

## Profile of cocaine and crack users in Brazil

### Perfil dos usuários de cocaína e crack no Brasil

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#### Abstract

*This article aims to systematize the profile of cocaine and crack users in Brazil. The study adopted a literature review of the MEDLINE, LILACS, Cochrane Library databases and CAPES thesis/dissertation database. Data were grouped in thematic categories: national household surveys, surveys of specific population groups, profile of patients that seek treatment, and mortality and morbidity. Within each category the principal findings from the Brazilian literature were described and then discussed. The article concludes that the information on cocaine and crack consumption in Brazil is still incipient, but that the scientific community can already draw on a relevant theoretical corpus that can be used to update current public policies on this issue.*

*Cocaine; Crack Cocaine; Street Drugs; Drug Abuse*

#### Introduction

Cocaine is a central nervous system stimulant extracted from *Erythroxylum coca* leaves <sup>1</sup>. It can be consumed as cocaine hydrochloride, a water-soluble salt, either sniffed or injected. There are also alkaline presentations, volatile at low temperatures, that can be smoked in “pipes”, including crack, *merla*, and cocaine base paste <sup>2</sup>, and non-soluble forms that can be modified to make them “solubilized”, and which when injected leads to severe consequences such as increased risk of abscesses, mental disorders, and HIV and hepatitis C infection.

Coca was consumed for thousands of years by the pre-Inca and pre-Colombian peoples, and cocaine became popular in Europe and the United States beginning in the 19<sup>th</sup> century, in the form of carbonated tonics and wines <sup>3</sup>. The active ingredient was extracted in the mid-19<sup>th</sup> century, and at the turn of the 20<sup>th</sup> century a large contingent of users consumed the substance for medical and recreational purposes <sup>4</sup>. The appearance of cases with acute and chronic complications led to the ban on the substance in the main Western countries beginning in the 1910s and 20s <sup>5,6</sup>.

However, in the late 1970s and early 80s, the substance regained popularity in Western societies as a glamour drug, attuned with the big-city workaholic environment. This setting, in which cocaine had become the main attraction, contrasted with the emergence of crack less than ten

years later. Since then these drugs have coexisted in various proportions in different cities and contexts <sup>7</sup>. This new situation, unlike the previous one, spread particularly in socially excluded locations, with boys living on the streets and injecting drug users (IDUs) as the main target <sup>8</sup>. Outreach services <sup>9,10</sup> and the media <sup>11</sup> quickly detected this change. In the mid 1990s, cocaine and crack users became the group of illicit drug users that most turned to outpatient and inpatient services for addiction treatment <sup>9</sup>.

This phenomenon spawned various published studies on cocaine and crack. However, little is known about the profile of cocaine and crack users. In order to collect the available knowledge on this subject in Brazil, we conducted a literature review on the principal socio-demographic profiles of cocaine and crack users, targeting household surveys, specific population groups, and the main health services. We also outline the pattern of morbidity, mortality, and cause of death among users.

## Materials and methods

The socio-demographic profiles of Brazilian cocaine and crack users were presented according to two criteria defined by the authors: (1) an overall socio-demographic of cocaine and crack users, followed by an investigation of specific populations and treatment settings, as well as complications from use and, (2) within each topic, a presentation of the articles according to their degree of methodological complexity.

Brazilian articles, theses/dissertations, and book chapters on cocaine consumption were identified, including work published from the mid-1980s forward. The following databases were consulted: MEDLINE [<http://www.pubmed.com>]; LILACS (Latin-American and Caribbean Literature in Health Sciences); and the Pan-American Health Organization collection, consulted through the BVS (Virtual Health Library) [<http://www.bireme.br>], the Brazilian Center for Information on Psychoactive Drugs (CEBRID) [<http://www.cebrid.epm.br>]; and the thesis/dissertation database of CAPES (Coordinating Division for Graduate Studies) [<http://www.capes.gov.br>]. With the theses/dissertations, the authors analyzed the full texts of studies conducted in the State of São Paulo, Brazil. When the theses or dissertations produced complete articles (indexed in the databases consulted) we prioritized the articles. For other States of Brazil, we consulted the abstracts published in the CAPES website. In case of any doubt about the profiles in the samples, the authors were contacted through

their e-mails, identified in their resumé in the Lattes database.

In all the databases, the descriptors “cocaine” and “crack” were combined with descriptors related to the current article’s theme: “history”, “profile”, “epidemiology”, “women”, “adolescents”, “street children”, “treatment”, “violence”, and “mortality”. The search was conducted in Portuguese and English.

## Results

### National household surveys

All the national epidemiological surveys were conducted by CEBRID. The first studies were published in the late 1990s. In 1999, CEBRID held a household survey covering the 24 largest cities in the State of São Paulo <sup>12</sup>. Rate of any lifetime cocaine use was 2.1%, and was higher in the 26-34-year age bracket (4%). Lifetime crack use was 0.4%. Two years later, the 1<sup>st</sup> National Household Survey on Use of Psychoactive Drugs in Brazil (2001) <sup>13</sup> interviewed individuals in 107 cities with more than 200,000 inhabitants each. Lifetime cocaine use was 2.3% overall, and was higher in the South (3.6%) and Southeast (2.6%) of the country, intermediate in the Northeast (1.4%) and Central West (1.4%), and lower in the North (0.8%). Again, the highest prevalence was in the 25-34-year age bracket (4.4%), especially among males (7.2%). Lifetime crack use was 0.7% for males, and lifetime use of *merla* appeared in the North, with 1%, the highest rate in Brazil. The highest rates for both substances were among young males, with 1.2% (crack) and 0.5% (*merla*) for 25-34-year-old men.

### Specific populations

#### • Primary and secondary students

Different institutions have conducted studies focusing on specific and regional realities. However, the most relevant epidemiological studies in this population group were by CEBRID, with a total of five surveys (1987, 1989, 1993, 1997, and 2004) <sup>14,15,16,17,18</sup>. The first four interviewed a random sample of students in ten State capitals <sup>14,15,16,17</sup> and the fifth included 27 State capitals of Brazil <sup>18</sup>. In the latter, lifetime cocaine use by students was 2%, reaching 2.9% in the North, 2.3% in the Southeast, 2.1% in the Central West, 1.7% in the South, and 1.2% in the Northeast. As compared to the four previous studies, there was a significant increase in cocaine consumption among students in the State capitals of the

Northeast (Salvador, Bahia; Recife, Pernambuco; and Fortaleza, Ceará). In the Southeast, only São Paulo maintained a similar rate to the four previous surveys, while there was an increase in consumption in Belo Horizonte (Minas Gerais) and Rio de Janeiro. There was no change in the cocaine consumption rate among students in Curitiba (Paraná) and Porto Alegre (Rio Grande do Sul).

Another national survey interviewed a probabilistic sample of 50,740 students from 673 public and private primary and secondary schools in 14 State capitals: Belém (Pará), Brasília (Federal District), Cuiabá (Mato Grosso), Florianópolis (Santa Catarina), Fortaleza, Goiânia (Goiás), Maceió (Alagoas), Manaus (Amazonas), Porto Alegre, Recife, Rio de Janeiro, Salvador, São Paulo, and Vitória (Espírito Santo) <sup>19</sup>. Lifetime cocaine use

was 1%, lifetime crack and *merla* rates were 0.5% each, and injecting drug use 0.3%. According to the study, consumption was more prevalent among boys and increased with age in both sexes. In addition to the national surveys, some studies have attempted to measure drug consumption in some Brazilian municipalities, showing lifetime rates from 1% to 3.5% (Table 1).

#### • University students

The majority of the scientific articles on university students focused on medical students (Table 2). Most cocaine users in the target universities were 20-24-year-old single males, living with friends or alone, non-religious, and with difficult relations with their parents, especially with their mothers. Risk factors associated with cocaine use

Table 1

Rates of any lifetime cocaine use, use in previous 12 months, and use in previous 30 days among primary and secondary students, Brazil.

Reference	Year of study	City/State	Sample	Cocaine use (%)		
				Lifetime	Last 12 months	Last 30 days
Boskovitz <sup>88</sup>	1992	São José do Rio Preto/SP	Random sample from clusters of primary and secondary students in the municipal school system	2.4	-	-
Muza et al. <sup>89</sup>	1997	Ribeirão Preto/SP	11,250 public and private elementary and secondary students	2.7	-	-
Guimarães et al. <sup>90</sup>	2004	Assis/SP	Random selection of 20% of students from 18 public and private schools	1.7/1.2 *	-	-
Vieira <sup>91</sup>	2003	Paulínia/SP	Random sample of elementary and secondary public and private students	-	2.1	-
Soldera et al. <sup>92</sup>	1998	Campinas/SP	Random sample of public and private students	-	-	1.4
Godoi et al. <sup>93</sup>	1988	Brasília/DF	Random sample of private students	1.8	-	-
Souza & Martins <sup>94 **</sup>	1995	Cuiabá/MT	Random sample of public students	1.8	-	-
Almeida <sup>85 **</sup>	1997	Cuiabá/MT	Random sample of public students	1.1	-	-
Baus et al. <sup>95</sup>	1997	Florianópolis/SC	478 students from a public elementary and secondary school	3.3	-	-
Tavares et al. <sup>96</sup>	1998	Santa Maria/RS	Random sample of 1,074 public and private students	1.7	-	-
Deitos et al. <sup>97</sup>	1998	Pelotas/RS	Random sample of 2,410 public and private students 10-19 years old	3.2	-	-

DF: Distrito Federal; MT: Mato Grosso; RS: Rio Grande do Sul; SC: Santa Catarina; SP: São Paulo.

\* Rates of cocaine use among public and private students, respectively;

\*\* Both epidemiological surveys were conducted by the same group of researchers, Health and Environmental Department, Federal University in Mato Grosso.

Table 2

Rates of any lifetime cocaine use, use in previous 12 months, and use in previous 30 days among university students, Brazil.

Reference	Year of study	City/State	Sample	Cocaine use (%)		
				Lifetime	Last 12 months	Last 30 days
Magalhães et al. <sup>20</sup>	1990	São Paulo/SP	1,069 university students from 20 schools in the capital	10.0	-	-
Andrade et al. <sup>98</sup>	1993	São Paulo/SP	Serial study with 1 <sup>st</sup> to 6 <sup>th</sup> year medical students at the University of São Paulo (1991, N = 796; 1992, N = 747; 1993, N = 761)	-	2.8	2.0
Andrade et al. <sup>99</sup>	1994	São Paulo (capital and interior)/SP	1 <sup>st</sup> to 6 <sup>th</sup> year medical students (N = 5,225) from nine schools in the capital and interior, State of São Paulo	3.0-7.0	-	0.2-4.0
Queiroz <sup>21</sup>	1996	São Paulo/SP	Students, University of São Paulo (N = 2,564)	7.1	-	-
Barria et al. <sup>22</sup>	1996	São Paulo/SP	Students, University of São Paulo (N = 2,564)	7.1	-	-
Fabris <sup>100</sup>	2001	Presidente Prudente/SP	1,127 university students from the human, exact, and biological sciences, West São Paulo University	-	4.2/2.3 *	-
Ribeiro et al. <sup>101</sup>	1996	Juiz de Fora/MG	390 1 <sup>st</sup> to 6 <sup>th</sup> year medical students at the Federal University in Juiz de Fora	5.6	-	-
Pereyra et al. <sup>102</sup>	1996	Belo Horizonte/MG	331 medical students at the Federal University in Minas Gerais	1.0	-	-
Plotnik et al. <sup>23</sup>	1985	Porto Alegre/RS	743 university students	-	12.0	-
Brenes et al. <sup>24</sup>	1985	Pelotas/RS	Random sample of university students	-	-	5.0
Albino et al. <sup>25</sup>	2002	Palhoça/SC	1,604 students at the Pedra Branca campus of the South Santa Catarina University	1.0	-	-
Souza et al. <sup>103</sup>	1997	Fortaleza/CE	627 medical students at the Federal University in Ceará	1.8	0.6	0.5
Torres <sup>104</sup>	2002	Fortaleza/CE	325 students at the schools of pharmacy, dentistry, and nursing, Federal University in Ceará	-	-	1.0
Coelho <sup>105</sup>	2002	Fortaleza/CE	354 medical students, State University of Ceará	4.3	-	-
Canuto <sup>106</sup>	2003	Goiânia/GO	1,080 first year students from 20 courses (selected from a total of 39) at the Federal University in Goiás	2.6	-	-

CE: Ceará; MG: Minas Gerais; RS: Rio Grande do Sul; SC: Santa Catarina; SP: São Paulo.

\* Rate of cocaine use in the previous year for men and women, respectively.

in this group were: having drug-using parents or friends, having used drugs before entering the university, working, low grade point average, the course and places frequented in the university, and approving regular marijuana use by anyone connected to the individual<sup>20,21,22,23,24,25</sup>.

- **Children and adolescents on the streets**

The fifth national CEBRID survey<sup>26</sup> investigated drug use among children and adolescents (10-18 years of age) on the streets in 27 Brazilian State capitals. The highest intranasal cocaine rates in the previous month were in Rio de Janeiro (45.2%), São Paulo (31%), Boa Vista, Roraima (26.5%), Brasília (23.9%), and Recife (20.3%). Only eight interviewees (N = 2,807) reported recent cocaine injecting, with the highest number in Salvador (n = 3). Frequent crack use was mentioned in most of the State capitals. The highest rates of recent use were in São Paulo, Recife, Curitiba, and Vitória, ranging from 15% to 26%. In São Paulo, the predominant form of consumption was *mesclado* or “mixed” (crack and marijuana mixed as cigarettes). Any lifetime use of *merla* was mentioned in 18 State capitals. Recent *merla* use was reported in Brasília (19.3%), Goiânia (17.1%), São Luís (15.5%), and Boa Vista (10.3%).

Children and adolescents on the streets in Brazil began using crack in the late 1980s, especially in the South and Southeast. There was a steady increase in consumption, as shown by the consecutive surveys (1987, 1989, 1993, 1997, and 2004)<sup>14,15,16,17,18</sup> and corroborated by other studies<sup>27,28</sup>. There was an increase in São Paulo from 1989 to 1993, in Porto Alegre from 1993 to 1997, and in Rio de Janeiro from 1997 to 2003, although the rate was already high in 1993. In the Northeast, cocaine and crack consumption was insignificant until 1997 (around 1%), but there was a significant increase in 2003, reaching 10.3% in Fortaleza, and 20.3% in Recife, suggesting an increase in the availability of coca products in the region.

- **Sexual risk behavior**

Cocaine and crack consumption have been associated directly with HIV infection<sup>29,30</sup>. The most frequently observed risk behaviors are the high number of partners, unprotected sex, and trading sex for crack or for money to purchase the substance<sup>30,31</sup>. In a study of 388 adolescents, mostly females (13-20 years), who came spontaneously to public HIV testing services in Porto Alegre, self-reported unprotected sexual relations and trading sex for drugs were directly associated with positive HIV serology<sup>32</sup>. Another

study in Porto Alegre followed 138 cocaine users for 18 months to investigate the incidence of HIV infection during this period. The authors identified sexual transmission as the main transmission route among these users<sup>33</sup>. In Cuiabá, Mato Grosso, a study comparing HIV+ patients and healthy blood donors showed that a high number of sex partners, low schooling, and cocaine use in the previous six months were independent risk factors for HIV infection<sup>34</sup>.

A study in Rio de Janeiro interviewed 675 men from 18 to 50 years of age with negative HIV serology and a history of sex with men in the previous six months<sup>35</sup>. The study showed that vulnerability to HIV infection was associated with poverty, low schooling, and drug use (especially cocaine and crack). Another study with predominantly male crack users in Campinas (São Paulo) detected HIV in 11% of users, relating crack use and unprotected sex to the risk of HIV infection<sup>36</sup>.

A behavioral study in women who traded sex for crack by Nappo et al.<sup>30</sup> in the city of São Paulo and in São José do Rio Preto (São Paulo State) in 2004, using a qualitative design with a sample of 75 individuals selected with the “snowball” technique showed that the interviewees were predominantly young mothers with low schooling, lived with the family (parents or steady partners), and were home providers themselves. The majority had sex for crack daily (ranging from 1 to 5 casual partners), did not choose either these partners or the type of sex they practiced, and did not value condom use. Another study with prostitutes in the area known as *Cracolândia* or “Crackland” in downtown São Paulo showed similar risk behavior<sup>37</sup>. Likewise, in the port area of Santos (São Paulo), 1,047 prostitutes interviewed from 1995 and 1998 showed a positive association between crack consumption and injecting drugs and increased HIV seroprevalence<sup>38</sup>.

Although trading sex for drugs was more frequent in women, it also occurred in men, regardless of sexual orientation<sup>39</sup>. No specific national studies on this theme were identified, but a study of 13 hustlers, 53 transvestites, and 449 prostitutes in Ribeirão Preto (São Paulo) showed that crack and injecting cocaine greatly increased the risk of HIV infection. All three groups evidenced cases of prostitution for the sole purpose of procuring drugs<sup>40</sup>.

- **Injecting drug users**

HIV transmission through injecting drug use mainly affects poor individuals with low schooling. One study in São Paulo reviewed all cases of AIDS in females 10 years of age or older in the State of São Paulo from 1983 to 1992 and

observed that contamination through injecting drug use was more common among women with low schooling, while sexual transmission predominated among women with higher education and professional occupations <sup>41</sup>.

In a study of 839 cocaine users at seven treatment centers in São Paulo, from 1997 to 1998, those with a history of injecting drug use showed nearly 26 times the odds of having three or more infections, as compared to non-users <sup>42</sup>. Three studies in São Paulo <sup>43,44,45</sup> and one in Porto Alegre <sup>46</sup> also showed an association between injecting cocaine and HIV infection.

Another Brazilian study used the "snowball" technique to select 668 IDUs in seven Brazilian cities: Santos, Salvador, Rio de Janeiro, Itajaí (Santa Catarina), Corumbá (Mato Grosso do Sul), Cuiabá, and Goiânia <sup>47</sup>. The sample was selected from 1993 to 1996. Cocaine was the injecting drug of preference among these users (92%). They had injected drugs for an average of ten years, and 57% had injected in the previous two months. They injected on average seven times a day, and the vast majority reported reusing injecting equipment (83%) and sharing syringes (71%). Trading sex for drugs was reported by 38% of users. HIV infection rates varied from 30% (Rio de Janeiro and States in the Central West) to 70% (Santos and Itajaí).

Aiming to monitor trends in HIV infection rates and consumption patterns among IDUs, Mesquita et al. <sup>48</sup> conducted a comparative study between groups, with a sample of users in Santos, interviewed in 1991-1992 (N = 214), 1994-1996 (N = 135), and 1999 (N = 108). The authors noted a decrease in frequent use ( $\geq 5$  times a day) of injecting cocaine (42%, 30%, and 15%;  $p < 0.001$ ), along with an increase in crack consumption (11%, 60%, and 67%;  $p < 0.001$ ). The transition in administration routes may have contributed to the drop in HIV infection rates during the period (63%, 65%, and 42%;  $p < 0.001$ ). IDUs are also exposed to other diseases besides AIDS, particularly tuberculosis <sup>49,50</sup> and hepatitis C <sup>51,52</sup>.

- **Crack users**

The first research on crack consumption in Brazil was an ethnographic study in the city of São Paulo, with 25 users living in the community <sup>8</sup>. The authors report that the substance first appeared and spread in 1989. Typical users were poor men, under 30 years, unemployed, with limited schooling, from broken homes.

According to the same study, crack users (as compared to powder cocaine) involved a more serious consumption pattern, more involvement in illicit activities, more propensity to adverse

effects from use, more involvement in prostitution, and higher odds of living (or having lived) on the streets. Users also had more social and health problems than intranasal cocaine users <sup>44</sup>. In recent years, crack users have also begun to appear among higher-income groups, although the drug is still more prevalent among lower-income classes <sup>53</sup>.

Crack users are usually multiple drug users or have a history of consuming other substances. <sup>8,44,45</sup> Evaluating the history of patients younger than 30 years, most debuted with psychoactive substances starting with legal drugs (tobacco and alcohol), at an early age, and with heavy use <sup>44,54</sup>. Marijuana was usually the first illicit drug <sup>55</sup>. Among older users, sniffing cocaine and medicines and injecting cocaine also preceded their crack use. Users that consumed both crack and intranasal cocaine tended to begin earlier than those that only used one of the two forms <sup>54</sup>. The first experience with the substance was generally sniffing, moving to crack later <sup>54</sup>.

#### Profile of patients that seek treatment

The consumption pattern of cocaine and crack users currently in treatment appeared to be heavier than for users who were off treatment <sup>44</sup>. Crack users appeared to seek treatment earlier than intranasal cocaine users <sup>44,56</sup>. Patients using crack frequently also used other drugs, especially alcohol, tobacco, and marijuana <sup>44,45,56</sup>.

- **Outpatient treatment**

Specialized outpatient services detected an increase in consumption beginning in the early 1990s. By the mid-1990s, cocaine and crack users, who had initially comprised less than a fifth of outpatient demand related to illicit drugs, now occupied 50-80% of the demand in these health services <sup>57,58,59,60,61,62,63</sup>.

Two cross-sectional studies on cocaine and crack addicts followed in various treatment settings (outpatient services, clinics, and shelters) in São Paulo <sup>44,56</sup> found a similar socio-demographic profile to that described for crack users in the community <sup>8,56</sup>. Studies in São Paulo and Rio de Janeiro on crack users from a single service <sup>8,44,56,57,58,59,60,61,62,63,64</sup> found similar results as to the profiles of cocaine and crack users.

- **Hospitalization**

As with outpatient services, cocaine-related hospital admissions also began to increase in the 1990s. According to studies by CEBRID <sup>12,13</sup>, in the early 1990s there was a 77% increase in the

number of patients admitted for cocaine-related treatment, accounting for 14% of hospitalizations for drug use (alcohol not included) in 1989, reaching 25% by 1992<sup>10</sup>.

Crack addiction was the most frequent cause of cocaine-related hospitalization. In a cross-sectional study of 440 patients in six psychiatric hospitals in Greater São Paulo in 1997-1998, 70% of patients admitted for cocaine problems were crack users<sup>65</sup>. Crack was also the most widely consumed substance among 406 patients hospitalized for illicit drug addiction in the city of Marília (São Paulo State), with frequencies ranging from 62.9% for men to 87.5% for women<sup>66</sup>. Likewise, a retrospective study in Curitiba investigated medical charts of adolescents (10-20 years) hospitalized for drug addiction (N=682)<sup>67</sup>, among whom crack was the second most frequently used substance (49%), with decreasing proportions of consumption of substances like alcohol (39%) and intranasal cocaine (29%). On the other hand, according to a study of cocaine addicts hospitalized in Porto Alegre, only one-third were crack users<sup>68</sup>.

Hospitalized crack users showed worse social indicators compared to intranasal cocaine users<sup>44</sup>. Crack addicts were also more like to have used other administration routes, including injecting, thus exposing them to increased risk of HIV infection and hepatitis C<sup>44,69,70</sup>.

#### • Comorbidities

The presence of a second psychiatric diagnosis is common among cocaine and crack users<sup>71</sup>. Depression and anxiety disorders are the most frequently observed psychiatric comorbidities in Brazilian studies on these users<sup>72,73</sup>.

The presence of comorbidities increases the severity of both diseases: a study of 50 inpatients in Porto Alegre found a significant correlation between depressive and anxious symptoms and severity of addiction<sup>74</sup>. Likewise, a case-control study of 208 cocaine users in Rio de Janeiro showed that the presence of comorbidities increased the risk of harmful cocaine use, with alcohol addiction as the disorder most frequently associated with future development of cocaine abuse/addiction<sup>75</sup>. Finally, a follow-up study in Rio de Janeiro with 119 users of cocaine base paste showed that although the patients presented a high depression rate, part of the depressive symptoms disappeared after the withdrawal symptoms resolved, highlighting the importance of a withdrawal period for obtaining a more accurate diagnosis<sup>76</sup>.

#### • Acute complications

Cocaine users, independently of the administration route, are prone to adverse reactions and complications related to consumption: in a study of 332 cocaine users in different health units (outpatient services, clinics, and shelters) in the city of São Paulo<sup>77</sup>, half reported some type of adverse reaction resulting from consumption, such as heat and flushes (84%), uncontrollable tremors (76%), and malaise (75%). Seizures (18%) and fainting (21%) were the acute complications most frequently reported by participants. These complications were more common in regular users, especially among those off treatment, with a history of injecting cocaine, with a diagnosis of severe addiction, and in simultaneous use of benzodiazepines. Overdose was also a recurrent complication: in a study of 396 cocaine users from the city of Santos<sup>78</sup>; 20% reported one or more episodes of overdose, and 50% knew someone who had suffered an overdose.

#### • Predictive factors for treatment dropout and adherence

Among all addicts of psychoactive drugs, cocaine and crack users have the highest treatment dropout rates. Evidence suggests the following predictive factors for dropout: problems with the law, low social coping skills, loss of parents in childhood, family history of mental disorder, and associated alcohol addiction disorder<sup>67,68,69,70,71</sup>. Crack users appear to be more prone to abandoning treatment than users of intranasal cocaine<sup>44,56</sup>.

As for adherence factors, there is a positive relationship between multiplicity of treatment proposals (pharmacological treatment, referral to mutual help groups, care for mothers, care for families, and general medical care) and better treatment adherence<sup>79,80</sup>. This reinforces the idea that cocaine and crack users need more intensive and prolonged approaches than other addicts. Specialized treatment services for women appear to be more effective for treatment of alcohol abuse than for cocaine and crack use, possibly due to the latter group's heterogeneity<sup>81</sup>. The presence of psychiatric comorbidities<sup>80,82</sup> is associated with a worse prognosis among drug users. Producing evidence in the opposite direction, a study of cocaine and crack users hospitalized for treatment in the city of Pelotas (Rio Grande do Sul) from 1998 to 2000 concluded that the presence of an association between major depression and cocaine addiction increased adherence by such patients to the treatment plan<sup>83</sup>.

## Mortality

Cocaine and crack users appear to be especially vulnerable to deaths from external causes. In a five-year follow-up study of 131 crack users hospitalized in a detoxification ward in São Paulo, 23 (18%) died over the course of the study<sup>45,84</sup>. The annual mortality rate among crack users admitted to the Taipas General Hospital (1992-1994) was high (2.5%), seven times higher than the overall mortality rate in the city of São Paulo during the same period. The majority of the patients who died were men under 30, single, with low schooling. External causes accounted for 69.6% of the deaths (n = 16), of which 13 were homicides (56.6%), two overdoses (8.7%), and one drowning (4.3%). Natural causes accounted for 30.4% of the deaths (n = 7), of which six were due to HIV/AIDS (26.1%) and one to hepatitis B (4.3%). Previous drug injecting, unemployment, and a history of previous treatment were considered risk factors for death in the study sample.

## Discussion

Although numerically few and with limited samples, the publications on cocaine consumption in Brazil portray relevant aspects, besides identifying gaps requiring further specific studies.

In general, cocaine products are consumed by a small share of the Brazilian population (2.3%), with the highest rates in the South and Southeast. Cocaine use is more common among male adolescents and young adults. The presentations for smoking display important regional variations, with crack more common in the South and Southeast and *merla* in the North<sup>12,13</sup>.

Given that the first episode of consumption typically occurs during adolescence, epidemiological surveys with students are important yardsticks for the consumption of psychoactive substances. This phenomenon appears to be more likely in settings marked by grade-for-age lag in school, truancy, low socioeconomic status, poor relations with parents and or permissive parents, abuse, and lack of religion<sup>18,19,85</sup>.

Among university students, the limited number of studies and the relatively small samples of students prevent any conclusion on the precise profile of users in this group (broader surveys are still needed). Among the main studies<sup>20,21,22,23,24,25</sup>, peer influence and family permissiveness, together with the more independent university lifestyle, are important risk factors for cocaine use, suggesting that these fields should be approached for prevention and treatment among this group.

We observed a considerable and progressive increase in cocaine/crack consumption in children and adolescents living on the streets, especially in the States of the South and Southeast, as shown by national surveys from 1987 to 2004<sup>14,18</sup>. These studies also evidenced the increased availability of cocaine in the Northeast, especially in the cities of Fortaleza and Recife, and since 2003 the regional differences are no longer as great between the Southeast and Northeast of Brazil in relation to this drug's consumption and availability. Importantly, the crack consumption pattern in São Paulo has changed to the *mesclado* form<sup>26</sup>.

Even though it affects a small portion of the population, a relevant aspect of cocaine and crack consumption in Brazil is HIV infection and other STDs<sup>35,36</sup>, considering that a large share of the Brazilian studies highlighted that cocaine/crack use accounted for an increase in the risk of acquiring these infections, both through the high number of sex partners and unprotected sex<sup>31</sup> and trading sex for crack itself or for money to purchase it<sup>30,31,32</sup>. Although there are signs that cocaine injecting has decreased in recent years<sup>48</sup>, it still appears to affect poor groups with limited schooling, the idiosyncrasies of which require specific approaches capable of reducing harm and guaranteeing access to health for these individuals<sup>47,48</sup>.

Among the illicit drugs, crack is perhaps the substance whose treatment demand has increased the most in recent years<sup>65</sup>. The profile of crack users (young, unemployed, unschooled, poor, from broken families<sup>53</sup>, and with a history of injecting drugs<sup>84</sup> and risky sexual behavior<sup>47,48</sup>) makes it difficult for these individuals to adhere to treatment, thus requiring more intensive and appropriate approaches for each treatment phase<sup>86</sup>. Other difficulties experienced by cocaine/crack users in seeking and adhering to treatment are the lack of recognition of their use as a problem, the illegal status and crime related to these drugs, the stigma and prejudices, and lack of access to services or refusal to accept exiting services<sup>87</sup>. Factors that favor better adherence include: pharmacological therapy, referral to mutual help groups, care for mothers and other family members, and general medical care<sup>79,80</sup>.

Psychiatric comorbidities are common among cocaine/crack users and aggravate the prognosis for both diseases<sup>75,80,82</sup>. A differential diagnosis as to the presence or absence of comorbidities is mandatory<sup>76</sup>. Acute complications related to the use of these drugs – independently of the administration route – are more common among regular users, especially those who are off treat-

ment, with a history of cocaine injecting, with a diagnosis of severe addiction, and in simultaneous use of benzodiazepines<sup>77</sup>. Finally, mortality was closely related to external causes, especially violent deaths<sup>45,84</sup>.

Information on cocaine and crack consumption in Brazil is still insufficient, especially when attempting to conceive public health measures informed by scientific evidence and capable of dealing with all the specificities related to pre-

vention and treatment of such substance abuse. However, the last 20 years have witnessed increasing production of consistent scientific knowledge on this theme, encompassing various aspects linked to the consumption of these drugs. New epidemiological studies and surveys are needed in all the fields discussed here, considering that the information presented in the current article already provides a basic overview of this population.

## Resumo

*Este artigo tem como objetivo sintetizar o perfil dos usuários de cocaína e crack no Brasil. Foi construído por meio de revisão da literatura com base em dados (MEDLINE, LILACS e Biblioteca Cochrane) e no banco de teses da CAPES. Os dados foram agrupados em categorias temáticas, quais sejam: levantamentos domiciliares nacionais, populações específicas, perfil dos pacientes que procuram tratamento, mortalidade e morbidade. Dentro de cada categoria os principais achados da literatura nacional foram descritos e posteriormente discutidos. O artigo conclui que informações relacionadas ao consumo de cocaína e crack no Brasil ainda são incipientes, mas já temos à disposição da comunidade científica um conjunto teórico relevante que pode ser utilizado visando à atualização das atuais políticas públicas referentes a este tema.*

*Cocaína; Cocaína Crack; Drogas Ilícitas; Abuso de Drogas*

## Contributors

L. B. Duailibi participated in the design, drafting, and final editing of the article. M. Ribeiro contributed to the design and initial draft of the article and its revision. R. Laranjeira collaborated in the design, thematic topics, and final revision of the content and article.

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