

The Epidemiology of Licit and Illicit Substance Use among High School Students in Greece

ABSTRACT

Findings on self-reported adolescent licit and illicit substance use are presented based on a nationwide 1984 probability sample of 11,058 Greek adolescent students ages 14–18 years old. Regular smoking and use of alcohol in the 30 days prior to the survey were reported by 22.3 percent and 82.8 percent, respectively. Nearly one-third of the students (30.3 percent) reported lifetime use of psychotropic drugs without prescription, without ever having used any illicit drug. Illicit drug use is less common in Greece than in other European and North American countries with a lifetime prevalence rate of 6 percent. Regular use of tobacco, alcohol, and illicit drugs was more common in males, while unprescribed use of licit psychotropic drugs prevailed in females. Regular smoking, drinking, and illicit drug use were associated with urbanization but not socioeconomic status. Between 1984 and 1988 in an Athenian subsample of schools there was a 20 percent increase in illicit drug use among males. Use of psychotropic drugs without prescription decreased much more than use of tobacco and alcohol. (*Am J Public Health* 1991; 81:48–52)

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Introduction

In Greece, police reports and data from other sources indicate that use of illicit drugs was spreading in the late 1970s to young persons of all socioeconomic classes. Front-page newspaper articles alarmed the public and campaigns against drugs were initiated by lay groups.

This situation led the authorities to acknowledge the need for assessing the situation accurately. The Department of Psychiatry of Athens University was assigned the task of studying the extent of the drug problem in Greece and submitting proposals for appropriate preventive action.

The present paper presents an overview of illicit substance use among adolescent students in Greece, as well as related aspects such as smoking, alcohol drinking, and the use of licit psychotropic drugs without medical prescription.

Trends in licit and illicit substance use within the four years (1984–88) are also presented for Athenian high school students.

Methods

Nationwide Study

The sample is a nationwide multi-stage stratified probability sample. Urban areas were divided into three strata (Athens, Salonika, and all other urban areas); a fourth stratum consisted of all semi-urban and rural areas. Stage 1 of the sampling procedure involved the selection of urban, semi-urban, and rural locations, stage 2 the selection of high schools, and stage 3 the selection of classrooms within each high school. The allocation of the sample among the strata was proportional to the size of their student populations. The selection of sampling units in the first

and second stages was proportional to their size. In each selected school, one class of about 30 students was selected with equal probability from each grade, and all students in the selected classes comprised the final sample.

The total sample consisted of 11,058 students ages 14–18 years attending the last four grades of high school. The secondary school system (high school) in Greece consists of six years; the first three years (Gymnasium) are compulsory and the second (Lyceum, either general or technical-vocational education) non-compulsory. Approximately 80 percent of Gymnasium students continue their studies in the Lyceum. The majority of schools are run by the state; only 6 percent are private fee-paying. The age of students in the Gymnasium is 12–14 years and in the Lyceum 15–18 years, with negligible deviations from this range. All 96 selected schools, representing all types of high schools, participated in the survey.

Data collection took place from March to May 1984. Students answered an anonymous questionnaire administered in their classrooms during two normal class sessions. The questionnaire consisted of structured pre-coded items covering a wide range of areas in addition to the use of licit and illicit substances: sociodemographic, school-related, physical and psychosocial health, life styles, future goals, personality and attitudes. Fa-

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ther's occupation and educational level as reported by the student were used in combination to assign students to three socioeconomic classes. This classification was validated by additional indices such as mother's educational level, housing, and estimated family income.

The average rate of absentees on the day of the survey was 6.1 percent. The participation rate of students present was 100 percent.

Reliability and validity of the responses concerning drug use were checked in a pilot study of 656 students conducted four months prior to the main study within the same school year. Students answered the questionnaire twice, with a 20-day interval, and questionnaires were matched by numbered stickers distributed at the first administration of the questionnaire.

Test-retest reliability coefficients were measured on 560 cases (85.4 percent of the total sample) for whom matching of the questionnaires was possible. Pearson's correlation coefficient for responses in seven categories ranged as follows: between .80 and 1.00 for tobacco smoking, drunkenness and lifetime and 12 month use of cannabis, cocaine, hallucinogens, and for 12-month use of heroin and opiates other than heroin; between .60 and .79 for lifetime and 12-month use of alcohol, stimulants, tranquilizers, hypnotics and for lifetime use of heroin and of opiates other than heroin, and .46 for lifetime use of heroin. Kappa coefficients¹ ranged as follows: between .71 and .89 for tobacco use and for lifetime and 12-month use of cannabis; between .41 and .50 for lifetime alcohol use, drunkenness, lifetime and 12-month use of hypnotics, for lifetime use of cocaine and opiates other than heroin and for 12-month use of tranquilizers; between .28 and .39 for 12-month alcohol use, lifetime and 12-month use of amphetamines, and lifetime use of heroin and tranquilizers. Reliability coefficients were significant at the .0001 level for 19 out of 20 usage variables examined and at .001 for the remaining one. No differences in reliability coefficients were observed between questions on drug use and other topics.

Validity was checked empirically by internal and external criteria:

- Rates of substance use and abuse in schools a priori known to have high rates of students with behavior problems and drug taking were compared with the rates reported in the remaining schools. Rates of reported experience with licit and illicit drugs proved to be substantially higher in the former schools for tobacco smoking,

frequency of marijuana use in lifetime, last 12 months and 30 days, any use of heroin in the last 12 months and 30 days, any lifetime use of hallucinogens, opiates other than heroin, and lifetime and last 12 months' use of cocaine.

- 1.5 percent of the returned questionnaires were excluded from further analysis at the initial phase of checking because of major inconsistencies or unanswered parts of the questionnaires. In the retained questionnaires, internal consistency of answers was found to be very high, ranging from 85.5–100 percent.

- Urine was collected for the purpose of laboratory checking of general health status and substance use from 384 students in the four Athenian schools which participated in the pilot study. Students were informed of the general purpose of urine collection, but no specific mention was made of the substance tracing tests. Since anonymity was safeguarded, this procedure was in accordance with the ethical rules for investigations in Greece at the time. Urine samples were matched to questionnaires by the anonymous method of numbered stickers used in the test-retest procedure. Biochemical analysis for the detection of opiates, cocaine, and cannabis was performed by radioimmunoassay in the Istituto Superiori di Sanita (Rome). Results were positive for five of the 360 students for whom matching to questionnaires was possible: four were positive for cannabis and one for opiates. These five students had all responded positively to the pertinent questions but a further nine students (total rate 3.9 percent) reported use in the questionnaire without testing positive. Since reported use in the questionnaire covered the last 30 days while the bioassay techniques employed ensured detectability for only a few days following intake, some discrepancy in rates might be expected.

Study of Trends in an Athenian Sample

The sample in the 1988 survey consisted of classes from a randomly selected sub-sample of 18 schools from the 38 Athens area schools that had been included in the nationwide study of 1984. A total of 1,961 students participated in the survey. The average absentee rate on the day of survey was 5 percent.

A condensed version of the original questionnaire was used, covering only four out of eight categories of licit psychotropic drugs (tranquilizers, hypnotics, codeine, amphetamines) and three out of five illicit drugs (cannabis, heroin, cocaine).

The same procedures were followed as in 1984 including test-retest reliability checks (135 matched pairs of questionnaires from 180 students over an interval of three weeks) and comparisons of rates of use in high-risk schools against the rest. Reliability and validity results were similar to those obtained in 1984.

Results

Nationwide Study

Over 70 percent of students reported having experimented at least once with tobacco smoking and 22 percent claimed regular smoking in the past month (Table 1). Regular smoking was highly correlated with sex and age, with more than one-third of the population smoking regularly in the older age group. The prevalence was much higher in the technical-vocational schools (41.9 percent vs 18.4 percent in public and 16.1 percent in private), in urban areas (23.7 percent vs 15.1 percent in semi-urban and rural areas), and lower in the higher socioeconomic level (19.4 percent vs 21.7 percent in the lower and 23.0 percent in the middle level).

The prevalence of alcohol use was 94.8 percent for past year and 82.4 percent for past month; 15.4 percent of students reported frequent alcohol use (10 or more times) in the past month. Rates of frequent alcohol use were twice as high in males as in females and nearly twice as high in the oldest as in the youngest age group (Table 1). Higher rates of frequent alcohol use were reported in private and technical-vocational in comparison to public schools (20.5 percent, 22.1 percent and 13.5 percent, respectively). Residence and socioeconomic level were not important determinants of the frequency of alcohol use. Heavy alcohol use (five or more drinks on one occasion) within the last 30 days was reported by 36.9 percent of students (44.4 percent male, 29.4 percent female) and increased from 32.2 percent in the 13–14 age group to 44.6 percent at 17–18 years.

Use of illicit drugs at any time was reported by 6 percent of students, with a ratio of two to one between boys and girls (Table 2). Approximately half of the users reported use more than twice.

The lifetime use of prescription requiring licit psychotropic drugs, without a doctor's order, was much higher than the use of illicit drugs, with a sex ratio of three girls to two boys. Nearly one-third (30.3 percent) of the student population reported that they had used unprescribed

TABLE 1—Tobacco and Alcohol Use by Sex and Age among Adolescents in Greece

	Total	Sex		Age (years)		
		Male	Female	13–14	15–16	17–18
Approximate Respondents (N)*	(10715)	(5354)	(5359)	(2708)	(5264)	(2734)
Lifetime smoking	%	%	%	%	%	%
Never	28.7	27.0	30.4	43.9	27.9	15.1
Once or twice	16.0	15.0	17.0	18.6	16.2	13.0
Occasionally	28.7	26.8	30.6	25.7	30.1	29.0
Regularly in the past	4.3	5.2	3.3	3.3	4.3	5.1
Regularly now	22.3	26.0	18.6	8.5	21.4	37.8
Past month frequency of alcohol use						
0 occasions	17.6	14.8	20.4	23.2	16.9	13.4
1–9 "	66.9	65.0	69.0	65.1	68.6	66.2
10–19 "	9.5	12.3	6.7	7.1	9.6	12.1
20–more	5.9	7.8	3.9	4.6	4.9	8.3

*Totals may differ because of small amounts of missing data.

TABLE 2—Lifetime, Past Year and Past Month Prevalences of Illicit and Unprescribed Psychotropic Drug Use (pills)* by Sex and Age

	Approximate Respondents (No.)	Illicit Drugs	Pills, not Illicit	Non-users
Lifetime	%	%	%	
Total rate	(10.812)	6.0	30.3	63.7
Sex				
Male	(5.396)	7.7	24.8	67.5
Female	(5.416)	4.0	35.7	60.3
Age (years)				
13–14	(2.741)	3.2	26.6	70.2
15–16	(5.312)	5.0	31.6	63.5
17–18	(2.752)	10.2	31.2	58.6
Past Year				
Total rate	(10.812)	3.8	16.5	79.7
Sex				
Male	(5.396)	4.8	12.4	82.8
Female	(5.416)	2.8	20.5	76.7
Past Month				
Total rate	(10.812)	1.7	6.3	92.0
Sex				
Male	(5.396)	2.3	5.5	92.0
Female	(5.416)	1.2	7.1	91.7

*Students were assigned according to their reported use of drugs to two mutually exclusive categories: (a) "Pills"—use without doctor's orders of licit psychotropic drugs requiring prescription (amphetamines, anticholinergics, tranquilizers, hypnotics, barbiturates, antidepressants, at least once and analgesics or codeine-containing syrups more than five times) but no use of illicit drugs; and (b) use of illicit drugs (cannabis, hallucinogens, cocaine, opiates other than heroin, heroin). In the last category students might have also used licit psychotropic drugs without doctor's orders.

pain relievers or codeine-containing syrups more than five times or another licit psychotropic drug at least once, but had never used any illicit drug. If users of illicit drugs are included, 34.7 percent had used a licit psychotropic drug without a doctor's orders.

The frequency of use of unprescribed licit drugs and illicit drugs is shown in Table 3. These very high rates of unprescribed licit drugs might to some extent be

due to the possibility that the students, despite instructions, had included in these categories over-the-counter drugs for pain and cough relief, not requiring prescription.

Use of both licit and illicit substances increased significantly with age. High rates of illicit drug use were observed in males of the older age group (14.5 percent) and high rates of licit drug use in females of the older age group (40.6 percent). Illicit

drugs were used in higher rates in technical-vocational schools (9.9 percent) compared to private (6 percent) and public (5 percent) schools.

The rate of illicit drug use was related to city size, ranging from 6.4 percent in Athens to 4.4 percent in semi-urban and rural regions. Rates of illicit use increased with socioeconomic level, although differences were less marked. The only demographic variables influencing use of licit drugs were sex and age.

Licit and illicit substance use was found to be highly correlated: 15.5 percent of regular tobacco smokers had used illicit drugs compared to 2.5 percent of the rest of the population; 10.5 percent compared to 3 percent had used three or more types of licit psychotropic drugs without doctor's prescription. Among heavy drinkers, 24 percent had used illicit drugs, compared to 2.1 percent of the rest of the population; 17.4 percent compared to 3.4 percent had used three or more types of licit psychotropic drugs without doctor's prescription. Of those who had used three or more types of psychotropic drugs without prescription, 77.8 percent had also used illicit drugs, compared to 3.9 percent of the rest of the population. Moreover, 69 percent of those who had used illicit drugs other than heroin and 82.4 percent of those who had used heroin reported use of licit psychotropic drugs without a doctor's prescription ("pills").

Trends in Licit and Illicit Substance Use in the Athenian Sample

Comparisons of rates of substance use are based on the 18 Athens schools which participated in both 1984 and 1988.

Age was defined differently in the two surveys (year of birth in 1984, age last birthday in 1988), but this should have had only a small effect on comparisons.

A decrease was found in regular tobacco smoking for boys and a lesser decrease for girls (Table 4). The decrease in regular smoking was most striking in the two younger age groups.

Alcohol consumption also decreased between 1984 and 1988 in both sexes. The decrease in alcohol use is mainly due to a reduction in the number of occasional users (those who had drunk less than 10 times in the last 30 days). The proportion of frequent users in the oldest age group actually increased slightly.

Lifetime prevalence of psychotropic substance use on doctor's orders showed a substantial decrease for codeine (from 45.6 percent to 22.5 percent), whereas no

TABLE 3—Frequency of Unprescribed Licit and Illicit Drug Use for Specific Drugs

Drug Use	Life time			Last 12 Months			Last 30 days		
	Total %	Times		Total %	Times		Total %	Times	
		1-2	≥3		1-2	≥3		1-2	≥3
Pain relievers	38.5	15.8	22.7	28.1	14.4	13.7	11.6	10.8	0.8
Codeine	24.9	13.5	11.4	12.3	9.2	3.1	4.1	3.4	0.7
Tranquilizers	10.0	6.2	3.8	6.4	4.0	2.4	2.6	1.7	0.9
Hypnotics	4.1	2.8	1.3	2.4	1.6	0.8	1.3	0.9	0.4
Amphetamines	4.5	2.9	1.6	2.8	1.8	1.0	1.4	0.9	0.5
Barbiturates	3.4	2.1	1.2	1.6	1.0	0.6	0.9	0.5	0.4
Antidepressants	2.5	1.7	0.9	1.6	1.1	0.5	0.6	0.4	0.2
Anticholinergics	5.2	2.7	2.5	2.9	1.6	1.3	1.3	0.6	0.7
Cannabis	3.9	2.3	1.6	2.7	1.6	1.1	1.2	0.7	0.5
Hallucinogens	1.1	0.7	0.4	0.7	0.4	0.3	0.3	0.2	0.1
Cocaine	1.6	0.9	0.7	1.1	0.6	0.5	0.6	0.4	0.2
Heroin	0.6	0.4	0.2	0.5	0.3	0.2	0.2	0.1	0.1
Opiates (other than heroin)	0.9	0.6	0.3	1.6	0.4	1.2	0.2	0.1	0.1

TABLE 4—Use of Tobacco, Alcohol, Illicit Drugs and Unprescribed Psychotropic Drugs (pills)* in 1984 and 1988 by Sex and Age

	Sex				Age (years)					
	Male		Female		13-14		15-16		17-18	
	1984	1988	1984	1988	1984	1988	1984	1988	1984	1988
Approximate Respondents (No)	(1065)	(1007)	(1060)	(922)	(571)	(265)	(1009)	(930)	(545)	(736)
	%	%	%	%	%	%	%	%	%	%
Regular tobacco smoking	23.9	20.3	21.8	20.7	8.2	2.6	22.1	13.0	39.6	36.3
Past month alcohol use										
No use	15.2	22.1	16.2	31.7	21.2	37.8	15.2	28.0	10.9	21.0
Occasional use (1-9 times)	63.4	57.8	72.7	58.5	66.4	56.7	69.2	59.2	67.5	57.5
Frequent use (10-19 times)	13.8	12.3	7.3	7.1	7.8	4.1	10.4	9.4	13.7	12.4
Very frequent use (20+ times)	7.6	7.8	3.8	2.7	4.6	1.4	5.2	3.3	7.9	9.2
Lifetime drug use										
Illicit drugs	6.5	8.1	3.8	3.9	1.7	0	4.7	4.3	9.7	10.9
Pills but not illicit	23.3	12.8	37.3	20.0	28.5	13.6	35.7	19.9	37.3	21.6
Non-users	70.1	79.1	58.8	76.1	69.8	86.4	59.7	75.8	53.0	67.5

*Students were assigned according to their reported use of drugs to two mutually exclusive categories: (a) "Pills"—use without doctor's orders of licit psychotropic drugs requiring prescription (amphetamines, tranquilizers, hypnotics, codeine-containing syrups) but no use of illicit drugs; and (b) use of illicit drugs (cannabis, heroin, cocaine). In the last category students might have also used licit psychotropic drugs without doctor's orders.

significant change was found for tranquilizers, hypnotics, and amphetamines.

Lifetime prevalence of licit psychotropic drug use without doctor's orders ("pills") was markedly reduced in 1988, to almost half of the rate observed in 1984. On the other hand, lifetime prevalence of use of any illicit drug showed an increase of 20 percent for boys (from 6.5 percent in 1984 to 8.1 percent in 1988), while current use (past month) rates of illicit drug use almost doubled in both sexes. More specifically, lifetime rates of use increased from 6.1 percent to 7.5 percent for cannabis, from 0.9

percent to 1.7 percent for heroin, and from 1.3 percent to 2.3 percent for cocaine.

Discussion

The nationwide survey of Greek high school students shows a rate of illicit drug use much lower than the rates of 10 to 23 percent reported during the first half of the 1980s in similar studies in other European countries²⁻⁶ and the rates of over 40 percent in the United States and Canada.⁷⁻⁹

Conversely, the overall use of licit substances such as tobacco and alcohol is

higher in Greece than in the USA, Canada and northern European countries.^{7,8,2,6,*} However, regular drinking is lower than in France,¹⁰ and heavy drinking even lower than in the USA and Canada.^{7,8}

The use of licit psychotropic drugs without a doctor's orders is much more common among the Greek students than the use of illicit drugs. In comparison to

*Hibbel B: Trends in drinking and drug habits in Swedish youth. Paper presented at the 27th International Institute on the Prevention and Treatment of Alcoholism, Vienna, 1981.

the US, the unprescribed use of opiates is more frequent in Greece, the use of tranquilizers is at the same level, and amphetamine and barbiturate use is less common.⁷ Similar differences for the last three substances are found between Greece and Canada.⁸

The spread of licit and illicit substances among students in Greece is, as elsewhere, influenced by legal and societal factors. Greece is a producer of alcohol and tobacco and thus the use of these substances is widespread. The traditional pattern of alcohol use in Greece is cultural and recreational, with consumption during meals and festivities where drinking by younger members of the family is not generally discouraged. Although the availability of illicit drugs is rather high due to the fact that Greece is a pathway in the illicit trade between Asian countries and the West, the use of cannabis and other illicit drugs is considered as criminal behavior and subject to severe penalties. On the other hand strict regulations for prescribing and purchasing of psychotropics have been strongly implemented only recently. Access to psychotropic drugs was therefore rather easy at the time of the nationwide survey.

Trends in the last four years in the Athens area suggest a possible impact of policy and of social attitudes on the use of psychotropic medicines but little change in tobacco and alcohol use. Campaigns against unwarranted prescription of licit drugs and the unprescribed use of medicines, as well as the stricter implementation of laws regulating their provision, seem to have had a substantial effect on consumption of licit psychotropic drugs without prescription. The significant drop in rates of prescribed codeine use between

1984 and 1988 may also reflect increased awareness of medical professionals of the addictive aspects of the substance. Although there was some tendency toward the decline of regular tobacco and alcohol use among younger students and that of occasional alcohol use in all age groups, rates of more frequent use of alcohol were unchanged in the older age group. More frequent users may be more resistant to sociocultural pressure for change.

Greece does not seem to have escaped the first stage of the course of the epidemic of illicit drug use, before the leveling off or even the decrease of the phenomenon, as observed in other European and North American countries within the last decade. There has been a rapid expansion across barriers of age and social class although illicit drug use is still predominantly associated with males, as was also seen in a nationwide survey of the general population.¹¹ Along with the increased use of heroin and cannabis, the recent surge of cocaine use indicates that users in Greece are following closely the preferences and patterns of illicit drug use in western Europe and North America. □

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