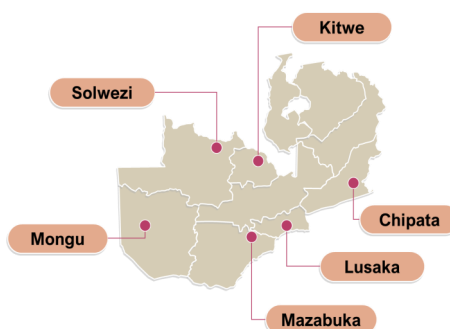


ZAMBIA BIOBEHAVIORAL SURVEY AND POPULATION SIZE ESTIMATION FOR FEMALE SEX WORKERS AND SEXUALLY EXPLOITED GIRLS, 2023

INTRODUCTION

The 2023 Zambia biobehavioral survey (BBS) with population size estimation (PSE) among female sex workers (FSW) and sexually exploited girls (SEG) was conducted between March and May 2023 in the towns of Chipata, Kitwe, Lusaka, Mazabuka, Mongu, and Solwezi. The BBS aimed to assess Zambia's progress toward the Joint United Nations Programme on HIV/AIDS (UNAIDS) 95-95-95 HIV targets and estimate the number of FSW/SEG in each town. The survey enrolled 2,312 FSW/SEG using respondent-driven sampling: 385 each in Chipata, Kitwe, Mazabuka, Mongu, and Solwezi and 387 in Lusaka. FSW/SEG were those who were born biologically female; were aged 16 years and older; had exchanged sex for money, goods, or services in the past six months; had lived or worked in the survey town for the three months prior to the survey; were able to speak English, Bemba, Kaonde, Lozi, Nyanja, or Tonga; were capable and willing to provide verbal informed consent; and were in possession of a valid survey coupon. Data were weighted using the estimated population size. The survey was conducted by ICAP at Columbia University in collaboration with the Zambia National HIV/AIDS/STI/TB Council (NAC) and the Tropical Diseases Research Centre (TDRC) with funding from the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) and technical assistance provided by the U.S. Centers for Disease Control and Prevention (CDC).

Figure 1. 2023 Zambia BBS and PSE Towns



SURVEY OBJECTIVES

To estimate, among FSW/SEG aged 16 years and older in Chipata, Kitwe, Lusaka, Mazabuka, Mongu, and Solwezi:

1. Progress toward UNAIDS 95-95-95 targets
2. Prevalence of HIV
3. Prevalence of recent HIV infection, active syphilis, hepatitis B (HBV), hepatitis C (HCV), co-infection with HIV, and HIV viral load suppression (VLS)
4. Size of FSW/SEG population

TESTING METHODS

HIV testing was conducted using rapid serologic diagnostic tests following the national HIV testing algorithm.¹ Laboratory-based testing was conducted for active syphilis, HIV viral load, and HIV recency classification per the recent infection testing algorithm (RITA). Confirmation of positive rapid assays was conducted for HIV, HCV, and syphilis.

HIV PREVALENCE AND POPULATION SIZE ESTIMATE

HIV prevalence among FSW/SEG aged 16 years and older was 45.4% in Mongu, 44.4% in Chipata, 38.7% in Kitwe, 38.6% in Solwezi, 37.6% in Mazabuka, and 32.0% in Lusaka.

The estimated population size of FSW/SEG was 3,000 in Chipata, 3,300 in Kitwe, 9,600 in Lusaka, 1,600 in Mazabuka, 1,900 in Mongu, and 1,900 in Solwezi.²

¹ Ministry of Health, Zambia. *HIV Testing Services National Guidelines*. 2020.

² Consensus population size estimates were derived using Bayesian multilevel modeling to combine three-source capture-recapture and successive sampling population estimates with the best available prior size estimate for each town (Fellows and Corcoran, <https://fellstat.github.io/triangulator/>).

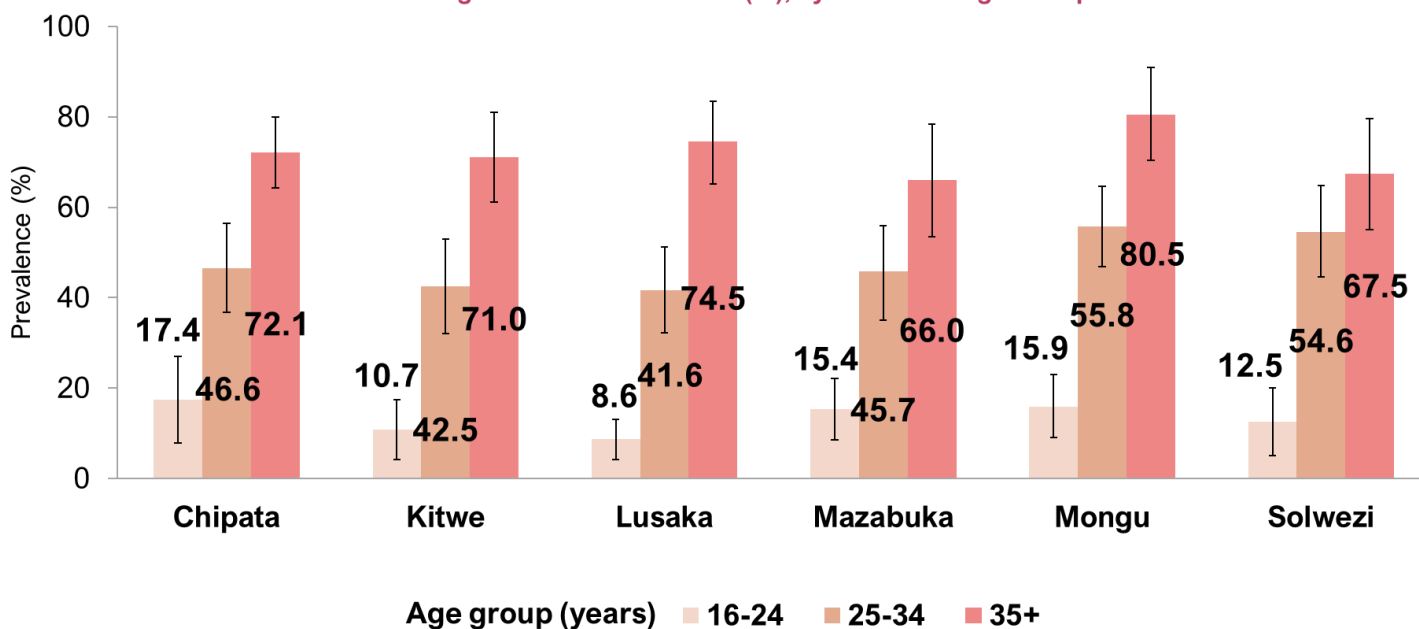
Town	HIV Prevalence % (95% CI)	Population Size Estimate n (95% CI*)	% of females aged 15-49 years of district general population ³ % (95% CI)
Chipata	44.4 (37.8 – 51.0)	3,000 (1,900 – 4,900)	1.6 (1.0, 2.6)
Kitwe	38.7 (32.2 – 45.2)	3,300 (2,000 – 5,500)	4.0 (2.4, 6.7)
Lusaka	32.0 (26.1 – 37.9)	9,600 (4,600 – 20,300)	1.5 (0.7, 3.2)
Mazabuka	37.6 (31.0 – 44.2)	1,600 (800 – 3,100)	1.9 (1.0, 3.6)
Mongu	45.4 (38.7 – 51.8)	1,900 (1,400 – 2,500)	3.2 (2.4, 4.2)
Solwezi	38.6 (31.7 – 45.5)	1,900 (1,000 – 3,400)	3.6 (2.0, 6.6)

*Credible interval.

HIV PREVALENCE, BY AGE GROUP

HIV prevalence was highest among FSW aged 35 years and older (range: 66.0%–80.5%), followed by FSW aged 25-34 years (range: 41.6%–55.8%) and FSW/SEG aged 16-24 years (range: 8.6%–17.4%) in all survey towns [Figure 2].

Figure 2. HIV Prevalence (%), by Town and Age Group

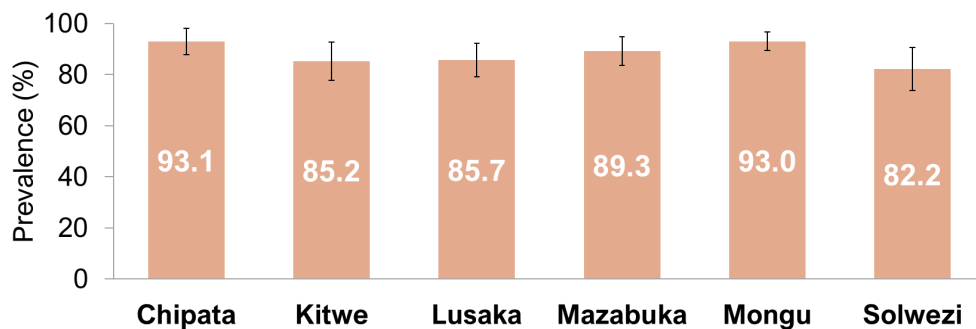


HIV VIRAL LOAD SUPPRESSION

VLS prevalence among FSW/SEG living with HIV was high in all towns, ranging from 82.2% in Solwezi to 93.1% in Chipata [Figure 3].

VLS is defined as HIV RNA at <1,000 copies/mL.

Figure 3. HIV Viral Load Suppression Prevalence (%), by Town



³District population estimates from COP 2023 planning, based on updated 2022 Census data and official 2021 age and sex distribution estimates from ZamStat.

PROGRESS TOWARD THE UNAIDS 95-95-95 TARGETS

UNAIDS 95-95-95 Target Definition: By 2030, 95% of all people living with HIV will know their HIV status; 95% of all people with diagnosed HIV infection will receive sustained antiretroviral therapy (ART); and 95% of all people receiving ART will be virally suppressed.

1ST 95 — AWARE OF HIV-POSITIVE STATUS

Awareness is defined as people living with HIV who disclosed a prior HIV diagnosis and/or had HIV viral load <200 copies/mL. Among FSW/SEG living with HIV, close to 95% were aware of their HIV status in Chipata (94.8%), Mongu (93.0%), and Mazabuka (91.4%), while less than 90% were aware of their status in Lusaka (89.1%), Kitwe (85.8%), and Solwezi (83.8%) [Figure 4].

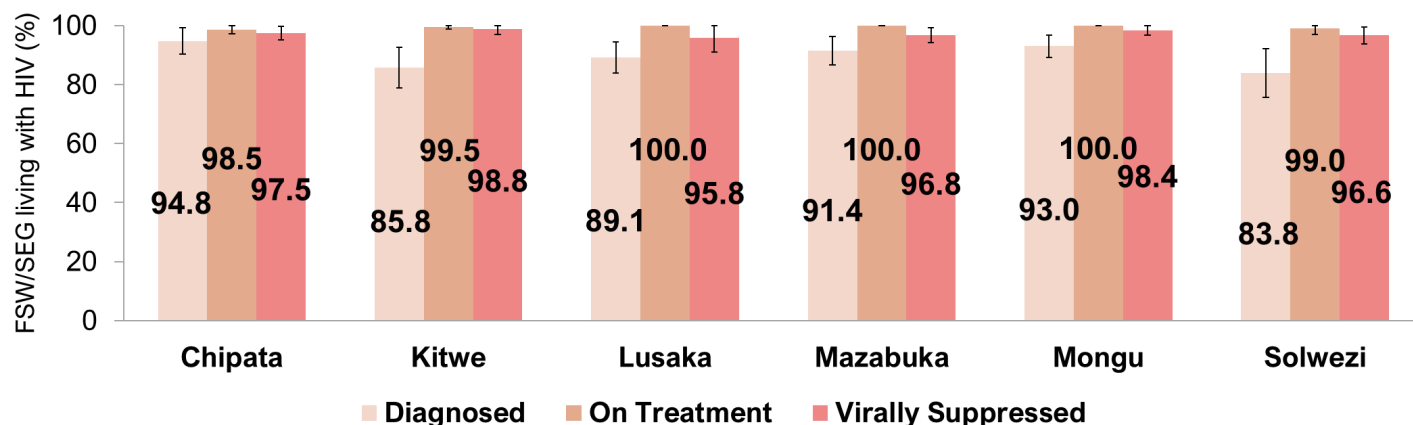
2ND 95 — AWARE OF HIV-POSITIVE STATUS AND ON ART

Being on ART is defined as those who disclosed current use of ART and/or had HIV viral load <200 copies/mL. In Lusaka, Mazabuka, and Mongu, all (100.0%) FSW/SEG living with HIV who knew their HIV status were on ART, and nearly all in Kitwe (99.5%), Solwezi (99.0%), and Chipata (98.5%) were on ART.

3RD 95 — AWARE OF HIV-POSITIVE STATUS AND ON ART AND VIRALLY SUPPRESSED

Viral suppression is defined as HIV RNA <1,000 copies/mL. VLS prevalence among FSW/SEG living with HIV who knew their HIV status and were on ART was similar across towns: 98.8% in Kitwe, 98.4% in Mongu, 97.5% in Chipata, 96.8% in Mazabuka, 96.6% in Solwezi, and 95.8% in Lusaka.

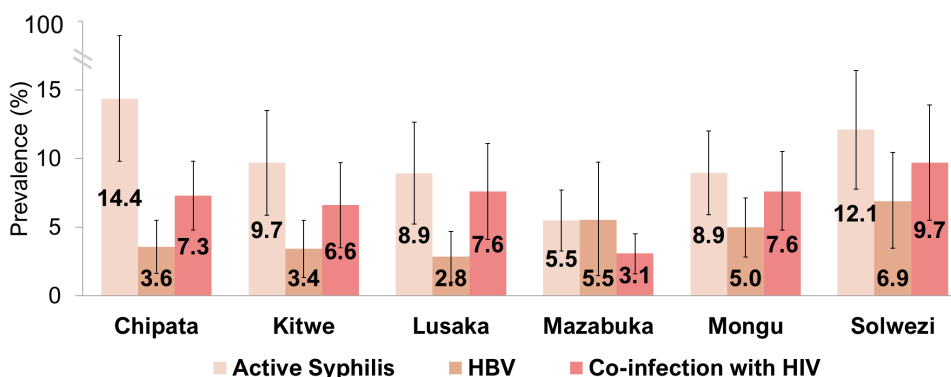
Figure 4. Progress Toward the UNAIDS 95-95-95 Targets, by Town



ACTIVE SYPHILIS, HEPATITIS B AND C, AND CO-INFECTION WITH HIV

Active syphilis prevalence was highest in Chipata (14.4%) and lowest in Mazabuka (5.5%). HBV prevalence ranged from 2.8% in Lusaka to 6.9% in Solwezi [Figure 5]. Co-infection of HIV ranged from 3.1% in Mazabuka to 9.7% in Solwezi. Across all towns, one FSW tested positive for HCV.

Figure 5. Prevalence of Active Syphilis, HBV, and Co-Infection with HIV (%), by Town



Active syphilis was defined as testing antibody-positive for both non-treponemal and *Treponema pallidum* antigens. HBV infection was defined as testing positive for hepatitis B surface antigen (HBsAg), which indicates having either an acute or chronic infection. Co-infection with HIV was defined as testing HIV-positive and testing positive for HBV, HCV, or active syphilis.

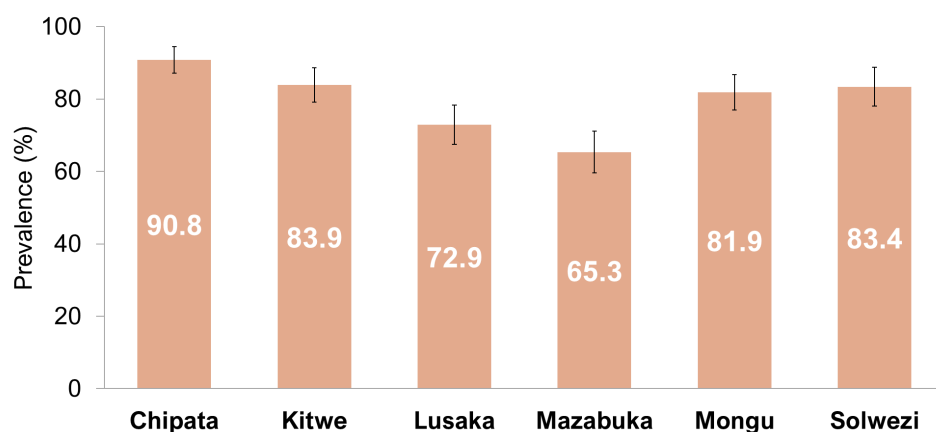
SOCIAL ENABLERS: STIGMA AND ABUSE (10-10-10 TARGETS)

The 2023 Global AIDS Monitoring (GAM) report includes indicators for national AIDS programs and partners to assess the state of a country's HIV and AIDS response and to measure progress towards national HIV targets. The UNAIDS 10-10-10 targets aim to remove social and legal impediments to accessing or using HIV services, including to reduce the proportion of key populations who report experiencing stigma and discrimination and who experience physical or sexual violence to less than 10% by 2025.⁴

EXPERIENCED PHYSICAL AND/OR SEXUAL VIOLENCE¹

An estimated 90.8% of FSW/SEG in Chipata, 83.9% in Kitwe, 81.9% in Mongu, and 83.4% in Solwezi experienced physical and/or sexual violence in the last 12 months [Figure 6]. A lower percentage — 72.9% of FSW/SEG in Lusaka and 65.3% in Mazabuka — experienced physical and/or sexual violence in the previous 12 months.

Figure 6. Experienced Physical and/or Sexual Violence in the Last 12 Months (%), by Town

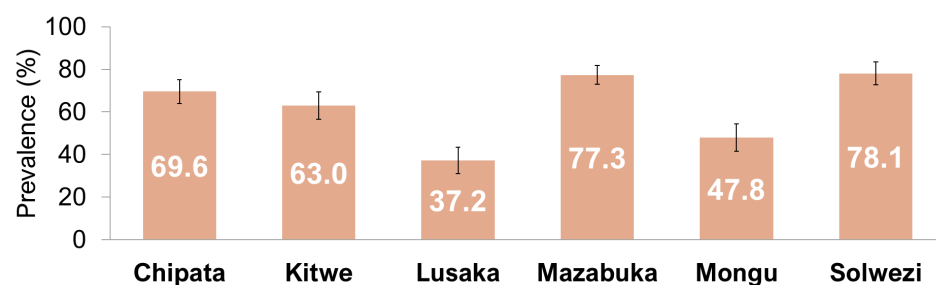


¹ GAM indicator 4.1: Physically hurt, such as hit or choked or threatened with a knife or other weapon; tricked, lied, or threatened to force sex.

EXPERIENCED STIGMA AND/OR DISCRIMINATION²

Having experienced stigma and/or discrimination due to sex work status in the past six months was most common in Solwezi (78.1%), followed by Mazabuka (77.3%) and was least common in Lusaka (37.2%) [Figure 7].

Figure 7. Experienced Stigma and/or Discrimination in the Past Six Months (%), by Town

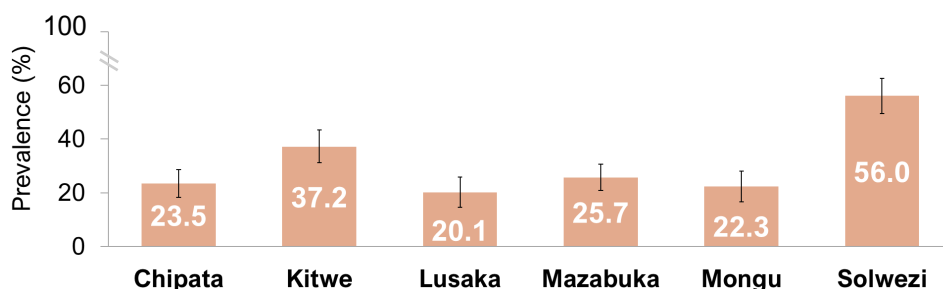


² GAM indicator 6.5: Felt excluded from family activities because sell sex, scolded because sell sex, blackmailed because sell sex.

AVOIDED HEALTH CARE BECAUSE OF STIGMA AND/OR DISCRIMINATION³

Avoiding health care services because of stigma and/or discrimination due to sex work status in the past 12 months was most common in Solwezi (56.0%), followed by Kitwe (37.2%) and was least common in Lusaka (20.1%) [Figure 8].

Figure 8. Avoided Health Care because of Stigma and/or Discrimination in the Past 12 months (%), by Town



³ GAM indicator 6.6: Afraid to seek health services, treated unfairly or denied health care, avoided seeking HIV services.

⁴ 2023 Global AIDS Monitoring Report: Indicators and questions for monitoring progress on the 2021 Political Declaration on HIV and AIDS — Global AIDS Monitoring 2023 (unaids.org).

HIV PREVENTION

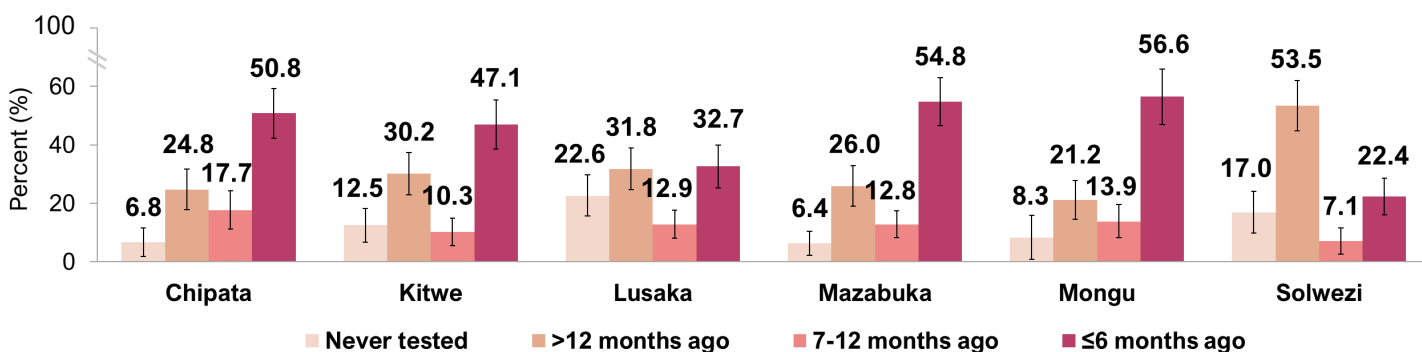
TIME SINCE LAST HIV TEST

Among HIV-negative and recently diagnosed* FSW/SEG, approximately half in Mongu (56.6%), Mazabuka (54.8%), Kitwe (47.1%), and Chipata (50.8%) had tested for HIV within the last six months, compared to nearly one third in Lusaka (32.7%) and less than one quarter in Solwezi (22.4%) [Figure 9]. Having never tested for HIV was most common among FSW/SEG in Lusaka (22.6%), followed by Solwezi (17.0%) and Kitwe (12.5%).

Across the towns, reasons for never testing for HIV included fear of a positive HIV result (range: 43.0%–70.6%), not having time to get tested (range: 9.5%–27.6%), and not feeling at risk for HIV (range: 1.2%–14.9%). Preference for where to receive an HIV test varied. Across the towns, 22.5% to 79.4% of FSW/SEG preferred to receive an HIV test at a hospital or clinic, 16.6% to 53.8% at a KP clinic/organization/center, and less than 11.0% during a home visit.

*Tested as HIV-negative or reported testing as HIV-positive within the prior 12 months and tested with HIV viral load >200 copies/mL.

Figure 9. Time since Last HIV Test, by Town

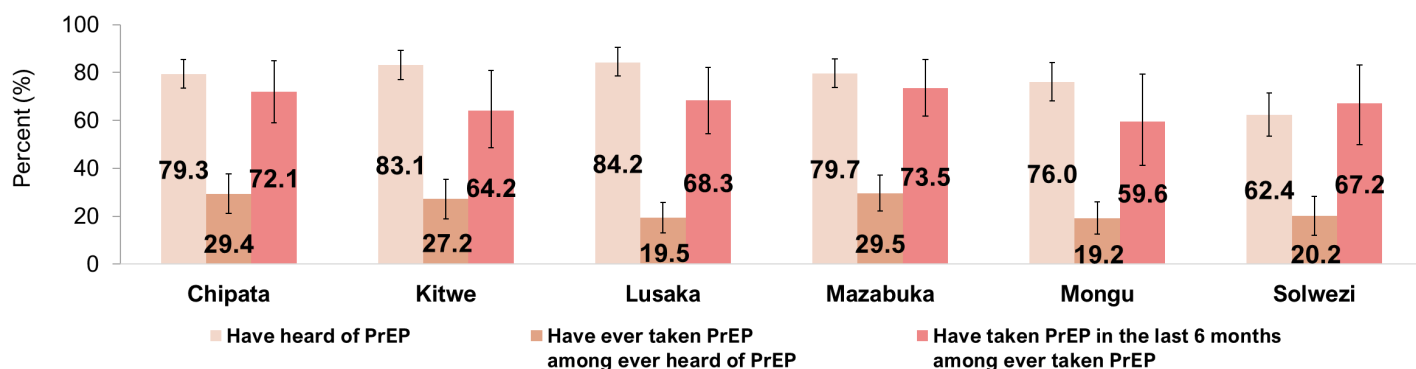


PRE-EXPOSURE PROPHYLAXIS (PrEP) KNOWLEDGE AND UPTAKE

Among FSW/SEG who were HIV-negative or unaware of their HIV status across all towns, less than 20% had taken PrEP in the last six months: 17.1% in Mazabuka, 16.9% in Chipata, 14.6% in Kitwe, 11.2% in Lusaka, 8.6% in Mongu, and 8.4% in Solwezi. However, at least three-quarters (range: 76.0%–84.2%) had ever heard of PrEP, except in Solwezi (67.2%) [Figure 10]. Among those who had ever heard of PrEP, less than one third had ever taken PrEP (range: 20.2%–29.4%). Among those who had ever taken PrEP, the majority (range: 59.6%–73.5%) had taken PrEP in the six months prior to the survey.

Across the towns, reasons for not using PrEP included not knowing where to get PrEP (range: 10.3%–30.7%), not wanting to take PrEP (range: 5.7%–26.7%), fear of side effects (range: 6.8%–25.2%), and not feeling at risk (2.2%–24.6%).

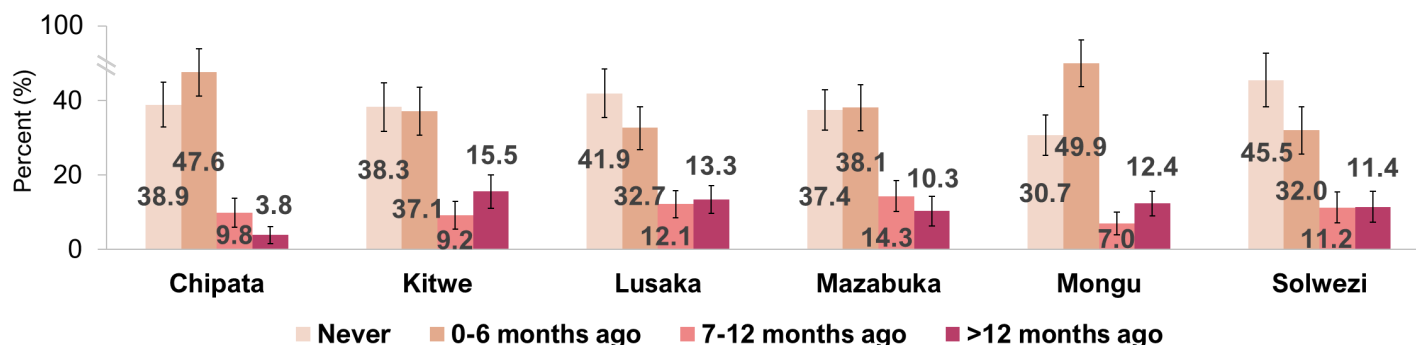
Figure 10. PrEP Knowledge and Uptake, by Town



TIME SINCE LAST ENGAGEMENT WITH A PEER EDUCATOR OR OUTREACH WORKER

Nearly half of FSW/SEG in Chipata (47.6%) and Mongu (49.9%) last received HIV messaging from a peer educator or outreach worker within the six months prior to the survey, compared with roughly one third of FSW/SEG in Kitwe (37.1%), Lusaka (32.7%), Mazabuka (38.1%), and Solwezi (32.0%) [Figure 11]. A notable proportion across towns (range: 30.7%–45.5%) had never received HIV messaging from a peer educator or outreach worker.

Figure 11. Time Since Last Engagement with a Peer Educator or Outreach Worker, by Town



CONCLUSIONS

- HIV prevalence among FSW/SEG aged 16 years and older was high, ranging from 32.0% in Lusaka to 45.4% in Mongu. HIV prevalence was highest among older FSW 35 years and older, ranging from approximately 66% to 81% across towns. Young FSW/SEG aged 16-24 years are also at substantial risk, with HIV prevalence ranging from approximately 10% to 17% across towns.
- Although the majority of FSW/SEG who were HIV-negative or unaware of their HIV status had heard of PrEP, uptake of PrEP was low. Opportunities for HIV prevention are critical among women who exchange sex for money, goods, or services in Zambia.
- The prevalence of HIV VLS among FSW/SEG living with HIV aged 16+ years showed noteworthy program accomplishment. Chipata, Mongu, Mazabuka, and Lusaka have met or surpassed the UNAIDS 2025 target of 85.7%, closely followed by Kitwe (85.2%) and Solwezi (82.2%).
- Progress on the first UNAIDS 95-95-95 target, awareness of HIV status among FSW/SEG living with HIV, was strong but varied across towns. Chipata (94.8%) nearly met the target, closely followed by Mongu (93.0%) and Mazabuka (91.4%). However, Lusaka, Kitwe, and Solwezi had not yet reached the 2020 UNAIDS target of 90%. Continued efforts to increase knowledge of HIV status is key to achieving global and national treatment targets.
- All towns have met the second and third UNAIDS 95-95-95 targets, with over 95% of FSW/SEG living with HIV who know their HIV status on ART, and among them, over 95% had suppressed HIV viral load.
- Nearly half of FSW/SEG in Chipata and Mongu and approximately one third of FSW/SEG in Kitwe, Lusaka, Mazabuka, and Solwezi last received HIV messaging from a peer educator or outreach worker within the six months prior to the survey. Never having received HIV messaging from a peer educator or outreach worker was common, ranging from 45.5% in Solwezi to 30.7% in Mongu.



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