

Understanding the uptake of HIV care and prevention and the risk of acquiring and transmitting HIV amongst young women who sell sex in rural KwaZulu-Natal, South Africa

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Background

There is a high burden of HIV in South Africa with more than 7.7 million people infected [UNAIDS 2019].

Young women who sell sex (YWSS) remain at very high risk of acquiring and transmitting HIV in South Africa due to poor uptake and retention in HIV prevention and care services.

We leveraged the roll-out of a combination HIV-prevention program to adolescent girls and young women (AGYW) in KwaZulu-Natal (KZN), South Africa to understand YWSS's uptake of HIV care and prevention and the risk of transmitting and acquiring HIV in a representative sample of AGYW.

Methods

Study site

Africa Health Research Institute (AHRI) is situated in a sub-district uMkhanyakude district, KZN, SA [Gareta 2021].

The site is mostly rural and poor, with high youth unemployment (>80%) and HIV incidence (6.2/100 person-years) [Chimbindi 2018, Vandormael A 2019]

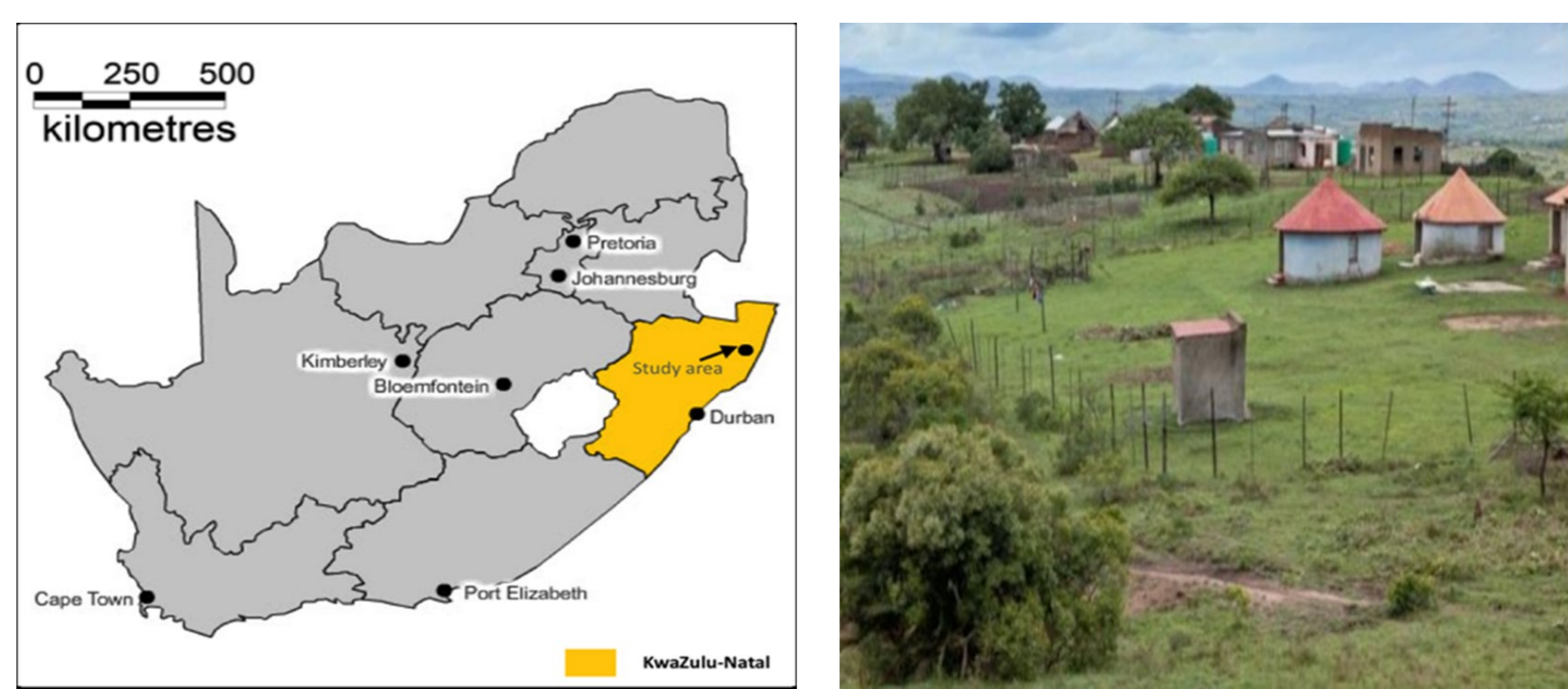


Figure 1: Map showing study site (in yellow) and an image of a typical homestead in the area.

Data collection

Between 2017-2019 we interviewed a random-sample of AGYW (13-30 years) annually and collected dried blood spot (DBS) samples for HIV serology and viral load.

Definition of YWSS

AGYW who answered 'yes' to any of the following questions in any of the 3-year follow-up (2017-2019): "having sex with anyone because you needed (or your partner provided) a material item that was important to you" and/or "having sex with other people for a living".

Transmissible and Acquirable HIV

Transmissible HIV - HIV positive with a detectable HIV viral load (>50copies/ml) and any condomless sex (any sex without a condom)

Risk of acquiring HIV - HIV negative and having any condomless sex when not on HIV prevention pre-exposure prophylaxis (PrEP)

Statistical analysis

We used a random-effects logistic regression analyses at individual level to assess factors associated with sex work and uptake of sexual & reproductive health services

Explanatory variables

- Consistent condom use: condom use in the last month, 3 or 12 months
- Current contraception use
- Knowledge of HIV status (past 12 months)
- HIV status (based on the DBS serology result and reported)
- PrEP use if HIV negative
- On ART if HIV positive
- Proportion with an undetectable HIV viral load on DBS in positive
- Transmissible and acquirable HIV
- HSV2 status

Conclusion

Prevalence of selling sex is high amongst young women in this poor rural setting and associated with poverty having HSV2. YWSS have a very high HIV prevalence and despite interventions targeting AGYW, less than 1 in 5 are virally suppressed and 60% are at risk of acquiring HIV. There is an urgent need to improve access to HIV care and prevention including PrEP for YWSS in rural KZN to improve health outcomes and tackle the HIV epidemic in this population.

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Findings

Characteristics of AGYW

- n=2758 (96.2%) of those eligible participated
- n=2404 (87.2%) provided data for at least one follow-up time-point.
- 469 (19.5%) AGYW self-identified as YWSS in at least one of the three years of follow-up

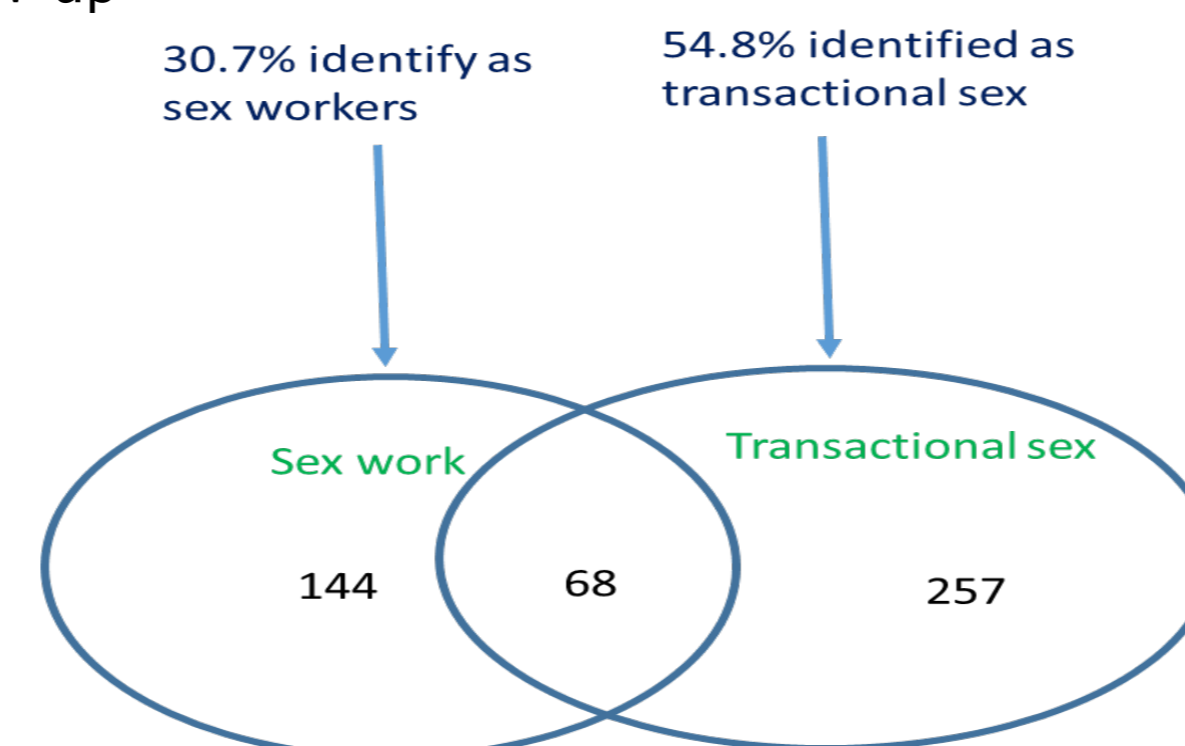


Figure 2: Diagram showing AGYW self-identifying as YWSS in at least one of the three years of follow-up

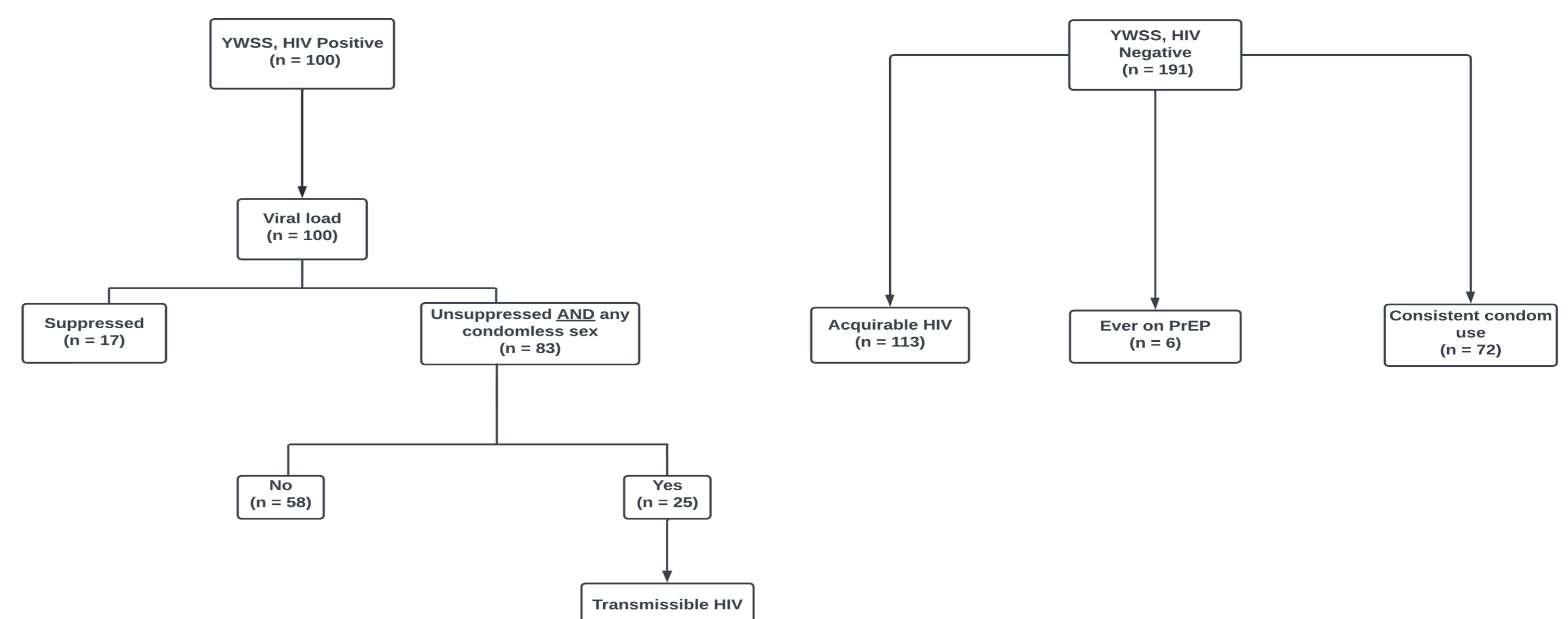
Table 1. Socio-demographic characteristics and sexual health and HIV outcomes for young women (aged 13-30) who sell sex at baseline and follow-ups.

- YWSS have a higher HIV prevalence (37.3% c.f. to 18.3% in AGYW), yet viral suppression is extremely low (17.0% c.f. to 23.6% in AGYW)
- YWSS have a higher HSV2 prevalence (64.4% c.f. to 35.4% in AGYW)

Variables	All AGYW at baseline n = 2 751 (40.7%)	YWSS at baseline n = 158 (33.7%)	YWSS Follow-up (2018/2019) n = 311 (66.3%)
Total observations	n = 6 763	n = 469	n = 469
Age, median (IQR)	18 (15 - 22)	21 (19 - 25)	21 (19 - 23)
Education			
In school	1 644 (59.8%)	52 (32.9%)	106 (34.1%)
Food Insecurity			
Yes	821 (29.8%)	71 (44.9%)	109 (35.1%)
Ever smoked?			
Yes	97 (3.5%)	12 (7.6%)	24 (7.7%)
Ever drink alcohol?			
Yes	753 (27.4%)	77 (48.7%)	181 (58.2%)
Sexual health and HIV outcomes			
Condom use			
No	2 180 (79.2%)	88 (55.7%)	179 (57.6%)
Yes	571 (20.8%)	70 (44.3%)	132 (42.4%)
Knowledge of HIV Status			
No	113 (4.1%)	5 (3.2%)	15 (4.8%)
Yes	2 638 (95.9%)	153 (96.8%)	296 (95.2%)
HIV Status			
Negative	1 826 (66.4%)	81 (51.3%)	191 (61.4%)
Positive	504 (18.3%)	59 (37.3%)	100 (32.2%)
Missing	421 (15.3%)	18 (11.4%)	20 (6.4%)
Viral load			
Suppressed	1 105 (23.6%)	25 (42.4%)	17 (17.0%)
Not suppressed	340 (76.4%)	34 (57.6%)	83 (83.0%)
HSV2			
Negative	1 596 (58.0%)	46 (29.1%)	101 (32.4%)
Positive	975 (35.4%)	102 (64.6%)	183 (58.8%)
Missing	180 (6.6%)	10 (6.3%)	27 (8.8%)

Transmissible and Acquirable

Transmissible HIV (n=25) 30.1%
Acquirable HIV (n=113) 59.2%



Factors associated with Selling sex, uptake of services and risk of acquiring or transmitting HIV

- YWSS was associated with *food insecurity* (adjusted OR=1.48 95%CI 1.15-1.91), *having 3 or more lifetime sexual partners* (aOR=1.80, 95% CI 1.15-2.84), *alcohol consumption* (aOR=1.42, 95%CI 1.10-1.83), and *having HSV2* (aOR=1.38, 95%CI 1.04-1.84).
- After adjustment, there was no association between the risk of acquiring (aOR=0.60, 95%CI 0.35-1.05) or transmitting (aOR=0.76, 95%CI 0.42-1.36) HIV and selling sex.

Table 2. Random effects model assessing factors associated with sex work and uptake of HIV prevention and sexual reproductive health services and risk of acquiring or transmitting HIV.

Variables	Unadjusted model OR (95% CI)	p-value	Adjusted model OR (95% CI)	p-value
Age	1.18 (1.15 - 1.22)	<0.001	1.02 (0.96 - 1.08)	0.530
Education				
In school	1 (Reference)		1 (Reference)	
Out of school and not matriculated	4.68 (3.44 - 6.36)	<0.001	1.00 (0.70 - 1.44)	
Out of school, matriculated and unemployed	4.20 (2.44 - 4.19)		0.88 (0.63 - 1.22)	
Out of school, matriculated and employed	2.60 (1.60 - 4.30)		0.81 (0.46 - 1.43)	
Location				
Rural	1 (Reference)		1 (Reference)	
Peri-urban/urban	1.42 (1.08 - 1.85)	0.011	1.04 (0.79 - 1.36)	0.777
Food Insecurity				
No	1 (Reference)		1 (Reference)	
Yes	2.04 (1.61 - 2.58)	<0.001	1.48 (1.15 - 1.91)	0.002
Number of lifetime sexual partners		<0.001		<0.001
1	1 (Reference)		1 (Reference)	
2	1.94 (1.31 - 2.88)		1.50 (0.98 - 2.31)	
≥ 3	2.58 (1.73 - 3.86)		1.80 (1.15 - 2.84)	
Ever smoked?				
No	1 (Reference)		1 (Reference)	
Yes	1.96 (1.22 - 3.16)	0.006	0.91 (0.57 - 1.47)	0.713
Ever drink alcohol?				
No	1 (Reference)		1 (Reference)	
Yes	2.49 (1.83 - 2.70)	<0.001	1.42 (1.10 - 1.83)	0.006
Ever pregnant				
No	1 (Reference)		1 (Reference)	
Yes	5.30 (4.15 - 6.76)	<0.001	1.12 (0.82 - 1.51)	0.476
Consistent condom use				
No	1 (Reference)		1 (Reference)	
Yes	3.26 (2.59 - 4.09)	<0.001	0.83 (0.49 - 1.42)	0.500
Contraception use				
No	1 (Reference)		1 (Reference)	
Yes	4.26 (3.39 - 5.37)	<0.001	1.07 (0.82 - 1.40)	0.605
Knowledge of HIV Status				
No	1 (Reference)		1 (Reference)	
Yes	0.76 (0.43 - 1.33)	0.347	0.71 (0.37 - 1.39)	0.319
Combined category of HIV risk		<0.001		0.156
Not acquirable	1 (Reference)		1 (Reference)	
Acquirable	0.22 (0.17 - 0.28)		0.60 (0.35 - 1.05)	
Transmissible	0.73 (0.51 - 1.03)		0.76 (0.42 - 1.36)	
HSV2		<0.001		0.025
Negative	1 (Reference)		1 (Reference)	
Positive	3.84 (2.97 - 4.96)		1.38 (1.04 - 1.84)	