HIV Seroprevalence, Incidence, and Viral Suppression among Ugandan Female Bar Workers

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BACKGROUND

- Female bar workers (FBWs) in eastern Africa often engage in sex work, putting them at significantly increased risk of HIV infection.
- However, population-level data on HIV seroprevalence, incidence, and viral suppression among FBW are rare.

METHODS

- FBWs were identified through longitudinal population-based HIV surveillance in southern Uganda via the Rakai Community Cohort Study from 2011 to 2020.
- Surveillance was conducted across five survey rounds in four high HIV prevalence (>35%) Lake Victoria fishing communities and 36 moderate HIV prevalence (~12%) inland agrarian and trading communities.
- Participants were classified as FBW if they reported bar work as a primary or secondary occupation.
- Primary outcomes included laboratory-confirmed HIV seropositivity, HIV seroconversion measured via paired serologic testing, HIV viral load (VL) suppression (<200 copies/ml), and HIV viremia (≥200 copies/ml).
- Prevalence and incidence rate ratios (PR, IRR) were estimated using age-adjusted Poisson regression models with 95% confidence intervals (95%CI).

RESULTS

- Overall, **23,556** females contributed **52,708** person visits, with **1,205 (5.1%)** self-identified as FBWs.
- FBWs were typically older, less educated, often previously married, and more likely to report high-risk sexual behaviors, including having multiple sexual partners and alcohol consumption before sex.
- Baseline HIV seroprevalence was **51.9% among FBWs** compared to 18.5% among non-FBWs (**Fig. 1**).
- Among 172 FBWs completing all five surveys, **12 (13%)** self-reported being a bar worker at all surveys, while **59 (34%)** reported bar work at only a single survey (**Fig 2**).
- Among women with ≥3 visits, women entering bar work had **1.65-fold higher (95%CI:1.40-1.95)** HIV seroprevalence compared to women who never entered bar work adjusting for community type and age (**Fig. 3**).
- During 39,228 years of participant follow-up, there were 356 HIV seroconversions, with an incidence rate of **2.42/100 PY in FBWs** vs. 0.86 in non-FBWs (**Table. 1**).

FBWs in Uganda exhibit significantly **higher HIV seroprevalence (51.9%) and incidence (2.42/100 PY)** as compared to the general population.

FBWs living with HIV have **similar HIV viral load suppression levels** as non-FBWs; however, FBWs have **significantly higher** population prevalence of HIV viremia than non-FBWs.

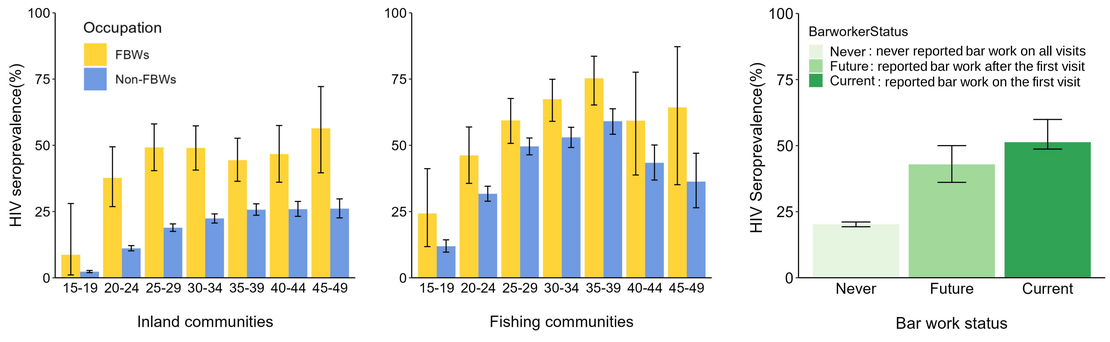


Figure 1. Age-specific HIV seroprevalence at baseline visit among female participants by self-reported history of ever engaged in bar work during five surveys in the inland and fishing communities of Rakai Community Cohort Study, Uganda, 2011-2020
(baseline visit: first visit for non-FBWs and first visit reported bar work for FBWs)

Figure 3. HIV seroprevalence among female participants with ≥3 visits (n=7,549) by self-reported bar work status at first visit in the Rakai Community Cohort Study, Uganda, 2011-2020

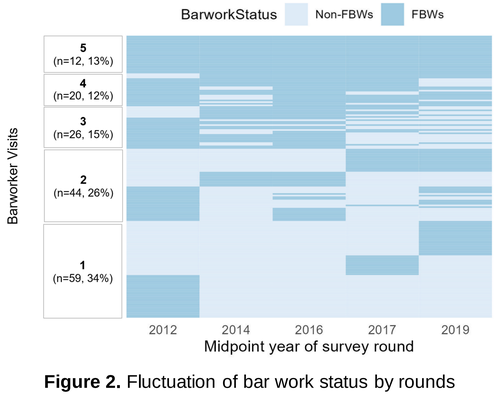


Figure 2. Fluctuation of bar work status by rounds among female participants with full visits (n=172) in the Rakai Community Cohort Study, Uganda, 2011-2020

Community Type	IR per 100 PY (cases/pys)	Age adjIRR (95% CI)	*p*-value
Overall	0.91 (356/39,228)		
Non-FBWs	0.86 (329/38,113)	ref	-
FBWs	2.42 (27/1,115)	3.33 (2.18-4.86)	<0.001
Inland	0.69 (233/33,757)		
Non-FBWs	0.66 (218/33,000)	ref	-
FBWs	1.98 (15/757)	3.47 (1.95-5.71)	<0.001
Fishing	2.25 (123/5,470)		
Non-FBWs	2.17 (111/5,113)	ref	-
FBWs	3.36 (12/357)	1.78 (0.93-3.12)	0.058

Table 1. Incidence rate and ratios of HIV seroconversion among female participants by the self-reported history of bar work at the current or previous visit in the Rakai Community Cohort Study, Uganda, 2011-2020

- Among participants living with HIV (n=4,272), the prevalence of HIV VL suppression was **81.6% among FBWs** and 82.2% in non-FBWs (p=0.959).
- Population prevalence of HIV viremia (PPV) was significantly higher in FBWs at all survey visits despite increasing VL suppression among women with HIV.
- In 2019, PPV was **2.78-fold higher (95%CI:1.76-4.37)** among FBWs compared to non-FBWs (Fig. 4).

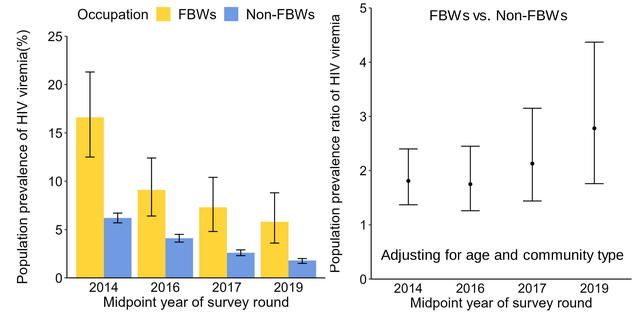


Figure 4. Population prevalence and ratios of HIV viremia among female participants by self-reported current bar work status in the Rakai Community Cohort Study, Uganda, 2013-2020

CONCLUSIONS

- FBWs have significantly higher HIV seroprevalence and incidence, suggesting that enhanced prevention services in this occupational group are needed.
- Despite FBWs living with HIV having similarly high VL suppression levels as non-FBWs living with HIV, FBWs have a significantly higher population prevalence of viremia because of their high underlying burden of HIV.
- Bar work as an occupation is often transient and requires tailored HIV prevention and treatment strategies that support women as they move into and out of bar work.

ADDITIONAL KEY INFORMATION

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