Syndemics and Retention in Care Among Women Living With HIV in Rio de Janeiro, Brazil

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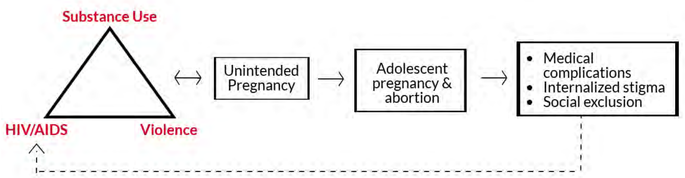
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Background

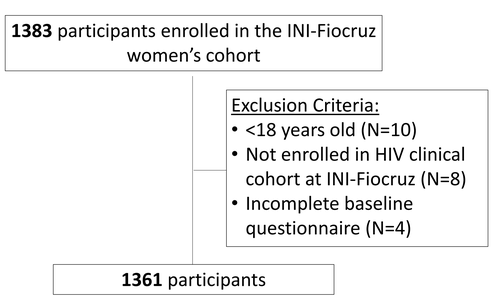
- Retention in HIV care is associated with virologic suppression, improved survival, and reduced transmission risk [1].
- Women living with HIV face unique challenges to engagement in the care cascade. Sociodemographic and clinical correlates of poor retention have been previously explored, but lack attention to sex-specific differences [2].
- Co-occuring disease and social synergistic epidemics, or syndemics, are associated with sexual risk behaviors [3]. However, syndemic theory has not been widely used to predict health outcomes, particularly in the global context [4].

Theoretical Framework



Methods

- **Design**: We analyzed data from 915 participants enrolled in a clinic-based gynecologic cohort of women living with HIV in Rio de Janeiro from 2000-2015.
- **Key Definitions**
  - Early Retention: ≥2 HIV monitoring laboratory results at least 90 days apart within first year of enrollment
  - Syndemic: lifetime history of sexual or physical violence, illicit drug use, adolescent pregnancy, or induced abortion
- **Analysis**
  - We used bivariate logistic regressions to test syndemic associations and variables associated with non-retention.
  - Two multivariate models using stepwise backward logistic regression analyzed syndemic contributions to non-retention: Model 1 incorporated individual syndemic variables; Model 2 used a syndemic score. Age and race were forced into both models.



Results

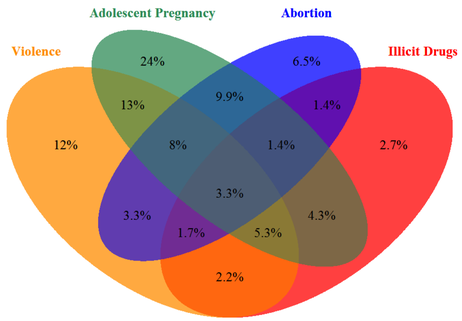
- Of 915 women (median age at enrollment 37), most were black or mixed race (66.2%) and had <9 years of education (52.5%).
- Overall, 18% met criteria for non-retention.
- Participants were living with HIV for a median 1.2 years and 12.8% were diagnosed with seroprevalent syphilis by positive treponemal test.
- Prevalence of syndemic factors was: physical/sexual violence 38.3%, illicit drug use 17.2%, adolescent pregnancy 53.2%, and induced abortion 27.3%. Nearly half (41.2%) experienced ≥2 syndemic conditions.

Table 1. Associations of syndemic conditions and seroprevalent syphilis among women living with HIV in Brazil, 2000-2015

	Physical/sexual violence OR (95% CI)	Illicit drug use OR (95% CI)	Adolescent pregnancy OR (95% CI)	Seroprevalent syphilis OR (95% CI)
Physical/sexual violence				**1.57 (1.05-2.35)**
Illicit drug use	**2.52 (1.76-3.60)**			**2.48 (1.59-3.87)**
Adolescent pregnancy	**1.58 (1.20-2.08)**	**1.69 (1.18-2.42)**		1.49 (0.99-2.23)
Induced abortion	**1.64 (1.22-2.22)**	**1.66 (1.14-2.40)**	**1.80 (1.34-2.44)**	1.09 (0.71-1.69)

Bolded text indicates p-value<0.05

Figure 1. Overlapping prevalence of syndemic conditions among women living with HIV in Brazil, 2000-2015



Discussion

- Early retention rates were comparable to large cohort studies in the Americas using similar definitions (75-80%) [5-6].
- Syndemic prevalence was similar to studies among women using sum score approach (46.9-61.5% reporting ≥2 conditions) [3,7].
- Supports qualitative literature suggesting that stigma and competing life interests are significant barriers to women's retention.
- Future studies could explore mechanisms of the syphilis association we observed (e.g. unstable partnerships, commercial sex, healthcare access).

Table 2. Unadjusted and adjusted associations with non-retention in HIV care among women living with HIV in Brazil, 2000-2015

	Non-retention (N=165)	Retention (N=750)	Unadjusted OR (95% CI)	Model 1 Adjusted OR (95% CI)	Model 2 Adjusted OR (95% CI)
Age					
18-24	12 (7.3)	70 (9.3)	Ref	Ref	Ref
25-34	65 (39.4)	248 (33.1)	1.53 (0.78-2.99)	1.20 (0.57-2.51)	1.19 (0.58-2.46)
35-44	51 (30.9)	259 (34.5)	1.15 (0.58-2.27)	0.76 (0.35-1.61)	0.75 (0.36-1.59)
≥45	37 (22.4)	173 (23.1)	1.25 (0.61-2.53)	0.75 (0.34-1.69)	0.70 (0.32-1.55)
Skin color					
White	60 (36.4)	249 (33.2)	Ref	Ref	Ref
Black	47 (28.5)	172 (22.9)	1.13 (0.74-1.74)	1.34 (0.81-2.21)	1.35 (0.83-2.21)
Mixed	58 (35.2)	329 (43.9)	0.73 (0.49-1.09)	0.86 (0.55-1.36)	0.89 (0.57-1.39)
Education <9 years (N=905)	**100 (61)**	**375 (50.6)**	**1.52 (1.08-2.15)**	**1.59 (1.05-2.42)**	**1.58 (1.06-2.36)**
Year of enrollment					
2000-2004	**49 (29.7)**	**110 (14.7)**	Ref	Ref	Ref
2005-2009	**36 (21.8)**	**339 (45.2)**	**0.24 (0.15-0.39)**	**0.18 (0.12-0.32)**	**0.18 (0.11-0.30)**
2010-2015	**80 (48.5)**	**301 (40.1)**	**0.60 (0.39-0.91)**	**0.50 (0.31-0.81)**	**0.50 (0.31-0.80)**
Time on ART					
0 (no ART)	74 (44.8)	304 (40.5)	Ref	Ref	Ref
≤3 months	26 (15.8)	164 (21.9)	0.65 (0.40-1.05)	**0.54 (0.31-0.93)**	**0.53 (0.31-0.91)**
4-24 months	49 (29.7)	235 (31.3)	0.86 (0.57-1.28)	**0.57 (0.36-0.92)**	**0.59 (0.37-0.93)**
>24 months	16 (9.7)	47 (6.3)	1.39 (0.75-2.60)	0.97 (0.45-2.10)	1.05 (0.49-2.21)
Median (IQR) years with HIV	**1.9 (0.9,4.9)**	**1.1 (0.6,3.4)**	**1.04 (1.00-1.08)**	**1.06 (1.01-1.11)**	**1.05 (1.01-1.10)**
Seroprevalent syphilis (N=884)	**32 (20.8)**	**81 (11.1)**	**2.10 (1.34-3.30)**	**1.85 (1.11-3.06)**	**1.89 (1.15-3.11)**
Lifetime physical or sexual violence (N=896)	72 (43.9)	271 (37)	1.33 (0.94-1.88)	1.13 (0.75-1.68)	
Lifetime illicit drug use (N=901)	**44 (26.7)**	**111 (15.1)**	**2.05 (1.37-3.05)**	1.50 (0.94-2.41)	
Adolescent pregnancy	98 (59.4)	389 (51.9)	1.36 (0.96-1.91)	1.36 (0.91-2.05)	
Lifetime history of induced abortion (N=907)	46 (28.6)	202 (27.1)	1.08 (0.74-1.57)	0.92 (0.59-1.42)	
Composite syndemic score					
0	**28 (17)**	**191 (25.5)**	Ref		Ref
1	**53 (32.1)**	**266 (35.5)**	1.36 (0.83-2.23)		1.51 (0.87-2.62)
2	**51 (30.9)**	**189 (25.2)**	**1.84 (1.11-3.04)**		**1.94 (1.10-3.41)**
3	**27 (16.4)**	**87 (11.6)**	**2.12 (1.18-3.80)**		**2.16 (1.10-4.24)**
4	**6 (3.6)**	**17 (2.3)**	2.41 (0.88-6.62)		1.34 (0.42-4.30)

Bolded text indicates p-value<0.05

Conclusions

- **Psychosocial vulnerabilities and unmet reproductive health needs were highly prevalent and can limit retention in care for women living with HIV.**
- **Syphilis infection could be explored as a syndemic factor in future studies.**
- **Interventions addressing sex-specific syndemics and conditions of social vulnerability are needed to optimize HIV care.**

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