

Risk factors associated with tobacco, alcohol and drug use among adolescents attending secondary school in three cities from Argentina

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ABSTRACT

Tobacco, alcohol and drug use starts at an early age. It is important to identify risk factors associated with initiation. In 2014, a survey was conducted among students attending first year of secondary schools in Buenos Aires, Córdoba, and Tucumán. A total of 3172 students completed the survey (42% were girls); their mean age was 12.8 years old. Findings showed that 10% had smoked; 32% had consumed alcohol; 17% had a heavy drinking episode in the past month; and 8% had used at least one illegal drug once in their lifetime. A high sensation seeking index was associated with the use of tobacco (odds ratio [OR]: 4.25, 95% confidence interval [CI]: 2.2-8.1), alcohol (OR: 5.56, 95% CI: 3.73-8.31), and marijuana, coca paste or cocaine, (OR: 11.73, 95% CI: 5.81-23.69). Having friends who smoke or drink was associated with tobacco (OR: 12.6, 95% CI: 7.8-20.5) and alcohol use (OR: 5.17, 95% CI: 4.15-6.40). Having permissive parents in terms of media use was associated with tobacco use (OR: 3.7, 95% CI: 2.1-6.5), and perceiving a low parental support and control (OR: 3.02, 95% CI: 1.40-6.52) was associated with marijuana, coca paste and cocaine use.

Key words: tobacco, alcohol, illegal drugs, adolescent, Argentina.

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INTRODUCTION

Tobacco, alcohol and drug use is highly prevalent among adolescents.¹⁻⁴ Having updated information on tobacco, alcohol and drug use during early adolescence and associated social and personal factors may help to develop public policies aimed at preventing their use in Argentina.

The purpose of this research was to determine factors associated with the initial use of tobacco, alcohol, marijuana, and coca paste or cocaine among young adolescents from three Argentine cities.

POPULATION AND METHODS

A survey was administered among students attending the first year of secondary school as part of a study conducted in Mexico and Argentina to assess youth exposure to tobacco and alcohol in motion pictures and the relationship to tobacco, alcohol and drug use.⁵⁻⁷ Between May and June 2014, students from 33 public and private schools from the city of Buenos Aires, city of Córdoba, and San Miguel de Tucumán completed a self-administered anonymous survey during class.

The survey included questions on sociodemographic and personal aspects, school performance, tobacco use among family members and friends, parenting styles, access to and restrictions on media (computer, TV, etc.), use of tobacco, alcohol, marijuana, and coca paste or cocaine. Predictive outcome measures included sex, age, maximum level of education attained by either parent (≤ 7 , 8-12, > 12 years of formal education), type of school (public or private), repeat student, household members who smoke, and tobacco and alcohol use among friends. In addition, a "sensation seeking" index was included, reflecting participants' desire to experience new things, and a "parenting style" index regarding both parents to assess the perceptions adolescents have about parental control and emotional support. A "media access" index was created based on whether participants had their own TV, DVD or Blu-ray player, tablet, computer, video game console, or mobile phone,

together with a “parental rules on media use” index. These indices were used for the first time in Argentina. Cronbach’s alpha was estimated to measure their reliability, which was 0.79, 0.74, 0.61, and 0.62, respectively. A detailed description of the methodology and part of results have already been published.⁵⁻⁷

A multilevel logistic regression was done for analysis, with an estimation of odds ratios (ORs) and the corresponding 95% confidence intervals (CIs) as adjusted for each substance use. Data were analyzed using the Stata V.13.0 software (Stata Corp, College Station, TX, USA).

RESULTS

Out of the 3826 eligible students, 3172 (83%) completed the survey. *Table 1* shows the sociodemographic and personal characteristics of participants by city of residence. Participants’ mean age was 12.8 years old. In the 30 days prior to taking the survey, 10% of students had smoked, 32% had consumed alcohol, 17% had a

heavy drinking episode, and 8% had used both tobacco and alcohol. In addition, 8% referred having used at least one illegal drug once in their lifetime. *Table 2* describes tobacco, alcohol and drug use (marijuana, cocaine or coca paste) by sex and city of residence. Having friends who smoke (OR: 12.6, 95% CI: 7.8-20.5), a high sensation seeking index (OR: 4.25, 95% CI: 2.2-8.1), and having permissive parents in terms of media use (OR: 3.7, 95% CI: 2.1-6.5) were the most relevant outcomes related to tobacco use. A high sensation seeking index (OR: 5.56, 95% CI: 3.73-8.31), and having friends who smoke (OR: 5.17, 95% CI: 4.15-6.40) were the most relevant outcomes associated with alcohol use. A high sensation seeking index (OR: 11.73, 95% CI: 5.81-23.69), and a low parental control and support (OR: 3.02, 95% CI: 1.40-6.52) were the most relevant outcomes related to marijuana, and coca paste or cocaine use. *Figure 1* shows multivariate analysis results, with adjusted ORs ordered by size of their effect on the use of each substance.

TABLE 1. Characteristics of participants by city

	Buenos Aires n= 1664 n (%)	Córdoba n= 983 n (%)	Tucumán n= 525 n (%)	Total n= 3172 n (%)
Sociodemographic characteristics				
Girl	627 (37.9)	396 (40.6)	312 (59.9)	1335 (42.4)
Age (years old)				
≤ 12	123 (7.4)	739 (75.3)	479 (91.2)	1341 (42.3)
13-14	1353 (81.4)	229 (23.3)	44 (8.4)	1626 (51.3)
≥ 15	186 (11.2)	14 (1.4)	2 (0.4)	202 (6.4)
Maximum parental level of education				
Complete or incomplete primary school	135 (9.0)	64 (7.6)	15 (3.3)	214 (7.7)
Complete or incomplete secondary school	699 (46.6)	447 (53.3)	143 (31.2)	1289 (46.1)
Incomplete tertiary education or higher	665 (44.4)	327 (39.0)	300 (65.5)	1292 (46.2)
Employed	137 (8.3)	86 (8.9)	28 (5.4)	251 (8.0)
Attending a public school	1551 (93.2)	515 (52.4)	93 (17.7)	2159 (68.1)
Social influences				
Any friend who smokes	800 (48.3)	400 (41.0)	150 (28.6)	1350 (42.8)
Any household member who smokes	842 (51.0)	626 (64.3)	283 (54.1)	1751 (55.6)
Any friend who drinks	986 (59.7)	449 (46.0)	229 (43.7)	1664 (52.8)
Personal characteristics				
Repeat student	517 (31.3)	211 (21.6)	39 (7.5)	767 (24.4)
Sensation seeking index (0-1)*	0.56 (0.27)	0.54 (0.26)	0.55 (0.26)	0.55 (0.27)
Parenting style index (0-1)*	0.72 (0.19)	0.77 (0.19)	0.78 (0.18)	0.75 (0.19)
Parental rules on media use index (0-1)*	0.30 (0.31)	0.45 (0.32)	0.52 (0.32)	0.38 (0.33)
Media access index (0-1)*	0.71 (0.22)	0.61 (0.25)	0.67 (0.23)	0.67 (0.24)
Internet access in the bedroom	1442 (88.0)	691 (72.0)	431 (83.9)	2564 (82.4)
Mobile phone 1399	(85.1)	791 (81.5)	471 (90.6)	2661 (84.9)
TV in the bedroom	1439 (87.5)	810 (83.3)	456 (87.5)	2705 (86.2)
TV in the bedroom	952 (58.2)	458 (47.5)	262 (50.6)	1672 (53.6)
Computer (not shared)	1324 (80.9)	555 (57.5)	331 (63.9)	2210 (70.8)
Tablet	548 (33.5)	267 (27.8)	201 (38.7)	1016 (32.6)

* Mean (standard deviation).

DISCUSSION

In this population of young adolescents, the prevalence of tobacco, alcohol and drug use was lower than that reported in other recent national surveys, and was dissimilar across the different surveyed cities.^{2,3,4} Risk factors that showed a stronger association with tobacco and alcohol use included having close friends who smoke or drink and a high sensation seeking index. Also, a high sensation seeking index and a low parental support and control index were the most important risk factors for illegal drug use.

The difference in the prevalence of use compared to national surveys may be explained by the younger age of the students included in this study, especially in Tucumán, where 90% of students were younger than 12 years old. However, 27% of survey respondents were susceptible to smoking in the following year, so tobacco use would likely increase as this population gets older.⁸ In relation to alcohol use, 24% of participants considered they were susceptible to drinking in the following year. The difference observed in relation to drug use may be explained not only by participants' younger age, but also by the fact that the national survey had included energy drinks, solvents, psychotropic drugs, and other components included in the definition of "other drugs."⁴ The difference in terms of prevalence among the three cities may be accounted for by the different sample structures, as observed in *Table 1*.

In many countries, youth whose friends smoke have a higher risk of taking up and continuing smoking than those whose friends do not smoke.⁹ Our study also indicates that having friends who smoke is significantly associated with tobacco use. Additionally, having friends who drink was also significantly associated with alcohol use. Adolescents who tend to seek new sensations, either because of their personality or because they are exposed to motion pictures or video games that encourage such sensations, have a higher risk for substance use.^{10,11} The perception adolescents have about the balance between parental control (rules) and emotional support is also relevant. The presence of rules is a protective factor against both smoking initiation and heavy episodic drinking.^{12,13} In Anglo-Saxon countries, restrictions imposed by parents in relation to access to motion pictures and video games that are prohibited for minors reduce substance use among their children.¹⁴ The importance of parental control in terms of media access in this population has been published already.⁵

This study has certain limitations: the sample was not selected in a probabilistic fashion and included only adolescents who attended school. The survey included indices originally developed in English-speaking countries, and did not ask about alcohol and drug use among family members and friends. However, as per the National Population, Households and Housing Census, conducted in 2010 and published by

TABLE 2. Prevalence of tobacco, alcohol and illegal drug use by city

	Buenos Aires		Córdoba		Tucumán		Total							
	Girls	Boys	Girls	Boys	Girls	Boys	n	%						
	n	%	n	%	n	%	n	%						
Tobacco														
Never smoked	431	(68.7)	792	(77.0)	329	(83.3)	475	(82.0)	271	(86.9)	188	(90.0)	2486	(78.9)
Susceptible to smoking*	138	(32.2)	211	(26.8)	97	(29.5)	121	(25.5)	59	(21.8)	30	(16.0)	656	(26.5)
Present smoker	99	(15.8)	113	(11.0)	34	(8.6)	48	(8.3)	10	(3.2)	10	(4.8)	314	(10.0)
Alcohol														
Never drank	208	(33.2)	334	(32.5)	171	(43.2)	211	(36.4)	128	(41)	80	(38.3)	1132	(35.9)
Susceptible to drinking*	46	(22.2)	99	(29.8)	44	(25.7)	35	(16.6)	25	(19.7)	16	(20)	265	(23.5)
Present alcohol user	239	(38.1)	345	(33.5)	106	(26.8)	189	(32.6)	75	(24)	63	(30.1)	1017	(32.3)
Heavy episodic drinking	170	(27.2)	222	(21.7)	49	(12.4)	61	(10.6)	25	(8.1)	13	(6.2)	540	(17.2)
Illegal drugs														
Has tried marijuana	63	(10.1)	130	(12.7)	12	(3.0)	34	(5.9)	2	(0.6)	0	(0)	241	(7.7)
Has tried cocaine or coca paste	12	(1.9)	28	(2.7)	5	(1.3)	12	(2.1)	1	(0.3)	2	(1.0)	60	(1.9)
Has tried marijuana, cocaine, or coca paste	64	(10.2)	136	(13.2)	13	(3.3)	40	(6.9)	3	(1.0)	2	(1.0)	258	(8.2)

* Estimated among non-smokers and non-drinkers, respectively.

the National Statistics and Censuses Institute of Argentina (*Instituto Nacional de Estadística y Censos*, INDEC) in 2012, the three provinces included in the study account for 37% of the national population; and both public and private schools were selected to account for different socioeconomic levels.

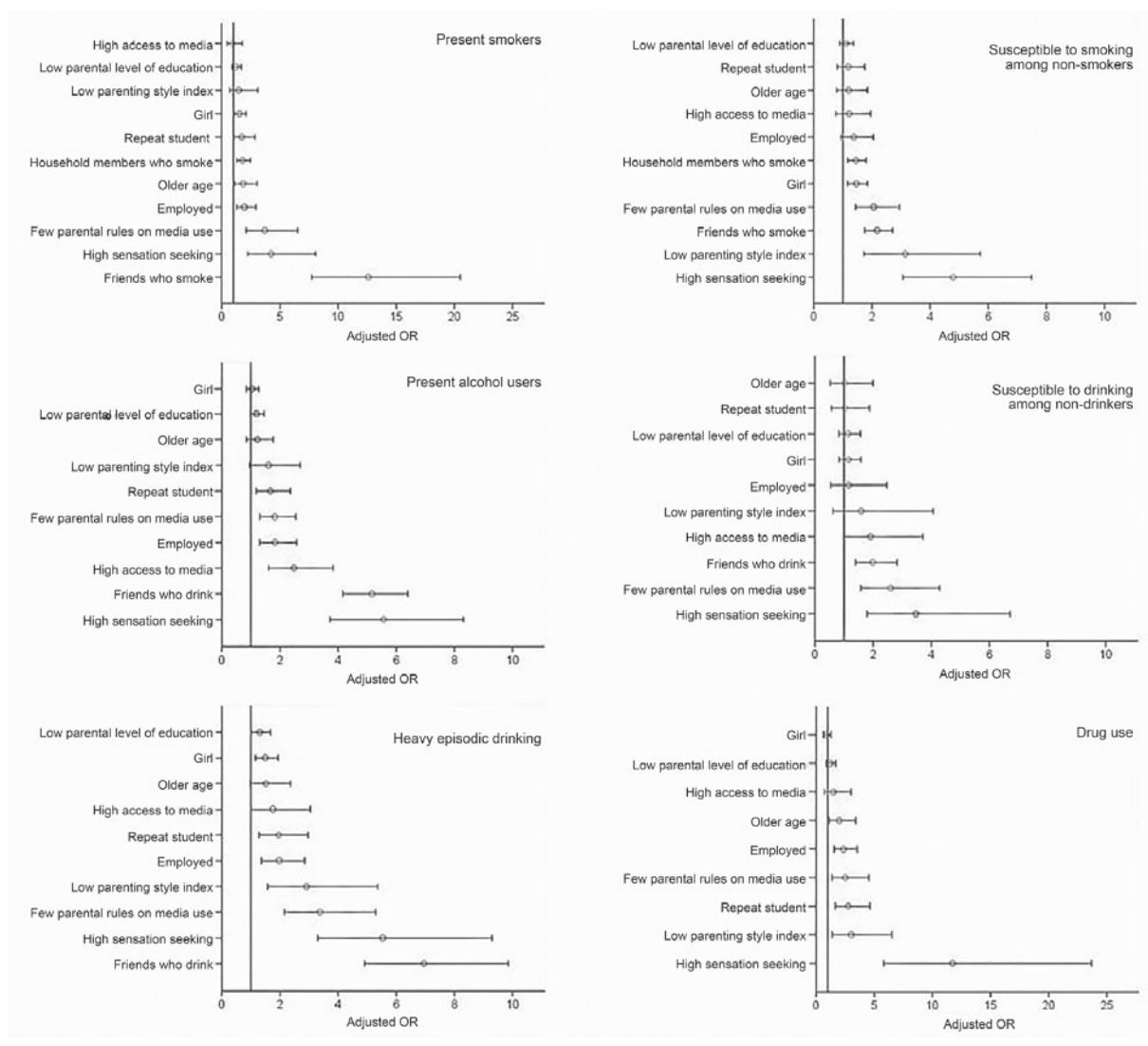
In spite of limitations, the results of this survey provide information on socioeconomic, cultural, and personal outcome measures that may serve as predictors of substance use among young adolescents in Argentina. In addition, risk factors included in the study are innovative in our setting, such as “sensation seeking,” “parenting styles,” “media access,” which have not been

included in any published study in Argentina.

The results of this study show associations that should be analyzed in further studies in order to explain the temporal relationship between the identified predictive factors and substance use initiation and continuation among young adolescents. Given the differences observed in terms of use among the three cities, further studies to analyze the reasons for such differences are deemed necessary.

Having these results in mind, pediatricians should take advantage of office visits to screen for adolescents with a high sensation seeking index or who have friends who smoke. In addition, pediatricians may help parents with prevention

FIGURE 1: ORs as adjusted for tobacco, alcohol and drug use. Each graph shows the adjusted ORs and 95% confidence intervals, ordered by size, so that risk factors can be compared



by giving them advice on effective strategies to monitor media use by their children.

CONCLUSION

Sensation seeking, tobacco and alcohol use by close friends, and a low parental control were associated with the initiation of tobacco, alcohol and marijuana or coca paste use in this population of young adolescents. ■

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