



Revista Latino-Americana de Enfermagem

ISSN: 0104-1169

rlae@eerp.usp.br

Universidade de São Paulo

Brasil

Bustamante, Inés V.; Pimenta Carvalho, Ana Maria; Barbosa de Oliveira, Elias; Pereira de Oliveira Júnior, Hercilio; Santos Figueroa, Syntia Dinora; Montoya Vásquez, Erika Maria; Cazenave, Angelica; Chaname, Eva; Medina Matallana, Luz Stella; Ramirez Castillo, Julia  
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Revista Latino-Americana de Enfermagem, vol. 17, noviembre-diciembre, 2009, pp. 838-843

Universidade de São Paulo

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## UNIVERSITY STUDENTS' PERCEIVED NORMS OF PEERS AND DRUG USE: A MULTICENTRIC STUDY IN FIVE LATIN AMERICAN COUNTRIES

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V. Bustamante I, Carvalho AMP, Oliveira EB, Oliveira HP Júnior, Santos Figueroa SD, Montoya Vásquez EM, et al. University students' perceived norms of peers and drug use: a multicentric study in five latin american countries. Rev Latino-am Enfermagem 2009 novembro-dezembro; 17(Esp.):838-43.

*This cross-sectional study compared perceived peer drug use and actual drug use in a sample of Latin American university students. Students from nine universities in five countries (Brazil, Chile, Colombia, Honduras and Peru) completed a questionnaire that addressed the use of tobacco, alcohol, marijuana and cocaine. Analysis focused on comparing perceptions to actual drug use. The findings largely, but not completely, confirmed the idea that students overestimate peer drug use. The unexpected findings were those relating to alcohol. While students generally overestimated peer use of tobacco, marijuana and cocaine, they accurately estimated or underestimated peer use of alcohol. Apart from the anomalous findings with regard to alcohol, this study shows that perceived drug use relates to actual drug use in Latin America as it does elsewhere. The results also support the suggestion that interventions using normative feedback would be useful to strengthen drug use prevention programs aimed at youth in Latin America.*

DESCRIPTORS: alcohol; tobacco; cannabis; cocaine

## NORMAS PERCIBIDAS POR ESTUDIANTES UNIVERSITARIOS RESPECTO A SUS PARES Y EL USO DE DROGAS: ESTUDIO MULTICÉNTRICO EN CINCO PAÍSES DE AMÉRICA LATINA

*Este estudio transversal se comparó la percepción que se tiene del consumo de los pares con el uso real de drogas, en una muestra de estudiantes universitarios de América Latina. Los estudiantes de nueve universidades en cinco países (Brasil, Chile, Colombia, Honduras y Perú) respondieron a un cuestionario que abordaba el uso de tabaco, alcohol, marihuana y cocaína. El análisis se concentró en la comparación de la percepción y el consumo real de drogas. Los resultados en gran medida, aunque no completamente, confirmaron que los estudiantes sobreestiman el uso de drogas entre sus pares. Los resultados inesperados fueron los relacionados con el alcohol. Mientras que los estudiantes generalmente sobrestimaron el consumo de tabaco, marihuana y cocaína entre sus pares, los mismos estimaron con bastante precisión o subestimaron el uso de alcohol entre sus pares. Además de los resultados inesperados en relación al alcohol, este estudio muestra que la percepción del uso de drogas en América Latina se comporta de manera similar a otros lugares. Los resultados también apoyan la sugerencia respecto a que la retroalimentación normativa sería útil para fortalecer los programas de prevención de drogas dirigidos a jóvenes en América Latina.*

DESCRIPTORES: alcohol; tabaco; cannabis; cocaína

## NORMAS PERCEBIDAS POR ESTUDANTES UNIVERSITÁRIOS SOBRE SEUS COMPANHEIROS E USO DE DROGAS: UM ESTUDO MULTICÊNTRICO EM CINCO PAÍSES DA AMÉRICA LATINA

*Este estudo transversal comparou a percepção dos companheiros de usuários de drogas em uma amostra de estudantes universitários da América Latina. Os estudantes de nove universidades, localizadas em cinco países (Brasil, Chile, Colômbia, Honduras e Peru) responderam questionário que abordou questões sobre o tagagismo, álcool, maconha e cocaína. A análise foi focalizada na comparação da percepção e da realidade dos atuais usuários de drogas. Os resultados confirmaram, de forma geral, a ideia de que os estudantes superestimam o uso de drogas. Resultados inesperados foram identificados em relação ao uso de álcool. Enquanto os estudantes geralmente superestimam o uso de tabaco, maconha e cocaína, entre seus pares, estimaram com bastante precisão ou subestimaram o uso de álcool entre seus pares. Apesar desse resultado inesperado, este estudo mostra que a percepção do uso de drogas entre estudantes universitários da América Latina se comporta de maneira similar ao uso de drogas em outras localidades. Os resultados também apoiam a sugestão de que intervenções, usando retroalimentação normativa, seriam úteis para fortalecer os programas de prevenção ao uso de drogas, dirigidos aos jovens da América Latina.*

DESCRIPTORES: alcohol; tabaco; cannabis; cocaína

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## INTRODUCTION

Worldwide drug use affects lives at a high cost. According to the World Health Organization's 2004 Update of the Global Burden of Disease, alcohol dependence and drug use remained within the top 10 leading causes of disability in countries at all levels of income<sup>(1)</sup>.

In Latin America, youth aged 18 to 24, especially university students, report higher lifetime and past year prevalence of legal and illegal drug use than others. These differences are higher for illegal drugs than for alcohol and tobacco<sup>(2-5)</sup>. For instance, the past year prevalence of marijuana use is three times higher amongst youth aged 18 to 24 years than in the whole population in Chile (16% vs. 5.3%)<sup>(3)</sup>, and two times greater in Peru (6.8% vs. 3.3%)<sup>(6)</sup>. The past year prevalence for cocaine use is about two times higher amongst 18 to 24 years olds than in the whole population in these two countries<sup>(3-6)</sup>. In Latin America and the Caribbean, 6.5% of the total burden of disease is attributable to high-risk alcohol use, and the eighth leading cause of disability and premature death in 2001 was alcohol use disorders<sup>(7)</sup>. In young adults, the mortality rates associated with alcohol and with the use of other drugs are higher than in other age groups<sup>(8)</sup>.

High rates of drug use among university students have been the focus of several studies with a particular aim of trying to understand the determinants of this drug phenomenon. Peer influence has been found as a key factor associated with drug use amongst 18 to 24 years olds<sup>(9-10)</sup> and "social norms theory" has been used as a framework to understand this relationship. One of the main concepts of this theory (as applied to alcohol consumption) is misperception of peer drinking, defined as the discrepancy between the actual norm (the prevalence of drinking) and the common perception of the norm (the perceived frequency of drinking by peers)<sup>(11)</sup>.

There is evidence of the association between overestimation of peers' alcohol use and drinking behaviour amongst college students in North America and other developed countries. Students typically thought the norms for both the frequency and the amount of drinking among their peers were higher than was actually the case, and they generally believed that their peers were more permissive in their personal attitudes about drug use than they were<sup>(12-14)</sup>. Additionally, there is some evidence of an

association between overestimation of peers' tobacco use and smoking<sup>(15)</sup>. There is also some evidence of overestimation and illegal drug use, specifically marijuana<sup>(15-17)</sup>, and cocaine<sup>(15)</sup>. Addressing the inaccuracy of perceived norms about peers' drug use is a powerful component of any drug prevention program<sup>(14)</sup>.

The purpose of this study is to estimate and describe if there is a difference between perceived norms among peers drug use and own drug use in a sample of university students enrolled in 5 Latin American countries.

It is noteworthy to mention that there is a lack of studies on peers norms and drug use amongst Latin-American students. However, there are some studies about peers and drug use amongst school-attending youth. For instance RLAE has published some articles that studied amongst several risk factors for drug use, the influence of peers in secondary students<sup>(18-19)</sup>. So this study will shed light of perceived norms about drug use and own drug use amongst university students. Also it may help to raise awareness on this subject in university communities, society in general and governments on this issue and facilitate the development of effective preventive strategies.

## METHODS

This is a quantitative cross-sectional multi-centric study. Students enrolled in various Health Sciences programs (Medicine, Nursing, Dentistry and Public Health) and in Education in nine universities in five Latin American countries were recruited. The nine sites were universities located in Ribeirão Preto/SP, Santo André/SP and Rio de Janeiro in Brasil, Medellín and Bogota in Colombia, Santiago de Chile and Concepcion in Chile, Tegucigalpa in Honduras and Lima in Peru.

All current sophomore and junior health sciences and education students, aged 18 to 24, were invited to participate in the study. The study was approved by the Research Ethics Board at the Centre for Addiction and Mental Health (CAMH) and by each of the universities involved in the study.

The questionnaire was created from two different instruments (The Core Drug and Alcohol Survey, 1989; Canadian Campus Survey, 2004) commonly used to assess drug use and perceptions

about peers' drug use amongst college students. It had four sections: 1) social and demographic data; 2) perceptions about drug use amongst peers; 3) the student's own drug use; and 4) university campus policies regarding drug use, consequences of drug use, and drug access. The questionnaire was translated from English into Spanish and Portuguese and then back translated into English to ensure the validity of the translations. Data were entered and analyzed using Statistical Package for the Social Sciences (SPSS® 15.0 for Windows). The statistical analysis was essentially descriptive.

## RESULTS

A total of 3339 students completed the questionnaire. Among participants, 75.7 % were female, 96.1% were single, and 10.2% were employed. Participants were enrolled in various departments, including: 28.2% in medicine, 32.3% in nursing, 19.3% in dentistry, 4.9% in public health and 15.3% in education.

For each drug, students were asked if they had ever used the drug at least once in their lives, and those who had were asked how often they had used the drug in the past 12 months. The majority of students reported that they had ever consumed tobacco (58.7%) and alcohol (91.6%) whereas a minority reported marijuana (18.5%) and cocaine (2.7%) use. When asked about use in the past 12 months, 35.9% reported smoking tobacco, 85.6% drinking alcohol, 10.8% using marijuana and 1.4% using cocaine. Participants were also asked about frequency of use in the past 12 months by type.

For students who had ever used (Table 1) tobacco, marijuana, and cocaine, many did not use in the past year (38.7%, 41.2%, and 48.8% respectively), 32.8% used tobacco more than once per month in the past 12 months, 7.5% used marijuana more than once per month in the past 12 months, and 7.3% used cocaine more than once per month in the past 12 months, 42.0% of the students who had ever used alcohol report drinking more than once per month in the past year and only 6.5% did not drink alcohol in the past 12 months.

Table 1 - Frequency of use in past 12 months for each drug for students who had ever used the drug

Frequency of Use	Tobacco		Alcohol		Marijuana		Cocaine	
	N	%	N	%	N	%	N	%
Never	681	38.7	178	6.5	228	41.2	40	48.8
Once in a year	292	16.6	528	19.2	207	37.4	27	32.9
Once in a month	211	12.0	889	32.3	77	13.9	9	11.0
2-3 times in a month	165	9.4	599	21.7	24	4.3	2	2.4
Once in a week	107	6.1	392	14.2	9	1.6	3	3.7
2-3 times in a week	150	8.5	136	4.9	5	0.9	1	1.2
Everyday	155	8.8	34	1.2	4	0.7	0	0.0
Total	1761	100	2756	100	554	100	82	100

For tobacco, students who had ever used tobacco were asked the number of cigarettes smoked per day in the last 30 days. The largest proportion (63.4%) did not smoke at all in the past 30 days. Students who drank alcohol during the past year were asked the number of drinks they usually consumed per drinking day in the past year, how frequently they had consumed 5 or more drinks on the same occasion in the past year, and the highest number of drinks they had on one occasion in the past 30 days. The mean number of drinks per drinking day in the past year was 4.8 (SD = 5.3, N = 2510). Only 22.1% of students drank 5 or more drinks per occasion more frequently than once per month. The mean highest

number of drinks on a single occasion in the past 30 days was 4.6 (SD = 5.3, N = 2517).

### Perceived prevalence and norms of peer drug use

For each drug, students were asked what percentage of their peers (in their opinion) had used the drug at least once in their lives and what percentage had used it in the last year. The mean estimates of *peer ever* use were 72.5% for tobacco, 85.8% for alcohol, 39.4% for marijuana, and 20.2% for cocaine. The respective mean estimates of *peer use in the past year* were 66.8%, 82.2%, 31.6% and 15.1%. For each drug, the estimated proportion of

peers who had ever used it was slightly higher than the estimated proportion of peers who had used it in the past year. Roughly, students estimated that 4 of every 5 students drank alcohol, 2 of every 3 smoked tobacco, 1 of every 3 used marijuana, and that 1 of every 7 used cocaine in the past year. For each drug, students were asked how often in the past year their peers (in their opinion) used the drug. The results are shown in Table 2. Most students estimated that tobacco is used on a daily basis, alcohol is used a few times a week, marijuana is used a few times a month, and cocaine is used a few times a year by a typical student in their university.

Table 2 - Percentages of students who estimated frequencies of peer drug use in the past year

Frequency	Tobacco	Alcohol	Marijuana	Cocaine
Never	1.7	0.7	7.8	20.0
Once in a year	2.5	0.9	19.1	39.9
Once in a month	3.8	5.1	26.2	21.3
2-3 times in a month	4.7	12.1	20.7	9.8
Once in a week	8.0	38.3	15.5	5.2
2-3 times in a week	26.3	38.2	9.0	2.7
Everyday	53.0	4.8	1.7	1.0
Total N = 100 %	2970	2967	2903	2889

## Perceived peer drug use norms versus actual drug use

Overall, students substantially overestimated the percentage of their peers who use tobacco, marijuana, and cocaine, but slightly underestimated the percentage of students who use alcohol (Table 3).

Table 3 - Mean percentages of estimated peer ever use and peer past year use compared to own ever use and own past year use

Substance	Estimated % Peer Ever Use (mean)	Reported Own Ever Use (%)	Estimated % Peer Past Year Use (mean)	Reported Own Past Year Use (%)
Tobacco	72	58.7	66.8	35.9
Alcohol	85.8	91.6	82.2	85.6
Marijuana	39.4	18.5	31.6	10.8
Cocaine	20.2	2.7	15.1	1.4

Estimations of students' peer past year drug use were deemed "accurate" if within 10 percentage points of actual prevalence, "underestimations" if more than 10 percentage points lower than actual prevalence, and "overestimations" if more than 10 percentage points higher than actual prevalence<sup>(20)</sup>. These results are shown in Table 4.

Table 4 - Accuracy of students' estimates of peers' past year drug use

Substance	Underestimations	Accurate Estimations	Overestimations	Total N
Tobacco % % range	7.0	11.9	81.1 58.1 - 91.0	2993
Alcohol % % range	26.7	57.3	15.9 0.0 - 62.6	2984
Marijuana % % range	3.9	36.7	59.4 33.1 - 78.4	2931
Cocaine % % range	Not possible	62.0	38.0 17.5 - 52.1	2924

Since the reported prevalence for past year use of cocaine ranged from 0.4% to 3.3% across universities, no estimate could be more than 10 percentage points below actual prevalence and underestimation was therefore not possible. As shown in Table 4, overestimation of peer drug use is far less frequent for alcohol than for tobacco, marijuana, and cocaine.

## Comparison of student drug use patterns and perceived norms

Estimates of peer use of each drug, for both ever use and past year use, were significantly higher

for past year users than for past year non-users (please see Table 5). For each drug, past year users made higher estimates of peer use than did past year non-users.

Table 5 - Mean percentage estimates of peer use by own past year use

Substance	Past Year Users	Past Year Non-users
Tobacco % peer ever use	77.1	70.0
% peer past year use	71.5	64.2
Alcohol % peer ever use	87.6	74.8
% peer past year use	84.0	71.5
Marijuana % peer ever use	54.2	37.6
% peer past year use	45.3	29.9
Cocaine % peer ever use	32.3	20.1
% peer past year use	26.8	15.0

For tobacco, students who smoked once per week or more were slightly more likely to overestimate peer tobacco use. For alcohol, students who had never used alcohol, or had not used it in the past year, were the most likely to overestimate peer alcohol use. For marijuana there was no relationship between frequency of use and estimation of peer use. For cocaine, students who used cocaine more than once per month seemed more likely to overestimate the use of cocaine by their peers, but this is suggested cautiously, given that the group sizes are so very small.

For tobacco, students who smoked six or more cigarettes per day were slightly more likely to overestimate the proportion of smokers among their peers. For alcohol, students who reported drinking more per drinking day were more likely to underestimate peer alcohol use. Students who reported a higher number of drinks per occasion were also more likely to underestimate peer alcohol use.

## DISCUSSION

This study surveyed university students in their 2<sup>nd</sup> or 3<sup>d</sup> year of study, aged 18 to 24, enrolled in Health Sciences or Education programs in nine Latin American universities. These students were predominantly female, single, and not working.

The findings largely, but not completely, confirmed the idea that students overestimate peers' drug use relative to the actual prevalence of drug use suggested by studies in different international contexts<sup>(13-17)</sup>. The mean estimations of prevalence were higher than overall reported prevalence for tobacco, marijuana, and cocaine, but not for alcohol. The percentages of students who overestimated the prevalence of tobacco, marijuana, and cocaine use far exceeded the percentage of students who overestimated the prevalence of alcohol use. The comparison of perceived norms between past year users and non-users found that, for all four drugs, users made significantly higher estimates of peer use, both ever and past year, than did non-users.

For tobacco, those who smoked more frequently or smoked more cigarettes were more likely to overestimate peer tobacco use. For alcohol, the results were opposite to prediction. Those who used alcohol most frequently, or in greater amounts, were less likely to overestimate peer alcohol use. There

did not seem to be a simple relationship between frequency of use and overestimation of peer use for marijuana. For cocaine, the group sizes for users were too small to reliably test the relationship between frequency of use and overestimation of peer use.

The unexpected findings in this study are those relating to alcohol. The mean estimated prevalence of alcohol use by peers was not higher than the actual prevalence reported in this study, far fewer students overestimated the prevalence of peer alcohol use than was the case for the other drugs, and the heavier users of alcohol were the least likely to overestimate peer alcohol use. These results were opposite to predictions based on previous research. Several possibilities may contribute to these findings. One is that the actual prevalence of alcohol use is so high (85.6% overall, range 48.1 to 96.9 across universities) that to overestimate the prevalence by ten percent or more is in many cases impossible. Another is that the measures used in other research were different from those used in this study. In other studies<sup>(14)</sup>, students have been asked to estimate the amount of alcohol that peers typically drink on each occasion, whereas this study asked students to estimate what percentage of their peers drank alcohol at least once (ever and in the past year). Thirdly, in this study, males were more likely to overestimate prevalence of peers' alcohol use. Notably, males are under-represented in this sample (24.3%).

## CONCLUSION

Apart from the unexpected findings with regard to alcohol, this study confirmed that many students overestimate the proportion of their peers who use tobacco, marijuana, and cocaine. Further, past year users of each drug, including alcohol, made significantly higher estimates of the proportion of peers using those drugs than did past year non-users. These results show that perceived peer norms related to drug use in university students in five Latin American countries are comparable to other areas. The results also provide support for the suggestion that brief interventions using normative feedback would be useful additions to drug prevention programs aimed at youth in Latin America. Future research could explore the existence of normative misperceptions in representative samples of university students to confirm these findings. This study's findings with regard

to alcohol need to be replicated, and future efforts to do so should ask for estimations of the amount of alcohol use by peers as well as for estimations of peers' prevalence of any alcohol use.

## STUDY LIMITATIONS

Limitations of this study relate primarily to the sample. As mentioned, males may be under-represented, and those studying Health Sciences over-represented compared to the typical population of university students. The characteristics of the sample do not allow generalizing the results at the country or Regional levels neither to compare accurately the results among countries. The data presented here are based on self-reports which might

implies some sources of errors such as social desirability or recall biases. Some potential weaknesses in terms of the validity of the applied measurement instrument (questionnaire) have to be also considered.

## ACKNOWLEDGMENTS

This research was conducted with support, advice and funding of the Canadian government, Organization of American States (OAS), Inter-American Drug Abuse Control Commission (CICAD), and Centre for Addiction and Mental Health (CAMH), Canada. We acknowledge the collaboration of other colleagues who contributed directly or indirectly in the development of this study.

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