

Original

Substance abuse and health self-perception in Spanish children and adolescents

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Abstract

Objective: The aim of this study was to analyze substance abuse and health self-perception in children and adolescents from the province of Cádiz (Spain).

Methodology: Participants were 738 students, 50.9 boys and 49.1% girls, from elementary school to high school (1st to 12th grade, mean age 12.2. years), who responded a Spanish adaptation of the Health Behavior in School-aged Children Inventory.

Results: No difference was observed in percentage of boys and girls reporting to smoke or drink alcohol. Smoking and drinking habits increased with age, being higher in 11th and 12th grade students. Significant differences were observed among the percentage of smokers and non smokers recognizing to have parents, older brothers or friends who smoke. Rates of drug abuse were generally low, being cannabis the most frequently consumed illicit drug. Most respondents had a perception of excellent or good health, with no significant gender differences. About half of subjects considered that health exclusively depends on self behavior, but an important percentage also gave a relevant role to luck. Stomach-ache was the most frequent physical complaint, followed by headache. Psychological complaints mainly corresponded to nervousness and bad temper. Only a small percentage of subjects declared the use of medicines or tablets without prescription. No significant difference in the percentage of respondent who perceived an excellent or good health was observed among substance users and non users.

Conclusions: Substance abuse and health self-perception in children and adolescents are the result of the interaction of a complex series of individual and social factors. Activities aimed to improve health focusing on partial aspects of adolescents' lifestyle most probably will have limited results, and global programs are required.

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Key words: Alcohol. Tobacco. Drugs. Health self-perception. Children and adolescents.

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ABUSO DE SUSTANCIAS Y PERCEPCIÓN DE LA SALUD EN NIÑOS Y ADOLESCENTES ESPAÑOLES

Resumen

Objetivo: El objetivo del estudio ha sido analizar el uso de sustancias tóxicas y la autopercepción del estado de salud en niños y adolescentes de la provincia de Cádiz.

Metodología: Participaron 738 alumnos, 50.9% de chicos y 49.1% de chicas, que cursaban educación primaria y secundaria (desde 1^o educación primaria a 2^o de bachillerato, edad media 12,2 años), a los que se aplicó la versión española del Inventario de Conductas de Salud en Escolares.

Resultados: No se observaron diferencias en el porcentaje de chicos y chicas que fumaban o bebían alcohol. Los hábitos de consumo de tabaco y alcohol se incrementaban con la edad, alcanzando sus máximos valores en los alumnos de bachillerato. Se encontraron diferencias significativas en el porcentaje de fumadores y no fumadores que reconocían el tener padres, hermanos mayores o amigos que fumaban. El consumo de drogas ilegales era generalmente reducido, predominando la utilización del cannabis. La mayoría de los sujetos tenían una percepción de su salud como excelente o buena. En torno a la mitad de los encuestados consideraban que la salud depende exclusivamente del propio comportamiento, aunque una parte importante también le otorgaba un papel relevante a la suerte. El dolor de estómago era el síntoma físico más frecuente, seguido del dolor de cabeza. Entre los síntomas psicológicos predominaban el nerviosismo y el estar irritado o enfadado. Solo un pequeño porcentaje declaraba consumir medicamentos o píldoras no prescritos. No se observaron diferencias significativas en el porcentaje de los que reconocían una salud excelente o buena entre los usuarios y no usuarios de sustancias tóxicas.

Conclusiones: El abuso de sustancias tóxicas y la autopercepción del estado de salud en niños y adolescentes es el resultado de la interacción de una compleja serie de factores individuales y sociales. Las actividades diseñadas para la mejora de la salud centradas en aspectos parciales del estilo de vida tendrán probablemente resultados limitados, requiriéndose el desarrollo de programas globales.

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Palabras clave: Alcohol. Tabaco. Drogas. Percepción de salud. Niños y adolescentes.

Introduction

Increasing evidence demonstrates that risk factors for chronic disease are established during childhood and adolescence.¹ Research into children's health and health behavior, and the factors that influence them is essential for the development of effective health education and health promotion policy, programs and practice targeted at young people. It is important that young people's health is considered in its broadest sense. Therefore, research into children's health needs the assessment of risk factors for future illness and disease. Substance use and abuse are important public health problems in Spain and through the world. In many developed countries, the initial stages of substance use typically include experimentation with alcohol and tobacco, which are consumed by an important percentage of population due to its wide availability and acceptance. From a developmental perspective, data show that rates of substance use increase during adolescence and peak during young adulthood, decreasing thereafter.² Increased prevalence in the youth is facilitated by the evolutionary characteristics of adolescence, such as seek for personal identity, loss of family values and necessity of acceptance by the group of peers.³ Abuse of legal substances during adolescence may influence physical and psychological health of the youth and cause numerous negative effects, such as school failure, lowered diet quality indexes, or initiation in the use of illegal drugs.^{4,5} A recent proposal for three-dimensional healthy lifestyle guide pyramids already includes non-smoking and non-alcohol consumption as a requirement for the acquisition of health habits at young ages.⁶ Therefore, a deep knowledge on the prevalence and risk factors for the use of toxic substances is necessary to facilitate interventions aimed to the development of healthy lifestyles.

Assessment of youth believes, including health self-perception, which is an indicator related to lifestyles, is also a key requisite for any health promotion and preventive attempts. Health self-perception does not provide an exact information on health states, but is an useful indirect approach, frequently employed in studies on adolescent health, which presents a strong association with objective health outcomes in adult population.⁷ Different research has related habits of a healthy lifestyle, such as adequate feeding, no use of tobacco, alcohol or drugs and physical activity to self-perceived health in adolescents.⁸

Many studies concerning young's people health behavior have been conducted in recent decades. The Health Behavior in School-aged Children (HBSC) study is among the first large-scale international surveys on children and adolescent health. The HBSC is a tool which has been used to examine health behavior of young people at a local, regional, national or international level, mainly within Europe and North America.^{9,10} We have previously reported HBSC data on health-related behavior in youth from the province of Cadiz,

including alimentary habits and physical activity practice.¹¹ The present research was aimed to study use of toxic substances and health self-perception in the same population of children and adolescents.

Methodology

Subjects

A sample of 738 (376 boys and 362 girls) healthy Caucasian children and adolescents (6 to 18 years of age, 1st to 12th grades) participated in the study. The sample was composed by 50.9% of boys (N = 376; M age = 12.0; SD = 2.9) and 49.1% of girls (N = 362, M age = 12.4; SD = 2.7). The sample was randomly selected using a two phases, proportional cluster sampling, with the database of the census of the province of Cádiz as a reference (Spain). In the first phase, the school was selected from the stratum. The different strata were selected according to the geographical localization, by age and sex. A total of 18 governmental schools agreed to participate in the study. In the second phase, classes from schools were randomly selected and used as the smallest sampling units. All the children of the selected classroom were invited to participate in the study. The participation rate was higher than 95%.

Measures

Subjects answered the Spanish version of the Health Behavior in School-aged Children (1985/86: A WHO cross-national survey; HBSC)⁹. The HBSC survey is a cross-national research study conducted in collaboration with the WHO Regional Office for Europe which aims to gain new insight into, and increase our understanding of young people's health and well-being, health behaviors and their social context. The questionnaire is composed by 29 items referring to psychosocial and lifestyle variables.

Main sections in the instrument are: a) physical activity and sports; b) alimentary habits; c) tobacco; d) alcohol; e) drugs; f) dental hygiene; h) use of vitamins and iron consumption; i) risk behaviors and security; j) leisure time habits; k) use of medicaments; and l) free time. All the questions used in the HBSC questionnaire have shown a good reliability and validity in school children.^{10,12} Results corresponding to alimentary habits and physical activity were reported in a previous research.¹¹ Items concerning toxic substances abuse and health self-perception data have been now evaluated.

Procedure

A comprehensive verbal description of the nature and purpose of the study was given to the children, adolescents, their parents and teachers. This information

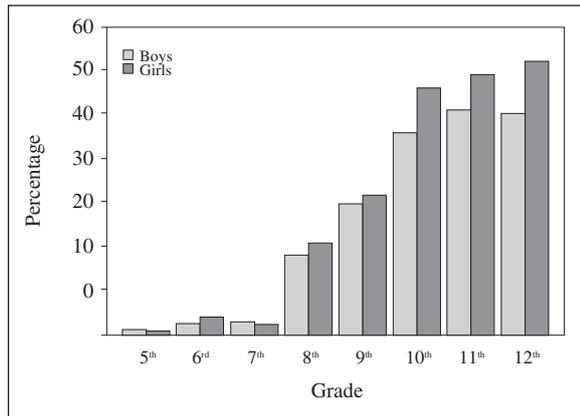


Fig. 1.—Tobacco smoking.

was also sent to parents or children supervisors by regular mail, and written consents from parents, children and adolescents were requested. Participants completed the questionnaire in school classroom with trained investigators.

Data analysis

Percentages and confidence intervals were calculated by the exact method. Percentages were compared by the χ^2 test. The level of significance was set at $p < 0.05$.

Results

Tobacco consumption

No gender difference was observed in percentage of smokers, with 13.3% of girls and 11.7% of boys recognizing that they had ever smoked tobacco. Figure 1 shows smoking habits according to gender and school grade. Children initiated in smoking habits in 5th grade. Percentage of smokers increased with age, being higher than 50% in 11th and 12th grade students. Although values did not significantly differ among boys and girls at any grade, they tended to be higher in older girls. Mean number of cigarettes smoked in a week (fig. 2) was also higher in older subjects, reaching a mean of 10 cigarettes in 12th grade students. Smoking habits of family and friends are summarized in table I. We found that among subjects who recognize to smoke sometimes or frequently, 43% declare to have fathers and 39% to have mothers who are smokers, while this percentage decreases significantly in non smokers. Percentage of older brothers/sisters or friends who smoke was also significantly lower in non-smoking subjects.

Alcohol consumption

Number of people who have not tasted alcoholic drinks was markedly higher than those reporting to

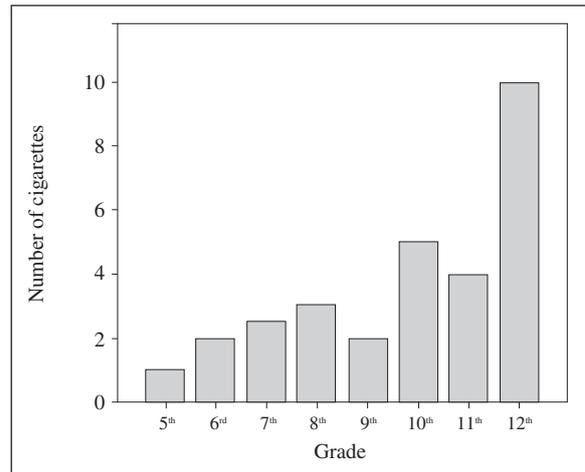


Fig. 2.—Mean of weekly cigarettes.

Table I
Smoking by family and peers

	Smoking <i>n</i> = 93	Yes <i>n</i> = 645	No	<i>p</i>
Father	Yes	43.3%	36.1%	0.05
	No	54.4%	60.3%	0.05
	Don't know	0.3%	1.3%	ns
	Don't have	2.0%	2.3%	ns
Mother	Yes	38.6%	30.2%	0.05
	No	59.2%	67.6%	0.05
	Don't know	1.1%	1.1%	ns
	Don't have	1.1%	1.1%	ns
Older brother or sister	Yes	20.2%	8.1%	0.001
	No	31.5%	48.9%	0.001
	Don't know	4.5%	5.4%	ns%
	Don't have	43.8%	37.6%	0.05
Younger brother or sister	Yes	2.3%	1.9%	ns
	No	61.4%	53.6%	0.05
	Don't know	3.4%	2.7%	ns
	Don't have	33.0%	41.8%	0.05
Friends	Yes	36.0%	7.0%	0.001
	No	52.8%	79.0%	0.001
	Don't know	9.0%	9.3%	ns
	Don't have	2.2%	4.7%	0.05

have tasted, and there was no significant difference among genders. Spirits were consumed in a higher percentage than cava or beer, and wine was the alcoholic drink which less subjects declare to have consumed (table II). Figure 3 represents differences in alcoholic drinks consumption among the different school grades. Although a small percentage of subjects in elementary school (1st to 5th grades) recognize to have drunk alcohol, percentages increased markedly in middle school, and reached a maximum in 12th grade students, with 90% of subjects having tasted spirits and smaller percentages beer (50%) or wine (55%). When subjects were asked whether they ever had so much alcohol that

Table II
Alcohol use

	Yes (%)		No (%)	
	Boys	Girls	Boys	Girls
Have you ever tasted beer?	12.7	14.7	87.3	85.3
Have you ever tasted wine	9.1	12.0	88.0	91.9
Have you ever tasted spirits	20.1	24.9	79.9	75.1
Have you ever tasted cava	17.6	14.2	82.4	85.8

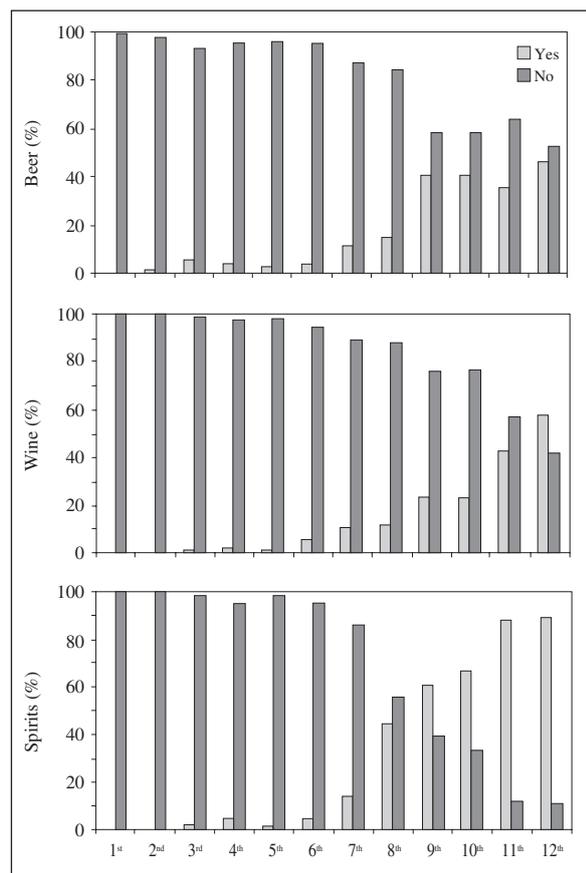


Fig. 3.—Alcohol consumption.

they were really drunk, 5% declared getting drunk once, 4% two or three times, 2% for to ten times, and 2% more than ten times, with no significant gender differences.

Drug consumption

Rates of drug abuse were generally low (table III). Only 2.6% of the sample declared cannabis or marijuana use three or more times, and more than 99% had never used glue and dissolvents, cocaine, heroine, amphetamins or medicaments as drugs. No one declared to have used LSD.

Table III
Drug use

Drug	Frequency (%)		
	Three or more times	Once or two times	Never
Cannabis, marihuana	2.6	1.5	95.9
Glue or solvents	—	0.3	99.7
Cocaine	0.4	0.5	99.1
Heroine, morphine, opium	—	0.1	99.7
Stimulants (amphetamins)	—	0.1	99.9
LSD	—	—	100
Medicines or tables as drugs	0.1	0.3	99.6

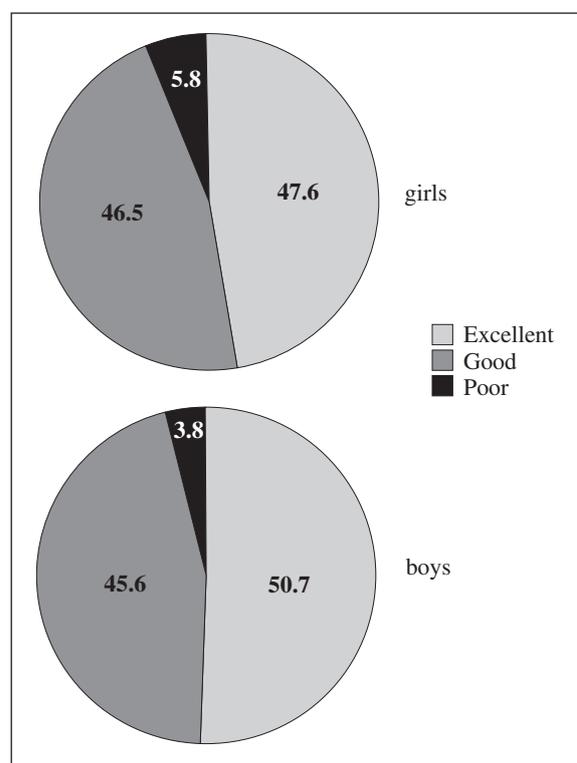


Fig. 4.—Global self-reported health.

Health perception

Figure 4 shows global self-reported health. Most respondents had a perception of excellent or good health, with no significant gender differences. About half of subjects considered that health exclusively depends on one's behavior. However, an important percentage also gave a relevant role to luck. Again, there were no significant differences among boys and girls (fig. 5).

Occurrence of subjective physical and psychological complaints is shown in table IV. The most highly reported physical complaint, with 33% of girls and a

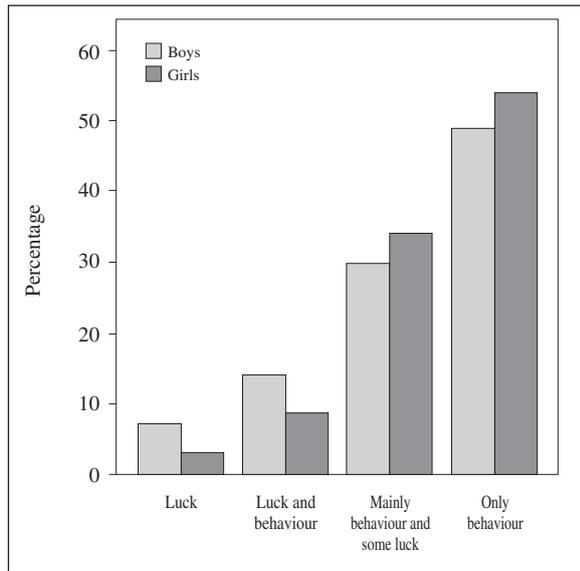


Fig. 5.—Health determinants.

significantly lower percentage of boys declaring to suffer almost every month, was stomach-ache, followed by headache. Nervousness and ad temper were the most frequent psychological complaints, with similar percentages among boys and girls, although slightly higher in the second. Only a small percentage of subjects declared the use of medicines or tablets without prescription. The most frequently used were those for headaches, followed by drugs for cough and cold.

Table V represents global self-reported health as a function of tobacco, alcohol or cannabis use. No significant difference was observed in the percentage of respondent who perceived an excellent or good health among substance users and non users.

Discussion

According to the Spanish HBSC Survey 200613, tobacco and alcohol use increase with age. At 13-14 years a 27% of adolescents declare to have smoked, and around a 4% recognizes to smoke every day and to drink alcohol at least one a week. However, at 17-18 years, 42% of boys and girls have already smoked, 18.9% usually smoke and 42% drink at least once a week. Research at local and regional level gives similar results.¹⁴⁻¹⁷ Our data also indicate that tobacco and alcohol consumption increase with age in youth from Cadiz, with at least a 50% declaring to have smoked from 10th grade and a percentage of alcohol users that increases progressively, reaching values over 50% for beer, 55% for wine and 90% for spirits. Data from the United States also indicate that by the time youth reach 6th grade almost 30% have had some experience with alcohol¹⁸ and rates jump when they move up to 12th grade.¹⁹ Large variations in drinking prevalence have been found among countries, with monthly drinking of

Symptom	Frequency	Boys (%)	Girls (%)	p
Headache	About every day	3.5	3.4	ns
	More than once a week	6.8	13.1	0.05
	About every week	5.2	7.3	ns
	About every month	13.6	16.2	ns
	Rarely or never	70.8	60.1	0.01
Stomach-ache	About every day	3.0	3.1	ns
	More than once a week	3.3	9.0	0.01
	About every week	3.8	5.6	ns
	About every month	18.6	33.4	0.001
	Rarely or never	71.3	48.9	0.01
Backache	About every day	2.2	5.4	ns
	More than once a week	3.0	5.1	ns
	About every week	5.2	6.2	ns
	About every month	12.3	10.7	ns
	Rarely or never	77.3	72.7	ns
Feeling-low	About every day	1.6	2.0	ns
	More than once a week	2.2	4.5	ns
	About every week	3.8	5.6	ns
	About every month	7.1	11.0	ns
	Rarely or never	85.2	76.8	0.05
Irritable/bad tempered	About every day	6.6	7.3	ns
	More than once a week	13.4	16.7	ns
	About every week	12.3	14.1	ns
	About every month	15.1	16.4	ns
	Rarely or never	52.6	45.5	ns
Nervousness	About every day	13.7	14.0	ns
	More than once a week	13.4	14.3	ns
	About every week	16.2	14.6	ns
	About every month	15.7	19.1	ns
	Rarely or never	41.0	37.9	ns
Sleeping-difficulties	About every day	5.8	7.3	ns
	More than once a week	6.9	5.1	ns
	About every week	3.8	6.7	ns
	About every month	7.4	8.7	ns
	Rarely or never	76.1	72.2	ns
Dizziness	About every day	0.5	2.2	ns
	More than once a week	4.1	5.9	ns
	About every week	2.2	2.8	ns
	About every month	7.1	8.1	ns
	Rarely or never	86.0	80.9	ns

32% in the United States, 45% in Canada and 62% in the Netherlands for 6th to 10th graders.²⁰ The high prevalence of the intake of spirits detected in our study is most probable related to the extended habit of street drinking and to the combination of spirits and refreshing beverages among Spanish youth.

Concerning gender differences in tobacco and alcohol use, results from the Spanish HBSC Survey 2006¹³ and from other studies carried out in Spain¹⁷ indicate that girls tend to smoke more than boys as age increases, while the opposite appears to occur for alcohol drinking. Although in our study tobacco smoking among 10th to

Table V
Use of medicines or tablets

Symptoms	Frequency (%)		
	Yes, more than once	Yes, once	No
Cough	5.8	7.6	86.6
Cold	6.6	8.8	84.6
Headache	10.5	12.9	76.6
Stomach-ache	4.7	6.6	88.7
Difficulties in getting to sleep	1.1	1.2	97.7
Nervousness	1.4	1.8	96.8
Tiredness	1.2	2.9	95.9
Laxatives	1.4	1.8	96.8

12th graders tends to increase more in girls than in boys, no significant gender differences exist. Results from the AVENA study also indicate absence of significant differences in the prevalence of smoking among boys and girls in a group of 2,859 Spanish adolescents aged 13 to 18.5 years.²¹ A similar situation occurs for alcohol drinking, and data from our study coincide with those reported in the SAMHSA study, which indicates that female and male adolescents report remarkably similar rates for current drinking.²²

Family influence adolescent substance use, and a number of studies have found that tobacco consumption among fathers and mothers associate to an increased risk of youth smoking both in the short and long term.^{23,24} A research carried out on adolescents from Mallorca also indicates that the percentage of smoking children with parents who are smokers is higher compared to that of non smoking children, although regression analyses did not reveal a significant association among parents use of tobacco and risk of smoking in adolescents.²⁵ In our study, clear differences were observed among the percentage of smokers and non smokers recognizing to have parents who smoke. Peer relationships have also been identified as a key risk factor in the progression of tobacco use among adolescents through both proximal and distal perceptions of peer behavior.²⁶ Our data also indicate that the percentage of friends who smoke is significantly lower in non-smoking subjects. The role of friends, however, is difficult to clarify, and the possibility exists for it to be more a matter of peer selection than of peer pressure. Whatever the case, this factor appears to be important for young people.

Among youth, reported number of binge drinking episodes is considered a marker for dangerous or hazardous use. When subjects were asked about drunkenness, only 12% declared to have had so much alcohol as to be really drunk. Our data indicate that prevalence was smaller to that reported by Dutch, Canadian and American youth.^{19,20} Although there is an element of subjectivity in reports of drunkenness, the measure has

Table VI
Global self-reported health among substance users and non users

Substance	Health		
	Excellent (%)	Good (%)	Poor (%)
Smokers	43.8	52.4	3.8
Non smokers	48.7	46.1	5.2
Alcohol consumer	45.3	50.7	4.0
Non alcohol consumer	49.3	48.4	2.3
Cannabis user	47.6	47.8	4.6
Cannabis non user	51.4	53.7	5.1

been used with success in numerous papers,²⁷ and the present results suggest that cross-national differences in prevalence of drinking are not necessarily related to legal age and difficult access to drinking.

Cannabis is the most frequently consumed illicit drug in most developed countries, and in Europe as a whole it is estimated that at least one in five adults has consumed it at some time in their life.²⁸ In Spain, cannabis is also known to be the most consumed illegal drug in adolescents from urban areas.¹⁶ The Spanish Observatory on Drugs²⁹ gives a prevalence of cocaine use of 19% between 15 and 34 years and the HBSC Survey 2006¹³ indicates that a 30% of people among 11 and 18 years recognize to have used cannabis, and 3% other illegal drugs. Similar cannabis use rates have been reported in other countries, with prevalence in the previous 12 months between 20% and 33% in American, Canadian and Dutch adolescents.²⁰ Our data also confirm that cannabis is the most used drug, although the percentage of consumers is small, supporting the progressive decline in drug consumption which has been reported in the different Spanish HBSC surveys.³⁰

The last decade has seen a shift in criteria used to evaluate medical outcomes towards an increasing consideration of subjective health or health-related quality of life.³¹ One important aspect of subjective health is the global health perception, which is especially relevant in the youth in view of substantial shifts from acute to chronic illnesses and from somatic to psychological symptoms.³² Self-reported health has proven to be a valid predictor of mortality and future morbidity even after accounting for known demographic, social and medical risk factors.³³ Perception of school-children participating in our study on their health is generally excellent or good (> 90%), with values similar to those previously found in adolescents from Aragon.¹⁵ No significant gender differences exist, although there is a tendency of boys to more frequently declare an excellent health, confirming previous data from the Spanish HBSC Survey 2006¹³. As should be expected when considering such self-perceived health, the occurrence of subjective physical complaints was relatively low in our

work, being more frequently reported the existence of stomach-aches, followed by headaches. Perception of stomach-ache was higher in girls compared to boys, as previously reported.¹³ However, no significant differences were observed in the frequency of most other complaints. In any case, subjective indicators of health markedly differ between adolescents in different European countries, although and multiple complaints are generally declared to a higher extent in girls as compared to boys.³⁴ Only a small percentage of subjects recognize the use of medicines or tablets without prescription, being the most frequently used those for headaches, followed by drugs for cough and cold. These low self-medication rates should be expected considering the positive self-reported global health. In fact, an association between poor/fair self-rated health and medicine use for common complaints such as headache, stomach-ache or getting to sleep has been found among Danish adolescents.³⁵

However, no significant differences were found in health self-perception among user and non users of toxic substances. A previous research has also found that adolescents who do not consume toxic substances and dedicate a long time to school tasks do not differ in perceived health from those using electronic devices, practicing physical activity and with a tendency to substance abuse.¹⁵ These findings support that lifestyle and health self-perception is the result of the interaction of a complex series of individual and social factors. Therefore, if we are to understand fully the patterns of health and health behavior found in the adolescent population, family, school and peer settings and relationships need to be explored, as does the socioeconomic environment in which young people grow up. Activities aimed to improve health focusing on partial aspects of adolescents' lifestyle most probably will have limited results, and global programs are required.

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