

Epidemiological profile of cases of HIV, Syphilis and Hepatitis in private of freedom, Minas Gerais

Perfil epidemiológico dos casos de HIV, Sífilis e Hepatites em privados de liberdade, Minas Gerais

Perfil epidemiológico de casos de VIH, sífilis y hepatitis en privados de libertad, Minas Gerais

RESUMO

Objetivo: Traçar o perfil epidemiológico do HIV, sífilis e hepatites virais em privados de liberdade de Minas Gerais. Métodos: Estudo transversal com 273 indivíduos privados de liberdade. Foram aplicados um questionário socioeconômico, contendo questões estruturadas e foi realizado exames de testagem rápida para HIV, Sífilis e Hepatites tipo 'B' e 'C'. Resultados: A idade média foi de 33,3 anos. Cerca de 62,3% eram solteiros, 53,7% eram pardos, 39,4% com ensino fundamental incompleto e 95,1% se declararam heterossexual. Quanto à detecção de anticorpos observou-se 6,3% de resultados positivos para anti-HIV, 3,3% para anti-HCV, 1,1% para HBsAg, 11% para teste treponêmico e 87,5% de resultados positivos para o teste confirmatório para HIV. Conclusão: A presente pesquisa realizada com privados de liberdade do sexo masculino, com perfil social que evidenciou expressivas vulnerabilidades individuais e coletivas, sobretudo pelo inadequado hábito do uso de preservativos em indivíduos heterossexuais e baixa escolaridade.

DESCRIPTORIOS: Infecções sexualmente transmissíveis; Prisioneiros; HIV; Sífilis; Hepatite viral.

ABSTRACT

Objective: To outline the epidemiological profile of HIV, syphilis and viral hepatitis in prisoners of liberty in Minas Gerais. Methods: Cross-sectional study with 273 individuals deprived of their liberty. A socioeconomic questionnaire was applied, containing structured questions, and rapid testing for HIV, Syphilis and Hepatitis type 'B' and 'C' was carried out. Results: The average age was 33.3 years. Around 62.3% were single, 53.7% were mixed race, 39.4% had incomplete primary education and 95.1% declared themselves heterosexual. Regarding antibody detection, 6.3% of positive results were observed for anti-HIV, 3.3% for anti-HCV, 1.1% for HBsAg, 11% for treponemal test and 87.5% positive results for the HIV confirmatory test. Conclusion: This research was carried out with men deprived of liberty, with a social profile that highlighted significant individual and collective vulnerabilities, especially due to the inadequate habit of using condoms in heterosexual individuals and low education.

DESCRIPTORS: Sexually transmitted infections; Prisoners; HIV; Syphilis; Viral Hepatitis.

RESUMEN

Objetivo: Describir el perfil epidemiológico del VIH, sífilis y hepatitis viral en presos en libertad en Minas Gerais. Método: Estudio transversal con 273 individuos privados de libertad. Se aplicó un cuestionario socioeconómico con preguntas estructuradas y se realizaron pruebas rápidas para VIH, Sífilis y Hepatitis tipo 'B' y 'C'. Resultados: La edad media era de 33,3 años. Alrededor del 62,3% eran solteros, el 53,7% mestizos, el 39,4% tenían estudios primarios incompletos y el 95,1% se declaraban heterossexuales. En cuanto a la detección de anticuerpos, se observó un 6,3% de resultados positivos para anti-HIV, un 3,3% para anti-HCV, un 1,1% para HBsAg, un 11% para la prueba treponémica y un 87,5% de resultados positivos para la prueba confirmatoria del VIH. Conclusiones: Esta investigación fue realizada con hombres privados de libertad, con un perfil social que destacó importantes vulnerabilidades individuales y colectivas, especialmente por el inadecuado hábito de uso del preservativo en individuos heterossexuales y baja escolaridad.

DESCRIPTORIOS: Infecciones de transmisión sexual; Presos; VIH; Sífilis; Hepatitis virales.

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INTRODUCTION

In 2019, 690,000 deaths from HIV/AIDS were recorded in the world, with a drop of 39% between 2010 and 2019. From the beginning of its epidemic (1980s) until December 2019, 349,784 deaths were identified in Brazil with AIDS as the underlying cause.¹

In the State of Minas Gerais, more than 50% and 30% of HIV/AIDS cases are concentrated in the population aged between 20-34 and 35-49 years, respectively, with a sex ratio of 3.05 for males. In relation to diagnoses by Regional Health Superintendencies (SRS), Belo Horizonte has an incidence of 17.1 cases for every 100 thousand inhabitants, followed by Uberlândia. Regarding health regions, Macronorte presents case occurrences ranging from 150-300 cases/100 thousand inhabitants.²

People involved in crime and prison are significantly more prone to HIV infection and other STIs than the general population.³ In the current scenario of the epidemic in Brazil, for Alvarez⁴, The concentration of cases among men who have sex with men draws attention.

Furthermore, relationships with occasional partnerships may indicate situations of greater exposure to STIs, especially considering the number and diversity of partnerships, as well as the places and conditions in which sexual practices take place, including considering some contextual elements, such as the use of alcohol and other drugs (before or during sex). We must also consider sexual relations that occur in conditions of disparity in negotiating power, or even under physical or psychological

violence, in a context of marginaliza-tion, transactional sex or practices that give rise to situations of prejudice and stigma that usually make it difficult to adopt preventive strategies.⁵

Therefore, studying the occurrence and outlining the epidemiological profile of STIs in prison institutions is relevant to the field of public health, since the risk behaviors of those deprived of liberty can contribute to maintaining their chain of transmission. Therefore, it is justified to carry out this study with the objective of tracing the epidemiological profile of HIV, syphilis and viral hepatitis in prisoners of liberty in Minas Gerais.

METHODS

Cross-sectional, quantitative, descrip-tive and analytical study carried out with people deprived of liberty in prisons of the 11th RISP, located in the Macronorte de Saúde region of Minas Gerais.

This research adopted simple random probability sampling.⁶ The total population of inmates at the 11th RISP, carried out in May 2022, accounted for 3,272 people deprived of their liberty. The method for sample calculation was Barnett's⁷ using the prevalence of outcomes identified in the literature: HIV - 4.4% to 24.8%; Syphilis - 5.7% to 25.2%; Hepatitis B - 7.4%; Hepatitis C - 4.6% to 19%.⁸ Thus, the estimated minimum sample size was 273 individuals.

The inclusion criteria were: being a male person deprived of liberty; being in custody for more than 6 months in the 11th RISP prisons; accept to participate spontaneously and agree to sign the

Consent Form; have the cognitive capacity to respond to the data collection instrument; consent to the presence of the Penitentiary Security Officer (ASP - Agente de Segurança Penitenciária) at the data collection site, if necessary; consent to respond to the semi-structured questionnaire and volunteer to collect material for rapid serological testing.

The study was carried out using a socio-economic questionnaire containing structured questions, adapted from Reis and Tupinambás⁹, followed by Rapid Testing exams for HIV, Syphilis and Hepatitis type 'B' and 'C'. The application of the questionnaire and the testing were carried out by previously trained Pharmacists, Psychologists, Nurses and/or Nursing Technicians.

Initially, data were collected in the second half of 2019, with collection suppressed during the period of Public Health Emergency of National Importance (ESPIN - Emergência em Saúde Pública de Importância Nacional), caused by the COVID-19 pandemic. 10 Activities resumed in the first half of 2022.

The individuals were listed using an alphabetical nominal list of inmates in each prison, and were subsequently selected randomly. The invited prisoners who did not express interest in participating in the study were replaced by other inmates. Furthermore, contact with those deprived of liberty always occurred with the presence of the ASP. After the collection and serological tests were carried out, participants were informed of the results confidentially, when possible. Positive cases were referred to the local health network.

The questionnaires and all other pro-

cedures were applied after formal consent from the participant, and while this procedure was carried out, in around 25 minutes, rapid STI rapid tests (RT) were carried out. For positive cases in the initial screening for the HIV virus, a chromatographic immunoassay was used, in a confirmatory manner.

The RTs used to screen for *treponema pallidum* infection were based on lateral flow immunochromatography technology. When it comes to tests for the Hepatitis B virus, the qualitative lateral flow immunochromatography test was used to search for circulating HBsAg. RTs were also performed for the qualitative detection of antibodies specific to Hepatitis C in human serum.

The data obtained were entered into the EpiData® software version 3.1. They were exported to the Statistical Package for Social Science (SPSS), version 22.0. Descriptive analyzes were carried out using absolute and relative frequency (%), mean, standard deviation, minimum and maximum. Inferential analyzes were carried out using bi- and multivariate models using the Chi-square or Exact and Fisher test and Logistic Regression, with the p value set at 0.05.

This research was approved by the Research Ethics Committee of the Federal University of Minas Gerais – COEP/UFMG, obtaining full authorization for its conduct, according to Consubstantiated Opinion No. 3,909,883.

RESULTS

273 people deprived of their liberty participated in this study. Age ranged from 18 to 75 years, with an average of 33.3 years. Among the people who participated in the study, 62.3% were single, 16.8% were in a stable relationship or had a partner and 15.4% were married. In relation to education, 18.2% of people completed only the initial grades of primary education, 39.4% had incomplete primary education, 17.8% have incomple-

te secondary education and 12.5% have completed primary education. As for color, we have a higher proportion of mixed race people (53.7%), followed by black people (24.1%) and white people (20%). The majority of people (95.1%) declared themselves heterosexual, in addition to 86.5% not considering themselves transgender or transsexual (Table 1).

Regarding antibody detection, 6.3% of positive results were observed for anti-HIV, 3.3% for anti-HCV, 1.1% for HBsAg, 11% for treponemal test and 87.5% positive results for the HIV confirmatory test. It should be noted that association tests for HCV and HBsAg were not carried out due to the low prevalence in the group of people evaluated.

Table 2 demonstrates the association between sociodemographic variables and testing for HIV and VDRL. There was no statistically significant association between age group, marital status, education and color with the HIV test (positive or negative).

Table 3 demonstrates the association between sociodemographic variables and testing for all STIs (HIV, HCV, HBsAg and VDRL). There was no statistically significant association between age group, marital status, education and color with STI tests.

Table 4 demonstrates the results of a significant association between sexual orientation and frequency of condom use. As can be seen, a lower frequency of condom use is among heterosexuals (75.6%) compared to 25% among homosexuals or bisexuals.

As can be seen in table 5, there was a significant association between housing situation and the practice of transactional sex. The percentage of people in this situation was significantly lower among those whose housing situation is their own or rented home when compared to people with rented housing or homeless people.

DISCUSSION

According to data from the National Penitentiary Information Survey (In-

fopen) 11 in 2017, Brazil ranked fourth among the largest prison populations per inhabitant in the world, with a rate of 666 inmates for every 100,000 people. Around 76.6% of the country's prisons are aimed exclusively at males and specifically in Minas Gerais the percentage is 51.7%. 11

The continuous growth in the number of people incarcerated in the country worsens living conditions within prison systems. Massaro and Camilo 12 point out that this rapid growth is not being accompanied by the creation of new prison establishments, as many of the existing ones are unsuitable for human coexistence. Unfavorable conditions encourage violence, worse health conditions and the transmission of infectious diseases, especially STIs.

A study 13 which aimed to understand the health panorama of men deprived of liberty and their difficulties in accessing healthcare, identified several complaints related to health problems such as HIV. This population is considered at risk for STIs and represents a serious health problem. 14 Prison does not isolate individuals from risk, as transmission can occur between inmates themselves and during intimate visits.

Added to this, another factor is men's lack of knowledge about STI prevention measures. Oliveira and collaborators 15 point out that the knowledge of men deprived of their freedom is deficient. This is mainly due to distrust or lack of knowledge of diagnostic methods. The authors identified that the behavior of the study participants was based on not adhering to preventive measures and resistance to being assisted by the health service, driven by factors associated with masculinity.

The majority of those deprived of liberty who presented a reactive STI test were between 26-35 years old (44.2%) and were single (62.3%). These data are similar to those evidenced in a Brazilian study with 486 people deprived of liberty (DoL) in which the average age

Table 1 - Characterization of those deprived of liberty regarding the variables of interest, in general

	Variables	
	n	Frequency %
Age (years)		
Mean \pm s.d	33,3 \pm 10,2	
C.I. of mean (95%)	32,1 - 34,5	
Median (Q1 - Q3)	32,0 (26,0 - 38,0)	
Minimum - Maximum	18,0 - 75,0	
Age Group		
From 18 to 25 years	62	23,1
From 26 to 35 years	119	44,2
From 36 to 45 years	57	21,2
More than 45 years	31	11,5
Total	269	100,0
4 cases without information		
Marital status		
Single	170	62,3
Married	42	15,4
Stable union / Living together	46	16,8
Divorced / Separated	13	4,8
Widower	2	0,7
Total	273	100,0
Education		
Illiterate	1	0,4
Incomplete elementary education	48	18,2
Complete elementary education	104	39,4
Incomplete High School	33	12,5
Incomplete High School	47	17,8
Complete High School	29	11,0
Incomplete Higher education	2	0,7
Total	264	100,0
9 cases without information		
Regarding your color/race, do you consider yourself:		
White	54	20,0
Black	65	24,1
Brown	145	53,7
Indigenous	1	0,4
Yellow / Oriental	5	1,8

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Total	270	100,0
3 cases without information		
What is your sexual orientation:		
Heterosexual	254	95,1
Homossexual	7	2,6
Bissexual	1	0,4
Doesn't know	5	1,9
Total	267	100,0
6 cases without information		

Source: Research Data, 2023

NOTE: s.d.= Standard deviation C.I. of the mean 95% confidence interval of the mean

Table 2 - Assessment of the association between testing for VDRL and HIV and the factors of interest

Factors	VDRL Test			HIV Test		
	Negative	Positive	p	Negative	Positive	p
Age Group						
From 18 to 25 years	56 (91,8%)	5 (8,2%)	0,555*	56 (91,8%)	5 (8,2%)	0,538**
From 26 to 35 year	107 (89,9%)	12 (10,1%)		113 (95,8%)	5 (4,2%)	
From 36 to 45 year	48 (84,2%)	9 (15,8%)		54 (94,7%)	3 (5,3%)	
More than 45 years	27 (87,1%)	4 (12,9%)		28 (90,3%)	3 (9,7%)	
Marital status						
Single	148 (87,6%)	21 (12,4%)	0,170**	160 (95,2%)	8 (4,8%)	0,272**
Married / Stable Union / Living together	82 (93,2%)	6 (6,8%)		80 (90,9%)	8 (9,1%)	
Divorced / Separated / Widower	12 (80,0%)	3 (20,0%)		14 (93,3%)	1 (6,7%)	
Education						
Up to incomplete elementary school	137 (90,1%)	15 (9,9%)	0,747**	139 (92,1%)	12 (7,9%)	0,468**
Complete elementary school / Complete high school	70 (87,5%)	10 (12,5%)		77 (96,3%)	3 (3,8%)	
Complete High school / Incomplete higher education	27 (87,1%)	4 (12,9%)		29 (93,5%)	2 (6,5%)	
Color/race						
White	47 (87%)	7 (13%)	0,768**	49 (90,7%)	5 (9,3%)	0,605**
Black	58 (90,6%)	6 (9,4%)		59 (92,2%)	5 (7,8%)	
Brown	129 (89%)	16 (11%)		137 (95,1%)	7 (4,9%)	
Indigenous /Yellow / Oriental	5 (83,3%)	1 (16,7%)		6 (100,0%)	0 (0,0%)	

Source: Research Data, 2023



Table 3 - Assessment of the association between a positive test for STIs (HIV, HCV, HBsAg and VDRL) and the factors of interest

Factors	Test		p
	Negative	Positive	
Age group			
From 18 to 25 years	51 (83,6%)	10 (16,4%)	0,346*
From 26 to 35 years	101 (85,6%)	17 (14,4%)	
From 36 to 45 years	44 (77,2%)	13 (22,8%)	
More than 45 years	23 (74,2%)	8 (25,8%)	
Marital Status			
Single	141 (83,9%)	27 (16,1%)	0,079**
Married/ Stable Union/ Living together	71 (80,7%)	17 (19,3%)	
Divorced / Separated / Widower	9 (60,0%)	6 (40,0%)	
Education			
Up to incomplete elementary school	122 (80,8%)	29 (19,2%)	0,898*
Complete elementary school / Complete high school	66 (82,5%)	14 (17,5%)	
Complete high school / Incomplete higher education	26 (83,9%)	5 (16,1%)	
Color/race			
White	42 (77,8%)	12 (22,2%)	0,873**
Black	52 (81,3%)	12 (18,8%)	
Brown	119 (82,6%)	25 (17,4%)	
Indigenous / Yellow / Oriental	5 (83,3%)	1 (16,7%)	

Source: Research Data, 2023

Table 4 - Assessment of the association between sexual orientation and condom use

Sexual orientation	Use of condom			Total	p
	Everytime	Most times	In minority, none or sometimes		
Heterossexual	25 (10,2%)	35 (14,2%)	186 (75,6%)	246	=0,004
Homossexual ou Bissexual	3 (37,5%)	3 (37,5%)	2 (25,0%)	8	
Total	28	38	188	254	

Source: Research Data, 2023

Table 5 - Assessment of the association between housing situation and the fact of having already been paid to have sexual intercourse with another person

Housing situation	Have you ever been paid to have sexual intercourse with someone else?		Total	p
	Yes	No		
Own home	12 (5,6%)	201 (94,4%)	213	-0,005
Rented	2 (4,1%)	47 (95,9%)	49	
Assigned	2 (22,2%)	7 (77,8%)	9	
Homeless	2 (100,0%)	0 (00%)	2	
Total	18	255	273	

Source: Research Data, 2023

was 29 years old. 16 The predominance of STIs in young and single people is explained by their risk behavior, as demonstrated by Aguiar et al. 17 which, when evaluating the behavior of young DoL, pointed out the prevalence of unprotected sexual activity, in addition to the average number of three sexual partners or more and the use of legal and illicit drugs during sex. Young people tend to present health risk behavior inherent to this stage of life, plus the unfavorable family and social context that increases these risks. Such facts are predictors for the outcome of STIs, which is why it is important to target prevention actions within prison establishments.

Another fact that draws attention in this study is the low level of education in DoL. A study carried out in Switzerland, in a large-scale prison, corroborates the results of this research, due to

the predominance of individuals with a low level of education. 18 Data are also similar to a Brazilian study with 6,160 DoL, where 3,649 individuals had only primary education and of these, 366 had some type of STI. 19 This similarity can be explained because individuals generally enter crime at a young age, which interrupts their basic training. Some research indicates that low education and/or low knowledge can influence the outcome of an STI 20–22, due to greater exposure to risk due to the lack of preventive actions. Furthermore, the prevalence of low education may be a reflection of the lack of access to quality education, housing, employment and health.

In the present research there was a significant association between sexual orientation and condom use, in which heterosexuals were less likely to use condoms. Less frequent use of

condoms by heterosexuals may be associated with a lower perception of risk or masculinity. Therefore, the absence of condoms during sexual relations becomes worrying, regardless of sexual orientation, whether due to the unavailability of prevention supplies or low knowledge of preventive strategies. Incarcerated individuals have sexual relationships with their partners through intimate visits, or with each other (men who have sex with men). 23 In this sense, the prison health system's deficit in offering and encouraging the use of this prevention mechanism in an indiscriminate and free manner becomes an important factor for the greater risk of transmission inside and outside prison.

This study has limitations, as its design is not capable of inferring causality. Access to inmates due to security issues in prison environments was also a limitation, which prevented homoge-

neous data collection. Another limitation was the suspension of data collection due to the COVID-19 pandemic, where the process was resumed after the stabilization phase.

CONCLUSION

The present research carried out with male prisoners, with a social pro-

file that showed significant individual and collective vulnerabilities, revealed a statistically significant association between sociodemographic variables and the presence of STIs, mainly due to the inadequate habit of using condoms in heterosexual individuals and low education. It is necessary to question, in the future, issues related to non-adherence to the use of condoms versus access to

condoms in prison environments, in addition to instigating the intensification of combined prevention and the application of other technologies such as Pre-exposure Prophylaxis (PrEP).

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