Is there a crack epidemic among students in Brazil? Comments on media and public health issues

Há uma epidemia de *crack* entre estudantes no Brasil? Comentários sobre aspectos da mídia e da saúde pública

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Abstract

In the past year, the Brazilian Federal Government and society have reported and acted on a crack use epidemic, which has been exacerbated by the media. This study hypothesized that crack use has not increased at the rate suggested by the Brazilian media. A cross-sectional survey was carried out in 2010 usinga multistage probabilistic representative sample of Brazilian middle and high school students in the country's 27 state capitals. A total of 50,890 valid questionnaires were weighted, analyzed and results compared to the 2004 national school survey dataset. Considering lifetime and past year crack use, no change in consumption was found between 2004 and 2010. Official data in Brazil on middle and high school students does not support the assertion of a crack epidemic widely publicized by the media. Government measures to treat and prevent crack use are encouraged; however, the term epidemic has been inappropriately used to represent the static prevalence of crack consumption among students.

Crack Cocaine; Drug Abuse; Students

Introduction

Crack use in Brazil emerged in the late 1980s at a time when the nation's attention was focused on the HIV/AIDS epidemic which had by then become a major public health problem [1]. Today, crack use, linked to HIV/AIDS infection due to unsafe sex, is widespread within Brazilian society and is a major concern for the Brazilian government [2], justified by the impact of crack on the user's physical, mental and social integrity [3,4]. As such, this drug is considered a public health problem in Brazil and in a number of other countries such as the USA [5] and Canada [6,7,8].

Damage associated with the use of this drug, especially the rupture of social ties, involvement in illicit activities [9,10], increasing homicide rates [11,12], prostitution and unsafe sex with multiple partners resulting in HIV infections [13,14], have been the subject of a number of publications in Brazil, especially in the last two years. Perhaps more worryingly, crack use is increasingly portrayed by the media, politicians and in public policies as an "epidemic" in Brazilian society [15]. Over the last 20 years, crack users have been described as young adults [1,2,16], with an average age of onset of use of around 14 to 15 years [17]. In the case of a real crack epidemic, adolescents would be affected and the prevalence of lifetime use of the drug among students would be higher than that shown by previous evaluations.

For the purpose of this article, the following definition of epidemic, adopted by the Centers for

Disease Control and Prevention (CDC), was used: "*a disease that affects a large number of people, with a recent and substantial increase in the number of cases*" [18] (p. 979).

While a number of studies regarding this phenomenon have been carried out in the USA and Canada, the increase in consumption of crack constantly portrayed by the media has not yet been scientifically investigated in Brazil [7].

To evaluate the validity of massive public mobilization related to a possible uncontrolled increase in crack use in Brazil, we used the 2010 national survey of middle and high school students from the 27 Brazilian state capitals, since it provides the most recent national epidemiological data available in Brazil. We hypothesized that the use of crack has not increased at the rate suggested by the media.

Methods

Data was obtained from a cross-sectional classroom survey of youth attending a sample of private and public schools in the country's 27 state capitals, carried out in 2010. A cluster and stratified sampling technique was used to provide a representative sample of middle and high school students (sixth to twelfth grade). In each capital, two independent samples were developed: one for public and one for private schools. A total of 789 schools participated in this study (512 public schools and 277 private schools), with a school response rate of 86%. The student response rate was 79.2%, where 20.5% were absent on the day of the survey and 0.3% refused to participate. A total of 98 questionnaires were excluded from the analysis because they provided an affirmative answer to a question regarding a fictitious drug.

Anonymous standardized paper-and-pencil questionnaires were administered by a team of trained interviewers in classrooms without teacher presence. The assessors explained the study objectives and handed outa questionnaire consisting of closed-form questions based on standardized World Health Organization items [19] adapted to Brazilian culture. All procedures were standardized and applied uniformly at each school.

The protocol was reviewed and approved by the São Paulo Federal University (Universidade Federal de São Paulo – UNIFESP) Ethics Research Committee (nº. 0348/08). Participation in the study was anonymous and participants were given the option to decline to participate, leave questions unanswered or cease participating at any time.

We investigated lifetime use (i.e. at least once in the student's life) of the following drugs: alcohol, tobacco, inhalants, marijuana, cocaine, crack, anabolic steroids, methamphetamine, ecstasy, LSD, benzodiazepines and weight controllers, such as amphetamines. Use over the past year was investigated only for the most prevalent drugs (according to the latest National School Survey [17]) and crack. Data regarding socio-demographic characteristics, such as age and sex, was also gathered. The last time the students were offered crack, the first time they used crack and the age of first use were also recorded.

To evaluate the statistical significance of differences in prevalence at two points in time (2004 and 2010), we used the 2004 Brazilian National Middle and High School Survey dataset provided by the authors [17]. The Fifth National Survey, carried out in 2004, was the first to include a question about crack use. This survey and the Sixth National Survey, carried out in 2010 used the same instruments, sample design and data collection methods. Since private schools were included for the first time in the 2010 survey, changes in prevalence in time were evaluated using only the data for public schools.

A weighted analysis was conducted on the datato correct for unequal probabilities of selection in the sample. The complex survey design considered the city and type of school, the school as a primary sampling unit, expansion weights and the final probability of drawing the student who answered the questionnaire.

Descriptive analysis and logistic regressions were performed with Stata version 11 software (Stata Corp., College Station, USA), and using svy set. The Cochran-Armitage Test was performed with SAS version 9 software (SAS Inst., Cary, USA). Results are presented asweighted proportions (wgt%), crude odds ratios (cOR), adjusted odds ratios (aOR) and 95% confidence intervals (95%CI).

Results

Of the 50,890 students that completed the self-report questionnaire, 49.2% (95%CI: 43.6%-54.8%) were boys and 50.8% (95%CI: 45.2%-56.3%) were girls. The average age of the sample was 14.8 years (SD = 0.2). Lifetime use of crack was reported by 286 students (0.6%; 95%CI: 0.5%-0.7%), showing that prevalence of the lifetime use of this drug is lowcompared to the other drugs inthis sample. The legal drugs (alcohol and tobacco) were ranked first for lifetime and past year use. When analyzing illegal drugs, inhalants, such as different mixtures of ether and chloroform called *loló* or *lança-per-*

fume, were the most commonly used substances, reported by 4,731 students (8.7%; 95%CI: 8.3%-9.1%). Prevalence of the use of crack over the past year was also low (n = 179 cases reported; 0.4%; 95%CI: 0.3%-0.5%), especially when compared to other legal and illegal drugs in the questionnaire (see Table 1).

Regarding rates of lifetime and past year drug use among youth, no statistically significant difference was found between the 2004 and 2010 surveys using the Cochran-Armitage test. In 2004, of a total sample of 48,155 youth, 341 reported lifetime use of crack (0.7%, considering sample weighting) and 203 students reported past year use (0.4%, considering sample weighting). In 2010, 227 public school students reported lifetime crack use (0.7%; 95%CI: 0.6%-0.8%) and 140 students reported using crack in the past year (0.4%; 95%CI: 0.3%-0.5%). The analysis of differences in prevalence overtime (2004 to 2010) resulted in a p-value of 0.932 for lifetime use and a p-value of 0.876 for past year use. This data is not shown in the table.

Table 2 presents socio-demographic information about students who used crack at least once in the past year. Descriptive statistics show that these students are mainly older boys in public schools. Adjusted logistic regression analysis suggests that males were 3.4 times more likely to have used crack in the past year and that youth attending public school were 1.8 times more likely to have used crack inthe same period than those going to private school.

Discussion

Despite the long history of crack use in Brazil, it was only in 2010 that the government began to make a concentrated effort to deal this problem, launching the *Plano de Enfrentamento ao Crack e Outras Drogas* (Plan to Confront Crack and Other Drugs – Federal Government Decree nº. 7179/2010) which focuses primarily on the treatment and social reinsertion of drug users.

At the same time, the media is devoted to reporting news about crack. In the first five months of 2011, using "Google Alert", we found 852 general articles published online about drugs in Brazil and 833 articles about crack alone, demonstrating the attention given by the media to this issue.

The number of Brazilian scientific publications about crack has also grown recently. In the PubMed database (2011) we identified 27 articles about crack in Brazil written up until 2004 and 80 articles written up until 2011. A search of SciELO Brazil (2011), the index base for scientific articles, for the same period, yielded 11 publications in 2004 and 29 in 2011.

Table 1

Lifetime and past year use of 12 drugs among 50,890 middle and high school students in Brazil's 27 state capitals in 2010.

Drug used	Lifetime use *			Past year use **		
	n	wgt%	95%CI	n	wgt%	95%CI
Alcohol	30,176	60.5	59.2-61.7	20,931	42.4	41.2-43.6
Tobacco	8,016	16.9	16.1-17.6	4,577	9.6	9.0-10.1
Inhalants	4,731	8.7	8.3-9.1	2,741	5.2	4.9-5.5
Marijuana	2,565	5.7	5.3-6.1	1,731	3.7	3.4-4.0
Tranquilizers	2,900	5.3	4.9-5.6	1,495	2.6	2.4-2.8
Cocaine	1,095	2.5	2.2-2.7	761	1.8	1.6-2.0
Amphetamines	1,254	2.2	2.0-2.4	992	1.7	1.6-1.9
Anabolic steroids	825	1.4	1.2-1.6	***		
Ecstasy	600	1.3	1.1-1.4	***		
LSD	507	1.0	0.8-1.1	***		
Crack	286	0.6	0.5-0.7	179	0.4	0.3-0.5
Methamphetamine	74	0.3	0.2-0.5	***		

wgt%: weighted proportions; 95%CI: 95% confidence interval.

* Any use during student'slife;

** Any use in the past year (12 months prior to the survey);

*** Data not collected.

Table 2

Socio-demographic characteristics of past year users of crack among 50,890 students in Brazil's 27 state capitals in 2010.

	Past year use of crack						OR for past year use of crack			
	Yes			No			Crude		Adjusted	
	n	%	95%CI	n	%	95%CI	OR	95%CI	OR	95%CI
Sex										
Male	130	74.9	66.5-81.7	23,790	47.8	47.1-48.5	3.3	2.2-4.9	3.4	2.2-5.1
Female	39	25.1	18.2-33.4	26,087	52.2	51.5-52.9	1.0		1.0	
Total	169	100.0		49,877	100.0					
Type of school										
Public	140	89.4	83.8-93.1	30,955	79.2	77.7-80.7	2.2	1.4-3.6	1.8	1.1-2.9
Private	39	10.6	6.8-16.2	19,494	20.8	19.3-22.3	1.0		1.0	
Total	179	100.0		50,449	100.0					
Age (years)										
10-12	11	7.3	3.1-16.1	13,757	26.4	24.7-28.1	1.0		1.0	
13-15	79	42.1	33.8-50.8	21,709	43.4	41.8-44.9	3.5	1.4-8.6	3.4	1.4-8.3
16-18	51	35.7	27.4-45.1	12,314	26.2	24.5-27.9	5.0	2.0-12.6	4.8	1.9-12.2
19 +	26	14.9	9.6-22.4	1,627	4.1	3.4-4.8	13.3	5.1-35.0	12.7	4.8-33.2
Total	167	100.0		49,407	100.0					

OR: odds ratios; 95%CI: 95% confidence interval.

* Datafor past year use was missing in 262 questionnaires.

This growth in the number of articles suggests an increase in crack consumption in Brazil, corroborated by media trumpeting a devastating crack "epidemic" [20,21].

The exact prevalence of crack use in Brazil remains unknown. Media reports have disseminated WHO estimates of six million crack users in the country, while the Ministry of Health says there are two million [22]. However, epidemiological data does not confirm such growth, at least among the middle and high school student population. A comparison of the two national surveys showed no difference in lifetime and past year use of crack between 2004 and 2010. Additionally, crack occupies the penultimate place in the ranking of the 12 most commonly used drugs. Studies with college students show a similar phenomenon [23], where crack is ranked fourteenth among the 16 most commonly used drugs and the prevalence of recent crack use did not change between 1996 and 2009 surveys.

Studies of similar populations (school and college students) in the USA and the country's crack "epidemic" that occurred between 1986 and 1990, showed that lifetime crack use in 1987 was 3.3% and 5.4% for college and high school students [24,25], respectively; a stark contrast with 2010 Brazilian figures of 1.2% and 0.6%, respectively at the time of the Brazilian "epidemic" [23,26]. Additionally, when comparing relevant data for students of the same age group from a number of European and South American countries, Brazil was last in the ranking of prevalence of crack use behind France (7%), Argentina (3.1%), Switzerland (2%) and Bolivia (1.7%) [27,28].

It would therefore appear that there are inconsistencies between official data and claims in the media of a crack epidemic and it could be asked if current scientific data justifies the level of government mobilization around this issue.

The influence of the media on society and culture is widely recognized and has been studied by several researchers from diverse backgrounds [29,30,31]. Thompson [29] says that media messages reach millions of people and change their behavior, attitudes and judgment. This fact makes the mass media an important factor in the transmission of ideologies in modern society.

The power of the media is so great that Brazilian researchers refer to the "crack epidemic" in their articles [32,33] without presenting concrete evidence for this assertion. The concept of a crack epidemic in Brazil seems to have originated largely from within the media, similar to what occurred in the USA. Hartman & Gollubin [34] analyzed articles about the crack epidemic published in American newspapers between 1985 and 1990. They concluded that there was no scientific evidence to support the assertion, and that it was therefore sensationalist. These researchers also

found a clear exploitation of the horror associated with crack use, leading to a general sense of panic in North-American society.

In a similar study, Orcutt & Turner [35] evaluated data from the North-American media during the period of the "crack epidemic". They found that there was an intentional distortion of data from National surveys on drug use among students and small differences in drug consumption from one year to the nextwere over emphasized in graphs.

Crack is not a recent phenomenon in Brazil [2]. For years, despite the profile of crack users, described as young men living in squalor, no important action was taken to tackle the problem [1]. Women crack users selling their bodies to buy crack, practicing unsafe sex, abandoned children and the link between crack and STD/AIDS were also not enough to mobilize the government for effective action [14]. An intense government movement was only to occur later and mass media seems to have played an important role in this action [15,20].

The concept of visibility is essential to the construction of reality and crack is a drug that attracts attention due the rapid and extensive deterioration of the moral, mental and physical attributes of the user [4,10,14]. The growth of "cracklands" (areas with a high concentration of crack users) is a demonstration to the outside world of the real consequences of crack use [36] and may have influenced the media, and consequently public opinion, to pressure for a response from the government. However, due to the characteristics of crack (a harmful, challenging and burden some drug that causes physical, psychological and mainly social complications [4]), government action is justified regardless of whether the situation is classified as anepidemic or not.

Nevertheless, based onthe epidemiological data analyzed by this study and given the CDC definition presented above [18], the crack situation in Brazil does not fit the concept of epidemic. Lifetime crack use did not increase in the two surveys analyzed, supporting the hypothesis that the crack epidemic does not exist. On the other hand, it is difficult to extrapolate this finding to the general population, since crack use is likely to affect the frequency of school attendance [1]. However, assuming that there is a true epidemic, lifetime prevalence in this population would be affected [37].

The current analysis does not intend to bean exhaustive study of the crack epidemic issue in Brazil. Although the evidence presented does not suffice to refute the existence of an epidemic, the assertion that an epidemic exists based only ondata offered by the media is cause for concern since the incorrect assessment of a crack epidemic has direct consequences for the type of governmental actions and available resources to combat this problem. In the event of an epidemic, emphasis should be given to actions directed at treatment, whereas in a non-epidemic situation, policy should primarily focus on prevention to avoid increased consumption that may lead to anepidemic. Reinarman & Levine [38] also highlight that the exposure of crack users in the "cracklands" and the label of a crack "epidemic" may lead the media and political rhetoric to disregard the social and economic problems (such as poverty and unemployment) inherent to the social class that many crack users belong to, and attribute the cause of social strain to the drug.

Finally, it is also possible that government agencies may resort to the alarmist discourse around crack to obtain more funds for health and security from the federal government and other possible sources.

One of a number of potential limitations of this study is that the use of survey data from high school students that may not reflect the overall impact of crack use on Brazilian society. Another limitation of a student survey is that it is not possible to extrapolate these findings to those students who were absent at the day of the survey or to adolescents who are not attending schools in Brazil. It is important to note that around one fifth of the students were absent on the day of the survey and these students are the ones that are most likely to be using crack as discussed above. However, the high response rate for the samples may be considered a significant advantage of this study, since almost all invited students agreed to participate.

Resumo

No último ano, o Governo Federal e a sociedade brasileira relataram e agiram em função de uma epidemia de crack*, que foi exacerbada pela mídia. Este estudo hipotetiza que, entre estudantes, o consumo de* crack *não aumentou nas taxas propostas pela mídia brasileira. Um levantamento epidemiológico de corte transversal foi realizado em 2010 em uma amostra probabilística multiestágio de estudantes brasileiros de Ensino Fundamental e Médio das 27 capitais de estado. Os 50.890 questionários válidos foram submetidos a pesos amostrais, analisados e comparados à série de dados do mesmo levantamento nacional realizado em 2004. Considerando uso na vida e uso no ano de* crack*, nenhuma mudança do consumo foi encontrada entre de 2004 e 2010. Os dados oficiais brasileiros entre estudantes de Ensino Médio e Fundamental não corroboram "a epidemia de* crack*" divulgada extensamente pela mídia. Medidas do governo para tratar e prevenir o uso de crack são incentivadas; entretanto, o termo epidemia tem sido usado de maneira imprópria para representar a prevalência estática do uso de* crack*.*

Cocaína Crack; Abuso de Drogas; Estudantes

Contributors

Z. M. Sanchez undertook the statistical analysis and wrote the methods and results sections. S. A. Nappo was responsible for drafting the manuscript and wrote the discussion and background sections. L. A. Ribeiro coordinated the literature searches and review of previous related works.

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