HIV Incidence and Factors Associated With Never Testing for HIV Among Young MSM: Conectad@s Study

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BACKGROUND

- New HIV cases are increasing among young men who have sex with men (YMSM) in Brazil, despite free access to HIV testing and prevention in the universal healthcare system in Brazil.[1]
- High HIV prevalences and incidences have been recently estimated for YMSM in Brazil.[2-4]
- Research is needed to monitor HIV and prevention engagement among YMSM in Brazil.
- We estimated HIV incidence using recent infection testing and explored HIV testing and factors associated with never testing for HIV in a large study of YMSM in Brazil.

METHODS

- Data are from the Conectad@s study of YMSM aged 18-24 years in Rio de Janeiro, Brazil.
- Participants assigned male sex at birth were recruited between Nov/2021-Oct/2022 using respondent driven sampling.
- Participants were offered HIV testing and were surveyed on demographics, behavior, sexually transmitted infection (STI) and HIV knowledge (validated 12-items measure with scores ranging from 0 to 12; higher scores mean higher knowledge).
- Recent infection testing algorithm (RITA):
  - Maxim HIV-1 LAg-Avidity EIA assay (recency)
  - HIV-1 RNA <400 copies/mL
  - CD4 count <200 cells/mm^3
  - prior/current ART use
  - MDRI: 214 days (95%CI: 193-237); FRR: 0%.
- Annualized HIV incidence and 95% confidence intervals (95%CI): UNAIDS/WHO incidence estimator tool (“Inctools” R package).
- We used logistic regression models to assess factors associated with never testing for HIV.

The annualized HIV incidence was 2.81% (95%CI 0.32-5.30).

More than one quarter of participants reported no prior HIV testing.

Figure 1. Study flowchart.

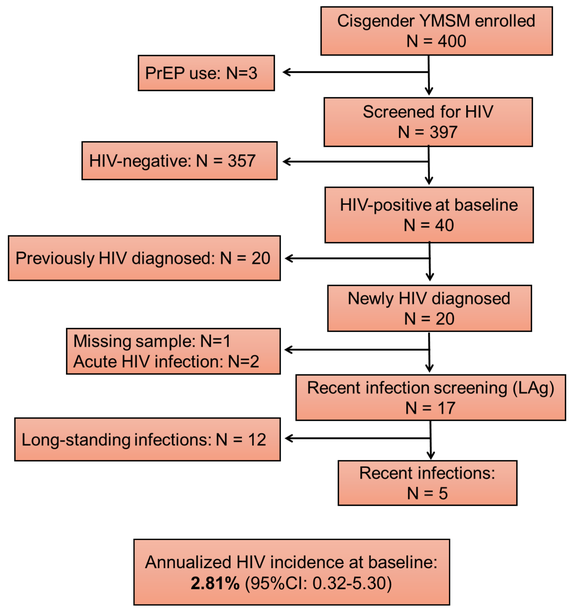

Table 1. Sociodemographic characteristics of participants.

	Total N=400 (100%)	Never tested Yes N=108 (27.0%)	Never tested No N=292 (73.0%)	p-value
Median age, years (IQR)[1]	21 (20-23)	20 (19-22)	22 (20-23)	**< 0.001**
Age category, years[2]				
18-19	79 (19.8)	41 (38.0)	38 (13.0)	**< 0.001**
20-24	321 (80.2)	67 (62.0)	254 (87.0)	
Gender[2]				
Cisgender man	370 (92.5)	105 (97.2)	265 (90.8)	**0.029**
Non-binary	30 (7.5)	3 (2.8)	27 (9.2)	
Region[2]				
Rio de Janeiro and Niteroi	254 (63.5)	73 (67.6)	181 (62.0)	0.301
Other metropolitan cities	146 (36.5)	35 (32.4)	111 (38.0)	
Sexual Orientation[2]				
Gay	278 (69.5)	77 (71.3)	201 (68.8)	0.507
Bisexual	85 (21.2)	24 (22.2)	61 (20.9)	
Other	37 (9.2)	7 (6.5)	30 (10.3)	
Race[3,4]				
Black	166 (41.6)	34 (31.8)	132 (45.2)	**0.02**
Pardo	116 (29.1)	41 (38.3)	75 (25.7)	
White	113 (28.3)	30 (28.0)	83 (28.4)	
Indigenous	3 (0.8)	1 (0.9)	2 (0.7)	
Asian	1 (0.3)	1 (0.9)	0 (0.0)	
Education (completed)[2]				
Primary	37 (9.2)	17 (15.7)	20 (6.8)	**0.004**
Secondary	204 (51.0)	59 (54.6)	145 (49.7)	
Post-secondary	159 (39.8)	32 (29.6)	127 (43.5)	
Monthly income per capita[2,5]				
0.5 minimum wage	123 (30.8)	44 (40.7)	79 (27.1)	**0.032**
>0.5-1 minimum wage	161 (40.4)	38 (35.2)	123 (42.3)	
>1 minimum wage	115 (28.8)	26 (24.1)	89 (30.6)	
HIV Knowledge Scale (score; IQR)[1,6]	11 (9-11)	10 (8-11)	11 (10-12)	**< 0.001**
Number of partners (prior 12 months)[2]				
≥ 5	233 (58.2)	44 (40.7)	189 (64.7)	**< 0.001**
< 5	167 (41.8)	64 (59.3)	103 (35.3)	
Condomless anal sex (past 6 months)[2]				
Yes	310 (77.5)	71 (65.7)	239 (81.8)	**< 0.001**
No	90 (22.5)	37 (34.3)	53 (18.2)	
Chemsex (prior 6 months)[2,7]				
Yes	148 (37.0)	21 (19.4)	127 (43.5)	**< 0.001**
No	252 (63.0)	87 (80.6)	165 (56.5)	
Sexually transmitted infections (prior 12 months)[2]				
Yes	127 (31.8)	16 (14.8)	111 (38.0)	**< 0.001**
No	273 (68.2)	92 (85.2)	181 (62.0)	

IQR: interquartile range, [1]Ranksum test, [2]Pearson’s chi-square, [3]Fisher’s exact test, [4]one individual missing data at ‘never tested yes’, [5]minimum wage per month in Brazil in 2022 was R$1212 (USD 230), [6]12-items; scores range 0-12; higher scores mean higher knowledge, [7]defined as any illicit substance use before or during sex.

Table 2. Factors associated with never testing for HIV.

	Never Tested for HIV		Bivariate Analysis		Multivariable Analysis	
	Yes (%) N=108 (27.0)	No (%) N=292 (73.0)	OR (95% Confidence Interval)	p-value	aOR (95% Confidence Interval)	p-value
HIV Knowledge scale (score; IQR)[1]	10 (8-11)	11 (10-12)	0.66 (0.57-0.76)	<.0001	0.62 (0.53-0.73)	**<.0001**
Age: 18-19 years (ref. 20-24 years)	41 (38.0)	38 (13.0)	4.09 (2.44-6.89)	<.0001	3.91 (2.15-7.20)	**<.0001**
Sexually transmitted infections (prior 12 months): no (ref. yes)	92 (85.2)	181 (62.0)	3.53 (2.02-6.50)	<.0001	4.22 (2.20-8.61)	**<.0001**
Number of partners (prior 12 months): < 5 (ref. ≥ 5)	64 (59.3)	103 (35.3)	2.67 (1.70-4.22)	<.0001	2.36 (1.40-4.02)	**0.0014**
Chemsex (prior 6 months):[2] no (ref. yes)	87 (80.6)	165 (56.5)	3.19 (1.91-5.53)	<.0001	2.99 (1.66-5.60)	**0.00037**

OR: odds ratio, aOR: adjusted OR, IQR: interquartile range, ref.: reference, [1]12-items; scores range: 0-12; higher scores mean higher knowledge; [2]defined as any illicit substance use before or during sex.

RESULTS

- We enrolled 400 YMSM (92.5% cis-man and 7.5% non-binary). Median age was 21 years (IQR: 20-23), 166 (40.6%) self-identified as Black, 241 (58.9%) completed secondary school (Table 1).
- HIV prevalence: 10.0% (40/400), 5.0% (N=20/400) newly diagnosed with HIV. Among these, 2 (10.0%) had acute HIV infections detected by viral load, and 5 (25.0%) had a recent HIV infection detected by RITA.
- The annualized HIV incidence rate was 2.81% (95%CI: 0.32-5.30) (Figure 1).
- Overall, 108 (27.0%) never tested for HIV (Table 2).
- Never testing was associated with lower HIV knowledge, being aged 18-19 years, reporting no STI in the last 12 months, fewer sexual partners and no chemsex (Table 2).

CONCLUSIONS

- HIV prevalence and incidence among YMSM in our sample were high. Almost a third of YMSM in our study had never been tested for HIV, although all participants accepted testing when offered.
- Specific outreach is needed to reach YMSM who may perceive their risk for HIV to be lower based on the number of sexual partners they have and type of sex.
- These results point to an urgent need for focused policies and interventions to reach and improve HIV prevention engagement among YMSM in Brazil. Research on the sexual network risks for YMSM in Brazil is also needed.

ADDITIONAL KEY INFORMATION

- Contact: sylvia@ioc.fiocruz.br
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