

HIV and syphilis infections and associated factors among patients in treatment at a Specialist Alcohol, Tobacco, and Drugs Center in São Paulo's "Cracolândia"

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Abstract

Introduction: This study describes the epidemiological scenario of human immunodeficiency virus (HIV) and syphilis at the biggest specialist drug addiction center in Brazil. The great challenge is to find strategies to reduce the impact of inequality and discrimination and develop policies to protect individuals living with – or at risk of – infections.

Methods: During the period from January 1 to May 31, 2016, a cross-sectional study was conducted on which all patients (N = 806) seeking inpatient treatment were enrolled. A structured diagnostic interview and rapid tests were conducted initially, and diagnoses were confirmed by tests conducted at a venereal disease research laboratory (VDRL).

Results: HIV and syphilis rates were 5.86% and 21.9%, respectively. Women were nearly 2.5 times more likely to have syphilis. HIV infection was associated with unprotected sex (odds ratio [OR]: 3.27, $p = 0.003$, 95% confidence interval [95%CI]: 1.51-7.11), and suicidal ideation (OR: 6.63, $p = 0.001$, 95%CI: 3.37-14.0). Although only 1.86% reported injecting drugs at any point during their lifetimes, this variable was associated with both HIV and syphilis. Elevated rates of HIV and syphilis were observed in the context of this severe social vulnerability scenario.

Conclusion: The risk factors identified as associated with HIV and syphilis should be taken into consideration for implementation of specific prevention strategies including early diagnosis and treatment of sexually transmitted infections (STI) to tackle the rapid spread of STIs in this population.

Keywords: Brazil, substance use disorder, addiction, HIV, syphilis, crack/cocaine, suicidal ideation.

Introduction

The burden of sexually transmitted infections (STIs) and crack cocaine use is higher in low and middle-income countries than in high-income ones and the great challenge is to find strategies to reduce the impact of inequality and discrimination and to develop policies to protect individuals living with or at risk of infections.¹⁻⁴

Approximately 47% of all human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) cases in Latin America⁵ are in Brazil, which is also the country with the highest rate of crack cocaine use, affecting 0.8% of the total population.⁶ Although no significant reductions in supply or demand for crack cocaine have occurred recently, HIV/AIDS prevention and treatment initiatives have reduced the incidence of

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new HIV/AIDS cases significantly all over the globe,⁵ from 3.1 million in 2000 to 2.1 million in 2015. In Brazil, however, reports showed a 53.2% increase in HIV rates amongst those aged 15 to 19 and a 10.3% increase among those aged 20 to 24 between 2004 and 2013.^{5,7} The increase in HIV rates was followed by a significant increase in syphilis infections.⁷

In Brazil, a calamitous increase in acquired syphilis infections was observed between 2011 and 2016, despite government efforts at containment. In 2015, primary syphilis accounted for 31.6% of the total number of cases, while latent, secondary and tertiary syphilis accounted for 23.6%, 10.7% and 5.8%, respectively.^{7,8} The scenario is of even greater concern when it comes to syphilis during pregnancy: in this population the detection rate increased from 3.7 to 11.2% over the same period.⁸ This increase was followed by a rise in the incidence rate of congenital syphilis (from 2.4 to 6.5%), underscoring the severity of the epidemiological situation.⁹

Based on previously established risk factors associated with STIs and HIV in substance use disorders (SUD), public health policies have been proposed and implemented in Brazil, usually focusing on prioritizing specific high-risk populations (i.e. sex workers, men who have sex with men, transgender people and drug users).¹⁰⁻¹²

Annually, Brazil consumes a third of all cocaine destined for the South American market and is currently the largest crack consumer on the planet.¹³ In 2012, the proportion of the country's population that consumed reached 0.8%,⁶ while the most common route of transmission of STI and HIV is sexual.¹⁴ The greatest open-air concentration of drug users is in São Paulo, in an area known nationally as "Cracolândia," where drugs are used and traded non-stop.¹³ Although data on the prevalence of STIs among crack cocaine users in the Cracolândia setting is still limited, early studies have illustrated that the problems described above constitute a synergy between social vulnerability, low education and economic inequality.^{15,16}

Methods

Sample

During the study period (January 1, 2016 to May 31, 2016), a total of $n = 806$ individuals presented at the observation unit at the Specialist Alcohol, Tobacco, and Drugs Center in São Paulo (CRATOD – Observation Unit) and were provided with rapid testing services (blood borne viruses [BBV]/STI).

Measures and data

The rapid STI/BBV test data used in the analysis are based on results (positive versus negative status) from the following immunochromatographic assays: (1) Alere™ anti-TP syphilis test, for qualitative detection of all *Treponema pallidum* antibody isotypes (IgG, IgM, IgA); (2) Bioclin™ HIV Tri Line K087, for qualitative detection of total anti-HIV 1 antibodies (IgM, IgG, IgA, IgE), the O subtype and anti-HIV 2; (3) Alere® hepatitis C virus (HCV) test, for qualitative detection of immunoreactive antigens, such as those found in NS3, NS4 and NS5 regions of the HCV genome. A variety of additional sociobehavioral, drug use and clinical data indicators were collected from a semi-structured interview protocol administered by the CRATOD staff at various stages of patient assessment and from patients' files. Relevant data was extracted from these files without unique personal identifiers. The following variables were created, partly by combining result categories, and included as follows: sex (male versus female), age (continuous), length of education (categorical variable: No education, Up to 5 years, 6 to 9 years, 10 to 13 years, 14 years or more), housing status (stable versus transient versus homeless), primary drug problem (marijuana versus cocaine versus crack cocaine versus alcohol), suicidal ideation (thought or plan of suicide, past attempt, considered suicide as an escape, yes versus no), psychotic symptoms (at admission, yes versus no), safer sex practice (operationalized as consistent or occasional condom use, yes versus no), and rapid test results for syphilis, HIV and HCV (reactive versus non-reactive). The assessment interview defines the risk criteria and guides admission conduct. It is conducted before any rapid testing and STI diagnosis, and guides admission of patients to emergency beds or referral to outpatient services in the region, as well as reception in therapeutic communities, always in accordance with the psychiatric risk criteria assessed during the interview.¹⁷

In general, the main complications resulting from use of drugs that bring patients to the emergency department are as follows: acute intoxication by psychoactive drugs, withdrawal and instability of psychiatric comorbidities.

Participants showing signs of intoxication (i.e. agitation or sedation) or displaying aggressive behavior were referred for observation and were interviewed either later the same day or early the following morning. Data were manually entered into a single electronic database (Excel), followed by a double-checking procedure conducted by two members of the research staff.¹⁷

Statistical analyses

We conducted descriptive and multivariate analyses on the retrospective cross-sectional sample data, with HIV diagnosis and syphilis test reaction status as the primary outcomes of interest. We initially described all sociobehavioral, drug use and clinical indicator values for the total study population, and then compared male and female subsets. Bivariate analyses were conducted and odds ratios (OR) and 95% confidence intervals (95%CI) were calculated, and chi-square tests were used to measure associations between covariates of interest and HIV and syphilis infection outcomes. Multiple logistic regression analysis was used to determine factors independently associated with HIV and syphilis infection and adjusted odds ratios (AOR) were calculated. All variables that were moderately associated with a significance of $p \leq 0.05$ in bivariate analyses were considered for inclusion in the multivariate model. Potential confounders, such as age, were included in all regression models. Data were processed using STATA (Stata Corp, College Station, TX) version 15.

Ethics statement

The study was approved by the Ethics Review Board at the Federal University of São Paulo (CAAE: 6850.8117.5.0000.5505) and is registered with the Brazilian National Ethics Committee.

Results

The sample ($n = 806$) was composed mostly of men (77.9%, $n = 628$), with a mean age of 36.5 years (standard deviation [SD] = 11.5). With regards to education, most subjects had interrupted their studies before reaching high school (69.8%, $n = 563$). Nearly half of the entire sample was homeless, with a third living in the Cracolândia region, and approximately two thirds were unemployed. Crack cocaine use was the primary reason for seeking treatment in 92.2% of cases ($n = 743$).

The HIV infection rate was 5.8% ($n = 47$; 1:1 ratio) and only just under half (48.6%) of the males and a third (30%) of the females reported already having been diagnosed (Table 1). Over a third of the women ($n = 284$) tested positive for syphilis, 76.7% of whom had their diagnoses confirmed by tests at the venereal disease research laboratory (VDRL). Amongst men, 18.2% tested positive, 80% of whom were confirmed as positive by the VDRL (Table 1).

Over 41.0% of the women and 31.0% of the male subjects reported suicidal ideation at the time of the

interview. Twenty-one individuals (44.6%) from a total of 47 confirmed cases of HIV were aware of their diagnosis; 17 (36.1%) of these reported suicidal ideation.

Suicidal ideation rates were 40% among those with syphilis and 74.5% among those infected with HIV. Additionally, 61.4% of HIV patients reported having had unprotected sex during the preceding month.

The logistic regression model revealed that women were nearly 2.5 times more likely to have syphilis (OR: 2.44, $p = 0.001$, 95%CI: 1.67-3.65) than men. Syphilis was also associated with drug injection (OR: 3.54, $p = 0.01$ 95%CI: 1.23-10.1), but no associations between syphilis and sociodemographic characteristics or risk behavior were detected. HIV was robustly associated with suicidal ideation (OR: 6.63, $p = 0.001$ 95%CI: 3.37-14.0), unprotected sex (OR: 3.27, $p = 0.003$ 95%CI: 1.51-7.11) and history of drug injection (OR: 13.05, $p = 0.01$ 95%CI: 4.32-39.3).

Discussion

The staggering rates of HIV and syphilis detected amongst individuals seeking treatment for SUD in São Paulo (5.8% and 21.9%, respectively) underscore the urgent need to develop more effective prevention and treatment strategies. Our findings indicate that current prevention and treatment strategies are either insufficient or poorly targeted at the key populations.^{7,15} In addition, most of the sample reported having had unprotected sex in the preceding month,¹⁸ and a third of them reported having suicidal thoughts at the time of the interview.¹⁹ Both of these aspects were robustly associated with HIV infection, as was unprotected sex with syphilis.

In relation to history of drug injection amongst the population studied, it is pertinent to point out that during the past decade most injection drug users abandoned the habit and chose to begin smoking crack cocaine instead.⁶ Bearing in mind that most of the current crack cocaine users are not injecting cocaine anymore, safe injection sites would not be relevant in the present situation.²⁰ Furthermore, although it was associated with HIV and syphilis, this practice is restricted to less than 2% of the sample.¹²

Despite their intense exposure to STI and HIV infection, the majority of the sample reported engaging in unprotected sex and the hypothesis of its association with HIV infection was confirmed. It is known that policies based exclusively on promotion of safe sex practices are insufficient as prevention strategies.^{18,21} Initiatives to reduce harm must go beyond such policies

and should invest in maintenance of HIV and syphilis treatment in order to reduce transmission rates,²¹ in addition to reinforcing strategies for reduction of unprotected sex that are already being implemented.

Our findings also highlight the importance of always addressing suicidal ideation, which was reported by a third of the sample. Moreover, patients who tested positive for HIV had a more than six times greater likelihood of reporting suicidal ideation. Twenty-one (44.6%) cases out of the total of 47 confirmed cases of HIV were aware of their diagnoses and 17 (36.1%) of these cases presented suicidal ideation, probably due to the stigma related to the virus and the lack of information provided, which their drug-dependent condition tends to exacerbate.¹⁹

It is relevant to mention that suicidal ideation assessment was performed before HIV test results were disclosed, thereby reducing the possibility of an immediate impact. There is a large body of evidence to support the belief that suicidal ideation is not only associated with crack cocaine abuse, but also with the diagnosis of HIV infection. This relationship is even more apparent during the first few months following diagnosis.¹⁹ There are recently-reported findings in the medical literature in which it was noted that suicidal ideation was significantly associated with diagnosis of HIV in the preceding three years (n = 304 patients).²² This association emphasizes the importance of implementing suicide prevention measures at addiction services.

Table 1 - Sociodemographic characteristics

Sociodemographic characteristics	Total	Men 77.9 (74.9-80.6)	Women 22.1 (19.3-25.1)
Age			
Up to 24	12.5 (10.4-15.1)	10.8 (8.0-3.5)	18.5 (13.4-25.0)
25 to 34	35.1 (31.8-38.4)	34.9 (30.7-38.2)	37.6 (30.7-45.0)
35 to 44	29.6 (26.5-32.9)	30.7 (27.2-34.4)	25.8 (19.8-32.8)
45 or older	22.7 (19.9-25.7)	24.0 (20.8-27.5)	17.9 (12.9-24.3)
Years in education			
None	1.4 (0.8-0.26)	1.4 (0.08-2.60)	1.7 (20.5-5.14)
Up to 5 years	18.2 (15.7-21.0)	17.2 (14.4-20.3)	21.9 (16.3-28.6)
6 to 9 years	50.2 (46.7-53.7)	49.2 (45.2-53.1)	53.9 (46.5-61.1)
10 to 13 years	27.0 (24.0-30.2)	28.8 (25.4-32.4)	20.7 (15.4-27.4)
14 years or more	2.9 (2.1-5.0)	3.34 (2.18-5.07)	1.7 (0.5-5.14)
Housing			
Institution	6.7 (5.1-8.5)	6.84 (5.1-8.6)	6.7 (3.4-10.8)
Homeless	46.0 (42.6-49.4)	45.7 (41.8-49.6)	47.2 (39.9-54.6)
Fixed address	47.2 (43.8-50.7)	47.4 (43.5-51.3)	46.6 (39.3-54.0)
Region			
Cracolândia	31.2 (28.1-34.5)	31.5 (27.9-35.2)	30.5 (24.1-37.7)
Other	68.7 (64.4-71.8)	68.4 (64.7-72.0)	69.5 (62.2-75.8)
Employed	34.7 (31.5-38.1)	35.5 (31.8-39.3)	32.0 (25.5-39.2)
On social benefits	30.1 (26.9-33.2)	28.3 (24.9-32.0)	36.0 (29.1-43.3)
Risk behaviors			
Suicidal ideation (Missing = 0)	33.6 (30.4-36.9)	31.5 (28.0-35.2)	41.0 (33.9-48.4)
Unprotected sex (Missing = 0)	61.4 (58.0-64.7)	60.8 (57.0-64.6)	63.5 (56.0-70.2)
History of drug injection (Missing = 0)	1.86 (1.12-3.06)	1.27 (0.63-2.53)	1.56 (1.8-8.0)
Sexually transmitted infections			
HIV/AIDS (Missing = 6)	5.86 (4.43-7.72)	5.92 (4.31-8.07)	5.68 (3.06-10.2)
Previously diagnosed	44.6 (30.7-59.4)	48.6 (32.5-65.0)	30.0 (7.63-68.9)
Syphilis (Missing = 5)	21.9 (19.2-25.0)	18.2 (15.4-21.4)	35.2 (28.5-42.6)
Confirmatory VDRL result	79.7 (72.9-85.2)	81.4 (72.8-87.8)	76.6 (14.1-36.0)
Active disease	16.6 (14.2-19.4)	14.0 (11.5-17.0)	25.8 (19.9-32.8)
Treated disease	4.2 (3.0-5.8)	3.2 (2.0-4.9)	7.8 (4.7-12.9)

95%CI = 95% confidence interval; HIV/AIDS = human immunodeficiency virus/acquired immunodeficiency syndrome; VDRL = venereal disease research laboratory.

Most of the patients included (73%) were crack cocaine-dependent individuals, who belong to a socially vulnerable layer of society and are highly exposed to a variety of risk behaviors. Previous studies reported higher mortality rates amongst HIV-positive patients who use crack cocaine.²³ These elevated rates persisted even after adjustment for time since diagnosis, adherence to antiretroviral therapy and relevant sociodemographic variables.²⁴⁻²⁶ The harmful consequences related to crack cocaine consumption in HIV-positive patients emphasize the need for effective treatment strategies focusing on cessation of drug use.

To the best of our knowledge, this is the first combination mental health and infectious care strategy covering both syphilis and HIV/AIDS in Cracolândia. Our findings corroborate those of previous studies that highlighted the importance of prioritizing STI testing on admission and initiating clinical care as soon as diagnoses are made.²⁷

Limitations

The study was performed at a single center with a convenience sample. Consequently, the risk of selection bias has to be addressed. CRATOD is located in the heart of Cracolândia, thus, it is reasonable to assume that the population treated at CRATOD is not representative of the wider substance use disorder population. These patients are probably facing more severe addiction and in a more vulnerable situation. Only six patients refused to take the rapid test, and remain in the study, with the data counted as missing. According to the database used, one of these six patients had been tested at another service and a diagnosis of syphilis was found on the system and this individual was counted as positive for VDRL. This description is included as a study limitation.

It can therefore be assumed that generalizability is limited. Furthermore, there is a possibility of underreporting, since all of the information on drug intake and risk behaviors was based on self-reports.

Conclusions

Elevated rates of HIV and syphilis were ascertained in the context of an extremely severe social vulnerability scenario. The most significant risk factors identified as associated with STI, such as suicidal ideation, unprotected sex and drug injection, should be taken into consideration for implementation of specific prevention strategies based on early diagnosis and treatment of sexually transmitted infections, to tackle the rapid spread of STI in this population.

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Disclosure

No conflicts of interest declared concerning the publication of this article.

References

- Ahern J, Stuber J, Galea S. Stigma, discrimination and the health of illicit drug users. *Drug Alcohol Depend.* 2007;88:188-96.
- Daar ES, Corado K. Condomless sex with virologically suppressed HIV-infected individuals: how safe is it? *JAMA.* 2016;316:149-51.
- Maartens G, Celum C, Lewin SR. HIV infection: epidemiology, pathogenesis, treatment, and prevention. *The Lancet.* 2014;384:258-71.
- World Health Organization. *Global Report World Health Organization.* Geneva: World Health Organization; 2015.
- UNAIDS. *Global Aids Response Progress Reporting 2016, Construction of core indicators for monitoring the 2011 United Nations Political Declaration on HIV and AIDS* Geneva: UNAIDS; 2016.
- Abdalla RR, Madruga CS, Ribeiro M, Pinsky I, Caetano R, Laranjeira R. Prevalence of cocaine use in Brazil: data from the II Brazilian national alcohol and drugs survey (BNADS). *Addict Behav.* 2014;39:297-301.
- Brasil, Ministério da Saúde, Departamento de Vigilância PeCdI, HIV/Aids e das Hepatites Virais. *Pesquisa de conhecimentos, atitudes e práticas da população brasileira.* Brasília: Ministério da Saúde; 2016.
- Brasil, Ministério da Saúde, Vigilância Epidemiológica. *Boletim Epidemiológico de Sífilis.* Brasília: DIAHV; 2017.
- Milanez H. Syphilis in pregnancy and congenital syphilis: why can we not yet face this problem? *Rev Bras Ginecol Obstet.* 2016;38:425-7.
- Baptista CJ, Dourado I, de Andrade TM, Brignol S, Bertoni N, Bastos FI. HIV prevalence, knowledge, attitudes, and practices among polydrug users in Brazil: a biological survey using respondent driven sampling. *AIDS Behav.* 2017;22:2089-103.
- Brasil, Ministério da Saúde. *PCDT: Protocolo clínico e diretrizes terapêuticas para manejo da infecção do HIV em adultos.* Brasília: Ministério da Saúde; 2017.
- United Nations Office on Drugs and Crime. *Practical guide for civil society HIV service providers among people who use drugs.* Vienna: UNODC; 2013.
- United Nations Office on Drugs and Crime. *Global consultation UNODC on prevention.* Vienna: UNODC; 2014.
- Tan AX, Kapiga S, Khoshnood K, Bruce RD. Epidemiology of drug use and HIV-related risk behaviors among people who inject drugs in Mwanza, Tanzania. *PLoS One.* 2015;10: e0145578.
- McPherson SM, Madruga CS, Miguel AQC, McDonnell MG, Ribeiro, A. Preliminary findings: HIV/STD risk among crack cocaine-dependent patients in treatment in Brazil's 'Crackland'. *Drug Alcohol Depend.* 2017;171:e140-1.
- Ribeiro M, Duailibi S, Frajzinger R, Alonso AL, Marchetti L, Williams AV, et al. The Brazilian 'Cracolândia' open drug scene

- and the challenge of implementing a comprehensive and effective drug policy. *Addiction*. 2016;111:571-3.
17. Zoldan LGV, Ribeiro M, editors. *CRATOD 15 Anos – Uma proposta de cuidado ao dependente químico*. São Paulo; Imprensa Oficial: 2017.
 18. Johnson MW, Herrmann ES, Johnson PS, Sweeney MM. Cocaine decreases preference for condom use as function of delayed condom availability and STI risk. *Drug Alcohol Dep*. 2017;171:e97.
 19. Kang CR, Bang JH, Cho SI, Kim KN, Lee HJ, Ryu BY, et al. Suicidal ideation and suicide attempts among human immunodeficiency virus-infected adults: differences in risk factors and their implications. *AIDS Care*. 2016;28:306-13.
 20. Dunn J, Laranjeira RR. Transitions in the route of cocaine administration--characteristics, direction and associated variables. *Addiction*. 1999;94:813-24.
 21. Des Jarlais DC, Arasteh K, McKnight C, Feelemyer J, Campbell AN, Tross S, et al. What happened to the HIV epidemic among non-injecting drug users in New York City? *Addiction*. 2017;112:290-8.
 22. Quinlivan EB, Gaynes BN, Lee JS, Heine AD, Shirey K, Edwards M, et al. Suicidal ideation is associated with limited engagement in HIV care. *AIDS Behav*. 2017;21:1699-708.
 23. Ribeiro M, Dunn J, Sesso R, Lima MS, Laranjeira R. Crack cocaine: a five-year follow-up study of treated patients. *Eur Addict Res*. 2007;13:11-9.
 24. Cook JA, Burke-Miller JK, Cohen MH, Cook RL, Vlahov D, Wilson TE, et al. Crack cocaine, disease progression, and mortality in a multicenter cohort of HIV-1 positive women. *AIDS*. 2008;22:1355-63.
 25. Malta M, Magnanini MM, Strathdee SA, Bastos FI. Adherence to antiretroviral therapy among HIV-infected drug users: a meta-analysis. *AIDS Behav*. 2010;14:731-47.
 26. Ti L, Dong H, Kerr T, Turje RB, Parashar S, Min JE, et al. The effect of engagement in an HIV/AIDS integrated health programme on plasma HIV-1 RNA suppression among HIV-positive people who use illicit drugs: a marginal structural modelling analysis. *HIV Med*. 2017;18:580-6.
 27. Doshi RK, Vogenthaler NS, Lewis S, Rodriguez A, Metsch L, del Rio C. Correlates of antiretroviral utilization among hospitalized HIV-infected crack cocaine users. *AIDS Res Hum Retroviruses*. 2012;28:1007-14.

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