W. (eds), *Preventing harmful substance use: the evidence base for policy and practice*, John Wiley and Sons, Chichester, 101–112.
- Soole, D. W., Mazerolle, L., Rombouts, S. (2005), *Monograph No. 07: School based drug prevention: a systematic review of the effectiveness on illicit drug use*, DPMP Monograph Series, Fitzroy: Turning Point Alcohol and Drug Centre.

Recent focused publications

Youth detention centres

- CEPS (2004), *Análisis de la situación de los centros de protección y reforma en el ámbito de la prevención*, Centro de Estudios de Promoción Social, Madrid.
- Korf, D. J., Benschop, A., Rots, G. (2005), 'Geweld, alcohol en drugs bij jeugdige gedetineerden en school drop-outs', *Tijdschrift voor Criminologie* 47(3): 239–254.
- Vreugdenhil, C., Van den Brink, W., Wouters, L. F., Doreleijers, T. A. (2003), 'Substance use, substance use disorders, and comorbidity patterns in a representative sample of incarcerated male Dutch adolescents', *Journal of Nervous and Mental Disease* 191(6): 372–378.

Cannabis, schools and educational performance

- Faggiano, F., Vigna-Taglianti, F., Versino, E., Zambon, A., Borraccino, A., Lemma, P. (2005), 'School-based prevention for illicit drugs use', *The Cochrane Database of Systematic Reviews* 2005, Issue 2.
- Lynskey, M., Hall, W. (2000), *Educational outcomes and adolescent cannabis use*, NSW Department of Education and Training, Sydney.

⁽¹¹⁾ <http://drugeducationforum.blogspot.com/>

⁽¹²⁾ Ref. COD 2006/0037 Belgium;
[http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52006PC0230\(02\):EN:NOT](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52006PC0230(02):EN:NOT)

- Macleod, J., Oakes, R., Copello, A., Crome, I., Egger, M., Hickman, M., Oppenkowski, T., Stokes-Lampard, T., Smith, G. (2004), 'Psychological and social sequelae of cannabis and other illicit drug use by young people: a systematic review of longitudinal, general population studies', *The Lancet* 363(9421): 1579–1588.
- Plan Nacional Sobre Drogas (2004), *Encuesta estatal sobre uso de drogas en enseñanzas secundarias* [State survey on drug use in secondary schools] (ESTUDES) 1994–2004, Plan Nacional Sobre Drogas, Madrid.
- Silva, A., de Deus, A. (2005), 'Comportamentos de consumo de haxixe e saúde mental em adolescentes: Estudo comparativo', *Análise Psicológica* 2(23): 151–172.

Gateway theory

- Copeland, J., Gerber, S., Swift, W. (2006), *Evidence-based answers to cannabis questions*, National Drug and Alcohol Research Centre, University of New South Wales, Sydney, 51.
- Morall, A. R., McCaffrey, D. F., Paddock, S. M. (2002), 'Reassessing the marijuana gateway effect', *Addiction* 97(12): 1493–1504.

Patterns of cannabis use among students in Europe

Björn Hibell and Barbro Andersson

Debate on policy and prevention for young people requires accurate data. This is the rationale that drives the European School Survey Project on Alcohol and Other Drugs (ESPAD)⁽¹³⁾. ESPAD collects comparable data on alcohol, tobacco and drug use among students aged 15–16 years in European countries. It also monitors trends in alcohol and drug habits among students in Europe and compares trends between countries and groups of countries.

ESPAD began in the early 1990s. So far, data have been collected three times in an increasing number of countries⁽¹⁴⁾. The first survey was done in 1995 with 26 participating countries, the second in 1999 with 30 countries and the third in 2003 with 35 countries. More than 100 000 students answered the ESPAD questionnaire in 2003. The surveys were carried out on nationally representative samples of school classes⁽¹⁵⁾. However, there were three exceptions from this. One is Germany, in which the study was limited to 6 out of 18 Bundesländer. In Turkey, data were collected in six large cities, and in Russia the survey was carried out only in Moscow. In addition to the 35 countries that participated in the 2003 data collection, the report also included data from Spain (collected in 2002) and the USA (Hibell et al., 2003).

Awareness of cannabis: a well-known drug

Of all illicit drugs, marijuana and hashish⁽¹⁶⁾ are the best known by students aged 15–16. This is true for nearly all countries and among boys as well as girls: gender differences for cannabis awareness are small. Looking at the averages of all the 35 ESPAD countries in the 2003 data collection, 92% of students admitted that they had heard of marijuana and hashish. Equally well known are cocaine and heroin (91% each). Next in terms of awareness are ecstasy (83%) and amphetamines (66%). In some countries nearly all students have heard about marijuana or hashish. This is the

⁽¹³⁾ The ESPAD website is at www.espad.org

⁽¹⁴⁾ 'Country' here refers to a political entity, but not necessarily a national state. Such subnational entities as the Faroe Islands and the Isle of Man are included.

⁽¹⁵⁾ A full description of survey methodology is available on the ESPAD website at www.espad.org/method.asp.

⁽¹⁶⁾ 'Marijuana and hashish' is used together with 'cannabis' in this chapter as 'marijuana and hashish' are the terms used in the ESPAD questionnaire. Elsewhere in the monograph, 'herbal cannabis' and 'cannabis resin' are the preferred terms.

case among 95% or more of the students in 11 ESPAD countries. The highest figures (98–99%) are found in the Czech Republic, France and Slovakia. The lowest proportion of students who have heard of cannabis products is found in Turkey (six cities), where 68% of the students reported that they were aware of cannabis. In all other countries, 81% or more of the students reported that they had heard of cannabis.

Availability: the most available illicit drug

To measure the perceived availability of different substances the ESPAD students were asked the following question: 'How difficult do you think it would be for you to get each of the following?'. For each of the listed substances the response categories were: 'impossible', 'very difficult', 'fairly difficult', 'fairly easy', 'very easy' and 'don't know'. Besides beer, wine and spirits, the highest proportion of students answering 'very easy' and 'fairly easy' is for inhalants (41%, in ESPAD 2003).

However, if one looks only at illegal drugs, cannabis is the drug that is perceived as most available. On average, this was the case for a little more than one-third of the students in the ESPAD countries (35%). Other substances perceived to be readily available are tranquillisers and sedatives (21%), followed by ecstasy (17%). The perceived availability differs widely between countries; from 7% in Turkey (six cities) to 60% in Ireland. In seven countries a majority of the students answered that marijuana or hashish is 'very easy' or 'fairly easy' to obtain. These include the Czech Republic, Ireland and the United Kingdom (58–60%), as well as Denmark, the Isle of Man, Slovenia and Switzerland (51–55%). Hence, countries with high perceived availability of cannabis are spread throughout Europe. However, more of them are found in the north-west, including all the countries of the British Isles.

A high perceived availability is also found in the two non-ESPAD countries from which some data are available in the ESPAD report. In Spain 67% of the students reported that marijuana or hashish was 'very easy' or 'fairly easy' to get, and in the USA the figure was even slightly higher (74%). Turkey (six cities) showed particularly low perceived availability (at 7%), and other countries reporting low perceived availability were Cyprus, Romania and Ukraine, at 10–13%.

Supply channels: mainly available in discos and bars

ESPAD students were asked where they thought that they could easily buy marijuana or hashish if they wanted it. The proportion of students reporting places of purchase varies considerably between countries. In some countries many students do not know where

to buy cannabis. The highest figures in this respect are found in Turkey (six cities) and Ukraine (80–83%), followed by Romania and Russia (69–73%). ‘Disco, bar, etc.’ is the option selected by most students. The ESPAD average was 27% in 2003, followed by ‘street, park, etc.’ (23%) and ‘home of a dealer’ (21%). In 20 countries the option ‘discos, bar, etc.’ was recognised as the easiest place to buy cannabis. ‘Streets and parks’ was the most popular option in seven countries and ‘home of a dealer’ in six.

When looking at individual countries, the highest figure for ‘discos and bars’ was found in the Czech Republic, where 55% gave this answer. Other countries with high figures (40–46%) include Belgium, Denmark, Germany (six Bundesländer), Austria and Slovakia. ‘Streets and parks’ was reported mainly from Italy (45%), followed by Belgium, Ireland, Norway, Slovenia and Switzerland (35–38%). The highest figures for ‘home of a dealer’ were found in France, Italy and the United Kingdom (39–43%). However, the highest single figure is found in the Netherlands, where 60% of the students answered ‘coffee shops’⁽¹⁷⁾. This category was included only in the Dutch and Belgian questionnaires. In Belgium it was mentioned by a far smaller number of students than in the Netherlands (29%).

The availability of drugs in schools is a sensitive issue⁽¹⁸⁾. However, on average, ‘schools’ was the least reported option for purchasing cannabis. Nonetheless, 16% of ESPAD students reported availability at school. The variation between the countries with the smallest and highest figure is large. Among Italian students, as many as 43% reported that cannabis products could easily be bought in schools. Other countries with high figures include Belgium, the Czech Republic, France and Ireland, where 30–36% gave this answer. Countries in which only 3% of the students reported that cannabis was easily available in schools include the Faroe Islands, Greenland, Turkey (six cities) and the Ukraine. Responses about places where marijuana and hashish can easily be bought are similar for both boys and girls. The most striking gender difference in the ESPAD averages is that more girls (30%) than boys (24%) answered that they can buy cannabis products at a disco or a bar. Among the boys there is no difference in the averages for the two alternatives ‘disco, bar, etc.’ (24%) and ‘street, park, etc.’ (25%).

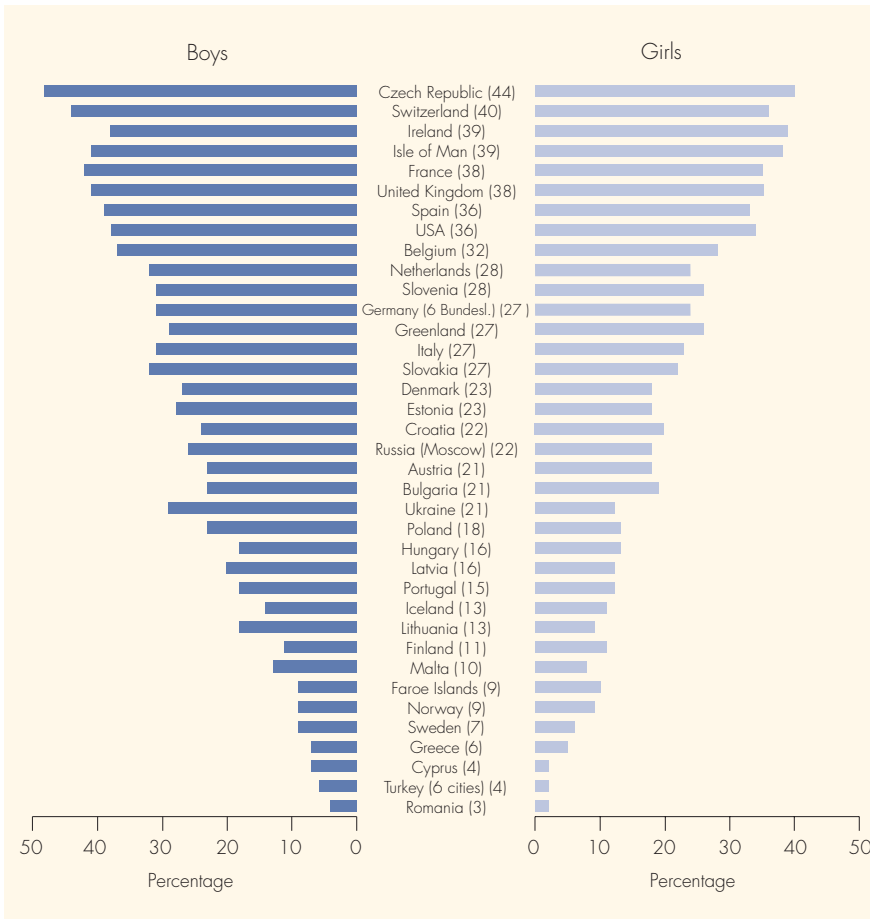
⁽¹⁷⁾ ‘Coffee shop’ in this context refers to the category of shops in the Netherlands where cannabis is openly available to those aged 18 and above (see Korf, this monograph).

⁽¹⁸⁾ With regard to legislative approaches to cannabis possession, a number of countries include references to cannabis use which places minors at risk. See the ELDD map of European legislation on cannabis possession at: <http://eldd.emcdda.europa.eu/index.cfm?nnodeid=5769>

Lifetime prevalence: the most widely used illicit drug, yet large differences between countries

Cannabis is the most commonly used of all the illicit drugs⁽¹⁹⁾ (Figure 1). In 2003 the ESPAD average for lifetime cannabis prevalence was 21%. However, the proportion of students who have tried cannabis varies from 3 to 44% between countries.

Figure 1: Lifetime experience of marijuana or hashish. Percentages among boys and girls, 2003

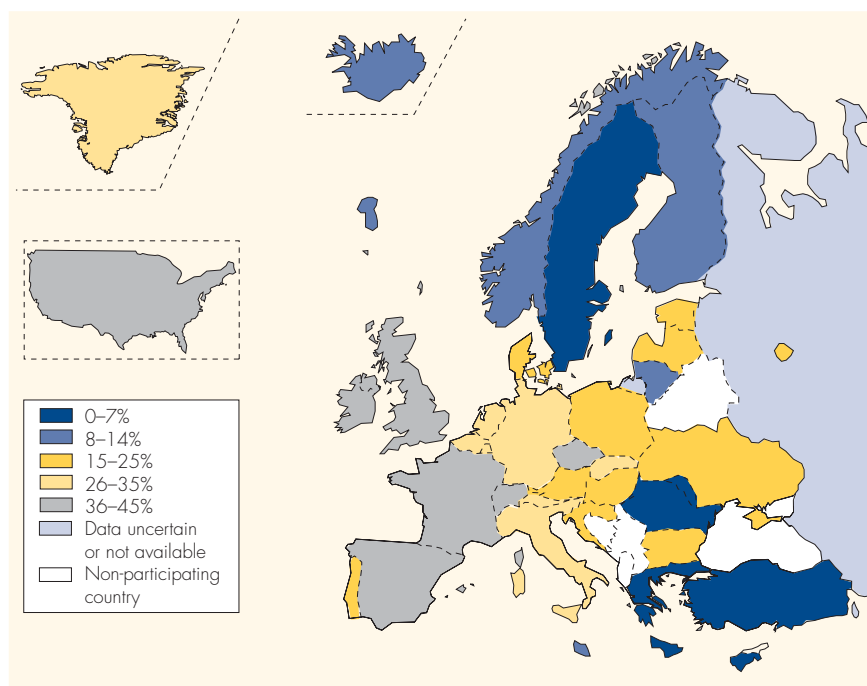


Note: Values within brackets refer to all students. Germany and Turkey — limited geographical coverage. Spain and USA — limited comparability.

⁽¹⁹⁾ Far behind cannabis comes ecstasy, which was mentioned on average by 3% of students. The highest prevalence rate for any drug other than cannabis in any single country is 8%: 8% of Czech students reported use of ecstasy as well as of magic mushrooms.

Students in the Czech Republic reported the highest cannabis use, at 44%, yet high prevalence rates were also reported from Switzerland (40%), Ireland and the Isle of Man (39% each), France and the United Kingdom (38% each). Other countries where more than a quarter of students have used cannabis include Belgium (32%), the Netherlands and Slovenia (28% each), Germany (six Bundesländer), Greenland, Italy and Slovakia (27% each). The lowest levels of cannabis use are reported from Romania (3%), Cyprus, Turkey (six cities) (4% each), Greece (6%) and Sweden (7%). Low prevalence rates are also found in the Faroe Islands, Norway (9% each) and Finland (10%). Data from the non-ESPAD countries Spain and the USA reveal that 36% of students in both countries had ever used cannabis (Figure 2).

Figure 2: Lifetime experience of marijuana or hashish. Percentages among all students, 2003



Note: Germany and Turkey — limited geographical coverage. Spain and USA — limited comparability.

Recent use of cannabis (last year and last month prevalence) — between 2 and 36%

In adult populations regular drug use can be measured in different ways. One of these is last month prevalence (drug use in the last 30 days). In many cases this indicates not only recent use but also more regular consumption. However, for a 15- or 16-year-old student, last month prevalence may very well be identical with first use. A better way of defining regular use is to ask young people to declare frequency information for last year (use in the last 12 months) and last month prevalence. For example, to measure whether a student has used cannabis '10 times or more during the last 12 months' and 'three times or more during the last 30 days' (20).

In the current absence of explicit frequency-of-use data, one way to build a picture of recent use is to compare the figures for last year prevalence with those for last month prevalence.

As mentioned earlier, an average of 21% of ESPAD students reported ever-in-lifetime use of cannabis. By comparison, 16% of ESPAD students reported last year prevalence and 9% last month prevalence. For other drugs, the highest figure for any other drug was 2% for the last year prevalence for ecstasy and 1% for last month prevalence of amphetamines, ecstasy and magic mushrooms. Thus, there is a broad overlap between average ever-in-lifetime use (21%) and last year prevalence (16%).

The Czech Republic reported the highest last year prevalence (36%), while other high-prevalence countries include the Isle of Man (34%), France, Ireland, Switzerland and the United Kingdom (31% each). Countries where very few students have used cannabis during the last 12 months are to a large extent the same that reported low lifetime prevalence rates. Thus, the smallest number of students reporting this behaviour are found in Romania (2%), Cyprus, Turkey (six cities) (3% each), the Faroe Islands (4%), Greece and Sweden (5% each). In the non-ESPAD country, Spain, 32% of the students had used cannabis during the last 12 months. The corresponding value for the USA is 28%.

Not unexpectedly, the high- and low-prevalence countries with regard to last month prevalence are about the same as for last year prevalence. Countries with the highest last month prevalence include France (22%), the Isle of Man (21%), Switzerland, the United Kingdom (20% each) and the Czech Republic (19%). Other countries with relatively high rates are Belgium, Ireland (17% each) and Italy (15%). In some countries, however, very few report last month prevalence. The six countries with the lowest figures

(20) This information is available in the ESPAD national datasets, but at the time of writing it was not available for comparative analysis.

are the Faroe Islands, Romania, Sweden (1 % each), Cyprus, Greece and Turkey (six cities) (2 % each). In Spain and the USA last month prevalence rates are 23% and 17% respectively.

Gender differences?

There is a clear gender gap in cannabis prevalence⁽²¹⁾, with boys generally more likely to have tried cannabis, or to have recently used cannabis, than girls.

For lifetime prevalence, with one exception (Ireland), in no country are there more girls than boys who have tried cannabis. Boys are in the majority in about two-thirds of the ESPAD countries (see Figure 1). However, in some countries there are no strong gender differences. Few differences in gender can be seen in the British Isles and among the Nordic countries, including the Faroe Islands, Finland, Greenland, Iceland, Ireland, the Isle of Man, Norway and Sweden. Greece is also an exceptional southern country, reporting near-equal lifetime prevalence for girls and boys. In the Czech Republic, Denmark, Estonia, Ireland, Latvia, Poland, Slovakia and Norway the gender gap has narrowed in successive surveys. It may also be noted that countries with near-equal prevalence between genders relate to both high- and low-prevalence countries.

More boys (19%) than girls (14%) on average report last year use of cannabis. This pattern applies to the majority of reporting countries, and applies to both high-prevalence countries (e.g. Czech Republic, France, the United Kingdom) and low-prevalence countries (e.g. Cyprus and Turkey). The largest gender gap in last year prevalence is found in the Ukraine, with 18% for boys and 6% for girls. Large gender divides in last year prevalence are also reported by Belgium (32% boys, 22% girls) and Slovakia (24% boys, 14% girls).

For last month prevalence, on average 11% of boys and 7% of girls reported cannabis use in the last 30 days. The pattern is reflected in nearly half of the countries. There is no real geographical pattern in the gender distribution.

The typical debut drug

Cannabis is the illegal substance most commonly reported as a debut drug among both boys and girls. On average, 18% of all ESPAD students report that cannabis was the first illegal substance they have tried, corresponding to about 80% of all students who

⁽²¹⁾ Gender issues in drug use were explored in the EMCDDA selected issue, *A gender perspective on drug use and responding to drug problems* (EMCDDA, 2006), available at: <http://issues06.emcdda.europa.eu/en/page013-en.html>

have tried any illicit drug. Cannabis is the leading debut illegal drug in all but three ESPAD countries. Second to cannabis, but with much lower figures, are tranquillisers or sedatives, reported by 2% of all students, about 9% of students who report having tried any illicit drug.

Early onset

If one excludes inhalants, which are not defined as an illicit drug, cannabis is the most common drug that is used at an early age. Of all ESPAD students, 4% report that they were 13 years or younger when they tried cannabis for the first time ('early onset')⁽²²⁾. The figures for early onset vary between countries, from 0% in Romania to 13% in the United Kingdom. Examples of other countries with high early onset figures include the Isle of Man (12%) and Switzerland (11%). These figures are similar to those reported in the USA (10%). Very small gender differences appear when it comes to early onset. In the very few cases where a gender gap exists, figures are slightly higher for boys. The largest gender difference is found in Belgium, where 10% of boys and 5% of girls report trying cannabis at age 13 or younger.

Increased use in many countries

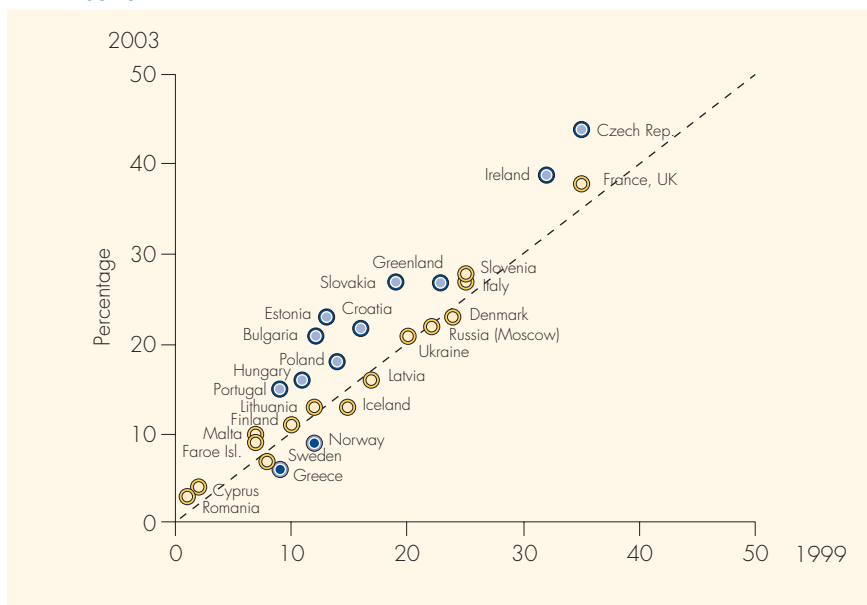
Between the first ESPAD data collection in 1995 and the second in 1999, a majority of countries reported an increase in lifetime cannabis prevalence. Many countries also showed continuing increases between 1999 and 2003.

Of the ESPAD countries that participated in 1995, 21 provided comparable data from the second data collection. Two-thirds of these countries reported higher lifetime cannabis prevalence in 1999. These countries were spread geographically across Europe and include countries with high lifetime prevalence (e.g. the Czech Republic, with 35% in 1999) and low lifetime prevalence (e.g. Finland, with 10%, and Hungary, with 11% in 1999). Three countries reported a decline in lifetime cannabis prevalence between 1999 and 1995. Two of these were the top countries in both 1995 and 1999: the United Kingdom (35% in 1999) and Ireland (32% in 1999). The third country was a low prevalence country: the Faroe Islands (7% in 1999).

Six countries reported minor decreases in lifetime prevalence between 1999 and 2003: Denmark (23% = -1%), Greece (6% = -3%), Sweden (7% = -1%), Norway (9% = -3%), Iceland (13% = -2%) and Latvia (16% = -1%) (Figure 3). In a majority of the countries that participated in both surveys (18 out of 28) the figures were about the same in the two data collections. However, lifetime prevalence increased in absolute percentage

⁽²²⁾ For further discussion of early initiation into cannabis use in Europe, see Kokkevi et al. (2006).

Figure 3: Changes between 1999 and 2003 in lifetime prevalence of marijuana or hashish



Note: Countries above the line have increased prevalence rates, and countries below have decreased. All students.

points by over 4% in 10 countries: Czech Republic (44% = +9%), Ireland (39% = +7%), France (38% = +4%), Slovakia (27% = +8%), Estonia (23% = +10%), Croatia (22% = +8%), Bulgaria (21% = +9%), Poland (18% = +4%), Portugal (15% = +6%), Hungary (16% = +16%).

Of the 21 countries that have comparable data from all three data collections, six show an increased trend through all three data collections. These are Croatia, Czech Republic, Estonia, Hungary, Poland and Slovakia: all Eastern European countries. In 1995 some of these countries were among those with lowest prevalence (e.g. Hungary with 4% and Estonia with 7%). In 2003 one of these was at the top of all participating countries (Czech Republic with 44%), three others are in the upper half and two are around the middle (Hungary with 16% and Poland with 18%)⁽²³⁾. The number of countries which showed an increase in prevalence between 1999 and 2003 are about the same both for last year prevalence (nine countries) and for lifetime prevalence (10 countries). However, relatively few countries reported an increase in last month prevalence (three countries). In nearly all countries the trends over time have been about the same among boys and girls.

⁽²³⁾ For a more detailed analysis of cannabis in these countries, see Moskalewicz et al., this monograph.

Increased perceived availability in many countries

Perceived availability of cannabis ⁽²⁴⁾ increased strongly compared with other substances from 1999 to 2003, from an average of 29–35%. Changes in perceived availability are also very similar for boys and girls. The number of countries in which perceived availability increased for other drugs is much smaller, and averages were about the same in 2003 as in 1999.

Increases in cannabis perceived availability were reported in nearly half of the countries with available information (13 out of 28). These countries were broadly concentrated in the eastern parts of Europe (10 out of these 13 countries). Increases were reported in countries with low as well as high perceived availability; for example, Romania (11%) and the Czech Republic (58%). Only three countries — Denmark (52%), Greece (20%) and Norway (26%) — reported lower perceived availability of cannabis in 2003 than in 1999.

In seven countries perceived availability of cannabis increased in all three data collections from 1995 to 2003 (Croatia, the Czech Republic, Estonia, Lithuania, Poland, Slovakia and Slovenia). All are Eastern European countries, and five of them are among the six countries in which the lifetime prevalence increased in 1995, 1999 and 2003 (Croatia, the Czech Republic, Estonia, Poland, Slovakia).

Consumption and perceived availability — strongly correlated

ESPAD uses, to some extent, the same questions that are used in the *Monitoring the Future* ⁽²⁵⁾ studies in the USA, where they have a long series for grade 12 students (17–18 years old), dating back to the 1970s (Johnston et al., 2005). In the USA, it is evident that there have been changes in cannabis use over time. However, during the whole period the perceived availability seems to have remained relatively stable among 12th graders.

Information about students in grade 10 (15–16 years old), i.e. students of about the same age as the ESPAD target group, is available in the US studies only from 1991. The use of marijuana increased in this group between 1991 and 1997, then levelled off, before decreasing from 2001 onwards. For the whole period the availability trend has followed the use trend very closely.

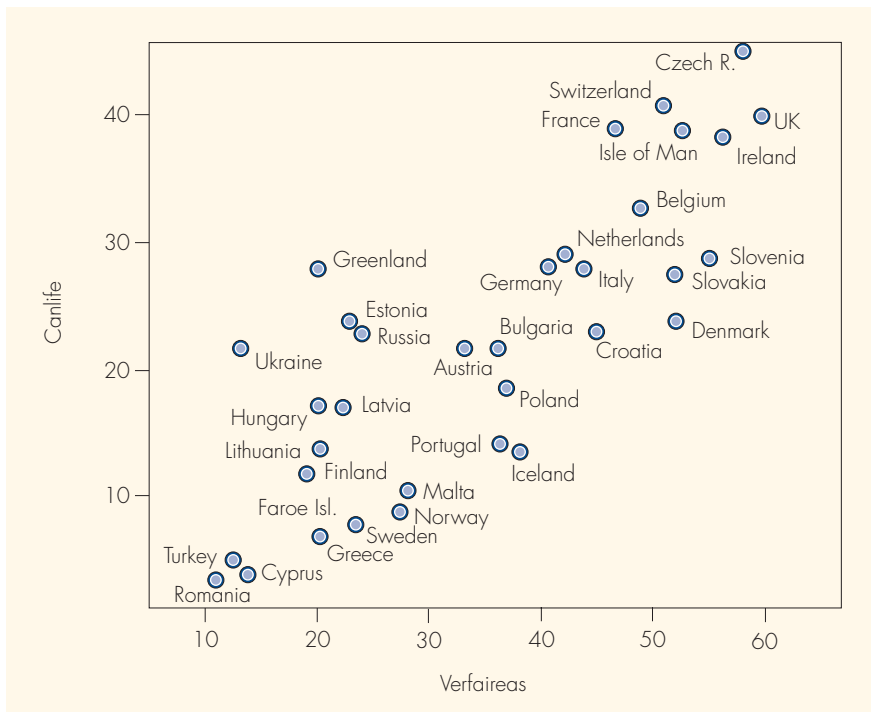
⁽²⁴⁾ Defined as the share of students reporting that marijuana or hashish were 'very easy' or 'fairly easy' to obtain.

⁽²⁵⁾ The website of the Monitoring the Future Study is www.monitoringthefuture.org/

As mentioned in the previous section, in five out of the six ESPAD countries in which the lifetime prevalence for cannabis increased consistently in 1995, 1999 and 2003, perceived availability also increased. This indicates that there is a strong relationship in the ESPAD countries between changes in the level of consumption in a country and changes in the perceived availability of cannabis. This relationship is found in 2003 when one compares the proportion of students in different ESPAD countries who have ever used cannabis and the proportion of all students who perceive marijuana and hashish 'very easy' or 'fairly easy' to obtain (Figure 4). It is obvious that there is a strong positive relationship between lifetime prevalence of cannabis and perceived availability ($r_{xy} = 0.85$, $r_{\text{rank}} = 0.85$).

These results indicate that use of cannabis and perceived availability are highly correlated among 15- to 16-year-old students in Europe, as well as in the USA. However, this is not the case among 17- to 18-year-old American students. Possible explanations for this could include age (12th graders are about two years older than the ESPAD target group), degree of availability (in 2003, 87% among the 12th graders,

Figure 4: Correlation between lifetime use of cannabis (Canlife) and the proportion of students answering that cannabis is very/fairly easy to obtain (Verfaireas) ($r_{xy} = 0.85$, $r_{\text{rank}} = 0.85$)



Source: ESPAD data from 2003.

74% among 10th graders, compared with 35% on average among the ESPAD students, with a range from 7 to 60%); the degree of stability of perceived availability (this has changed among the 15- to 16-year-old students, while it has been stable among American 12th graders). A conclusion from this is that changes in the availability of cannabis are linked to changes in consumption among 15- to 16-year-old students, even though any direct causal link needs to take into account other psychosocial factors.

Consumption and risk perception — strongly correlated

The *Monitoring the Future* study in the USA has found a strong relationship between changes in the perceived risk of cannabis use and changes in consumption levels. This has been interpreted as reflecting a causal connection (Johnston et al., 2005). With only three data collections within ESPAD, a similar analysis of the possible influences of changes over time is difficult. However, a comparison between the countries in the 2003 data collection shows a very strong relationship between the risk perception of cannabis and consumption level. The correlation at the country level between the lifetime prevalence rates of cannabis use and the proportion of students who indicated that there is a 'great risk' related to using it once or twice was strongly negative ($r_{xy} = -0.76$, $r_{\text{rank}} = -0.79$). This indicates that at the country level there is a strong negative relationship between risk perception and consumption levels, i.e. the lower the risk perception, the higher the consumption levels.

Correlates of adolescent cannabis use

The research literature offers numerous studies of psychosocial factors that correlate with adolescent cannabis use⁽²⁶⁾. However, findings are mixed or inconsistent, and focus on a single country or restricted group of countries, with different methodological aspects influencing the results. Moreover, such statistical associations are far from deterministic: there is hardly any correlate of adolescent substance use that has not been found to be non-significant in some study.

As ESPAD data collections in the different countries are carried out in a standardised way, the ESPAD project includes data that may be more suitable for cross-cultural comparison. One of the chapters in the latest ESPAD report includes correlates at the individual level from nearly all ESPAD countries (Hibell et al., 2004: 194–199). The summary below provides an overview of correlates for cannabis. Some caveats are

⁽²⁶⁾ A review of psychosocial correlates with ESPAD data from Bulgaria, Croatia, Greece, Romania, Slovenia and United Kingdom was recently carried out (Kokkevi et al., 2007). Another recent study analysed correlates of adolescent cannabis use and consumer expenditure (PCE), unemployment and peer factors in 31 countries (ter Bogt et al., 2006).

required, however. ESPAD is based on a clustered not random sample (samples of classes, with classes as the sampling unit), which complicates statistical calculations. Yet, for pragmatic reasons standard *t*-tests have been used in this section, based on the understanding that these tests of statistical significance are likely to overestimate any correlates: the results must be interpreted as offering useful general guidelines only.

The lifetime use of cannabis was correlated with parents' education ⁽²⁷⁾ (father's and mother's education separately), family structure (single parents and one parent together with a step-parent) ⁽²⁸⁾, economic situation (how well-off the students thought their family is compared with other families), perceived parental control (the students' opinions concerning the extent to which their parents know where they spend Saturday nights), truancy (the number of days of school skipped during the last 30 days) and siblings' use of cannabis (Table 1).

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⁽²⁷⁾ Parental education with the options of: (i) primary school or less; (ii) some secondary; (iii) completed secondary; (iv) some college/university; (v) completed college university; and (vi) don't know.

⁽²⁸⁾ Students are asked who they share a household with. Options are: (i) I live alone; (ii) father; (iii) stepfather; (iv) mother (stepmother); (v) brothers/sisters; (vi) grandparents; (vii) other relatives; and (viii) non-relatives.

Table 1: Lifetime use of cannabis correlated with family variables

	Father's education	Mother's education	Poor family economy	Single parent	One parent + step-parent	Poor perceived parental control	Truancy	Siblings perceived cannabis use
Belgium	0	0	0	+	+	+	+	+
Bulgaria	+	+	0	0	0	+	+	+
Croatia	+	+	0	+	0	+	+	+
Czech Republic	-	-	0	+	+	+	+	+
Denmark	0	0	0	+	+	+	+	+
Germany (six Bundesländer)	+	+	-	+	+	+	+	+
Estonia	0	0	-	0	+	+	+	+
Ireland	0	0	0	0	NA	+	+	+
Greece	0	+	0	0	+	+	+	+
Faroe Islands	0	0	0	0	NA	+	+	+
Finland	0	0	0	+	+	+	+	+
France	NA	NA	NA	+	+	NA	+	NA
Iceland	0	0	+	+	+	+	+	+
Italy	0	0	-	+	+	+	+	+
Greenland	0	0	-	+	+	0	+	+
Iceland	0	0	+	+	+	+	+	+
Isle of Man	-	0	0	0	+	+	+	+
Cyprus	0	+	0	NA	NA	+	+	+
Lithuania	-	0	0	0	0	+	+	+
Hungary	0	0	0	+	+	+	+	+
Malta	+	+	0	+	+	+	+	+
Netherlands	0	+	-	+	+	+	+	+
Norway	0	-	0	+	+	+	+	+

Austria	+	+	0	+	+	+	+	+	+	+	+	+	+
Romania	+	+	0	0	0	0	0	0	0	0	0	0	0
Russia (Moscow)	0	0	-	+	+	+	+	+	+	+	+	+	+
Slovenia	+	+	0	0	0	0	0	0	0	0	0	0	0
Slovakia	+	0	0	+	+	+	+	+	+	+	+	+	+
Sweden	0	0	0	+	+	+	+	+	+	+	+	+	+
Switzerland	+	+	0	+	+	+	+	+	+	+	+	+	+
Turkey (six cities)	0	0	-	+	+	+	+	+	+	+	+	+	+
Ukraine	0	0	0	+	+	+	+	+	+	+	+	+	+
United Kingdom	-	-	+	+	+	+	+	+	+	+	+	+	+
Number of positively indicated correlations	9	11	2	22	23	30	32	31	31	32	32	31	31
Number of non-significant correlations	17	16	22	9	6	1	0	0	0	0	0	0	0
Number of negatively indicated correlations	4	3	7	0	0	0	0	0	0	0	0	0	0

Notes

0, the correlation is not significant.

NA, data not available.

Limited or no correlations: The correlations are different for the different variables. In the majority of the countries (16 or 17) parental education is not significantly correlated with drug use. However, there is a significant positive correlation in 9–11 countries, and three or four countries have negative associations. The picture is similar for poor family economy, even though the number of countries without any significant correlation (22) is even higher than for parental education. Where associations are found, there are more countries with negative (seven) than positive (two) significant correlations.

Moderate correlations: Poor family structure is positively correlated with cannabis use in a large majority of the countries. This was the case in 22 to 23 countries for the single-parent variable, as well as for the case when one of the parents lives together with a step-parent. In all other countries the relationship was non-significant.

High correlations: The picture is even clearer when it comes to perceived parental control, truancy and siblings' cannabis use. In all countries but one (30) there is a positive association between poor perceived parental control and cannabis use, that is, the less the parents know where their children spend Saturday nights the higher the proportion of the children that have tried cannabis. In all 32 countries with available information there is a positive correlation between truancy and cannabis use. This means that the more days a student has skipped school during the last 30 days, the higher the probability that he/she has used cannabis. Another factor for which the correlation is the same in all analysed countries is perceived sibling's use of cannabis. In all 31 countries there is a positive correlation between perceived sibling's use of cannabis and the student's own use. In other words, having a sibling that uses cannabis increases the probability for a student to have used this drug.