

# Illegal psychoactive substance consumption amongst older schoolchildren in the city of Tunja, Colombia

## Consumo de sustancias psicoactivas ilegales en adolescentes escolarizados de Tunja, Colombia

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### ABSTRACT

**Objectives** Assessing lifetime prevalence of illegal substance use and accessibility to such substances. Determining risk factors and the protective factors linked to them.

**Methods** This was a cross-sectional study using descriptive and bivariate analysis. A survey was applied to 1,515 students from 8<sup>th</sup> to 11<sup>th</sup> grades in the city's schools, ages ranging from 12 to 18.

**Results** An increase in lifetime prevalence and lower age for consumption onset were found. The main risk factors were determined to be academic environment and attitudes towards school authorities, linked to recreational and sports groups without control by elders, gang membership and engaging in risky and dangerous activities.

**Conclusions** The results showed the need for a critical review of current promotion and prevention strategies aimed at controlling the use of psychoactive substances amongst children and adolescents, according to the current reality of trafficking and domestic consumption in Colombia.

**Key Words:** Drug use, addictive behaviour, risk factor, schoolchildren, primary prevention (*source: MeSH, NLM*).

### RESUMEN

**Objetivo** Evaluar la prevalencia de vida del consumo de sustancias ilegales y la accesibilidad a sustancias ilegales. Determinar factores de riesgo y factores protectores relacionados con el consumo.

**Métodos** Se realizó un estudio de corte transversal mediante el análisis descriptivo y bivariado. Se aplicó una encuesta a 1 515 estudiantes de los grados 8 al 11 en las escuelas de la ciudad, entre las edades de 12 a 18.

**Resultados** Se encontró un aumento de la prevalencia de vida y una disminución en la edad de inicio al consumo. Los principales factores de riesgo encontrados fueron: ambiente académico y las actitudes hacia las autoridades escolares, la vinculación a los grupos de deportes recreativos, no respeto a los mayores, pertenecer a pandillas y participar en actividades riesgosas y peligrosas.

**Conclusiones** Los resultados mostraron la necesidad de una revisión crítica de la promoción actual y las estrategias de prevención destinadas a controlar el uso de sustancias psicoactivas entre los niños y adolescentes, de acuerdo a la nueva realidad de la tráfico y consumo interno en Colombia.

**Palabras Clave:** Drogas ilícitas, consumidores de drogas, conducta adictiva, factores de riesgo, prevención primaria (*fuentes: DeCS, BIREME*).

Adolescence is a vital stage in life which is mainly characterised by young people's efforts to reassert their independence, their essential action mechanism focusing on the tacit and explicit rejection of conventional social and family values as established by parents, tutors, government and educational institutions. It is thus not surprising that adolescence is recognised as being a time during which experimenting with both legal and illegal psychoactive substances most often occurs, especially regarding tobacco, alcohol and marijuana use. Schoolchildren and adolescents are the group at highest risk due to their emotional fragility, vulnerability and willingness to be influenced by their social peer group. The tendency towards imitative behaviour, the enormous influence of friends and fellow-students and the desire to be uninhibited play important roles in this problem (2).

Colombia has implemented tools to ascertain the nature of psychoactive substance consumption since 1992 (3) because of the need to understand local developments and focus the problem specifically on the student population through intervention strategies for reducing prevalence rates. Policy in this regard is important because most people begin to consume psychoactive substances during adolescence; furthermore, treatment is more likely to succeed at early ages and when features of addiction are more recent.

Several studies have led to determining some of the risk factors associated with children and adolescents experimenting with these

substances. The leading causes of premature death among young people have been associated with risky, often interrelated behaviour, usually occurring during this stage of life (4).

The family and peer group or friends have been recognised in studies as being the main determinants of consumption among schoolchildren and adolescents and that a background of consumption in the family influences the pattern of adolescents' use regarding age of onset, particularly if there has been a history of consumption by parents or older brothers and sisters. It has also been recognised that the younger students are the greater the risk of experimentation. Psychoactive substance users tend to seek ever more powerful effects by changing and mixing available substances and experimentation and habituation affect males more than females. A recent finding has stated that a percentage of young people lacking money have sexual intercourse with older people in exchange for drugs or alcohol (5).

Consumption mainly affects children and adolescents from vulnerable populations, not only from the perspective of illegal substance use but also regarding gang membership and crime, thereby constituting major concerns for governments. Marijuana, followed by coca paste (basuco), crack and cocaine hydrochloride are the most widely consumed illicit drugs amongst young people from Colombian society's lower socioeconomic strata.

The approach to adolescents and schoolchildren's consumption has mainly been focused on prohibition and controlling distributors and dealers from an institutional perspective and, to a lesser extent, on health promotion and prevention amongst children and even less so on parents and educators, who, being closer to children and students' emotional and motivational environment, could exert a positive influence on their knowledge and attitudes.

The main policies adopted by governments in the region to address the problem (through formulating plans focused on reducing supply and decreasing demand through repression and the use of force) contrast with micro-trafficking which is already making headlines in the media. This represents a side of the problem which has not been addressed so far in overall analysis of consumption amongst schoolchildren and adolescents (6). Micro-trafficking is a constant threat to the basic laws of coexistence in the areas where it is concentrated (7,8).

Overall analysis of studies and police and judicial authorities' reports has shown that illicit drug consumption has increased in Colombia despite the sustained increase of legal and police repression regarding drug production and trafficking. Such substances' prices have not only not increased but have rather tended to drop or remain stable as drug availability has increased in urban areas, thereby amplifying the risk for young people.

Institutions focusing enormous efforts on controlling supply, and less effort or not very well-targeted efforts on reducing demand for illegal psychoactive substances, have had a very limited impact. The challenge lies in focusing on demand management, prevention intervention, treatment and rehabilitation and harm reduction (9).

Developing intervention for preventing psychoactive substance use has been outlined in several protocols, some having international circulation and others having influence in particular areas of certain countries. However, reviewing the pertinent literature about intervention involving adolescents has shown that there is no consensus regarding the time and number of sessions needed for raising awareness in the curricula or educational level regarding when such efforts should be started, although some authors have suggested targeting workplaces and study, including the strategy of pairs or partners working jointly with parents or guardians (10).

Lifetime illegal substance use prevalence in the Boyacá department's population was 2.3 %, in 1996. Discriminating by substance, the researchers found 2.1 %, marijuana use, 0.4 % for cocaine and 0.3 %, for coca paste (known as basuco in Colombia) (11); a year later, these indicators had increased to 3.1 %, for marijuana, 0.6 %, for cocaine and 0.7 %, for basuco (12). A study of lifetime marijuana use prevalence with a sample of college students in Tunja in 2000 (21 mean age) found 18.8 % use for males and 6.7 % for females; cocaine or basuco use was 5.2 % for males and 1.4 % for females (13). Lifetime prevalence for the consumption of any illegal psychoactive substances in young people aged 10-24 in Tunja in 2002 was 14.9 % for males and 8.5 % for females, 8.2 % prevalence for marijuana, 2.7 % for cocaine and 1.5 % for basuco (14). A survey of 6<sup>th</sup> to 11<sup>th</sup> grade students in Tunja in the same year reported 6.5 % marijuana use prevalence, 4% for cocaine and 2.2 % for basuco (15). The last year reported for any illicit substance prevalence use in Boyacá's overall population in 2008 showed a decline to 0.49 %, with 0.37 % for marijuana, 0.22 % for cocaine and 0.12

% for basuco (16). Nevertheless, it should be considered that the authors of that study stated that these indicators should be handled prudently since the methodology involved household surveys which could have biased the results, considering the department's population characteristics involving a predominantly rural and patriarchal cultural environment.

Considering differing results in prevalence data reported in the aforementioned studies, the Social Protection Department of Tunja, associated with the Pedagogical and Technological University of Colombia, proposed carrying out a new study in 2009 aimed at establishing the prevalence of consumption and access to marijuana, cocaine and cocaine base sulphate (basuco) amongst 8<sup>th</sup> to 11<sup>th</sup> grade students aged 12 to 18 years old. Such study would also attempt to determine adolescents' academic, personal and psychosocial factors associated with consuming these substances.

## METHODS

### Sampling design

A cross-sectional study was designed using descriptive and bivariate analysis which sought to identify prevalence and factors associated with consumption. The study population was defined as being children and adolescents of both sexes enrolled in the 8<sup>th</sup> to 11<sup>th</sup> grades of schools located in the city of Tunja. Participants were selected by stratified probabilistic sampling of clusters, according to the type of school (state run or not), the number of courses in each school and students' gender.

Data was captured from an estimated sample size using 95 % significance, two-tailed 2.5 % margin of error and an estimated 15 % drug use prevalence. The survey was conducted in 12 schools (10 state run and 2 private ones). A design effect correction was made for four categories (two by type of school and two by gender).

After institutional approval and informed consent having been signed by the subjects, their parents or guardians, a totally anonymous survey was answered by the students, assisted by previously-trained research assistants. The instrument had been tested in a study having similar population characteristics which had been previously carried out elsewhere (17).

### Data analysis

Epi-Info 2002 was used for data analysis. Averages and percentages were determined for the variables analysed according to their functional form with corresponding measurements of dispersion and 95 % confidence intervals.

Bivariate analysis sought to establish statistically significant associations between marijuana, cocaine hydrochloride and basuco consumption with academic, cultural and personal factors by estimating the odds ratio (OR) with respective 95 % confidence intervals and p values.

## RESULTS

A total of 1,515 adolescents were surveyed, 51 % of whom were female, mean age 15.2 years old (SD=1.42). No statistically significant differences were found between age and gender. Table 1 shows age distribution by grade.

**Table 1.** Distribution of students surveyed in Tunja by age and school grade, 2009

Age	8 <sup>th</sup>	9 <sup>th</sup>	10 <sup>th</sup>	11 <sup>th</sup>	Total
12	12	0	2	0	14
13	139	11	0	2	152
14	142	146	14	2	304
15	55	141	150	7	353
16	15	41	184	95	335
17	5	12	59	101	177
18	1	5	24	71	101
Total	369	356	433	278	1,436

Lifetime prevalence of marijuana, cocaine hydrochloride and basuco use is shown in Table 2.

**Table 2.** Lifetime prevalence of marijuana, cocaine hydrochloride and basuco use in school-aged students surveyed from Tunja, 2009

Substance used by gender		Female		Male		Total	
		Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Marijuana	Yes	53	7.9	92	14.0	145	10.9
	No	621	92.1	566	86.0	1,187	89.1
Cocaine	Yes	16	2.2	36	5.2	52	3.6
	No	723	97.8	657	94.8	1,380	96.4
Basuco	Yes	16	2.2	32	4.8	48	3.5
	No	703	97.8	631	95.2	1,334	96.5

It was found that the onset of any substance use by students occurred at a relatively early age and that the transition cut-off point between childhood and adolescence (around age 13) may have been a critical stage. The average age for starting illegal psychoactive substance consumption is shown in Table 3.

Between 20 % and 37.4 % of the surveyed students considered it relatively easy to obtain illegal psychoactive substances at relatively very low prices, especially considering the multiple communication channels afforded by new technologies amongst adolescents, as shown in Table 4.

**Table 3.** Mean age for the onset of marijuana, cocaine hydrochloride and basuco use in the school-aged children surveyed in Tunja, 2009

Age of onset for psychoactive substance by gender	Female		Male	
	Mean	Standard deviation	Mean	Standard deviation
Age of onset for marijuana use	13.85	2.36	13.56	2.69
Age of onset for hydrochloride cocaine use	13.75	0.96	13.85	2.08
Age of onset for basuco use	13.20	2.77	13.08	2.94

**Table 4.** Accessibility to marijuana, cocaine hydrochloride and basuco in the schools surveyed in Tunja, 2009

Substance availability	Frequency	Percentage	
Obtaining marijuana was:	Very easy	288	20.0
	Easy	251	17.4
	Difficult	106	7.3
	Doesn't respond	798	55.3
Obtaining cocaine was:	Very easy	121	8.4
	Easy	184	12.8
	Difficult	217	15.1
Obtaining basuco was:	Doesn't respond	911	63.6
	Very easy	130	9.1
	Easy	188	13.1
	Difficult	177	12.4
Did not respond	937	65.4	

The main motivation for consuming any psychoactive substance involved curiosity (77.5 %), going to parties (9.1 %), for fun (4 %) and to become accepted into a particular group (3.2 %). It seems that the social environment exerted a great influence, representing significant importance for adolescents, because curiosity (probably favoured by the connotation of secrecy and the consequent challenge of illegal substance use) may have been accompanied in the minds of young people with the perception of acceptance into a group and consequent recognition within it.

**Table 5.** Main associations between marijuana, cocaine and basuco consumption with academic, social-cultural and personal factors in the schools surveyed in Tunja, 2009

Environment	Factor		Odds ratio (OR)		
			Marijuana	Cocaine	Basuco
Academic	Frequent absences from school or lateness	OR	7.66	8.31	8.33
		95%CI **	4.75-12.35	4.40-15.70	4.33-16.04
	Consumption has restricted or reduced getting homework done	OR	5.14	3.45	3.64
		95%CI **	3.42-7.74	1.82-6.54	1.91-6.94
	Student has been sanctioned by academic suspension	OR	3.30	5.00	6.26
		95%CI **	2.05-5.32	2.62-9.55	3.28-11.93
	Student has suspended or reduced participation in social-cultural academic activities	OR	2.67	2.61	3.15
		95%CI **	1.70-4.19	1.34-5.10	1.63-6.09
	Student has seriously considered leaving school	OR	2.52	2.79	3.08
		95%CI **	1.61-3.94	1.43-5.45	1.56-6.05
Social-cultural	Was or is associated with a group of young people who behave as a gang	OR	5.97	8.73	14.28
		95%CI **	3.70-9.63	4.72-16.14	7.76-26.03
	Student has injured another or been injured as a result of consumption	OR	4.50	5.71	3.59
		95%CI **	2.55-7.92	2.73-11.98	1.55-8.33
	Student has had problems with the police leading to temporary detention with or without indictment	OR	4.40	5.08	6.69
		95%CI **	2.89-6.69	2.76-9.34	3.65-12.25
	Student's peer group has seen others selling or giving drugs to children or adolescents	OR	4.06	3.51	6.28
		95%CI **	2.67-6.19	1.85-6.64	3.43-11.48
	Student has admitted participating in street fights more often than peers	OR	3.30	4.61	3.91
		95%CI **	2.20-4.95	2.56-8.31	2.10-7.27
Personal	Any of student's group of friends has been in trouble with the police	OR	2.80	3.15	4.01
		95%CI **	1.97-3.97	1.80-5.51	2.24-7.18
	Personal consumption has increased as a result of tolerance	OR	6.15	3.73	5.30
		95%CI **	3.73-10.15	1.75-7.95	2.60-10.82
	Perception of not being able to stop consumption	OR	5.33	6.23	4.78
		95%CI **	2.98-9.52	2.95-13.11	2.13-10.70
	Inclination to engage in risky or dangerous activities	OR	3.78	3.80	3.47
		95%CI **	2.65-5.38	2.14-6.72	1.94-6.21
Perception of the need to maintain consumption	OR	3.50	4.23	3.62	
	95%CI **	2.35-5.21	2.37-7.57	1.97-6.67	

95 % CI: 95 % confidence interval. \*\*: All estimated p values were less than 0.02

Another finding was that relationships and family environment constituted factors which were deeply linked with illegal narcotic substance use when there was no parental control regarding adolescents' activities (2.08 OR; 1.17-3.72 95 %, CI) while family activities involving parents and relatives congregating became the main protective factor (0.64 OR; 0.50-0.82 95 % CI).

Table 5 shows the strength of association between marijuana, cocaine hydrochloride or basuco consumption with academic and social-cultural or personal factors.

These findings indicated that educators and school boards should reconsider their attitudes regarding what to do with students who sometimes show evidence of consumption in institutions because suspension and withdrawal from the classroom could be leading more young people towards consumption and less towards correcting their behaviour.

It was also evident that an attitude encouraging defiance of authority (representing legal order) was a main motivation for adolescents using illegal psychoactive substances to reaffirm their identity within a particular group. This highlights the need to carry out further research into social organisation for youth recreation and sports which may be an embryo or starting-point for organising and participating in gangs (the so-called "barras") practising exclusion (i.e. do not allow the participation of adults, parents or academic authorities) and which are recognised by their relationship with the micro-traffic of illegal psychoactive substances, as well as small-scale criminal acts.

## DISCUSSION

Survey-type instruments have been widely used and recognised in schools because of the facilities offered for monitoring behaviour, trends and lifestyles; they also allow health and disease determinants to be clearly identified.

It has been recognised that the age at which young people initiate illegal psychoactive substance use in Colombia has been gradually decreasing. Argentina has reported the age for the onset of such practice as ranging from 13 to 20 (18). The onset age for marijuana use in 1996 for the 12 to

17 year-old age group in Colombia stood at 14.4, 14.8 for cocaine and 13.6 for basuco. The mean age for the onset for marijuana use reported in 2002 was 15, an average of 14.8 for cocaine and 14.4 for basuco. Mean age for the onset of marijuana use in the 2008 study was reported in the general population as being 17.8 years, and around 19 for cocaine and basuco. It has also been found in Mexico that the percentage of teenagers using illicit psychoactive substances has increased after age 13 (19).

The onset of psychoactive substance consumption, usually beginning as experimentation, mainly depends on specific aspects regarding the social and economic environment as they shape the market for and availability of such substances regarding geographical and economic access (20). Nevertheless, becoming accustomed to consumption may also be influenced by biological and genetic factors (21).

Experimental use and subsequent habituation must be analysed from the perspective of a multi-causal approach when seen as a public health problem and not simply as a dipole one lacking cause, since the priority lies in describing the complex net of biological and environmental partnerships leading to a particular phenomenon (22).

From a neuropsychological perspective, puberty is a crucial evolutionary stage for personal development, leading to considering this stage as being a priority in monitoring young people. While the risk approach may be seen by them as a need for strengthening factors such as self-esteem, adaptability and initiative, a lack of adult support and supervision can become the origin of disorders leading to experimentation and subsequent addiction to psychoactive substances. It raises the question of whether social control measures instituted by governments, such as video cameras in public places, regulating the times during which young people can stay outside their homes, are sufficient for facilitating the adoption of risk and illegal consumer habits within their own groups or, conversely, promoting the stigmatisation and isolation of children and adolescents (23).

Unfortunately, the media, culture and the entertainment industry promote adolescent behavioural tendencies leading to exploring adventurous or risky situations as a means of strengthening their recognition within their group of friends or partners, often without adequate accompaniment by their elders, especially in low socioeconomic environments. It is evident

that good communication with parents or guardians constitutes a predictor of possible estrangement or experimentation with psychoactive substances, this being more so when communication is good with both parents and decreasing such probability when it becomes difficult with one of them and maximised when the relationship is poor with both (24).

Whilst Tunja's socioeconomic and cultural environment has not been conducive to the projection of gang-like youth organisations' structure (involving the connotations of violence, crime and territorial control which this concept has for big cities), the results have made it clear that youth groups initially perceived for the purpose of sharing recreational activities or sports, lacking adult involvement, are emerging as substrata thereby generating this type of organisation. They are highly valued in schoolchildren's imaginations because the environment of poverty and marginalisation facilitates contact with people or groups in which the characteristics of a break with institutions can be seen, as can the search for recognition and inclusion in a particular group and the implementation of conflicting practices which are observed within big city gangs (25).

It is important to look at the drug problem from a local perspective in Colombia (a producer and exporter of illegal psychoactive substances) because efforts aimed at restricting illegal substance exports marked as being a goal in international agreements may necessarily result in domestic market saturation of narcotics like marijuana and cocaine, thereby keeping prices low or falling and favouring a climate of expanding demand from young people. Schools become involved in a multi-faceted conflict where the weighting of values causes a weakening of morals and where the pseudo-moralist speech of parents and educators is quickly detected by children, because contrasts with uncertain games in the Internet, where massacres, violence and sports share space with publicity for soft drinks, coexist in competition for persistent messages characterised by pseudo-news, the search for unlimited easily-come-by wealth, science and pornography.

Consuming illegal psychoactive substances is clearly antagonistic with normal development at secondary school. Furthermore, associated factors may be determinants of failure in academic performance, early school dropout probability and alarming prognosis for children and adolescents' future (26). This perspective leads researchers to question current models of academic and disciplinary control and management protocols for

disciplinary offences like consuming psychoactive substances in schools as sanctions are applied for moving students away from the classroom; no training in intervention or preventative measures accompanies such approach which could promote adolescents' failure at school. It should also be noted that several studies have shown a strong association between illegal drug use and depressive or behavioural disorders (27) and interaction between parents and educators could thus serve as being the most effective weapon to stop the desire for experimentation and consumption.

A critical assessment of government and institutional prevention and control policies is thus needed because of growing consumption trends in a group so young and so susceptible to environmental and socio-cultural stimuli; this justifies a reassessment of motivation and adaptation strategies to the hostile environmental characteristics of poverty.

## CONCLUSIONS

A growing trend was found in illegal psychoactive substances use prevalence and a relative decline in the age of onset for marijuana and cocaine consumption which could be linked to increased supply in local markets resulting from the suppression of drug exports. The main factors associated with habitual or experimental consumption involved aspects of the academic environment such as failure, absenteeism and the intention to drop out of school. Factors such as gang membership and engaging in illegal and risky activities were marked in their social and cultural environment.

Characteristic symptoms of depressive states, a perceived need for increased doses and the perception of being trapped in consumption were identified at a personal level ♣

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