

Teens in trouble: cigarette use and risky behaviors among private, high school students in La Paz, Bolivia

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ABSTRACT

Objective. To describe the prevalence of cigarette smoking and to identify risky behaviors associated with smoking among adolescents attending high schools in a district of La Paz, Bolivia.

Methods. The Youth Risk Behavior Survey was administered to a sample of 394 males and 182 females, from 13–18 years of age, at six, randomly-selected schools in District II of La Paz. Frequencies, chi-square tests, and logistic regression were employed to identify factors associated with cigarette use during the 30 days prior to the survey.

Results. Approximately 40% of the sample (39.4% of males and 33.7% of females) had smoked cigarettes in the 30 days prior to interview. For both males and females, consumption of alcohol was the single greatest risk factor associated with cigarette use. The males and females who reported consuming at least one alcoholic beverage on three or more occasions in the previous 30 days were 22.3 and 58.5 times (95% CIs: 6.7, 74.1 and 6.8, 502.6, respectively) more likely to smoke tobacco than those who reported no alcohol consumption. Additional risk factors included having participated in a physical fight, having carried a weapon, having had sexual intercourse, and having used illicit drugs during the previous 30 days.

Conclusions. Because teenagers who smoke are also likely to engage in a variety of other risky behaviors, parents, school administrators, and health educators may wish to use smoking to identify at-risk individuals. Among Bolivian teenagers, interventions should focus on preventing cigarette use and associated risk behaviors.

Key words

Adolescent, adolescent behavior, smoking, risk-taking, Bolivia.

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Smoking is one of the most important contributors to many forms of cancer, heart disease, respiratory disorders, and other noncommunicable diseases, and has been identified by

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the World Health Organization (WHO) as the second leading cause of mortality worldwide (1). Each year approximately 5 million deaths are attributed to cigarette smoking, and if present smoking patterns remain unchanged, the number of annual tobacco-related deaths is expected to double by 2010. Seventy percent of such deaths will occur in developing countries (1). In

the Western Hemisphere alone, one-third of all heart disease and cancers can be attributed to cigarette use (2). Despite the efforts by the Pan American Health Organization (PAHO), ministries of health, and various non-profit organizations to curb the tobacco epidemic in the Americas, smoking prevalence in many countries in the Region has remained relatively unchanged over the past decade, and no country has fully implemented policies to decrease smoking among its population (2).

Adolescence has been identified as a "crucial life stage for preventing tobacco use and its consequences" because this is when most individuals initiate smoking (3). In the United States of America (U.S.), for example, 50% of current smokers started smoking before they reached 14 years of age; 90% had started before they turned 19 (4). Likewise, a global, cross-country comparison of cigarette use revealed that among smokers 13–15 years of age, 23% had begun before 10 years of age (5). Due in part to the addictive nature of nicotine, individuals who begin smoking at a young age are more likely to become regular and/or heavy smokers and to get sick or die from smoking-attributable causes (6). As such, smoking prevention and cessation interventions directed towards youth must remain a public health priority, especially in countries where a considerable percentage of youth smoke.

The rate of smoking in the Region of the Americas is the third highest in the world, behind Europe and the Western Pacific (7). Within the Americas, rates of teenage smoking, particularly in Latin America, remain worthy of concern. The Global Youth Tobacco Survey (GYTS), 1999–2001, revealed that in more than half of the sites surveyed in the Americas, at least 20% of adolescents from 13 to 15 years of age currently smoke (8). The Southern Cone countries (Argentina, Chile, Paraguay, and Uruguay) showed the greatest proportion of teenage smokers, with 40% of Chilean teens reporting regular cigarette use. The Andean area (Bolivia, Columbia, Ecuador,

Peru, and Venezuela) had the second highest smoking rates among teenagers. In addition, in parts of the Andean and Southern Cone areas, one in four nonsmoking respondents reported an intention to start smoking soon (8). Such rates of cigarette use and smoking intentions portend an increase in the prevalence of chronic diseases, as well as poor health, economic outcomes, and mortality.

In addition to the negative, direct consequences of cigarette smoking, research shows that teenage smokers often engage in other risky behaviors that contribute to poor health (3, 9–12). Tobacco is referred to as a "gateway drug" because teens who smoke will often experiment with other drugs thereafter (3, 13–15). In addition, teen smoking has been linked to the early initiation of sexual activity and multiple sexual partners (16), delinquency, poor academic performance, and violence (10). Jocelyn Elders, former U.S. Surgeon General, stated:

When a young person starts to smoke or use tobacco, it is a signal, an alarm that he or she may get involved in other risky behaviors. This is one of the few early warning signs we have in public health. If we can prevent tobacco use in the first place, we might have a big impact on preventing or delaying a host of other destructive behaviors among our young people (17).

Understanding and addressing the relationships between cigarette smoking and other behaviors is critical to protecting the health of adolescents and to improving the health outcomes of the whole population. Youth constitute a large portion of Bolivia's population—40% of the total population is under 15 years of age (18). Given the high rates of smoking among youth in the Andean region, a better understanding of the risk factors and behaviors associated with smoking in Bolivia is timely. The 2000 GYTS in La Paz revealed that nearly one in three (31.3%) adolescents from 13 to 15 year of age were current smokers. More than 10% began smoking before 10 years of age. These per-

centages have most likely increased in recent years since 28% of those who were nonsmokers in 2000 reported that they planned to start smoking within the next year. In contrast, 64.7% of current smokers reported that they would like to quit, with 66.9% reporting an unsuccessful attempt to do so in the year preceding the survey. Of teens surveyed, nearly 20% felt that, in general, smokers had more friends; 40% were being exposed to second-hand smoke in their homes; 88% were aware of tobacco advertising on local billboards; and 82% were able to purchase tobacco despite being underage (8). Monitoring the prevalence of smoking and other risky behaviors among teens is imperative because it allows researchers to recognize potential associations between these behaviors and to plan and implement appropriate health interventions for this high-risk population. The purpose of this article is to determine the prevalence of cigarette smoking among a group of private high school students from 13 to 18 years of age in La Paz, Bolivia, and to identify risk factors and behaviors associated with cigarette use. We also highlight programmatic implications and provide suggestions for further research.

MATERIALS AND METHODS

This study is part of a larger research project investigating risky behaviors among teens in Bolivia, the Philippines, and the Ukraine. The methods for the umbrella project are described in more detail elsewhere (19). A summary of the methods used for the present study follows.

Instrument

The Youth Risk Behavior Surveillance Survey (YRBSS) was developed in 1990 by the U.S. Centers for Disease Control and Prevention (CDC) for the purpose of analyzing and monitoring trends related to six priority areas of risk behavior among high school youth (from 13 to 18 years of age) (20, 21). Priority areas for the YRBSS are:

(1) behaviors that contribute to intentional and unintentional injuries; (2) drug and alcohol use; (3) sexual behaviors resulting in unintended pregnancies and sexually-transmitted infections, including HIV infection; (4) tobacco use; (5) unhealthy dietary behaviors; and (6) low levels of physical activity, including levels of overweight (21).

For this study, the YRBSS was translated by the first author, Kirk A. Dearden, who is fluent in Spanish, and then verified by a professional translator. Some questions, such as those regarding region of residence, ethnicity, grade in school, and academic performance, were modified to reflect the local language, culture, and practices. Officials at the Servicio Departamental de Educación (SEDUCA, Department of Education) and school administrators reviewed and approved the survey instrument and received details about the data collection methods. The Spanish version of the YRBSS was then administered to high school students in District II of La Paz, Bolivia. A review of the responses indicated that no questions consistently caused difficulties for participants.

Sample selection

The Director of the SEDUCA granted permission to conduct the study, but limited it to District II schools in La Paz. From a list of District II schools ($n = 287$), 15 were randomly selected. Of these 15, three were omitted due to a strike among public school teachers that began on May 10, 2004, and extended beyond the data-collection period into June, 2004. Also purged from the list of 15 were nursery schools ($n = 1$), primary schools ($n = 1$), schools that had been closed or could not be located ($n = 2$), schools that denied permission to conduct the survey ($n = 1$), and those where the majority of the student body was too young to participate ($n = 1$). One of the private schools included in the study was affiliated with a religious institution; the rest were secular. The six schools that participated were, on average, middle

class, though students from all social classes were represented.

Though schools were randomly selected, the eligible students, 13 to 18 years of age, were chosen by the headmasters. Each of the six, randomly-selected schools was visited individually until at least 500 students had completed the questionnaire. This resulted in a total sample of 576 students from across the six schools.

Data collection

Each participant signed an informed-consent agreement acknowledging that their participation was voluntary, anonymous, and would not affect their grades, and that responses would remain confidential. Two Spanish-speaking undergraduate students from Brigham Young University (Provo, Utah, U.S.) administered the paper-and-pencil survey during regular classroom hours. The high school respondents sat in individual desks with adequate privacy and were given as much time as needed to complete the survey.

Data analysis

All data were entered using EpiInfo (version 6.0, CDC, Atlanta, Georgia,

U.S.) and analyzed using SAS statistical software (version 9.1, SAS Institute Inc., Cary, North Carolina, U.S.). Percentages, Pearson chi-square tests, and Fisher's Exact Test were used to compare males and females separately for a variety of risk factors. Logistic regression models were used to identify factors associated with teenage smoking, adjusting for sociodemographic correlates. Variables were added to the model based on *a priori* hypotheses, current literature, and associations found while performing bivariate analyses. Variables were retained or dropped from regression models based on P values (< 0.15), the Wald statistic, estimated coefficients, and changes in the likelihood ratio test. Interaction terms were included, and all models were checked for overfitting. Odds ratios (OR) and 95% confidence intervals (95% CI) were calculated for retained variables.

RESULTS

Of the survey respondents, more than two-thirds (68.4%) were male (Table 1), just under half were from 15 to 16 years of age, and most had academic performance of "average or better." Cigarette use in the 30 days preceding the survey was about the same for males (39.4%) and females (33.7%).

TABLE 1. Characteristics of survey participants, Youth Risk Behavior Survey, La Paz, Bolivia, 2004

Characteristic	<i>n</i>	%
Age (years)	574	
13–14		26.0
15		20.0
16		27.4
17–18		26.7
Sex	576	
Female		31.6
Male		68.4
Ethnicity	541	
Mestizo/indigenous/dark complexion		71.7
Mulatto/afro-Bolivian		7.2
White		21.1
Academic performance	563	
0–40 (low)		20.3
41–50		40.5
51–70 (high)		39.3

TABLE 2. Tobacco use by sex, Youth Risk Behavior Survey, La Paz, Bolivia, 2004

Characteristic	Female	Male	P value
	(n = 182) %	(n = 394) %	
Has "ever smoked" a cigarette			<.0001
Yes	46.2	65.0	
Age when smoked first cigarette			.0005
Never smoked	53.9	35.7	
12 years or younger	11.2	18.5	
13–14 years	17.4	25.5	
15 years or older	17.4	20.3	
How many days did you smoke in the last 30			.6039
0	66.3	60.6	
1–2	16.0	17.7	
3–9	8.6	11.3	
10 or more	9.1	10.5	
Cigarettes per day in the last 30 days			.6076
Never smoked	64.3	59.1	
Less than 1	13.2	15.9	
1	12.1	12.0	
2 or more	10.4	13.0	
Cigarette source			.0788
Never smoked	65.4	58.2	
Personally purchased	22.9	32.1	
Another person provided them	11.7	9.7	
Days smoked cigarettes on school property			.5777
0 days	91.7	90.2	
1 or more days	8.3	9.8	
Ever smoked cigarettes daily	3.3	2.8	.7457
Ever tried to quit smoking			.0373
Didn't smoke in the last 30 days	68.9	57.7	
Yes	20.0	28.4	
No	11.1	13.9	

However, there were significant differences between males and females with respect to some tobacco smoking behaviors (Table 2); for example, 65% of males had tried smoking tobacco at least once, whereas only 46.2% of females had tried it. On the other hand, females were just as likely as males to have smoked daily and to have smoked on school property. Furthermore, there was no significant difference between the sexes with regard to the quantity of cigarettes smoked per day.

With few exceptions, risk factors for having smoked during the previous 30 days were similar for males and females: age, low academic performance, having carried a weapon, having been threatened or injured with a weapon on school property, having been in a physical fight, having witnessed adults hurting others, attempting suicide, drinking, having used marijuana, and having had sexual inter-

course (Table 3). Depression was a risk factor for females only, while being forced to have sex was a risk factor for males. For each risk factor, individuals who experienced these risks were more likely to have smoked cigarettes in the previous 30 days.

In all but one case, a dose-response relationship existed between the risk factor and smoking. For example, of those who had consumed an alcoholic drink on 3 or more days in the previous 30, 95.8% of the females and 86.0% of the males had also smoked, compared to 63.3% and 67.7% of those who had consumed alcohol on 1–2 days, and 14.2% and 20.4% of those who reported no alcohol consumption. Furthermore, cigarette use among females who had been in 3 or more physical fights in the past year was 80%; among those who been in 1–2 fights, 42.4%; and among those reporting no physical fights, 23.8%. In addition, of the

males who carried a weapon on 2 days, slightly more than 70% had smoked; 1 day, 57.1%; and 0 days, 31.6%.

Cigarette smoking was consistently higher among those who had experimented with drugs or alcohol at least once (Figure 1); for example, 24.3% of those reporting marijuana use also reported having used tobacco during the preceding 30 days as opposed to only 2.4% of those who had not used marijuana. Likewise, 86.9% of respondents reporting alcohol consumption in the previous 30 days had smoked tobacco, as opposed to only 35.4% of those who had not consumed alcohol. Smoking was also significantly higher among adolescents who had used steroids, ecstasy, methamphetamines, heroin, cocaine, and/or other tobacco products.

Results from logistic regression analyses for females indicated that alcohol consumption was the single greatest risk factor associated with cigarette use (Table 4). Adolescent girls who reported having at least one alcoholic drink on 3 or more days in the previous 30 days were 78.7 times (95% CI: 9.5, 654.0) more likely to smoke tobacco than girls who reported no alcohol consumption. Likewise, females who had consumed at least one drink on 1–2 days were 9.4 times (95% CI: 3.5, 25.0) more likely to smoke tobacco than those who reported no alcohol consumption. The only other significant risk factor for smoking among adolescent girls was having been in a physical fight 3 or more times in the past year (OR = 3.9; 95% CI: 1.1, 13.2).

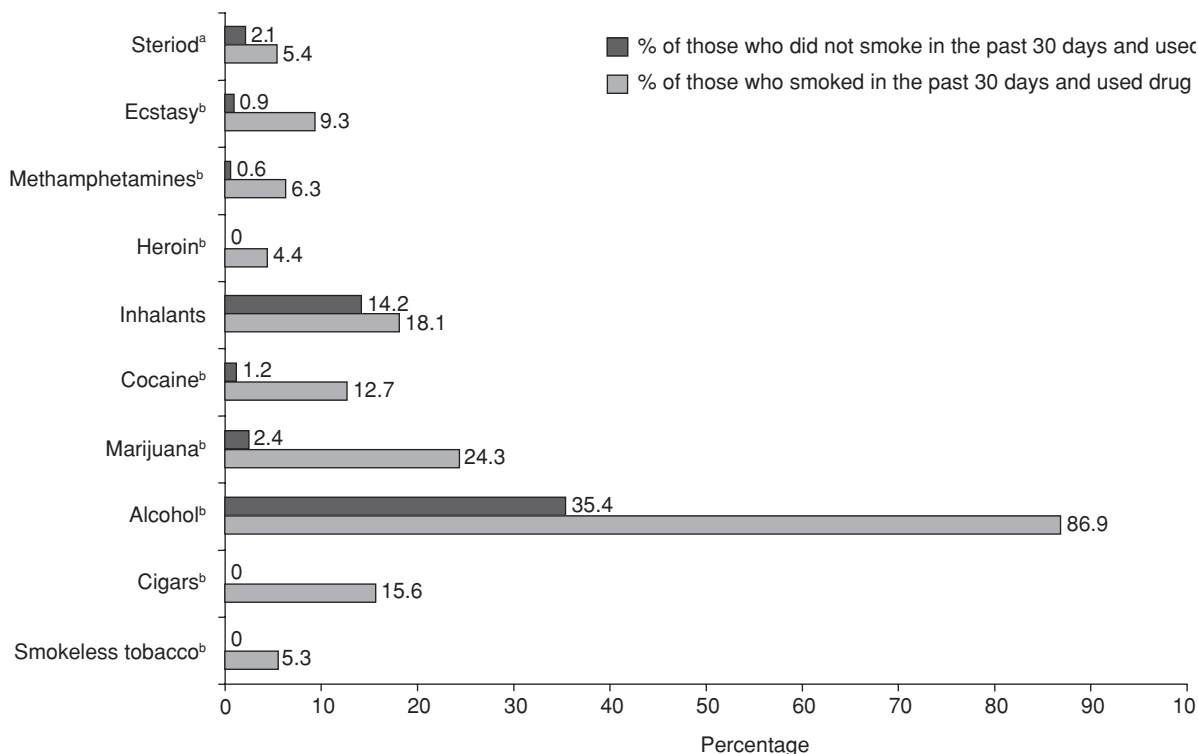
Among adolescent males, smoking was associated with carrying a weapon, having been in a physical fight, having witnessed adults hurting others, drinking alcohol, having had sexual intercourse, and weight perception (Table 4). As was the case with teenage girls, alcohol consumption was the single greatest risk factor for smoking. Specifically, males who reported consuming at least one alcoholic drink on 3 or more days during the previous 30 were 18.2 times (95% CI: 5.9, 56.2) more likely to have smoked tobacco than those who reported no alcohol consumption. Like-

TABLE 3. Risk factors for tobacco use by sex, Youth Risk Behavior Survey, La Paz, Bolivia, 2004

Characteristic	Female			Male		
	<i>n</i>	Smoked in past 30 days %	<i>P</i> value ^a	<i>n</i>	Smoked in past 30 days %	<i>P</i> value ^a
Sociodemographic characteristics						
Age (years)			<.0001			<.0001
13–14	40	12.5		102	21.6	
15	29	20.7		84	31.0	
16	59	39.0		87	55.2	
17–18	45	55.6		100	51.0	
Ethnicity			.8777			.8379
Mestizo/indigenous/dark complexion	113	35.4		257	39.7	
Mulatto/afro-Bolivian	14	28.6		24	45.8	
White	34	35.3		71	40.9	
Academic performance			.0008			.0015
0–40 (low)	31	58.1		78	56.4	
41–50	74	37.8		142	38.7	
51–70 (high)	66	19.7		148	31.8	
Violence						
Days carried a weapon in the previous 30 days			<.0001			<.0001
0	154	27.9		275	31.6	
1	9	77.8		49	57.1	
2	11	81.8		41	70.7	
Times threatened or injured with a weapon on school property			.0164			.0030
0	157	30.6		292	36.0	
1	13	61.5		40	40.0	
2 or more	4	75.0		35	65.7	
Times in past 12 months in physical fight			.0003			<.0001
0	105	23.8		113	18.6	
1–2	59	42.4		194	46.9	
3 or more	10	80.0		61	54.1	
Times in the past 12 months, saw adults in family hurt others at home			.0375			.0025
0	96	31.3		256	37.1	
1	36	22.2		66	31.8	
2 or more	41	48.8		47	61.7	
Ever forced to have sex			.1922			.0025
Yes	12	50.0		21	71.4	
No	158	31.7		336	38.1	
Suicidal tendencies						
In past 12 months, sad/depressed 2+ weeks			.0061			.2264
Yes	112	41.1		161	42.9	
No	63	20.6		210	36.7	
In past 12 months, attempted suicide 1 or more times			.0004			.0094
Yes	48	54.2		33	60.6	
No	127	26.0		339	37.5	
Substance abuse						
In the past 30 days, days had at least one alcoholic drink			<.0001			<.0001
0 days	120	14.2		245	20.4	
1–2 days	30	63.3		68	67.7	
3 or more days	24	95.8		57	86.0	
Ever used marijuana			<.0001			<.0001
Yes	15	100.0		42	81.0	
No	160	27.5		324	33.6	
In the past 30 days, ever sniffed inhalant			.1505			.6372
Yes	21	47.6		64	42.2	
No	151	31.8		305	39.0	
Sexual relations						
Ever had sex			<.0001			<.0001
Yes	28	75.0		119	68.1	
No	147	25.9		253	26.1	
Body image						
Feels he/she weighs less/more than normal			.0506			.1064
Much less than normal	15	13.3		32	21.9	
Less than normal	17	29.4		43	32.6	
Normal	107	31.8		262	42.4	
More or much more than normal	33	51.5		31	35.5	

^a *P* values compare categories of respondents of the same sex.

FIGURE 1. Tobacco as a gateway drug. Drug use in the last 30 days for smokers versus non-smokers, Youth Risk Behavior Survey, La Paz, Bolivia, 2004



^a $P = <.05$.
^b $P = <.0001$.

wise, males consuming at least one drink on 1–2 days of the previous 30 were 4.7 times (95% CI: 2.3, 9.7) more likely to smoke tobacco than those who reported no alcohol consumption.

When females and males were included in a single model, alcohol consumption remained the single most important risk factor for cigarette use, though age and ethnicity of the respondent—along with violence, sexual relations, and marijuana use—were also correlated with the use of cigarettes (results not shown).

DISCUSSION

Results from the Youth Risk Behavior Survey conducted in La Paz, Bolivia, indicate that about 40% of male and female adolescents from 13 to 18 years of age had smoked on 1 or more days in the 30 days preceding the interview. Risk factors for smoking—both for males and females—included

age, low academic performance, carrying a weapon, being threatened or injured with a weapon on school property, being in a physical fight, witnessing adults hurting others, attempting suicide, drinking alcohol, using marijuana, and sexual intercourse. Depression was a risk factor for females only, while being forced to have sex was a risk factor for males only. Based on results from logistic regression analyses, alcohol consumption was the single greatest risk factor for cigarette smoking for both males and females. However, violence and aggression (participating in a physical fight and carrying a weapon), and ever having had sexual intercourse were also associated with smoking. Results from this study also confirm the relationship between smoking and the use of other illicit substances and support evidence of tobacco’s role as a “gateway drug.”

This study is subject to several limitations (19). First, all data come from a single cross-sectional study. As a re-

sult, this study is descriptive in nature: smoking trends and causality between smoking and other behaviors cannot be established. Second, the school district was not randomly selected, nor were the respondents within the schools. However, the schools within District II of La Paz were selected randomly. Males are overrepresented in this sample largely because school administrators were more likely to have boys participate. Small sample sizes, particularly among females, contributed to wide confidence intervals and may not have provided enough statistical power to detect an association between smoking and some of the potential risk factors included in the study. Finally, other factors including socioeconomic status, tobacco marketing, peer and family influences, parents’ level of education, and attitudes about smoking, which have been linked with teen smoking behaviors in other settings, were not included in this survey instrument (22–25). Conse-

TABLE 4. Results of logistic regression, factors significantly associated with smoking cigarettes in the past 30 days, Youth Risk Behavior Survey, La Paz, Bolivia, 2004^a

Characteristic	Female		Male		All	
	Odds ratio	95% CI	Odds ratio	95% CI	Odds ratio	95% CI
Age (years)						
13–14					1.0	—
15					1.5	(0.7, 3.3)
16					2.1	(1.0, 4.5)
17–18					2.1	(1.0, 4.5)
Ethnicity						
White			1.0	—	1.0	—
Mulatto/afro-Bolivian			2.3	(0.7, 7.8)	1.7	(0.7, 5.0)
Mestizo/indigenous/dark complexion			1.2	(0.5, 2.4)	1.2	(0.6, 2.2)
Days carried a weapon in the previous 30 days						
0			1.0	—	1.0	—
1			1.6	(0.7, 3.9)	2.0	(0.9, 4.6)
2 or more			3.9	(1.5, 10.4)	3.3	(1.3, 7.9)
Times in past 12 months in physical fight						
0	1.0	—	1.0	—	1.0	—
1–2	1.0	(0.3, 2.9)	2.6	(1.1, 5.8)	2.1	(1.1, 4.0)
3 or more	3.9	(1.1, 13.2)	2.7	(1.3, 5.9)	2.8	(1.5, 5.3)
Times in the past 12 months, saw adults in family hurt others at home						
0			1.0	—	1.0	—
1			0.9	(0.4, 2.0)	0.7	(0.4, 1.5)
2 or more			2.3	(0.9, 5.5)	2.0	(1.0, 4.0)
In past 12 months, sad/depressed 2+ weeks						
Yes	1.8	(0.7, 4.7)				
In the 30 days, days had at least one alcoholic drink						
0 days	1.0	—	1.0	—	1.0	—
1–2 days	9.4	(3.5, 25.0)	4.7	(2.3, 9.7)	4.9	(2.7, 8.9)
3 or more days	78.7	(9.5, 654.0)	18.2	(5.9, 56.2)	17.6	(6.5, 47.7)
Ever used marijuana						
Yes			2.4	(0.8, 7.1)	3.8	(1.4, 10.5)
Ever had sex						
Yes	2.4	(0.7, 8.3)	2.6	(1.3, 5.0)	2.0	(1.1, 3.7)
Feels he/she weighs less/more than normal						
Less than normal			1.0	—	1.0	—
Much less than normal			1.6	(0.3, 8.1)	1.6	(0.4, 6.3)
Normal			4.5	(1.5, 13.0)	3.9	(1.5, 10.0)
More or much more than normal			2.8	(0.6, 12.3)	3.3	(1.1, 10.3)

^a Cut-off = 0.15.

quently, this study represents a *first* step toward shedding light on the relationship between smoking and other risky behaviors among adolescents in La Paz, Bolivia.

Our study results indicate that recent alcohol consumption was the single most important factor associated with cigarette smoking, and that students in La Paz who had smoked in the past 30 days were significantly more likely to have used alcohol, steroids, ecstasy, methamphetamines, heroin, cocaine, and/or marijuana than those who had not smoked. Such findings reflect those of numerous other studies that document an association between cigarette smoking and substance abuse among adolescents (23, 26–30). As an

example, middle and high school student smokers from Indiana were “three times more likely to drink alcohol, seven times more likely to use smokeless tobacco, and 10–30 times more likely to use illicit drugs than nonsmokers” (15). Similarly, Lee et al. found that among secondary school students in Malaysia who smoked, 11.3% had used marijuana, 7.3% had used ecstasy pills, and 4.4% had tried heroin. From an alternative perspective, 72.6% of those who had used marijuana, 67.3% of those who had tried ecstasy pills, and 60.6% of those who had used heroin were smokers (31).

A variety of sociodemographic factors are thought to contribute to tobacco's role as a gateway drug. More

specifically, teenagers that associate with peers who smoke are more likely to also associate with peers who use illicit drugs. Furthermore, most teens perceive rates of drug use among their peers to be much higher than they actually are; thus, drug use is a perceived social norm. Additionally, teens who belong to tobacco-using peer groups are more likely to be given information on how to obtain and use other drugs, and therefore, are more prone to try such drugs (14).

Findings also indicate that adolescents who smoke are at an increased risk for early initiation of sexual activity (10, 32–35) and participation in violence-related behaviors (36–40). In our study, Bolivian teenagers who

were sexually experienced were 2.0 times more likely to have smoked cigarettes in the previous 30 days (95% CI: 1.1–3.6) than those who had not had sex. Smokers were also more likely to have participated in physical fights and to have carried a weapon than nonsmokers. Similar to our results, Gutierrez et al. found that Mexican teenagers who smoke were 1.5–2.0 times more likely to have sexual intercourse than nonsmokers (33). In addition, a comparison of violence-related behaviors of adolescents in five developed countries (Ireland, Israel, Portugal, Sweden, and the United States of America) found that current smoking was among the best predictors of fighting in all countries (39). DuRant and colleagues also found that carrying a gun, knife, or club on school property was among the best predictors of cigarette smoking among teenagers in North Carolina (38).

Results from this study provide important insights into the relationship between cigarette smoking and other risk behaviors—a relationship that,

until now, had not been documented among Bolivian youth. Our results suggest Bolivian teenagers behave in ways similar to teens in the U.S. and elsewhere and that cigarette smoking may serve as an indicator of risk for engaging in other harmful behaviors. Parents, school administrators, and health educators may want to identify teens that smoke and determine whether they engage in violent or aggressive behaviors, are sexually active, or use illicit drugs. Though identifying such students for interventions seems a promising approach to improving the health of adolescents and reducing their participation in risk behaviors, school policies must also be put in place to protect students from discrimination based on their smoking status.

Understanding factors associated with smoking is the first step toward designing and implementing comprehensive programs that simultaneously prevent multiple risk behaviors. Future research among this population should focus on teenagers' motivations for smoking; family, peer, and market

influences; identification of factors associated with smoking initiation; and barriers to smoking cessation. Additionally, longitudinal studies are needed to identify how smoking and other behaviors change over time. Efforts to prevent smoking and other risky behaviors in adolescence must begin in early childhood, prior to the initiation of these behaviors, and should include pilot testing of innovative strategies and documentation of the impact of existing programs.

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RESUMEN

Adolescentes en problemas: consumo de cigarrillos y conductas de riesgo en estudiantes de escuelas privadas de enseñanza media superior de La Paz, Bolivia

Objetivo. Describir la prevalencia del consumo de cigarrillos e identificar las conductas de riesgo asociadas con el hábito de fumar en adolescentes de enseñanza media superior de un distrito de La Paz, Bolivia.

Métodos. Se aplicó la Encuesta sobre Conductas de Riesgo en los Jóvenes a una muestra de 394 varones y 182 mujeres de 13-18 años de edad de seis escuelas del Distrito II de La Paz seleccionadas al azar. Se identificaron los factores asociados con el consumo de cigarrillos durante los 30 días previos a la encuesta, mediante el análisis de frecuencias, la prueba de la ji al cuadrado y la regresión logística.

Resultados. Aproximadamente 40% de la muestra (39,4% de los varones y 33,7% de las mujeres) había fumado cigarrillos en los 30 días previos a la encuesta. Tanto para ellos como para ellas, el consumo de alcohol fue el mayor factor de riesgo asociado con el consumo de cigarrillos. Los varones y las mujeres que informaron haber consumido al menos una bebida alcohólica en tres ocasiones o más durante los 30 días previos presentaron 22,3 y 58,5 veces (IC95%: 6,7 a 74,1 y 6,8 a 502,6, respectivamente) mayor probabilidad de fumar que los que informaron no haber consumido alcohol. Otros factores de riesgo adicionales fueron haber participado en una pelea física, haber portado un arma, haber tenido relaciones sexuales y haber tomado alguna droga ilícita durante los 30 días anteriores.

Conclusiones. Debido a que los adolescentes que fuman tienden también a incurrir en otras conductas de riesgo, los padres, los responsables escolares y los educadores sanitarios podrían utilizar el hábito de fumar para identificar a los adolescentes en riesgo. Las intervenciones dirigidas a adolescentes bolivianos deben enfocarse en la prevención del consumo de cigarrillos y de las conductas de riesgo asociadas.

Palabras clave

Adolescente, conducta del adolescente, tabaquismo, asunción de riesgos, Bolivia.