

SOUTH AFRICAN HEALTH MONITORING SURVEY: A BIOLOGICAL AND BEHAVIOURAL SURVEY AMONG FEMALE SEX WORKERS IN SOUTH AFRICA (SAHMS 2018)**Background**

The 2018 South Africa Health Monitoring Study (SAHMS 2018), is the second round of a biological and behavioural survey (BBS) with population size estimation (PSE) among female sex workers (FSW). Both rounds were conducted in three metropolitan cities in South Africa, Cape Town (Western Cape Province), eThekweni/Durban (KwaZulu-Natal Province), and Johannesburg (Gauteng Province). The survey was conducted from May 2018 to December 2018 to estimate population sizes of FSW, measure HIV prevalence and viral load suppression among FSW, identify risk factors for transmission of HIV and sexually transmitted infections (STIs), and assess utilisation of HIV prevention and treatment programmes.

SAHMS 2018 was commissioned by the Government of South Africa through the Department of Health (DoH), and the South Africa National AIDS Council (SANAC), with funding from the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) through the Centers for Disease Control and Prevention (CDC). The survey was implemented by The Aurum Institute South Africa and Anova Health Institute, in collaboration with local civil society and academic partners: National Institute for Communicable Diseases (NICD), Sex Workers' Advocacy and Education Taskforce (SWEAT), Sisonke, TB/HIV Care Association, Wits Reproductive Health Institute (WRHI), Perinatal HIV Research Unit (PHRU), and Oasis. Technical assistance was received through the United States Centers for Disease Control and Prevention (CDC), and University of California, San Francisco (UCSF).

Survey methods

Recruitment: FSW in the three cities were recruited through respondent-driven sampling (RDS). Up to eight FSW (seeds) with large and diverse FSW networks in each survey city, were approached by survey staff to initiate the recruitment chains. Seeds were identified through formative assessments with FSW and service providers in each city. Individually coded referral coupons were used by the seeds, and later by other enrolled participants, as invitations for their peers to participate in the survey. Eligible FSW (Box 1) were asked to provide written consent for survey participation.

Box 1: Eligibility criteria for biological and behavioural survey (BBS)

1. Female sex at birth
2. Age ≥ 16 years
3. Received money in exchange for sex in the previous 30 days
4. In possession of a valid survey coupon
5. Lived, worked, or socialized in the study area over the past 6 months
6. Capable and willing to provide informed consent to participate

Collection of bio-behavioural data: Behavioural data were collected using a standardized questionnaire programmed for electronic data capture using Questionnaire Development System (QDS™) version 2.6.1 and administered by interviewers using Computer-Assisted Personal Interview software on a laptop computer (Box 2). All participants were asked to provide whole blood specimens for laboratory-based HIV serological testing. HIV viral load measurement and the qualitative detection of antiretrovirals (ARVs), were also performed on HIV-positive blood specimens. Survey staff facilitated the return of results and linkage to appropriate medical care through collaborating service providers in each city.

Box 2: BBS data collection

1. Interviewer-administered survey questionnaire
2. HIV antibody testing (enzyme immunoassay)
3. Viral load measurement
4. Qualitative testing for the presence of ARVs

Analysis of bio-behavioural data: Data analyses were performed using RDS Analyst (RDS-A) version 3.6.0. RDS-A was also used to create survey weights, which generated estimates for the FSW population in the survey cities. The findings presented in this summary sheet are weighted.

Population size estimation: PSEs for this survey were established through triangulation of results from multiple empirical methods. The methods: (i) the unique object, event, and service multipliers, (ii) successive sampling PSE (SS-PSE), and (iii) a synthesis of the methods using the Anchored Multiplier (Box 3).

Box 3: Population size estimation (PSE)

1. Unique object and service multipliers
2. Successive sampling PSE (SS-PSE)
3. Synthesis of multiple estimates into a single estimate (Anchored Multiplier Method)

Ethical considerations: Local approval of this survey was provided by the Human Research Ethics Committee of the University of the Witwatersrand (Reference: 171006), and the South Africa National Department of Health. FSW aged 16 to 17 years were included in the sample to gather behavioural and epidemiological data critical to understanding the HIV and social welfare needs of this vulnerable group of FSW. Having met the criteria for ‘tacit emancipation’ according to South African law, local approval was granted for FSW aged 16 to 17 years to provide “consent unassisted” for participation in the survey.

Key findings

1. Population size estimation (PSE)

We estimated approximately 6,680 FSW reside in Cape Town; 9,300 FSW reside in Durban; and 7,980 FSW reside in Johannesburg (Table 1). The FSW population size estimates obtained in 2018 are compared to those obtained during the South Africa Health Monitoring Study conducted in 2014¹ (Table 1).

Table 1: Population Size Estimates of female sex workers, South Africa Health Monitoring Studies in 2018 and 2014

	South Africa Health Monitoring Study (2018) Point Estimate; 95% (Lower bound, Upper bound ^a)	South Africa Health Monitoring Study (2014) Point Estimate; 95% (Lower bound, Upper bound ^a)
Cape Town	6,680 (4,560–9,200)	6,500 (4,579–9,000)
Durban	9,300 (8,620–10,000)	9,323 (4,000–10,000)
Johannesburg	7,980 (5,530–11,010)	7,697 (5,000–10,895)

a) The lower and upper bounds represent the 95% credible intervals within which the true population parameter is expected to fall 95% of the time. Additional notes: The event multiplier method produced very low PSE results in all cities (particularly in Cape Town and Durban), and was excluded from analyses. The PSE reported here are based on Bayesian synthesis of estimates from multiplier methods and SS-PSE (imputed visibility) using prior probability distributions (“prior”) from SAHMS I and rounded to the tens.

2. HIV prevalence

We found the highest HIV prevalence among FSW in Durban (77.7%), followed by Johannesburg (58.3%), and Cape Town (42.5%) (Table 2). In all three survey cities, HIV prevalence was lowest among the FSW aged 16–24 years. (Figure 1). In Cape Town and Durban, HIV prevalence among FSW 30 – 34 years was found to be very similar to prevalence among FSW age >34 years. In Johannesburg, HIV prevalence peaked among older FSW, who were 34 years old and older (Figure 1).

Table 2: HIV prevalence among female sex workers by survey city, South Africa Health Monitoring Study 2018

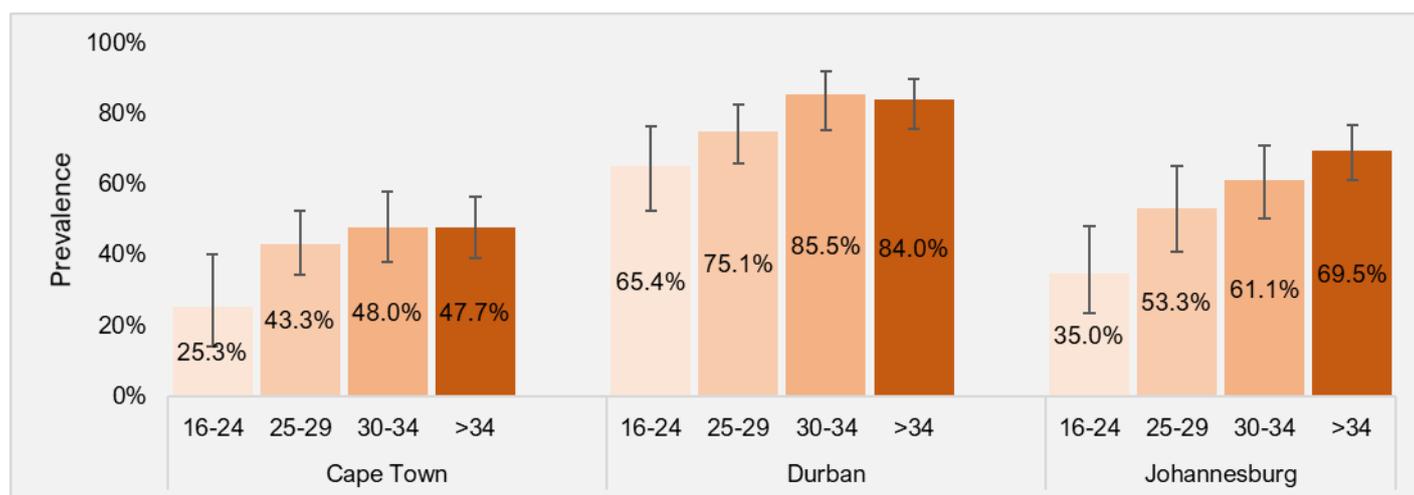
	Number HIV-positive	Number tested for HIV ^b	Point estimate adjusted for respondent driven sampling %, (95% Confidence Interval ^a)
Cape Town	290	777	42.5 (37.4, 47.8)
Durban	415	550	77.7 (72.9, 81.9)
Johannesburg	331	537	58.3 (52.9, 63.5)

a) 95% confidence interval indicates the interval within which the true population parameter is expected to fall 95% of the time.

b) Laboratory HIV testing was not performed on all survey participants due to insufficient specimen volumes or poor specimen quality – Cape Town (4 participants); Durban (10 participants); and Johannesburg (9 participants).

SUMMARY SHEET

Figure 1: HIV prevalence among female sex workers by age, South Africa Health Monitoring Study 2018



Error bars represent 95% confidence interval, i.e., the interval within which the true population parameter is expected to fall 95% of the time from repeated surveys with the same design.

3. Achievement of the 90–90–90 targets among female sex workers living with HIV

The South Africa National Strategic Plan (NSP) on HIV, STIs, and Tuberculosis 2017–2022² has specific goals for the HIV/AIDS program which aim to achieve the 90-90-90 targets. These targets intend to ensure that 90 percent of all people living with HIV (PLHIV) will know their HIV status; 90 percent of all people with diagnosed HIV infection will receive sustained antiretroviral therapy (ART); and 90 percent of all people receiving ART will be virally suppressed.

The proportion of FSW living with HIV who were aware of their HIV status ranged from 73.4% to 87.8%. Among FSW aware of their HIV status; 41.4% to 74.9% were on ART. Lastly, viral load suppression among FSW aware of their HIV status and on ART ranged from 72.6% to 87.4% (Table 3 & Figure 2).

Table 3: 90–90–90 cascade for female sex workers living with HIV, South Africa Health Monitoring Study 2018

	n ^e	N ^e	Point estimate adjusted for respondent driven sampling (%, ^a 95% Confidence Interval)
Cape Town			
1 st 90: Aware of HIV status ^b	208	290	73.4 (65.9, 79.7)
2 nd 90: Aware of HIV status and on ART ^c	80	196	41.4 (31.2, 52.4)
3 rd 90: On ART and virologically suppressed ^d	62	80	72.6 (52.7, 86.3)
Durban			
1 st 90: Aware of HIV status	359	415	87.8 (83.2, 91.2)
2 nd 90: Aware of HIV status and on ART	199	330	61.9 (54.7, 68.6)
3 rd 90: On ART and virologically suppressed	162	197	84.7 (77.2, 90.1)
Johannesburg			
1 st 90: Aware of HIV status	271	331	81.1 (75.2, 85.9)
2 nd 90: Aware of HIV status and on ART	206	266	74.9 (67.0, 81.5)
3 rd 90: On ART and virologically suppressed	180	206	87.4 (80.4, 92.1)

a) 95% CI (confidence interval) indicates the interval within which the true population parameter is expected to fall 95% of the time.

b) Awareness of HIV status was defined as self-reporting HIV-positive status and/or detection of ARVs in the participant's blood specimen.

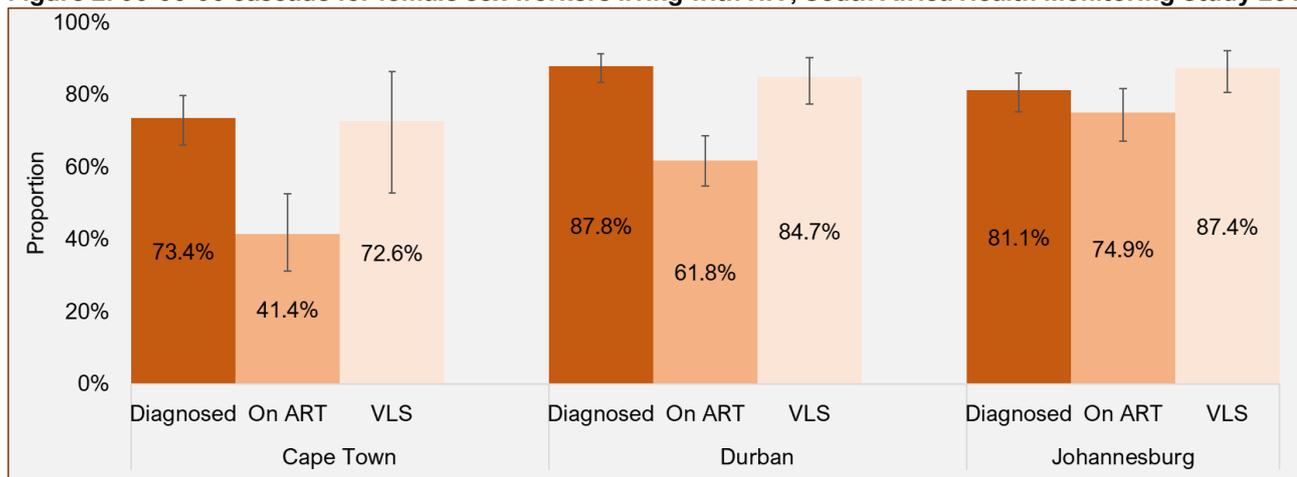
c) Being on antiretroviral therapy (ART) was based on the detection of ARVs in the participant's blood specimen.

d) Viral load suppression is defined as HIV RNA <1,000 copies per ml of plasma among people living with HIV.

e) Depending on the outcome reported; N = total number included in the denominator; n = number with measured outcome

Additional notes: Not all persons with a laboratory-confirmed HIV diagnosis had ARV results as some specimens were insufficient for testing – Cape Town (18 participants); Durban (35 participants); and Johannesburg (6 participants). Not all persons with a laboratory-confirmed HIV diagnosis had VL results as some specimens were insufficient for testing – Cape Town (4 participants); Durban (12 participants); and Johannesburg (1 participant).

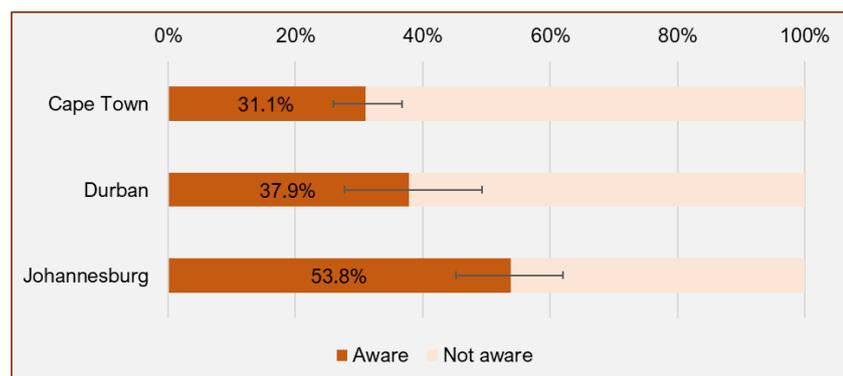
Figure 2: 90-90-90 cascade for female sex workers living with HIV, South Africa Health Monitoring Study 2018



- Error bars represent 95% confidence intervals.
- Insert numbers are conditional proportions.
- ART (Antiretroviral therapy); VLS (viral load suppression)

4. Awareness of pre-exposure prophylaxis (PrEP) among FSW not living with HIV

Figure 3: Awareness of HIV pre-exposure prophylaxis among female sex workers not living with HIV, South Africa Health Monitoring Study 2018

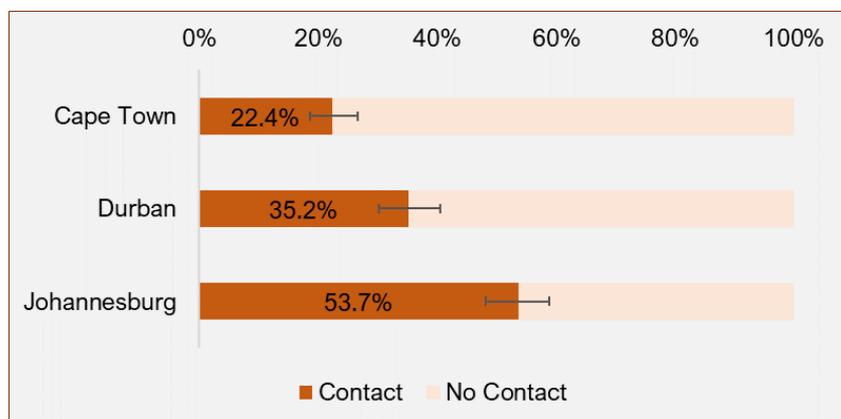


Less than half of the HIV-negative FSW in Cape Town (31.1%, 95% CI: 26.0%, 36.8%) and in Durban (37.9%, 95% CI: 27.7%, 49.3%) were aware of the availability of PrEP and its benefits in reducing the risks of HIV transmission. In contrast, the majority of HIV-negative FSW in Johannesburg (53.8%, 95% CI: 45.2%, 62.0%) were aware of PrEP availability and its use (Figure 3).

Error bars represent 95% confidence intervals.

5. Contact with peer educators

Figure 4: Contact with peer educators in the 12 months preceding the survey, South Africa Health Monitoring Study 2018

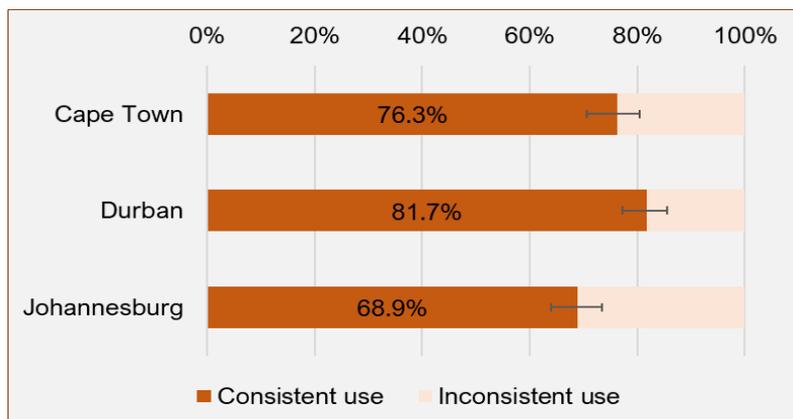


About a quarter of FSW in Cape Town (22.4%, 95% CI: 18.7%, 26.7%) and just over a third in Durban (35.2%, 95% CI: 30.2%, 40.6%) had been in contact with a peer educator in the 12 months preceding the survey. In comparison, the majority of FSW in Johannesburg had been in contact with a peer educator during the same period (53.7%, 95% CI: 48.3%, 58.9%) (Figure 4).

Error bars represent 95% confidence interval.

6. Condom use

Figure 5: Condom use with last three paying clients, South Africa Health Monitoring Study 2018

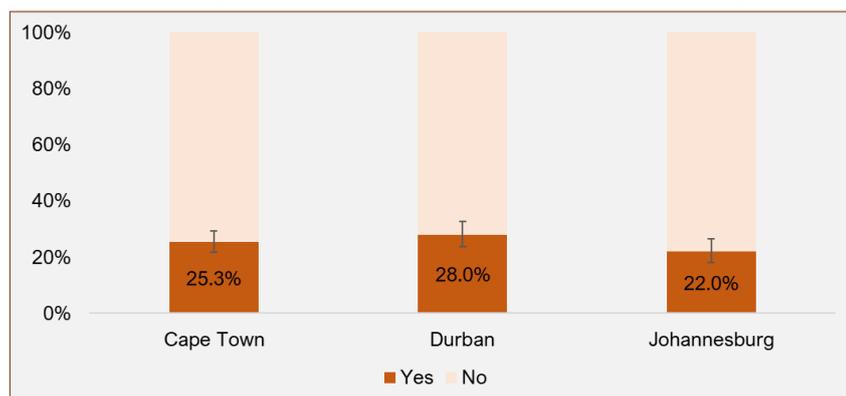


Error bars represent 95% confidence interval.

The majority of participants in all three cities reported using a condom the last time they had sex (anal or vaginal) with each of their last three paying sex clients, classified as 'consistent use' in Figure 5. The proportion of FSW reporting this ranged from 68.9% (95% CI: 63.9%, 73.5%) in Johannesburg to 81.7% (95% CI: 77.2%, 85.5%) in Durban (Figure 5).

7. Physical assault against female sex workers

Figure 6: Self-reported physical assault of female sex workers in the 12 months preceding the survey, South Africa Health Monitoring Study 2018



Error bars represent 95% CI (confidence interval).

A significant proportion of women reported being physically assaulted at least once in the 12 months preceding the survey. The proportion of women reporting this ranged from 22.0% (95% CI: 18.1%, 26.5%) in Johannesburg to 28.0% (95% CI: 23.7%, 32.8%) in Durban (Figure 6).

Conclusions

- The estimated population size of FSW in the three survey cities has remained stable in comparison to the first survey round conducted in 2014.
- There is sub-optimal progress towards achieving UNAIDS 90-90-90 targets among FSW, with none of the three 90-90-90 targets being achieved across all three survey cities. Our findings underscore the need for strengthening HIV testing services and case finding. However, even more efforts are required to facilitate linkage to ART following diagnosis. Notably, an extremely low proportion on FSW aware of their HIV status were on ART, despite the availability of ART for all people living with HIV in South Africa, at the time the survey was conducted. Particularly in Cape Town, less than half of the HIV-positive FSW aware of their HIV status were on ART. Lastly, additional efforts are required to promote adherence to ART and retention of HIV-positive FSW on ART to ensure virologic suppression and reduced risks of onward HIV transmission.
- In the South Africa National Sex Worker HIV Plan, peer educators (i.e. current or former sex workers) are considered the backbone upon which the sex worker community is accessed to enable service delivery. However, our survey findings point to the sub-optimal reach of peer educator programmes in all three cities.
- Although more than two-thirds of FSW reported using a condom the last time they had sex with each of their last three paying sex clients, the low viral load suppression prevalence (even among people on ART) indicates that FSW have a high risk for onward transmission to their sexual partners.

SUMMARY SHEET

- There is low awareness of PrEP, particularly in Cape Town and Durban, which is a key prevention intervention.
- FSW remain a highly vulnerable population, with up to 3 in 10 FSW reporting to have experienced violence as a result of being known or thought to be a sex worker.
- **For epidemic control, tailored programs that identify, initiate, and retain FSW living with HIV on ART and provide prevention services to HIV-uninfected FSW should be considered for increasing access to and uptake of critical services.**

References

1. UCSF, Anova Health Institute & WRHI (2015). South African Health Monitoring Study (SAHMS), Final Report: The Integrated Biological and Behavioural Survey among Female Sex Workers, South Africa 2013-2014. San Francisco: UCSF.
2. South Africa National AIDS Council (2017) Let Our Actions Count: South Africa's National Plan on HIV, TB, AIDS and STIs 2017-2022. Pretoria: Department of Health.

Disclaimer

The findings and conclusions in this report are those of the author(s) and do not necessarily represent the official position of the funding agencies. The results presented should be considered preliminary and are subject to change.

Recommended for citation

The Aurum Institute, Anova Health Institute & UCSF (2019). The Second South African Health Monitoring Survey (SAHMS2), Results Summary Sheet: A Biological and Behavioural Survey Among Female Sex Workers, South Africa 2017–2018. Johannesburg; The Aurum Institute.



ANOVA
HEALTH INSTITUTE



The mark 'CDC' is owned by the US Dept. of Health and Human Services and is used with permission. Use of this logo is not an endorsement by HHS or CDC of any particular product, service, or enterprise