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Emina Mehanović (a,b),*, Harsheth Kaur Virk ©, Ibanga Akanidomo (c), Juliet Pwajok (d), Glen Prichard (c), Peer van der Kreeft (e), Federica Vigna-Taglianti (a,b), the Unplugged Nigeria Coordination Group (1)

a *Department of Clinical and Biological Sciences, University of Torino, Regione Gonzole 10, 10043 Orbassano, Torino, Italy*
b *Piedmont Centre for Drug Addiction Epidemiology, ASL TO3, Via Sabaudia 164, 10095 Grugliasco, Torino, Italy*
c *United Nations Office on Drugs and Crime, Project Office, NDLEA Headquarters, 4 Onilegbale Road Road, Ikoyi, Lagos, Nigeria*
d *University of Jos, P.M.B. 2084, 93001 Jos, Plateau State, Nigeria*
e *Faculty for Education, Health and Social Work, University College Ghent, Valentin Vaerwyckweg 1, 9000 Ghent, Belgium*

1 The Unplugged Nigeria Coordination Group includes: Federica Vigna-Taglianti, Marta Alesina (Department of Clinical and Biological Sciences, University of Torino, Italy); Gian Luca Cuomo, Ljiljana Damjanović, Valeria Di Marco, Laura Donati, Emina Mehanović, Serena Vadrucci (Technical Support Team, Piedmont Centre for Drug Addiction Epidemiology, Torino, Italy); Harsheth Kaur Virk, Ibanga Akanidomo, Glen Prichard (United Nations Office on Drugs and Crime, Project Office, Lagos, Nigeria); Juliet Pwajok (University of Jos); Peer van der Kreeft (University College, Ghent, Belgium); Ann Ogbonna, Rhoda Madu, Francis Elisha, Ruth Owotumi, Peter Ojunugba (Federal Ministry of Education, Abuja, Nigeria); Alhaji Baba Hussaini, Stella Ngozi Ngwoke (National Drug Law Enforcement Agency); Paul Kamai (National Agency for Food and Drug Administration and Control).

ABSTRACT

Background: The burden of cannabis and other illicit drug use among youth represent a serious public health problem. The aim of the present study is to explore factors associated with cannabis and other illicit drug use among Nigerian secondary school adolescents of the six geopolitical zones of the country.

Methods: A total sample of 4078 secondary school adolescents of 32 schools from the six geopolitical zones of Nigeria participated in a cross-sectional survey in December 2015-January 2016. The association of sociodemographic characteristics, parental smoking, parental permissiveness to drink, friends' marijuana or other drugs use, risk perceptions and beliefs with the risk of lifetime cannabis and other illicit drugs use was examined through multilevel logistic regression models.

Results: The mean age of the students involved in the study was 14.7 years. Older age, living in one-parent or family structures different from both parents household, parental smoking, parental permissiveness to drink alcohol, friends' use of marijuana or other drugs, low risk perception of harmful effects, and positive beliefs on marijuana or drugs use were associated with the risk of cannabis and illicit drugs use. The indicator of socioeconomic status was associated to the risk of using cannabis, but not to the risk of using illicit drugs.

Conclusions: The present study highlights some correlates that influence the uptake of cannabis and drugs among Nigerian adolescents. Preventive programs addressing these factors could help to reduce the burden of the problem. Specific attention should be given to interventions to contrast the incorrect beliefs and perceptions.

1. Introduction

The burden of cannabis and other illicit drug use among youth represent a serious public health problem (United Nation Office on Drugs and Crime (UNODC, 2016)).

Although sub-Saharan countries have a long tradition of cultivating cannabis, other illicit drugs are rather a new and challenging issue in African societies. During the 1980s, sub-Saharan countries, especially those situated on the West Coast such as Nigeria became a focal transit point of drug trafficking to European, American and Asian markets (Affinnih, 2002; Obot, 2004). At the same time drugs were integrated in local markets and due to widespread poverty and unemployment, youth became a vulnerable population for drug trafficking and drug related problems (Affinnih, 2002). Various illicit drugs started to be experimented and continue to be used among youth in Nigeria today (Atoyebi and Atoyebi, 2013; Mamman et al., 2014). To answer to the spread of drugs in the country, the Nigerian National Drug Law Enforcement Agency (NDLEA) recently established the National Drug Control Master Plan 2015–2019 (Inter-Ministerial Committee on Drug Control (IMC, 2015).

The majority of studies on risk factors for substance use originate from developed countries, while limited data is available from developing countries. Sparse studies investigated factors associated to adolescents' illicit drug use in Nigeria. In these studies, male gender, mother education, parental and friends' substance use were related to adolescent substance use, whereas parental disapproval was a protective factor (Akanni and Adayonfo, 2015; Atilola et al., 2013; Ogunsola and Fatusi, 2017). Lack of knowledge on substances and high level of positive attitudes toward the use of substances were detected in the study by Atoyebi and Atoyebi (2013). Relieving from stress, self-medication, increasing self-confidence, curiosity, peer pressure, and enjoying in social gatherings were the most common reasons for using drugs reported by Nigerian adolescents (Bassi et al., 2017; Oshodi et al., 2010; Shehu and Idris, 2008).

In 2015, the United Nations Office on Drugs and Crime (UNODC) with the collaboration of the Federal Ministry of Education (FMOE), the National Drug Law Enforcement Agency (NDLEA) and the National Agency for Food and Drug Administration (NAFDAC), implemented in Nigeria a large-scale project funded by the European Union (EU) titled 'Response to drugs and related organized crime in Nigeria' which included a component to promote healthy lifestyles in schools, families and communities. Within the project, a survey investigating substance use behaviors, knowledge, attitudes, beliefs and risk perception was conducted among secondary school students of the six geo-political zones of the country.

Most of the previous Nigerian studies on substance use behaviors have been conducted in just one geopolitical zone of the country, preferably in the South, and were mostly descriptive. Due to the paucity of studies that investigated independent risk factors for illicit drugs use, new studies are needed on the subject. The identification of risk factors will help the design of prevention strategies. The aim of the present study is to explore factors associated with cannabis and other illicit drugs use among Nigerian secondary school adolescents of the six geopolitical zones of the country.

2. Methods

2.1. Data collection

The study used a cross-sectional design. The survey involved 4078 students of 32 secondary schools of the six geopolitical zones (South-South, South-West, South-East, North-Centre, North-West, and North-East), and two metropolitan cities (Abuja and Lagos) of Nigeria. Schools were randomly extracted from a list of 60 federal schools available to participate in the EU project and provided by the Federal Ministry of Education (FMOE). The extraction was performed taking into account the population size of the respective zone, so as to obtain a sample representative of the geographical distribution of the population: 6 schools in the North-West zone, 4 in the North-East, 4 in the North-Centre, 2 in the Federal Capital Territory, 8 in the South-West (of which 2 in Lagos State), 4 in the South-East, and 4 in the South-South zone.

A self-completed anonymous questionnaire was used to collect information about sociodemographic characteristics, substance use behaviors, knowledge, attitudes, beliefs, and risk perceptions toward tobacco, alcohol and drugs, intrapersonal and interpersonal skills, perception of friends' substance use, and parental substance use and permissiveness. The questionnaire was a shortened version of that used in the EU-Dap study (available at www.eudap.net). It was adapted to the Nigerian context especially with regard to lexical aspects. Local experts revised the language and the appropriateness of the constructs. Most questions were derived from the Evaluation Instruments Bank of the Exchange on Drug Demand Reduction Action (EDDRA), the online platform of European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) that provides validated instruments for evaluating prevention, treatment, and harm reduction interventions (http://www.emcdda.europa.eu/eib). To preserve confidentiality, the questionnaires were labelled with a 9-digit individual code self-generated by the student. The questionnaires were administered in class between December 2015 and January 2016. Information on the study was provided to the students and oral consent to participate was obtained.

2.2. Measures

Lifetime cannabis and other illicit drug use were investigated through the questions "How many days have you used cannabis during your lifetime?" and "How many days have you used any other drugs (e.g. amphetamines, cocaine, ecstasy, heroin, inhalants, LSD, codeine, tramadol) during your lifetime?". Response categories were ranged on a scale from 0 to 30 and more. To simplify the interpretation of results we collapsed the responses in a dichotomous outcome of "Yes" and "No".
The information on family composition was categorized in three categories (living with "both parents", "one parent" and "others"). The question measuring family car possession asked "Does your family have a car or a bus" with possible answers "No", "Yes, one" and "Yes, two or more". Parental smoking was investigated through the question "Does any of your parents smoke cigarettes?" and categorized into "Yes", "No", "Don't know" and "Don't see these persons". Two items examined perceived parental permissiveness toward smoking and drinking, with possible responses "Would allow to smoke", "Wouldn't allow smoking at home", "Wouldn't allow smoking at all" and "Don't know" for smoking cigarettes, and "Would allow to drink", "Wouldn't allow drinking at home", "Wouldn't allow drinking at all" and "Don't know" for drinking alcohol.
The possible answers on the perceived number of friends who use marijuana or other illicit drugs were: "None", "Less than half of them", "About half of them", "More than half of them", "All of them" and "Don't know".
Two indicators of risk perceptions were used: "Risk perceptions on smoking marijuana regularly" and "Risk perceptions on using other drugs occasionally" allowing four possible answers "No risk", "Slight risk", "Great risk" and "Don't know". Positive beliefs toward marijuana or other illicit drugs were assessed through the question "How likely would each of the following happen to you if you take marijuana or other drugs in the next month, e.g. amphetamines, cocaine, ecstasy, heroin, inhalants, etc?" including the following items "feel relaxed", "have more friends", "have more fun", "be more popular", "forget my trouble" and "be more confident and outgoing". Responses were reported by the students on a 4-point Likert scale (very likely/likely/ unlikely/very unlikely). Answers were scored 1–4 and summed up, means were calculated, and categories of high, middle and low level of each indicator were created by using tertiles.

2.3. Statistical analysis

The outcomes under study were lifetime cannabis use and other illicit drug use (yes/no). The analytical sample included 4037 adolescents answering to the question of lifetime cannabis use and 4020 adolescents answering to the question of lifetime other illicit drug use.
The association of sociodemographic characteristics, parental smoking, parental permissiveness to smoke and drink, friends' marijuana or other illicit drugs use, risk perceptions and positive beliefs on

marijuana or other illicit drugs with the risk of lifetime cannabis and other illicit drug use was evaluated in bivariate logistic regression analysis. All significant variables from the bivariate analysis were included in the multiple logistic regression models simultaneously. Colinearity between variables was checked. Due to correlation (r=0.65) between parental permissiveness to smoke and parental permissiveness to drink, two multivariate models were run separately, the first with parental permissiveness to smoke as covariate, and the second with parental permissiveness to drink as covariate. Results of the two models were very similar. Finally, the model with parental permissiveness to drink was chosen to be shown in the paper. In order to control for the hierarchical nature of the data, multilevel modelling was applied in both bivariate and multiple regression models. Since the random extraction occurred at the school level within each zone, we fitted geopolitical zone as first level and school as second level. Separate models were run for lifetime cannabis use and lifetime other illicit drugs use.Categorical variables were recoded in order to reduce the number of items included in the model. Listwise deletion was applied to handle missing values. Due to missing values, the final model for cannabis was run on the sample of 3710 students (92 % of initial sample), and for other drugs on 3724 (93 %).
Statistical analyses were carried out using STATA software release 12.0 (Stata Corporation, 2007, College Station, TX, USA).

3. Results

Out of 4078 secondary school students participating in the study, 32.6 % were girls and 67.4 % were boys. The mean age of the students was 14.7 (±1.2) years. About 20.0 % of families didn't have any car, about 43.0 % had only one car, and over 36.0 % had two or more cars. The majority of students lived with both parents (57.0 %), whereas only 7.4 % lived with just one parent, and about 35.0 % lived in other family structures.
The mean age of the students that ever used cannabis was 15.8 (±1.3) and the mean age of the students that used drugs was 15.4 (±1.4), whilst students never using cannabis or drugs were slightly younger (14.6 ± 1.2). Boys reported higher involvement in both cannabis (8.5 % vs 4.7 %) and other drugs use (13.2 % vs 8.4 %) than girls. Both adolescents who used cannabis and those who used other drugs reported higher percentages of parents who smoked cigarettes, of parents who had permissive attitudes toward smoking and drinking, and of friends using marijuana or other drugs than adolescents who never used cannabis or other drugs in their life. Low risk perceptions and high positive beliefs toward marijuana or drugs were more prevalent among students who reported cannabis and other drug use (Table 1 and Table 2). All these variables, apart from family car possession in case of other drugs use, were statistically significant when included in the bivariate multilevel models (Table 3 and Table 4).

3.1. Correlates of cannabis use

A statistically significant higher probability of lifetime cannabis use was observed with increase in age. The association between the indicator of socioeconomic affluence (family car possession) and the risk of adolescents' cannabis use was significant, but the risk did not change much with the amount of cars possessed by the family. Living in oneparent household and living with other family components increased the probability of adolescent cannabis use vs. living with both parents. Among parental factors, both parental cigarette smoking and permissiveness to drink alcohol were associated with adolescent cannabis use: the probability of using cannabis was 2.6 higher among students whose parents smoked cigarettes, and 5.5 times higher among those whose parents allowed them to drink than among those whose parents did not. The risk of using cannabis was increased (of 2.6 times) when parents would not allow drinking at home. The students whose friends used marijuana or drugs had almost six times the chance of using cannabis themselves. The perception of no harmful effects of smoking marijuana regularly was associated with 2 times the probability of ever use cannabis compared to the perception of great harmful effects. The probability was 4 times higher when a slight

risk of harmful effects of smoking marijuana was perceived. Positive beliefs on the effects of marijuana or other drug use increased the likelihood of involvement in cannabis use (Table 3).

3.2. Correlates of other illicit drug use

A statistically significant higher probability of lifetime use of illicit drugs (e.g. amphetamines, cocaine, ecstasy, heroin, inhalants, LSD, codeine, tramadol) was observed with increase in age. Living in oneparent household and living with other family components different from both parents were significantly associated with the risk of illicit drugs use. The adolescents whose parents smoke cigarettes and were permissive toward drinking were more likely to engage in drug use (2 times and 4 times, respectively). Similarly to what observed for cannabis, the risk of using drugs was increased (of 2 times) also when parents would not allow drinking at home. Having friends using marijuana or other drugs was associated with 4 times the probability of using drugs. The perception of a slight risk in using drugs occasionally was associated with a 1.5 times the probability of using illicit drugs, but the risk was even greater when no harmful effects of using drugs were perceived. Positive beliefs on the effects of marijuana or other drug use increased the probability of using illicit drugs (Table 4).

4. Discussion

To our knowledge, this is the first study that investigated factors associated with cannabis and illicit drug use on a large sample of secondary school students from all six geopolitical zones of Nigeria. In our study, the prevalence of cannabis use was 7.5 %, slightly different from what measured in the studies by Anyanwu et al. (2016) (5.2 %) and by Shehu and Idris (2008) (9.4 %). The prevalence of other illicit drugs use was 12.0 %, similar to that estimated in the studies of Famuyiwa et al. (2011) (12.5 %) and Atilola et al. (2014) (11.3 %). From these data, it appears that the prevalence of drug use among Nigerian adolescents is quite high and worrying.

The number of cars possessed by the family, used in our study as indicator of socioeconomic status, was associated with the risk of cannabis use. This is consistent with previous Nigerian studies that observed an association between social class, father and mother education and occupation, and adolescent alcohol and substance use (Adenugba and Ijagbone, 2012; Manyike et al., 2016; Ogunsola and Fatusi, 2017). The higher risk of using cannabis among high affluence students could be partly explained by the higher purchasing power of adolescents who have some financial resources, and by higher acceptability of such behavior among peers of high socioeconomic status.

Living in one-parent households and living in family structures different from both parents household turned out to be significantly associated with both cannabis and illicit drug use. This is coherent with previous studies that found a relation between living in non-nuclear families and adolescent's alcohol and substance use (Atilola et al., 2014; Fatoye, 2003). For reasons somewhat different, both single parent families and large multi-component families may be less able to monitor children's activities. Moreover, family cohesion and parent-child relationships can be limited, challenged or even absent living in large families with relatives different from parents. Consequently, such complex family environment may enhance the risk of engagement in substance use behaviors.

Similarly to other contexts, also in Nigeria adolescents' substance use may reflect parental substance use (Atilola et al., 2013, 2014). Consistently, in our study parental cigarette smoking was associated with adolescents' cannabis and drug use. Indeed, the influence of parental substance behaviors may not be strictly limited to the use of the same substance, but may extend to other substances, suggesting that the modelling process may generalize across substance use behaviors (Li et al., 2002). This cross-relation may apply also to other parental behaviors different from substance use. For example, in the present study both parental permissiveness to smoke cigarettes and parental permissiveness to drink alcohol increased the probability of adolescents' involvement in cannabis and other illicit drug use. A similar result was observed by Ogunsola and Fatusi (2017) who found that parental disapproval of substance use was a protective factor against substance use among Nigerian secondary school students, and by large studies from western countries (King et al., 2012; Wu et al., 2015).

Friends' use of marijuana or drugs was associated with adolescents' own use, as well known in the western literature (Hall and Degenhardt, 2007; Kokkevi et al., 2007; Piontek et al., 2013; Substance Abuse and Mental Health Services Administration (SAMHSA, 2014), and also observed in Nigerian studies (Akanni and Adayonfo, 2015; Ogunsola and Fatusi, 2017). Moreover, in our study this factor was greatly associated with adolescents' involvement in illicit drug use. Since cannabis is mostly introduced to adolescents by their friends at parties or night clubs, adolescents may feel pressured by their friends to take it to conform to the socializing norms.

Risk perceptions and beliefs on the effects of illicit drug use are important risk factors for adolescent substance use (Burdzovic Andreas et al., 2016; Larsman et al., 2012; Piontek et al., 2013; Stephens et al., 2009). In our study, the perception that using marijuana regularly and using other drugs occasionally was not risky at all was associated with an increased probability of using cannabis and other drugs. This finding is consistent with what reported more than 20 years ago by Adelekan et al. (1993) who found that Nigerian adolescents who perceived substances as not harmful were more likely to use them. The proportion of students perceiving no risk at all or slight risk of taking drugs occasionally was very high (30 %): specific interventions to contrast this incorrect perception should be implemented. Adolescents' cannabis and drug use was associated with high positive beliefs toward marijuana and drugs. It is quite common for Nigerian adolescents to perceive beneficial effects of illicit substances (Oshodi et al., 2010; Shehu and Idris, 2008). This could be due to poor knowledge about social and health consequences of substance use, that affects particularly the disadvantaged zones of the country (Vigna-Taglianti et al., 2019). Differences in school accessibility, drop-out rates, and curriculum may contribute to disparities in education between the North and the South (Imam, 2012), influencing also knowledge on health and risk behaviors among school adolescents across the country.

This study should be considered in light of several limitations. The cross-sectional nature of the study does not allow causal inference. However, although reverse bias is possible, most of the variables included in the model should precede the outcome, e.g. sociodemographic characteristics, family composition, parental and friends' substance use. On the other side, we can't exclude reverse bias for risk perceptions, beliefs and parental permissiveness. Missing values reduced the sample for the adjusted analyses. However, 3710 and 3724 subjects included in the multiple models are big samples. All the information was self-reported by the students, and this could weaken the reliability of information provided; however, the anonymous administrationof the questionnaire should have attenuated this risk. Finally, parents were not directly interviewed: adolescent's perceptions of parental permissiveness to smoke and drink may not accurately reflect the actual parental behavior.

In spite of these limitations, this study has some strengths. It is the first study that examined factors associated with cannabis and illicit drugs on a large sample of secondary school students from all six geopolitical zones of Nigeria. The survey was conducted according to a standardized protocol and a standardized questionnaire, minimizing possible misclassification related to data collection. Multilevel bivariate and multivariate regression models were employed to examine associations between the studied factors and the outcomes, adopting an approach respectful of the "non-independence" of the individual reports according to higher order clustering (school and zone). The sample included good subsamples of pupils per each zone of the country, which ensured good representativeness of the zones in the study.

In conclusion, the present study highlights some correlates that influence the uptake of cannabis and drugs among Nigerian adolescents: socioeconomic status, parental behaviors and permissiveness, perception of friends' substance use, risk perceptions and beliefs. Preventive programs addressing these factors could help to reduce the burden of the problem and should be adopted soon. Specific attention should be given to the implementation of interventions to contrast the incorrect perceptions.

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The funder had no role in study design; in the collection, analysis and interpretation of data; in the writing of the report; and in the decision to submit the article for publication.

Contributors

Federica Vigna-Taglianti conceived the Unplugged Nigeria trial and the present study. Peer van der Kreeft and Federica Vigna-Taglianti trained the data managers, trainers and teachers. Harsheth Kaur Virk, Ann Ogbonna, Glen Prichard and Ibanga Akanidomo coordinated the field work. Ibanga Akanidomo and Juliet Pwajok collected the data. Emina Mehanović and Federica Vigna-Taglianti drafted the paper. Emina Mehanović carried out the statistical analysis. All authors provided critical revision, contributed to and approved the final manuscript.

Ethical statement

The study was conducted following the principles of the Declaration of Helsinki. Study materials and procedures were approved by the Federal Ministry of Education. Students were informed about the objectives of the study and provided consent to participate before filling the questionnaire. The questionnaire was anonymous; once filled, the students deposited it in a box only the researchers had access to.

Data statement

The dataset used for the analyses includes 4078 records of anonymous questionnaires completed by secondary school students in Nigeria in December 2015; the data include information on sociodemographic characteristics (gender, age, family car and personal computers, family composition); school performance; substance use (tobacco, alcohol, and drug use during lifetime and in the last 30 days); knowledge, beliefs, risk perceptions and attitudes towards drugs; selfesteem, decision-making skills, refusal skills; perception of peers' and friends' substance use; parental permissiveness towards use of tobacco and alcohol.
Data are available under request.
Federica Vigna-Taglianti is responsible for the data.

Declaration of Competing Interest

No conflict declared.

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Table 1
Sociodemographic, parental and personal factors among ever vs never cannabis users.

	Ever cannabis use (n = 304)		Never cannabis use (n = 3,733)		Overall (n = 4,037)	
	N	%	N	%	N	%
Age						
Mean ± SD	15.8 ± 1.3		14.6 ± 1.2		14.7 ± 1.2	
Gender						
Girls	61	21.2	1,236	33.5	1,297	32.6
Boys	227	78.8	2,453	66.5	2,680	67.4
Family possession of car						
None	36	12.4	772	20.8	808	20.2
One	145	50.0	1,594	43.1	1,739	43.6
Two or more	109	37.6	1,336	36.1	1,445	36.2
Family composition						
Both parents	114	37.5	2,188	58.6	2,302	57.0
One parent	62	20.4	237	6.4	299	7.4
Other	128	42.1	1,308	35.0	1,436	35.6
Parents smoke cigarettes						
No	203	66.8	3,398	91.0	3,601	89.2
Yes	36	11.8	98	2.6	134	3.3
Don't know/Don't see/Don't answer	65	21.4	237	6.4	302	7.5
Parental permissiveness to smoke						
Wouldn't allow at all	187	64.4	3,526	95.4	3,713	93.1
Wouldn't allow at home	48	16.4	82	2.2	130	3.3
Would allow	18	6.2	22	0.6	40	1.0
Don't know	39	13.4	68	1.8	107	2.7
Parental permissiveness to drink						
Wouldn't allow at all	176	59.9	3,349	90.6	3,525	88.3
Wouldn't allow at home	41	13.9	157	4.3	198	5.0
Would allow	32	10.9	66	1.8	98	2.4
Don't know	45	15.3	126	3.4	171	4.3
Friends use marijuana or other illicit drugs						
No	138	45.4	2,998	80.3	3,136	77.7
Yes	91	29.9	134	3.6	225	5.6
Don't know	75	24.7	601	16.1	676	16.7
Risk perception on smoking marijuana regularly						
Great risk	131	43.1	3,229	86.5	3,360	83.2
Slight risk	55	18.1	122	3.3	177	4.4
No risk	44	14.5	98	2.6	142	3.5
Don't know	74	24.3	284	7.6	358	8.9
Positive beliefs toward marijuana or other illicit drug use						
Low	31	11.4	1,318	37.0	1,349	35.2
Middle/High	240	88.6	2,242	63.0	2,482	64.8

Table 2
Sociodemographic, parental and personal factors among ever vs never illicit drug* users.

	Ever drug use (n = 481)		Never drug use (n = 3,539)		Overall (n = 4,020)	
	N	%	N	%		
Age						
Mean ± SD	15.4 ± 1.4		14.6 ± 1.2		14.7 ± 1.2	
Gender						
Girls	108	23.4	1,184	33.8	1,292	32.6
Boys	353	76.6	2,316	66.2	2,669	67.4
Family possession of car						
None	78	16.7	729	20.8	807	20.3
One	214	45.8	1,518	43.2	1,732	43.5
Two or more	175	37.5	1,263	36.0	1,438	36.2
Family composition						
Both parents	209	43.5	2,085	58.9	2,294	57.1
One parent	73	15.2	225	6.4	298	7.4
Other	199	41.4	1,229	34.7	1,428	35.5
Parents smoke cigarettes						
No	351	73.0	3,232	91.3	3,583	89.1
Yes	48	10.0	87	2.5	135	3.4
Don't know/Don't see/Don't answer	82	17.0	220	6.2	302	7.5
Parental permissiveness to smoke						
Wouldn't allow at all	356	76.4	3,342	95.3	3,698	93.1
Wouldn't allow at home	47	10.1	82	2.3	129	3.2
Would allow	20	4.3	19	0.5	39	1.0
Don't know	43	9.2	64	1.8	107	2.7
Parental permissiveness to drink						
Wouldn't allow at all	331	70.7	3,178	90.6	3,509	88.3
Wouldn't allow at home	50	10.7	149	4.3	199	5.0
Would allow	39	8.3	58	1.6	97	2.4
Don't know	48	10.3	123	3.5	171	4.3
Friends use marijuana or other illicit drugs						
No	272	56.5	2,851	80.6	3,123	77.7
Yes	103	21.4	122	3.5	225	5.6
Don't know	106	22.0	566	16.0	672	16.7
Risk perception on using other drugs occasionally						
Great risk	170	35.3	1,859	52.5	2,029	50.5
Slight risk	110	22.9	843	23.8	953	23.7
No risk	87	18.1	205	5.8	292	7.3
Don't know	114	23.7	632	17.9	746	18.6
Positive beliefs toward marijuana or other illicit drug use						
Low	82	18.4	1,265	37.5	1,347	35.3
Middle/High	363	81.6	2,104	62.5	2,467	64.7

* Amphetamines, cocaine, ecstasy, heroin, inhalants, LSD, codeine, tramadol.

Table 3
Factors associated with lifetime cannabis use.

	Crude OR (95% CI) n = 4,037	P-value	Adj OR (95% CI) n = 3,710	P-value
Age	1.48 (1.34-1.65)	< 0.001	1.30 (1.14-1.49)	< 0.001
Gender				
Girls	1		1	
Boys	1.53 (1.13-2.08)	0.006	1.01 (0.70-1.46)	0.959
Family possession of car				
None	1		1	
One	1.94 (1.31-2.87)	0.001	1.95 (1.20-3.18)	0.007
Two or more	1.72 (1.14-2.59)	0.009	1.82 (1.10-3.00)	0.020
Family composition				
Both parents	1		1	
One parent	3.53 (2.45-5.09)	< 0.001	1.74 (1.06-2.87)	0.030
Other	1.66 (1.26-2.18)	< 0.001	1.49 (1.07-2.07)	0.019
Parents smoke cigarettes				
No	1		1	
Yes	3.86 (2.48-5.99)	< 0.001	2.63 (1.49-4.64)	0.001
Don't know	2.36 (1.69-3.29)	< 0.001	1.25 (0.80-1.97)	0.322
Parental permissiveness to drink				
Wouldn't allow at all	1		1	
Wouldn't allow at home	5.19 (3.43-7.84)	< 0.001	2.65 (1.54-4.56)	< 0.001
Would allow	9.06 (5.45-15.10)	< 0.001	5.52 (2.94-10.40)	< 0.001
Don't know	6.20 (4.10-9.37)	< 0.001	3.99 (2.41-6.60)	< 0.001
Friends use marijuana or other illicit drugs				
No	1		1	
Yes	9.00 (6.40-12.70)	< 0.001	5.89 (3.93-8.81)	< 0.001
Don't know	2.44 (1.79-3.32)	< 0.001	1.39 (0.93-2.08)	0.107
Risk perception on smoking marijuana regularly				
Great risk	1		1	
Slight risk	6.42 (4.32-9.54)	< 0.001	4.36 (2.68-7.08)	< 0.001
No risk	5.56 (3.63-8.53)	< 0.001	2.23 (1.29-3.88)	0.004
Don't know	3.66 (2.61-5.12)	< 0.001	2.48 (1.61-3.84)	< 0.001
Positive beliefs toward marijuana or other illicit drug use				
Low	1		1	
Middle/High	3.68 (2.49-5.43)	< 0.001	2.99 (1.92-4.65)	< 0.001

Table 4
Factors associated with lifetime illicit drug use.*.

	Crude OR (95% CI) n = 4,020	P-value	Adj OR (95% CI) n = 3,724	P-value
Age	1.36 (1.25-1.49)	< 0.001	1.23 (1.11-1.36)	< 0.001
Gender				
Girls	1		1	
Boys	1.48 (1.17-1.87)	0.001	1.19 (0.91-1.55)	0.194
Family possession of car				
None	1			
One	1.29 (0.97-1.71)	0.080	–	–
Two or more	1.26 (0.94-1.70)	0.120		
Family composition				
Both parents	1		1	
One parent	2.46 (1.80-3.38)	< 0.001	1.53 (1.03-2.25)	0.033
Other	1.48 (1.20-1.84)	< 0.001	1.32 (1.04-1.67)	0.024
Parents smoke cigarettes				
No	1		1	
Yes	3.72 (2.52-5.49)	< 0.001	2.69 (1.71-4.23)	< 0.001
Don't know	2.14 (1.59-3.87)	< 0.001	1.47 (1.03-2.11)	0.036
Parental permissiveness to drink				
Wouldn't allow at all	1		1	
Wouldn't allow at home	3.19 (2.24-4.55)	< 0.001	2.01 (1.32-3.06)	0.001
Would allow	6.08 (3.89-9.49)	< 0.001	4.23 (2.53-7.08)	< 0.001
Don't know	3.32 (2.29-4.80)	< 0.001	2.64 (1.74-4.02)	< 0.001
Friends use marijuana or other illicit drugs				
No	1		1	
Yes	6.10 (4.49-8.28)	< 0.001	3.96 (2.80-5.61)	< 0.001
Don't know	1.81 (1.41-2.32)	< 0.001	1.36 (1.01-1.82)	0.040
Risk perception on using other drugs occasionally				
Great risk	1		1	
Slight risk	1.51 (1.17-1.96)	0.002	1.45 (1.09-1.92)	0.010
No risk	3.28 (2.40-4.49)	< 0.001	2.42 (1.69-3.47)	< 0.001
Don't know	1.55 (1.19-2.02)	0.001	1.15 (0.84-1.58)	0.382
Positive beliefs toward marijuana or other illicit drug use				
Low	1		1	
Middle/High	2.28 (1.77-2.94)	< 0.001	1.92 (1.46-2.52)	< 0.001

* Amphetamines, cocaine, ecstasy, heroin, inhalants, LSD, codeine and tramadol.