Republic of Namibia

Ministry of Health and Social Services

Results of the

Namibia Integrated Biological and Behavioral Surveys among Key Populations

Nam-IBBS 2019

Windhoek | Walvis Bay/Swakopmund| Katima-Mulilo

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Directorate of Special Programs
Response Monitoring & Evaluation Subdivision
Private Bag 13198 Windhoek
Tel: +264-61-2032436
Fax: +264-61-300376
E-mail: rm&e@nacop.net

Table of Contents

List of Tables and Figures

Preface

Namibia's national response to the HIV epidemic is evidence-based, vigorous, multi-sectorial, and is achieving success in delivering care to those living with HIV infection and in reducing transmission. However, epidemiological data inform us that success may not be equally distributed by person, place, or time. Local data confirm the global evidence that some key populations (KP) at high risk bear a disproportionate burden of infection and onward transmission. These KP include female sex workers (FSW), men who have sex with men (MSM), and transgender women (TGW).

The Ministry of Health and Social Services (MoHSS) is therefore committed to collecting, interpreting, and disseminating data obtained for these KP. Such data place our country in a better position to track progress towards achieving our health-related goals and targets. Such data also allow us to identify continuing challenges and to improve interventions towards ending HIV in Namibia.

The current report presents the most recent data collected among FSW, MSM, and TGW in several priority areas of Namibia. A series of cross-sectional surveys were implemented among FSW in Windhoek, Walvis Bay/Swakopmund, and Katima-Mulilo, and among MSM in Windhoek and Walvis Bay/Swakopmund. TGW were eligible for all surveys. In addition, a qualitative study to assess new technological methods to reach TGW was implemented. Together, these data sources are called "Nam-IBBS" (Namibia Integrated Biological-Behavioral Surveillance).

The MoHSS is thankful to the Government of Namibia for its commitment to respond to HIV as a top priority in all its undertakings. We will be failing in our duty if we do not acknowledge the tremendous contributions made by our partners. The MoHSS appreciates the support of the National Institute of Pathology, PEPFAR, USAID, the United States Centers for Disease Control and Prevention (CDC), the several front-line community-based organizations serving KP, the technical assistance of the University of California, San Francisco, and the staff, community stakeholders, and participants who were integral to the success of Nam-IBBS.

We highlight Nam-IBBS achieving its primary aims in measuring the prevalence of HIV and syphilis infection among KP, risk and preventive behaviors, and factors promoting and impeding engagement in care and prevention programs. A first ever achievements of Nam-IBBS 2019 is the ground-breaking research on the use of social media and other technologies to reach TGW throughout the country. Additional objectives successfully met include an updated estimate of the number of KP residing in the study sites and documenting the experiences of stigma and discrimination encountered by FSW, MSM, and TGW.

The MoHSS recognizes that we will not end the HIV epidemic unless we address the needs of our most vulnerable communities. We are confident that the information contained in this report will be useful to people contributing to the health and well-being of all parts of our society.

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Forward

The MoHSS is committed to providing the strategic information necessary to guide the national response to end the HIV epidemic. The 2019 Namibia Integrated Biological-behavioral Surveillance (Nam-IBBS) is the second such undertaking since the beginning of the HIV epidemic in our country. The Nam-IBBS was first implemented in 2012-2014 to fill a gap in data on key populations (KP) at high risk for HIV infection, namely among female sex workers (FSW) and men who have sex with men (MSM). A comprehensive HIV surveillance system requires the on-going or cyclical collection of data relevant to the control and mitigation of diseases. Community-based surveys of KP are recommended to occur every few years [WHO 2017]. The Nam-IBBS surveys conducted in 2019 fulfills this recommendation, with updated findings on HIV prevalence, risk and preventive behaviors, and population size estimates presented in Part A of this report.

In addition to providing the first measures of HIV prevalence and related risk and preventive behaviors among FSW and MSM, the 2012-2014 Nam-IBBS identified further gaps in strategic information for KP. These gaps included the paucity of data on transgender women (TGW), a population bearing the highest prevalence of HIV in many parts of the world [Baral, 2012]. Unique challenges arise in reaching TGW. The 2019 Nam-IBBS therefore undertook a qualitative research component to examine the use of social media and other technologies to gather data relevant to the health and social welfare of TGW. Findings of this qualitative research project are presented in Part B in this current report.

Taken together, the surveys and qualitative study provide a foundation of evidence upon which to improve the effectiveness of our programs and interventions. Data presented in this current report enable setting targets for programs serving KP, identifying gaps in the continuum of care for persons living with HIV, and areas where challenges persist. Programs that are able to reach KP with effective prevention interventions stand to avert many new infections. The final stages of "getting to zero" new HIV infections in Namibia may require increasing focus on the most marginalized, hard-to-reach populations at highest risk including KP.

The MoHSS is thankful for the unwavering support that the Government of the Republic of Namibia (GRN) has shown in giving the HIV response top priority in all its undertakings, and in incorporating principles of equity in serving the nation's vulnerable populations. The MoHSS appreciates the contributions of our development and bilateral partners, collaborating organizations, and all who individually contributed to the success of this study, including survey participants.

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Institutional Involvements

- Ministry of Health and Social Services (MoHSS)
- Namibia Institute of Pathology (NIP)
- Society for Family Health (SFH)
- Walvis Bay Corridor Group (WBCG)
- United States Agency for International Development (USAID)
- US Centers for Disease Control and Prevention (CDC)
- University of California, San Francisco (UCSF)
- The Global Fund to Fight AIDS, Tuberculosis and Malaria

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We are grateful to all the FSW, MSM, and transgender persons who participated in the survey, testing and recruitment of their peers. We also acknowledge the immense contributions of all who, in a multitude of ways, contributed to the successful implementation of the Nam-IBBS 2019 surveys. We are grateful to the institutions whose collaboration on funding and implementation made the Nam-IBBS possible. We also thank community groups, advocates, and the Key Populations Technical Working Group for their planning and implementation support.

Disclaimer

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1. EXECUTIVE SUMMARY

Introduction

Scale up of Namibia's HIV response during the past decade has resulted in reductions in new infections and deaths attributable to AIDS. However, limited access to HIV prevention, care, and treatment services among "key populations" (KP) may hinder further control of the epidemic. These KP include female sex workers (FSW), men who have sex with men (MSM), and transgender women (TGW). Data are needed among these KP to assess their burden of HIV, engagement in the care continuum, access to prevention programs, risk and preventive behaviors, and population size estimates. Therefore, the Ministry of Health and Social Services (MoHSS) and its partners conducted the second round of the Namibia Integrated Biological-Behavioral Surveillance (Nam-IBBS) studies among FSW, MSM, and TGW in several urban areas of Namibia in 2019. Nam-IBBS 2019 updates and expands upon strategic information obtained in the first Nam-IBBS conducted in 2012-2014.

Methods

Overview of methods. Nam-IBBS 2019 had two components. Part A entailed serological and behavioral surveys of FSW, MSM, and TGW and was implemented from March to July, 2019. Part B was a qualitative study on the feasibility of reaching TGW through social media technology (conducted in April, 2019).

Part A: Serological and behavioral surveys of FSW, MSM, and TGW. The objectives of Part A included measuring the prevalence of HIV among KP in several urban areas of Namibia, the engagement in care among those testing HIV-positive, and key indicators of risk and preventive behaviors. Following a formative phase, surveys were implemented among FSW in Windhoek, Walvis Bay/Swakopmund, and Katima-Mulilo, and among MSM in Windhoek and Walvis Bay/Swakopmund. TGW were eligible for all surveys. Respondent-driven sampling (RDS), a peer-referral method, was used for recruitment. Eligibility criteria were age 18 years and older; ability to speak English, Oshiwambo, Afrikaans, or Silozi; written consent; recruitment by a peer; living, working, or socializing in the study area for the past six months; and meeting the KP-specific definitions. MSM were defined as males who engaged in oral or anal sex with men in the last six months. FSW were defined as females who received monetary payment in exchange for vaginal, oral, or anal sex during the last 30 days. TGW were defined as those who self-identified as transgender or as a gender not assigned at birth. TGW could participate in MSM or FSW surveys. Participants completed a face-to-face questionnaire and received rapid HIV testing and counseling. Participants who tested HIV positive were referred to care and treatment. Those testing HIV negative were linked to prevention services, including referrals for pre-exposure prophylaxis (PrEP). Estimates of the number of MSM and FSW in the study sites were made using the "successive-sampling" method integrated into RDS. Statistical analysis adjusted for the RDS method using RDS-A software and the Giles estimator.

Part B: Qualitative research on social media and TGW. The objectives of Part B were to develop online methods of social networking among transgender women (TGW) in Namibia and to assess the feasibility and acceptability of using a social media recruitment strategy for future TGW surveys. TGW, eligible by similar criteria as Part A, were invited to participate in key informant interviews and focus group discussions in Windhoek, Walvis Bay/Swakopmund, and Keetmanshoop. Data were also collected by online observation. Methods to recruit TGW from online venues were field tested.

Results and Discussion

Part A: Key Findings for FSW

Sample and demographic profile of FSW. Nam-IBBS 2019 recruited a total of 230 eligible FSW in Windhoek, 417 in Walvis Bay/Swakopmund, and 271 in Katima-Mulilo. The majority had not passed grade 12 or had vocational training, and sex work was the main source of income in all locations.

HIV prevalence. HIV prevalence was estimated at 21.3% (95% CI 11.8-30.7) of FSW in Windhoek, 20.3% (95% CI 16.3-24.3) in Walvis Bay/Swakopmund, and 44.2% (95% CI 38.0-50.4) in Katima-Mulilo. For comparison, the HIV prevalence for adult women (15-64 years) in the general population of Namibia was 15.7% (95% CI 14.5-16.8) from the NAMPHIA survey in 2017.

Continuum of engagement in HIV care services among HIV-positive FSW. Data from Nam-IBBS 2019 indicate FSW fall short of reaching UNAIDS 90-90-90 targets, particularly in the diagnosis of HIV infection. The proportion of FSW living with HIV who were diagnosed was 50.3% in Windhoek, 53.6% in Walvis Bay/Swakopmund, and 25.0% in Katima-Mulilo. If diagnosed, the proportion of FSW on ART was 72.9% in Windhoek, 90.4% in Walvis Bay/Swakopmund, and 96.1% in Katima-Mulilo. Viral load suppression among those on ART was 52.0% in Windhoek, 30.1% in Walvis Bay/Swakopmund, and 75.8% in Katima-Mulilo.

Risk and preventive factors for HIV among FSW. Among FSW in Windhoek, age 25 years and older was associated with higher HIV prevalence (adjusted odds ratio [aOR] 3.70, 95% CI 1.30-10.55) while education at the secondary or higher level was associated with lower HIV prevalence (aOR 0.27, 95% CI 0.12-0.60). Among FSW in Walvis Bay/Swakopmund, age 25 years and older was significantly associated with higher HIV prevalence (aOR 7.37, 95% CI, 2.41-22.58). Among FSW in Katima-Mulilo, higher HIV prevalence was associated with age 25 years and older (aOR 3.19, 95% CI 1.72-5.92) and syphilis seropositivity (aOR 3.47, 95% CI 1.12-10.77).

PrEP awareness and use among FSW. Being aware of PrEP as a means of preventing HIV acquisition was reported by 59.8% of FSW in Windhoek, 60.7% in Walvis Bay/Swakopmund, and 26.9% in Katima-Mulilo. Among those aware of PrEP, 16.7% in Windhoek, 13.3% in Walvis Bay/Swakopmund, and 9.3% in Katima-Mulilo had ever used PrEP.

FSW population size estimates. In 2019, there were an estimated 2,196 FSW living in Windhoek (95% credible interval 1,651-2,382), 1,057 (576-3,369) in Walvis Bay/Swakopmund, and 674 (318-2,426) in Katima-Mulilo.

Part A: Key Findings for MSM

Sample and demographic profile of MSM. Nam-IBBS 2019 recruited 215 MSM from Windhoek and 322 from Walvis Bay/Swakopmund. Unemployment was high, at 69.5% in Windhoek and 51.0% in Walvis Bay/Swakopmund. In Windhoek, 15.0% of MSM were currently or formerly married to a woman.

HIV prevalence and associated risk factors. HIV prevalence was estimated at 8.4% (95% CI 2.8-14.0) of MSM in Windhoek and 9.7% (95% CI 6.6-12.8) of MSM in Walvis Bay/Swakopmund. In comparison, the HIV prevalence for

adult men (15-64 years) in the general population of Namibia was 9.3% (95% CI 8.5-10.1) from the NAMPHIA survey in 2017.

Continuum of engagement in HIV care services among HIV positive MSM. Data from the Nam-IBBS 2019 indicate MSM fall short of reaching UNAIDS 90-90-90 targets. The proportion of MSM living with HIV who were diagnosed was 64.2% in Windhoek and 49.4% in Walvis Bay/Swakopmund. If diagnosed, the proportion on ART was 81.9% in Windhoek and 84.0% in Walvis Bay/Swakopmund. Viral load suppression among those on ART was 76.1% in Windhoek and 55.8% in Walvis Bay/Swakopmund.

Risk and preventive factors for HIV among MSM. Among MSM in Windhoek, paying for sex with a man was associated with higher HIV prevalence (aOR 11.49, 95% CI 1.79-73.90), while having any female sex partner in the last year was associated with lower HIV prevalence (aOR 0.06, 95% CI 0.01-0.44). Among MSM in Walvis Bay/Swakopmund, circumcision (aOR 0.15, 95% CI 0.05-0.39) and having at least one female partner (aOR 0.36, 95% CI 0.14-0.92) were independently associated with lower HIV prevalence (being aged 25 or older had a borderline association with higher HIV prevalence, aOR 2.94, 95% CI 0.95-9.13, P = 0.06).

PrEP awareness and use among MSM. Being aware of PrEP as a means of preventing HIV acquisition was reported by 34.5% of MSM and TGW in Windhoek and 51.1% in Walvis Bay/Swakopmund. Among those aware of PrEP, 3.2% in Windhoek and 13.7% in Walvis Bay/Swakopmund had ever used PrEP.

MSM population size estimates. The 2019 NAM-IBBS survey updated previous estimates on the number of MSM in Windhoek and Walvis Bay/Swakopmund. There are an estimated 2,210 MSM living in Windhoek (95% credible interval 380-10,410) and 670 in Walvis Bay/Swakopmund (410-1,610).

Part B: Qualitative component on TGW

A total of 58 TGW participated in the key informant interviews and focus group discussions of Part B. Key results were that TGW met on multiple social media sites, with Facebook and WhatsApp the most common, as well as at physical venues and trans-focused events. Pilot testing recruitment methods over 1 month succeeded in referring a total of 128 TGW, including 60 through social media and 68 through a friend. This qualitative study describes a range of barriers and facilitators for TGW participation in research, including social hierarchies and classes, lack of trust, internet access, unmet mental health needs, and experiences of discrimination, rejection, and violence.

Conclusions and Recommendations

Based on the findings above, including community-based measures of HIV prevalence, levels of engagement in programs, associations with infection, and indicators of risk and preventive behaviors, the Nam-IBBS 2019 data support the following recommendations:

1. **Scale-up of HIV testing through KP peer-driven interventions.** The most serious shortfall on the HIV care cascade, for both FSW and MSM, is diagnosis. Given the levels of diagnoses are lower than the general population, reliance on general access to HIV testing will not close this gap. The use of trained peers and MoHSS staff who are sensitized to lesbian, gay, bisexual, transgender, and intersex (LGBTI) issues holds promise to reach, counsel, and test KP. KP at highest risk need a higher frequency of testing (e.g., every six months). The Nam-IBBS 2019 data show high levels of ever testing with low levels of testing in the last year.

2. **PrEP promotion and demand creation programs specifically tailored to each of the three KP.** The Nam-IBBS data do not show over-reliance on PrEP by KP. On the contrary, PrEP awareness and use are low considering the high risk for HIV among KP. Higher profile campaigns on PrEP's efficacy, safety, and availability are needed with specific messages tailored for each of the KP. Formative research is needed on barriers to PrEP and ways to overcome them among FSW, TGW, and MSM. In addition, training is needed through the health system to increase provider competency in recognizing KP risk and recommendations for PrEP.
3. **Interventions to prevent commercial and transactional sex among adolescent girls and young women, and among boys and young men.** The Nam-IBBS 2019 data point to economic factors, particularly the limited opportunities resulting from low educational attainment among young women, as drivers of elevated risk for HIV among FSW. PEPFAR-funded programs such as those through the Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe (DREAMS) partnership work to deliver a core package of interventions that combines evidence-based approaches that go beyond the health sector, addressing the structural drivers that directly and indirectly increase girls' HIV risk including economic vulnerabilities and gender-based violence. Lessons learned and best practices from DREAMS programs throughout the region need to be transferred, adapted, and evaluated in the Namibian context. Of note, receiving money for sex from a woman and early onset of sex with men were risk factors for HIV infection among MSM. DREAMS-type programs tailored for sexual and gender minority populations are needed.
4. **Address the dire situation of high prevalence of HIV and low engagement in care among FSW in Zambezi as an outbreak.** The high prevalence in the general population of Zambezi (22.3% in NAMPHIA) is likely linked to and a source of the extremely high prevalence of HIV among FSW. Intensive measures akin to an outbreak investigation and response are needed. These include resource-intensive wide-scale HIV testing, index testing with immediate linkage to ART, and promotion of PrEP. Coordination of more radical efforts will need to include FSW involvement.
5. **Promote voluntary medical male circumcision (VMMC) for MSM.** The Nam-IBBS 2019 data showed a protective effect of circumcision and HIV among MSM. Reaching MSM may require specific messages on the protective benefits of circumcision.
6. **Fill the strategic information gap for transgendered persons**. The Nam-IBBS 2019 took initial steps for greater inclusion of TG in the data needed for the HIV response. Too few TG participants were enrolled in Part A to obtain measures of HIV prevalence, engagement in HIV care, and risk and preventive behaviors. The qualitative data from Part B provides a framework for a hybrid recruitment approach, led by peers, that includes online venues, physical locations, trans-specific events, and peer referral.
7. **Achieve the 90-90-90 targets for engagement in HIV for KP.** Namibia has surpassed the 90-90-90 targets for the general population, yet have not achieved these goals for KP.

Success in implementing these recommendations and their impact on the HIV epidemic among KP in Namibia can be measured in future rounds of IBBS. Cadres of MoHSS staff and KP peers have been trained on the methods of IBBS and engaged in all stages of implementation. RDS approaches have been adapted for use in peer-driven interventions to increase their reach. We envision that future RDS surveys will play an important role in demonstrating Namibia's success towards "getting to zero new HIV infections" among KP.

2. List of Acronyms

ANC	Antenatal clinic
ART	Antiretroviral therapy
AUDIT-C	Alcohol Use Disorders Identification Test Consumption scale
CDC	U.S. Centers for Disease Control and Prevention
CHR	Committee on Human Research
CI	Confidence interval
DGHT	Division of Global HIV and Tuberculosis
EQA	External quality assurance
FGD	Focus group discussion
FSW	Female sex workers
GARPR	Global AIDS Response Progress Reporting
HIV	Human immunodeficiency virus
HTC	HIV testing and counseling
HTS	HIV testing services
IBBS	Integrated biological-behavioral surveillance
IEC	Information, education, and communication
IQR	Interquartile Range
KP	Key populations
FY	Fiscal Year
LGBTI	Lesbian, gay, bisexual, transgender, intersex
MoHSS	Ministry of Health and Social Services
MSM	Men who have sex with men
Nam-IBBS	Namibia Integrated Bio-Behavioral Surveillance
NAMPHIA	Namibia Population-based HIV Assessment
NGO	Non-governmental organization
NIP	Namibia Institute of Pathology
NSF	National Strategic Framework
PDI	Peer driven intervention
PEPFAR	President's Emergency Plan for AIDS Relief
PI	Principal Investigator
PLHIV	People living with HIV
PMTCT	Prevention of mother-to-child transmission
PrEP	Pre-exposure prophylaxis
QA	Quality assurance
QDS	Questionnaire Development System
RDS	Respondent-driven sampling

SFH	Society for Family Health
SS-PSE	Successive sampling – population size estimate
STI	Sexually transmitted infection
TB	Tuberculosis
TG	Transgender (persons, men and women)
TGW	Transgender women
UCSF	University of California, San Francisco
UNAIDS	Joint United Nations Program on HIV/AIDS
USAID	United States Agency for International Development
USG	United States government
VL	Viral load
VLS	Viral load suppression

3. INTRODUCTION AND OBJECTIVES

HIV/AIDS in Namibia

Though substantial improvement has been achieved over the past decade, HIV continues to be a leading cause of morbidity and mortality in Namibia, resulting in several thousand deaths each year [CDC, 2020]. In 2017, the NAMPHIA survey estimated national HIV prevalence among adults was 12.6%, which corresponds to approximately 176,000 adults living with the virus [ICAP, 2018]. Regionally, prevalence ranged from 7.6% in the Kunene region to 22.3% in the Zambezi region. The survey estimated an annual incidence of 0.36% for adults, or approximately 4,700 new cases annually across the country. Notably, incidence was more than four times higher among women than men (0.59% versus 0.13%), with the sharpest contrasts among young adults aged 15-24 years, where men had the lowest incidence at 0.03% versus women at 0.99%. Although challenges remain in getting to zero HIV infections, Namibia is a global success story achieving, among other accomplishments, an overall viral load suppression of 77.4% of all persons living with HIV [ICAP, 2018].

Namibia is classified as having a high, generalized, and mature HIV epidemic, with infection primarily transmitted through unprotected heterosexual sex [UNAIDS, 2018]. According to the National Strategic Framework (NSF) and available data, drivers of the epidemic in Namibia include alcohol use, multiple and concurrent sexual partners, high levels of transactional and intergenerational sex, inconsistent use of condoms, low male circumcision, high mobility and labor migration, and persistent mother-to-child transmission [UNAIDS 2015; De la Torre et al. 2018]. Key populations (KP), including FSW, MSM, and TGW are thought to be at elevated risk for acquiring and transmitting HIV although data have been sparse.

Historical findings on HIV/AIDS among Female Sex Workers (FSW) in Namibia

The first IBBS surveys among FSW in Namibia were conducted in 2012-2014 using Respondent Driven Sampling (RDS) [Heckathorn, 1997] in four urban areas. The surveys found more than half of FSW in Katima-Mulilo and one-third or more in Oshikango, Walvis Bay/Swakopmund, and Windhoek to be HIV positive [MOHSS, 2016]. Each of these measures of HIV prevalence exceeded those of pregnant women in antenatal care in their respective sites (36.0% in Katima-Mulilo, 22.8% in Engela, 19.6% in Walvis Bay, and 19.6% at Katutura) [MOHSS, 2014]. Although high, these findings were lower than HIV prevalence measured among FSW in other urban areas of Southern Africa (e.g., 59.6% in South Africa, 61.2% in Zimbabwe, and 70.7% in Malawi) [Baral, 2012]. Findings suggest that HIV prevalence among FSW in Namibia may increase to levels of surrounding countries if effective prevention interventions are not implemented and brought to scale.

Onward transmission from FSW can be prevented through increased diagnosis and treatment of FSW living with HIV. Of those found HIV positive in the 2012-2014 surveys, 42.9% were unaware of their infection and only 33.7% were on ART. HIV prevalence relentlessly increased with age. For the group age 35 and above, 94.8% of FSW in Katima-Mulilo tested HIV positive. Primary prevention, including PrEP, needs to be targeted to young FSW to avert HIV acquisition. HIV infection was also significantly elevated among FSW with more commercial and non-commercial sex partners, and among those who were unemployed and had lower education. These findings suggest that interventions need to include livelihood interventions to remove women from depending on sex work and mitigate the high rate of infection over time.

Historical findings on HIV/AIDS among Men who have Sex with Men (MSM) in Namibia

The first IBBS surveys were also conducted among MSM in 2012-2014 using RDS. The surveys found HIV prevalence among MSM to be 20.9% in Windhoek, 10.2% in Keetmanshoop, 10.1% in Walvis Bay/Swakopmund, and 7.1% in Oshakati [MOHSS, 2016]. Only the estimate for Windhoek exceeded the overall national prevalence, at that time, of 14.3% of Namibian adults [MOHSS, 2014]. HIV prevalence in the other three sites closely approximated HIV prevalence of the general population of men in the surrounding regions. These estimates are comparable to those from some cities in sub-Saharan Africa, including Kano, Kisumu, Zanzibar, and Kampala, where 9-14% of MSM are HIV positive, but lower than those from others, including Blantyre, Lilongwe, Cape Town, Dakar, Durban, Gaborone, Johannesburg, Abidjan, and Mombasa, where 17% - 50% of MSM were HIV positive [Beyrer, 2013].

Findings may be optimistically interpreted that infection among Namibian MSM has not yet risen to the high levels observed among MSM in much of the rest of the world and, as such, an opportunity for prevention presents itself. Programs that are able to reach MSM in Namibia with effective prevention messages and interventions now stand to avert many new infections.. Nonetheless, there is a need to corroborate the prevalence of HIV among MSM in Namibia and to assess the trajectory of the epidemic since 2014.

Results of the first IBBS survey highlighted other key features of the epidemiology of HIV among MSM in Namibia. One finding was the high level of bisexuality among MSM in Namibia, as elsewhere in the region [Broz, 2011; Breyrer, 2010]. Many participants had multiple female and male partners in the last year, and HIV infection was significantly elevated among MSM with female partners. The result highlights the potential for transmission between MSM and women and the need to address behavioral risk, regardless of type of partner. HIV prevalence was also associated with other STI, alcohol use, being out of school, residing in the city, and lack of circumcision. The surveys also found a very high level of undiagnosed HIV infection (77%) and few MSM living with HIV on ART (15%).

Study Justification

The previous IBBS surveys among FSW and MSM in Namibia confirmed each population's status as a KP in need of specifically designed interventions. Updated data on MSM and FSW are needed to continuously inform KP-specific HIV responses within the broader generalized epidemic, and to evaluate success and challenges over the last several years. The previous implementation of IBBS surveys identified opportunity for greater linkage to care and provision of services for KP who are reached through surveillance methods that used peer referral-based sampling. Meanwhile, PEPFAR's priorities call for reaching more KP with effective programs. The current project, Nam-IBBS 2019, therefore presents a combined opportunity for an updated snapshot of the epidemic among FSW and MSM, as well as a potential approach to reach segments of these KP who currently do not use HIV prevention, treatment and care services.

This second round of IBBS surveys allows for observation of trends in HIV prevalence, risk behaviors, access to/uptake of services, and HIV treatment. Enhancements in this second round included the addition of viral load testing and direct linkage to the Society for Family Health and Walvis Bay Corridor Group to increase uptake of high-impact prevention and treatment interventions, including PrEP and ART. Results from IBBS surveys can be used to plan and inform prevention, care, and treatment programs, and to assess changes in the HIV epidemic among KP over time.

Study Goal and Objectives

The overarching goal of Nam-IBBS was to collect representative information about HIV disease burden, access to services, and biological and behavioral risks for HIV acquisition and transmission among MSM and FSW in Namibia. Data from this project can help inform HIV prevention, care, treatment, and related services for these KP. Through the peer-driven referral process of RDS, Nam-IBBS was able to link participants to prevention and treatment services, potentially reaching segments of KP previously not accessing services.

Objectives:

1. Estimate the prevalence of HIV and Viral Load Suppression (VLS) among MSM in Windhoek and Walvis Bay/Swakopmund, and among FSW in Windhoek, Walvis Bay/Swakopmund, and Katima-Mulilo;
2. Measure the prevalence of syphilis among MSM in Windhoek and Walvis Bay/Swakopmund, and among FSW in Windhoek, Walvis Bay/Swakopmund, and Katima-Mulilo;
3. Estimate the population size of MSM and FSW in these target areas;
4. Measure key indicators of engagement in the continuum of HIV care (e.g., proportion living with HIV who are aware of their status, on ART, and are virally suppressed);
5. Describe HIV testing history and behaviors;
6. Measure awareness, previous engagement and/or willingness to engage and reasons for engagement/non-engagement in HIV prevention and treatment programs;
7. Measure experiences with alcohol and drug use, mental health, stigma, discrimination and violence towards KP and PLHIV, in the community as well as in health-care settings;
8. Describe the effect of "peer-driven intervention" (PDI) recruitment on the uptake and outcomes of KP-targeted interventions;
9. Assess barriers and facilitators to each step of the HIV care continuum

4. PART A1: IBBS Survey Among FSW (including TGW)

METHODS

A national-level taskforce designed and implemented the IBBS. The taskforce was chaired by the MoHSS with representatives from governmental and nongovernmental organizations, development and technical assistance partners, and community members. Following consultations with the IBBS taskforce, the Nam-IBBS included two components: a formative assessment and surveys in three targeted geographic areas.

Formative assessment

The formative assessment was conducted in Katima-Mulilo, Walvis Bay/Swakopmund, and Windhoek during an eight-week period prior to implementation of the IBBS survey component. Data from the formative assessment supported the selection of RDS as the most effective sampling and recruitment method, the locations of the study sites, the amount of participant reimbursement, and the broad topics of the behavioral questionnaire. The assessment used qualitative methods and tools common to ethnographic studies, including key informant interviews, focus group discussions, observation, and mapping.

Respondent-driven sampling

RDS is a peer-referral, social network-based method used in many settings to overcome the problem of achieving representative samples of marginalized or hidden populations such as FSW. Appropriateness of the RDS methodology depends on meeting theoretical assumptions; namely, the population knows each other to be members of the population; the population comprises one large inter-connected set of networks within a few degrees of separation; sampling occurs with replacement; respondents randomly recruit other members of their social network; network size is accurately reported; and that there is sufficient cross-group recruitment to stabilize the sample enabling the statistical adjustments of population estimates. If these assumptions are not met, estimations of population proportions may be biased.

According to theory and protocol, the RDS surveys were initiated with a purposely chosen set of 6-9 initial "seeds" from each of the three study sites who were diverse with regards to age, marital status, employment or student status, HIV serostatus, income, and having known access to FSW-friendly services. They were known members of the FSW population who were instructed to recruit a limited number of other FSW from their social network, who in turn were enrolled (if found eligible) and instructed to recruit other FSW peers, and so on. In some study sites, additional seeds were added in response to low levels of recruitment from the seeds initially selected. To ensure rapid recruitment, care was taken that seeds were well connected within their networks, well regarded by their peers, sympathetic to the survey's goals, and diverse with respect to the above characteristics. During recruitment, key variables are tracked to gauge that the composition of the sample stabilizes (i.e., achieves "equilibrium") as the sample size is approached. In the present surveys we tracked age, education, student status, marital status, contact with peer educators, HIV testing, and HIV serostatus.

Coupons were used to refer peers to the study and to link who recruited whom (needed to track network connections and recruitment patterns) through the use of codes (coupon numbers). An electronic RDS Coupon Management spreadsheet and logbook were used to document and analyze the recruitment links. Being in possession of a valid coupon was an eligibility criterion for the survey. The number of recruitment coupons given for each person ranged from three to eleven based on the progress of recruitment at each study site in response to varying degrees of difficulty in attaining the needed sample size. Where weekly recruitment monitoring data showed that certain sub-populations of FSW identified in formative research were underrepresented in the crude sample, members of those sub-populations were issued additional coupons for a period of time to promote recruitment within that social network. As the survey drew to a close and

recruitment targets were achieved, the number of coupons issued to participants was systematically reduced to three, to two, to one, and to zero, as is consistent with RDS methodology.

IBBS Study Sites and Study Offices

The three urban areas were selected for the Nam-IBBS based on stakeholder input that they accounted for the largest networks of FSW. The three Nam-IBBS sites were Katima-Mulilo, Walvis Bay/Swakopmund, and Windhoek. Stakeholders also believed that these areas had the necessary geographical and cultural diversity, large enough female adult populations to obtain the required sample sizes, and the availability of FSW-friendly services for needed referrals of participants. The surrounding metropolitan areas of each city were included as part of the survey site to improve coverage of the target population.

Discrete study offices in each site were selected based on being accessible to the largest numbers and most diverse groups of FSW, near to public transportation, easy to locate through nearby landmarks, and situated near a community-based partner providing services to FSW.

Eligibility criteria

Women who met all of the following criteria were eligible to participate in the Nam-IBBS:

- At least 18 years of age
- Cisgender or TGW
- Able to speak English, Oshiwambo, Silozi, or Afrikaans
- Exchanged vaginal, anal, and/or oral sex for money during the 30 days preceding the IBBS
- Lived, worked, and/or socialized in the survey area for at least six months preceding the IBBS
- Provided informed consent for the survey, testing, and return of results

Sample size

Sample size calculations were based on achieving reasonable precision on the point estimate for the prevalence of viral load suppression (VLS) for FSW in each study site. Given the VLS measure is made among the small subsample of FSW who are HIV positive, the choice of this measure was conservative when considering precision on estimates measured in the whole sample (e.g., HIV prevalence). To make the calculations, we used the CDC DGHT-developed "Sample Size Calculator for Survey-based Viral Load Suppression" following the "CDC DGHT Technical Considerations for Estimating Population Viral Load through HIV Surveys." Parameters for HIV prevalence, status awareness, and ART use were based on data from the previous round of IBBS and an assumption that VLS would be 85% among those on ART.

Table 4. 1. FSW Sample Size by Survey Site.

FSW (cis or trans women)*	*Sample Size*
Windhoek	349 and 35 trans FSW
Walvis Bay/Swakopmund	469 and 47 trans FSW
Katima-Mulilo	333 and 34 trans FSW

**The targeted number of TGW was set in addition to the sample size calculated for FSW. The experience of previous rounds of IBBS in Namibia and elsewhere has been that the social networks of FSW and TGW are closely interconnected. FSW tend to recruit TGW and vice versa, and TGW are important nodes in the chains of recruitment. That is, they have high degree social networks and bridge different groups within the population of FSW. However, due*

to their relatively smaller numbers in the population, it was anticipated that the present study would not be able to enroll a large enough sample size to have sufficient precision around VLS separately for TGW. We set the number of TGW to be recruited at 10% additional participants in the FSW samples for each site.

Informed consent

Participants gave written informed consent prior to enrollment in the survey. Eligible recruits read, or had read to them, the informed consent information sheet in English, Oshiwambo, Silozi, or Afrikaans, with the opportunity to have any questions answered by the interviewer. Consent allowed for separate agreement to the different components of the study:

- Risk behavior questionnaire
- Rapid testing for HIV and syphilis, including receipt of results
- Biological specimen storage for laboratory testing, with a stipulation that the participant can have their specimen removed and destroyed at any time

The minimum level of participation required was the questionnaire and rapid HIV testing with receipt of results.

Behavioral data collection

Behavioral data were collected using a standardized questionnaire based on the prior IBBS and similar surveys of FSW in other countries, adapted to the Namibian FSW context. The instrument included questions to inform national programs, to measure international indicators related to the response to the HIV epidemic (e.g., UNAIDS Global Indicators), and to allow for the specialized analysis of RDS data. The topics included demographic data, behaviors potentially related to HIV infection and other STI, stigma and discrimination, access and use of HIV prevention, care, treatment, and other health services. Alcohol abuse was measured by screening positive by the Alcohol Use Disorders Identification Test Consumption (AUDIT-C) scale [Bradley,2007]. Each participant answered questions about the size of their FSW social network. The personal social network size was used to calculate weights that adjust point estimates and 95% confidence intervals to be representative of the underlying population. The full survey questionnaire is included as an appendix.

The questionnaire was developed in English and was tested and reviewed by study investigators and staff during formative assessment and training for survey implementation. It was then translated and programed for data collection in English, Oshiwambo, Silozi, and Afrikaans. Following training, study staff, fluent in those survey languages, administered the behavioral questionnaires to participants. IBBS questionnaire was designed for electronic data collection using the Questionnaire Development System (QDS™) software, version 2.6.1, and administered face-to-face by interviewers using a notebook computer.

Laboratory procedures

Serological testing for markers of HIV and syphilis, using MoHSS-approved assays, was done following a parallel algorithm based on national protocols. HIV and syphilis rapid testing was conducted at the study sites by certified study staff. Persons testing positive for HIV and/or syphilis were referred to care services with further counseling and testing. Testing procedures were supervised by study site coordinators, who were certified nurses. Waste disposal standards were adhered to for biological testing procedures. Laboratory staff were trained to ensure proper disposal practices.

The Namibia Institute of Pathology (NIP) conducted Quality Assurance of the HIV and syphilis rapid testing. IBBS testing procedures fell under external quality assurance (EQA) procedures for MoHSS rapid testing, which use proficiency testing. All HIV-positive and syphilis-positive rapid test results and 10% of negative results were sent to NIP for re-testing.

Method for population size estimation

The current IBBS updates the FSW population size estimates produced by the prior IBBS round. The prior population size estimate was based on multiple methods integrated into the IBBS conducted in 2013/2014 [17]. These methods

included key informant estimates, mapping with census and enumeration, literature review, unique object multiplier, and wisdom of the crowds. After calculating the point estimates and ranges using each method, stakeholder panels were consulted to assess potential biases, segments of the populations over- or under- represented, and to reconcile discordant results. After iterative discussions, final consensus estimates for the number FSW at each site, along with a plausible range for the estimates, were agreed upon.

The present IBBS updated the prior consensus estimates using new data derived from the Nam-IBBS 2019 survey. The approach is referred to as the "successive-sampling" method that is integrated into RDS analysis methods [18]. Successive-sampling population size estimation is a statistical (Bayesian) method based on a participant's self-reported personal network size and prior knowledge (in this case, the estimate from the 2013/2014 IBBS) [18]. Calculations use the imputed visibility model to smooth and reduce unrealistic network size responses and incorporate error measurement. The model for the total population size of FSW in the survey area is based on the probability of participants being sampled for the survey, the number of people they recruit into the survey, and the time it took to recruit those participants. Bayesian models produce a range of probable estimates, generating a likely population size, and a range of population sizes referred to as the "95% credible interval."

Pre-survey implementation training

Prior to implementation, Nam-IBBS field staff received a one-week standardized training together in one site, followed by a half-day refresher training at their respective sites. These trainings focused on general knowledge of FSW in the world and in sub-Saharan Africa, ethical issues in human subject research, and standard operating procedures for the RDS survey implementation. The training included theory, as well as practical exercises simulating and role-playing survey procedures, facilitated by study investigators. Training included field team members from the three study locations, the site coordinator/nurse, coupon manager, receptionist, interviewers, counselors, and community mobilizers. Staff were trained and certified in HIV testing and counseling by the MoHSS. In addition, study staff completed the Collaborative Institutional Training Initiative (CITI) Human Subjects Research and Human Subjects Protection Training certifications and were supervised by the site coordinator/nurse and study investigators.

Data entry and management

Data from behavioral questionnaire were entered directly by the interviewer on a laptop computer using QDS™ software. The results of on-site rapid and laboratory tests were entered into an electronic spreadsheet and later merged centrally with the QDS™ survey database. Coupon distribution data were entered by the coupon manager into an RDS coupon management spreadsheet and merged with the lab and survey datasets. The site coordinator copied all QDS™ files from individual laptops onto an on-site password protected computer and e-mailed the encrypted files to the project data manager in Windhoek each day. Paper files were kept in a locked filing cabinet at the study offices before being transferred to the national IBBS office.

Data analysis

Data for the three study sites were cleaned using SPSS v26 (IBM Corp., Armonk, N.Y., USA) and exported into RDS-analyst (RDS-A). RDS-A (using the Giles estimator described by [Giles, 2011] was used to produce point estimates and 95% confidence intervals of the demographic and risk behavior variables and HIV prevalence by study site. The 2014 consensus estimates were used as the prior population sizes. RDS network size of each participant was determined by the following question: "How many female sex workers age 18 and over living in [site] do you know and would consider giving a recruitment coupon to?" RDS-A produced survey weights were exported to SPSS for analysis using generalized linear models to determine individual associations between HIV infection and candidate demographic and risk behavior variables. Candidate variables were selected for inclusion in the bivariate models if they were assumed to have potential utility for establishing a risk-profile that could be used by the MoHSS and its partners to develop targeted interventions for primary prevention and/or identification of existing infections. Bivariate tests for association between variables were

considered statistically significant when the resulting P values were < 0.05 or borderline significant at P 0.05 - 0.10. Multivariable logistic regression analysis was performed to assess risk-profile predictors of HIV infection while controlling for potential confounding variables. Risk-profile variables were considered for inclusion in the full multivariable models if tests for statistical significance of bivariate associations produced a P value <0.2. Adjusted odds ratios, 95% confidence intervals, and P values were calculated. Variables that were significantly (P < 0.05) or borderline significantly (P < 0.1) associated with HIV infection in the full multivariable were retained in the final multivariable model. Recruitment network figures were created using RDS-A.

ETHICAL CONSIDERATIONS

Ethical review and informed consent

The survey was reviewed and approved by the Research Committee of the Directorate for Policy, Planning, and Human Resources of the MoHSS in Windhoek and the Committee on Human Research (CHR) at the University of California, San Francisco (UCSF) in the USA. The protocol was also reviewed by the CDC office in Namibia and at the CDC Center for Global Health in Atlanta, USA. Data collection staff completed training on human subjects research and signed a confidentiality agreement before commencing their survey duties. All participants provided written informed consent.

Participant confidentiality

No identifying information was asked for or collected for the survey or formative assessment. Written informed consent forms were kept in separate locked filing cabinets in security-protected offices. Participant and data confidentiality were protected in the collection, transmission, and processing of data by using unique numeric and alpha-numeric codes that were not derived from any personal identifying information. In addition, access to data was password protected and limited to study investigators and staff with data management or analysis responsibilities. Throughout this report, response categories with fewer than 5 individuals are presented as "<5" in order to preserve their confidentiality.

Participant compensation

Participants were reimbursed N$50 (~US$3.50) for transportation costs during their first visit and N$30 in mobile phone network vouchers as secondary compensation for each successful referral recruited into the survey. The amount of reimbursement for transportation and the total cash value for both primary and secondary reimbursements were gauged to be modest enough not to be coercive or encourage the participation of persons outside the target population.

Participant referrals

Participants were provided with pre- and post- test counseling by certified counselors for HIV and syphilis. Participants with positive results were linked to nearby health facilities where HIV care and treatment and prevention services were freely available. Staff at these facilities already provide services to FSW and MSM as part of their program scope. Participants screened for participation, but ineligible, were referred to HIV counseling and testing services. Additionally, ineligible non-enrolled persons were referred to psycho-social support services, as necessary. Persons under the age of 18 years who self-reported or were suspected to be involved in sex work during the eligibility screening were referred to the appropriate public or non-governmental service provider for psycho-social support. Service providers who provided psycho-social support, including legal assistance, appropriate to minors involved in sex work were identified by the investigators in each of the study sites. Standardized, anonymous bidirectional referral forms of the community linkages partner were used for the purpose of tracking referral completion.

RESULTS

Recruitment, Eligibility and Enrollment, HIV Rapid Testing Refusal

Recruitment

Nam-IBBS 2019 recruited FSW in Windhoek and Katima-Mulilo from March to July of 2019, and in Walvis Bay/Swakopmund from March to August of 2019.

Fifteen seeds were recruited in Windhoek, who generated peer-referral recruitment chains to a maximum of 13 waves. In Walvis Bay/Swakopmund, 17 seeds were recruited, generating a maximum of 18 waves. In Katima-Mulilo, six seeds were enlisted whose longest referral chains reached 29 waves.

The figures below illustrate the recruitment chains in the three study sites. Seeds failing to recruit are those not connected to other participants. Circles are color-coded as red indicating the participant was age 18 to 24 years vs. blue as 25 years and above. The recruitment patterns in both sites illustrate cross recruitment of groups by age. Equilibrium (i.e., sample stability) was broadly achieved after several waves on key variables tracked through recruitment, namely on age, education, student status, marital status, contact with peer educators, HIV testing, and HIV serostatus.

Figure 4. 1 Windhoek FSW Recruitment Tree

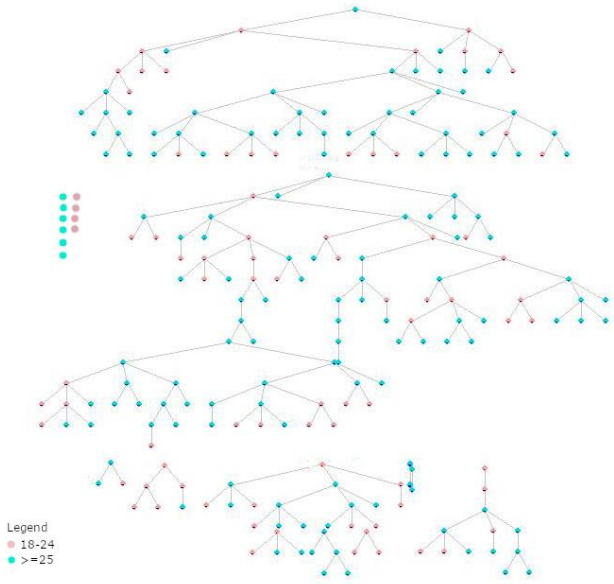


Figure 4. 2 Walvis Bay/Swakopmund FSW Recruitment Tree

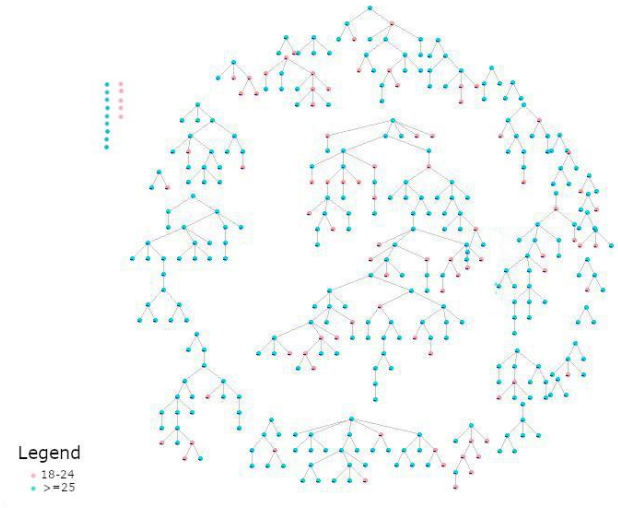
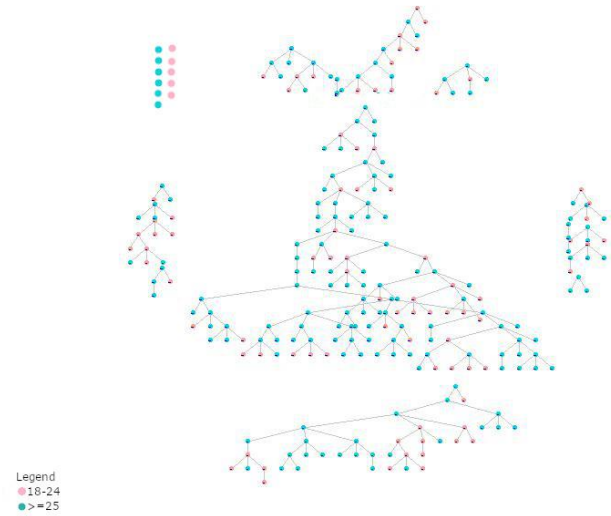


Figure 4. 3 Katima-Mulilo FSW Recruitment Tree



Eligibility and Enrollment

A total of 723, 1293, and 885 coupons were distributed via peers in Windhoek, Walvis Bay/Swakopmund, and Katima-Mulilo, respectively. Of the coupons distributed, 530 (73.3%), 469 (36.3%), and 304 (34.4%) were returned by potential participants, respectively. The eligibility rate (i.e., number participants screened eligible / the number of coupons returned by potential participants) was 43.6% in Windhoek, 89.8% in Walvis Bay/Swakopmund, and 89.1% in Katima-Mulilo.

The most common reasons for ineligibility at the time of initial screening were not having received money in exchange for sex in the previous 30 days, being under 18, and living working or socializing in the study area for less than 6 months. During analysis, additional ineligible participants were identified, namely 46 participants denied engaging in sex work and 51 participants reported previously participating in the survey. The records of these persons were deleted, and their specimens were destroyed. These observations were removed from the analysis presented in this report and the eligibility violations were reported to the ethical oversight committees of the implementing institutions.

The final sample sizes of eligible FSW included in analysis were 230 women in Windhoek, 417 women in Walvis Bay/Swakopmund, and 271 women in Katima-Mulilo. A total of 33 TGW who were FSW enrolled across all sites.

Description of the Study Population

Results in this section present univariate description of the FSW in the three study sites according to demographic characteristics and HIV risk-related behaviors.

Demographic Characteristics

Table 4.2 describes the age, marital status, education, and occupation or sources of income for FSW in the three sites. The proportions who were teenagers age 18 to 19 years old from 3.9% in Walvis Bay/Swakopmund to 10.7% in Katima-Mulilo. The majority of FSW in all sites were never married and had not passed grade 12 or vocational training. Sex work was also the main occupation and source of income, ranging from 63.9% in Walvis Bay/Swakopmund to 89.6% in Katima-Mulilo.

Table 4. 2: Socio-demographic characteristics of FSW in Windhoek, Walvis Bay/Swakopmund, Katima-Mulilo, 2019

Variable	Windhoek (n=230)			Walvis Bay/Swakopmund (n=417)			Katima-Mulilo (n=271)		
	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI
Age group									
18-19 years	23	10.6	5.8, 15.4	13	3.9	1.2, 6.5	29	10.7	7.3, 14.2
20-24 years	59	24.6	14.3, 34.7	78	20.3	16.2, 24.4	69	26.0	20.2, 31.9
25-29 years	54	25.8	17.0, 34.6	107	25.5	21.0, 30.1	70	26.1	20.8, 31.3
30 and older	94	39.0	27.8, 50.3	219	50.3	45.1, 55.5	101	37.1	30.6, 43.7
Marital Status									
Currently or previously married	53	25.8	16.8, 347	16	3.9	2.0, 5.8	17	5.3	2.9, 7.6
Never married	177	74.2	65.3, 83.2	401	96.1	94.2, 98.0	254	94.7	92.4, 97.1
Completed education Level									
Primary or less	84	33.0	23.0, 43.2	77	18.8	14.7, 22.8	117	47.2	40.3, 53.9
Grade 10	111	48.2	38.1, 58.2	258	61.8	56.9, 66.6	96	33.9	28.6, 39.3
Grade 12 or Vocational	32	18.2	19.5, 25.8	79	18.9	14.7, 22.8	54	17.7	12.4, 23.0
Tertiary	<5	--		<5	--		<5	--	
Main Occupation or Source of Income									
Not employed	14	4.8	2.1, 7.5	29	7.2	5.0, 9.3	<5	--	
Sex work	192	82.1	75.4, 89.1	277	63.9	59.4, 68.4	238	89.6	86.5, 92.7
Other employment	24	13.1	6.8, 19.2	110	28.9	24.5, 33.3	30	9.4	6.5, 12.4
Currently Homeless	23	7.3	0.0, 15.0	19	4.7	2.5, 6.8	7	2.7	0.8, 4.6

Jailed for Any Reason Last 12 Months	36	10.4	2.1, 18.7		34	6.8	4.6, 9.0		12	4.4	2.2, 6.6

Sexual Behaviors

For most FSW in all three sites, age of first sex occurred between 15 and 19 years of age. However, substantial proportions had sexual debut before age 15 years, ranging from 15.3% in Walvis Bay/Swakopmund to 19.4% in Windhoek. The majority of FSW in Windhoek (56.3%) and Katima-Mulilo (64.1%) had their first commercial sexual experience between ages 15 and 19 years. Some FSW reported exchanging sex for money before the age of 15 years, ranging from 3.8% in Walvis Bay/Swakopmund to 10.4% in Katima-Mulilo.

Table 4. 3 Sexual History among FSW in in Windhoek, Walvis Bay/Swakopmund, Katima-Mulilo, 2019

Variable	Windhoek (n=230)			Walvis Bay/Swakopmund (n=417)			Katima-Mulilo (n=271)		
	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI
Age of sexual debut									
< 15 years	50	19.4	11.2, 27.5	68	15.3	11.9, 18.6	57	17.7	13.7, 21.7
15-19 years	149	69.3	60.1, 78.6	272	68.6	64.0, 73.3	189	75.4	70.7, 80.2
≥ 20 years	23	11.3	6.4, 16.2	66	16.1	12.2, 19.9	18	6.8	3.5, 10.2
Age when first exchanged sex for money									
< 15 years	16	5.2	1.5, 8.9	18	3.8	2.4, 5.2	35	10.4	7.3, 13.5
15-19 years	133	56.3	45.9, 67.1	153	37.2	32.0, 42.3	167	64.1	58.7, 69.5
≥ 20 years	79	38.4	27.1, 49.4	239	59.0	53.8, 64.2	67	25.5	20.3, 30.6
Ever had receptive anal sex	118	49.5	38.3, 60.6	101	26.2	21.3, 31.2	61	21.5	16.8, 26.2

Recent Sexual Partnerships

Table 4.4 describes recent sexual partnerships with "client" and "non-client" partners among FSW. For the purposes of the IBBS, the term "client" refers to a partner with whom engagement in sexual intercourse is exclusively transactional in nature (i.e., monetary payment in exchange for sex). The term "non-client" refers to partners with whom engagement in sexual intercourse is not exclusively transactional in nature. A non-client may be a spouse, boyfriend, or casual partner. Most FSW reported <5 client sexual partners in the last 30 days, ranging from 67.9% in Windhoek to 92.6% in Katima-Mulilo. Many FSW reported also having non-client partners in the last 30 days, including multiple non-client partners.

Table 4. 4: Recent sexual behavior with client and non-client partners among FSW in Windhoek, Walvis Bay/Swakopmund, Katima-Mulilo, 2019

Variable	Windhoek (n=230)			Walvis Bay/Swakopmund (n=417)			Katima-Mulilo (n=271)		
	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI
Number of client partners during 30 days preceding IBBS									
< 5	156	67.9	58.1, 77.6	376	92.3	89.6, 95.1	247	92.6	90.1, 95.1
5-9	43	20.0	13.7, 26.4	25	5.7	3.3, 8.1	19	5.8	3.6, 7.9
10-14	14	6.4	0.2, 12.7	<5	--		<5	--	
≥15	14	5.7	0.8, 10.5	5	--		<5	--	
Number of non-client partners during 30 days preceding IBBS									
None	84	33.5	25.4, 41.4	212	51.2	46.0, 56.3	153	60.7	55.4, 66.0
1-3	106	51.8	41.5, 62.3	186	46.1	40.9, 51.3	109	37.1	31.9, 42.2
> 3	37	14.7	4.9, 24.4	12	2.7	1.3, 4.2	8	2.3	0.9, 3.6
Total number of partners (client plus non-client) during 30 days preceding IBBS									
< 5	101	41.5	31.5, 51.5	338	84.4	81.0, 87.8	213	83.5	79.5, 87.4
5-9	81	38.7	28.5, 49.2	57	12.2	9.4, 15.0	47	13.2	9.6, 16.9
10-14	22	9.9	5.7, 14.1	6	1.4	0.4, 2.5	8	2.4	1.1, 3.7

≥ 15	23	9.8	2.0, 17.7		8	2.0	0.3, 3.6		<5	--	

Condom Use

Consistent condom use (i.e., 100% of the time) with client partners ranged from a low of 29.6% in Windhoek to 54.1% in Walvis Bay/Swakopmund. Consistent condom use with non-client partners ranged from 37.8% in Windhoek to 50.6% in Katima-Mulilo. Of note, a high proportion of FSW in Katima-Mulilo acknowledged never using condoms with client partners (31.0%) and non-client partners (33.9%). Self-report of condom use at last sexual encounter with a client, an indicator held to have better recall than the proportion of times condoms were used, suggests a higher level of condom use in Windhoek and Walvis Bay/Swakopmund compared to Katima-Mulilo.

Questions probing barriers to condom use found the majority of FSW in all cities reporting condoms to be very affordable (ranging from 71.6% in Walvis Bay/Swakopmund to 79.6% in Katima-Mulilo) and very easy to access (ranging from 75.2% in Katima-Mulilo to 81.0% in Windhoek). The majority of FSW in all three sites reported never using lubricants.

Table 4. 5 Recent condom use and perceptions about condom affordability and access among FSW in Windhoek, Walvis Bay/Swakopmund, Katima-Mulilo, 2019

Variable	Windhoek (n=230)				Walvis Bay/Swakopmund (n=417)				Katima-Mulilo (n=271)		
	#	RDS Adj. %	95% CI		#	RDS Adj. %	95% CI		#	RDS Adj. %	95% CI
Percent of client sex-partners with whom condom was used during 3 months preceding IBBS†											
0%	32	12.2	6.0, 18.3		51	11.6	8.5, 14.7		82	31.0	25.7, 47.2
1% - 99%	124	58.2	48.1, 68.6		136	34.3	29.6, 39.0		82	27.7	25.7, 36.2
100%	68	29.6	20.5, 38.4		213	54.1	48.9, 59.2		105	41.3	35.3, 47.2
Percent of non-client sex partners with whom condom was used during 3 months preceding IBBS†											
0%	30	13.7	6.7, 20.9		45	13	9.0, 16.3		74	33.9	28.1, 39.6
1% - 99%	97	48.4	36.8, 60.0		125	44.2	37.1, 51.5		39	15.6	10.7, 20.0
100%	71	37.8	26.5, 49.2		121	42.8	36.4, 49.7		99	50.6	44.3, 57.2
Condom used at last sex with most recent client sex-partner†	138	62.6	54.5, 70.7		273	69.3	65.1, 73.6		132	49.6	44.2, 55.0
Condom used at last sex with most recent non-client sex-partner	84	58.9	46.0, 71.8		147	76.3	70.4, 83.4		44	41.1	31.7, 52.3
Condom affordability											
Very affordable	167	72.3	62.4, 81.1		287	71.6	67.4, 75.8		208	79.6	73.7, 85.5
Somewhat affordable	51	22.4	14.1, 30.8		68	15.4	12.0, 18.7		12	3.6	2.8, 4.4
Not affordable	12	5.3	0.6, 10.1		60	13.1	10.3, 15.8		43	16.7	10.9, 22.7
Condom access											
Very easy	185	81.0	72.9, 89.2		318	77.1	73.4, 80.9		202	75.2	66.1, 84.6
Somewhat easy	34	13.0	6.3, 19.7		73	17.5	14.1, 20.8		7	1.7	1.4, 2.0
Not easy	11	6.0	0.4, 11.5		25	5.4	3.4, 7.4		54	23.1	13.7, 32.3
How often uses lubricant											
Always	19	8.8	4.2, 13.6		50	11.4	8.5, 14.2		18	7.3	3.7, 10.8
Usually	8	4.6	0.0, 10.2		6	1.4	0.4, 2.5		<5	--	
Somewhat	42	14.9	8.3, 21.6		77	20.1	16.1, 24.1		11	3.2	1.2, 5.0
Rarely	31	12.6	9.5, 15.7		35	9.7	6.2, 13.2		7	2.5	1.8, 3.2
Never	129	59.1	49.3, 68.5		249	57.4	52.4, 62.3		190	86	81.7, 90.5

†For transgender participants, condom use is defined as 'barrier use' including dental dams and female condoms

Experiences of Violence and Discrimination

Experiences of discrimination, verbal abuse, physical violence, and sexual assault by women attributed to their being an FSW are reported in Table 4.6. Discrimination (defined as being refused health care service, employment, church or religious services, service at a restaurant, housing, or police assistance because they were perceived to be an FSW) was reported by 25.2% in Windhoek, 19.0% in Walvis Bay/Swakopmund, and 6.9% in Katima-Mulilo in the last 12 months. Verbal, physical, and sexual abuse due to being a FSW were common in all sites. Verbal abuse ranged from 14.6% in Katima-Mulilo to 65.2% in Windhoek; physical abuse ranged from 15.1% in Walvis Bay/Swakopmund to 36.2% in Windhoek. Sexual assault was reported by 25.0% of FSW in Windhoek, 10.8% in Walvis Bay/Swakopmund, and 16.4% in Katima-Mulilo.

Table 4. 6: Experience of discrimination, abuse, and sexual violence among in Windhoek, Walvis Bay/Swakopmund, Katima-Mulilo, 2019

Variable	Windhoek (n=230)			Walvis Bay/Swakopmund (n=417)			Katima-Mulilo (n=271)		
	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI
Experienced any discrimination as a result of being FSW during 12 months preceding the IBBS	58	25.2	17.2, 33.0	79	19.0	14.9, 23.2	17	6.9	4.1, 9.8
Verbally abused during 12 months preceding the IBBS	157	65.2	54.9, 75.4	150	33.5	28.6, 38.2	37	14.6	10.4, 18.9
Physically abused during 12 months preceding the IBBS	86	36.2	28.2, 44.0	73	15.1	11.8, 18.3	45	18.0	13.0, 22.9
Sexually assaulted or raped during 12 months preceding the IBBS	56	25.0	17.0, 33.0	51	10.8	8.5, 13.2	43	16.4	12.2, 20.8
Jailed for any reason in previous 12 months	36	10.4	2.1, 18.7	34	6.8	4.6, 9.0	12	4.4	2.2, 6.6

Alcohol and Drug Use

Alcohol abuse as measured by AUDIT-C was highly prevalent among FSW in Windhoek (85.7%) and Walvis Bay/Swakopmund (64.6%) and common in Katima-Mulilo (27.6%, Table 4.7). The percentage of FSW who ever used any illicit drugs (including marijuana, cocaine, ecstasy, methamphetamine, or heroin) in the last six months was modest, ranging from denial of any use in Katima-Mulilo to 17.4% in Walvis Bay/Swakopmund. Marijuana accounted for most of the illicit drug use, with a few FSW (4.6%) acknowledging cocaine use. Few FSW reported ever injecting illicit drugs.

Table 4. 7: Alcohol and illicit drug use among FSW in Windhoek, Walvis Bay/Swakopmund, Katima-Mulilo, 2019

Variable	Windhoek (n=230)			Walvis Bay/Swakopmund (n=417)			Katima-Mulilo (n=27)		
	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI
Consumed alcohol in previous 6 months	196	87.3	80.8, 93.9	298	73.4	69.7, 77.1	98	36.4	30.9, 41.6
Screened positive for alcohol abuse (using AUDIT-C measure)*	193	85.7	78.7, 92.6	262	64.6	60.4, 68.8	65	27.6	22.1, 33.2
Ever used any illicit drugs	38	15.4	7.3, 23.6	74	17.4	13.5, 21.4	5	--	
Used marijuana in previous 6 months	25	10.5	2.4, 18.6	54	13.5	12.5, 14.5	<5	--	
Used cocaine in previous 6 months	<5	--		16	4.6	4.1, 5.3	<5	--	
Used heroin in previous 6 months	<5	--		<5	--		<5	--	
Used methamphetamine in previous 6 months	<5	--		<5	--		0	--	
Used ecstasy in previous 6 months	<5	--		<5	--		0	--	
Ever injected any illicit drug with a syringe	0	--		<5	--		<5	--	

*The Alcohol Use Disorders Identification Test (AUDIT-C) is an alcohol screen that can help identify participants who are hazardous drinkers or have active alcohol use disorders (including alcohol abuse or dependence).

Access to Medical Care

Table 4.8 describes recent use of healthcare services by FSW. In the last 12 months, FSW seeking medical care for any reason ranged from 21.1% in Katima-Mulilo to 45.8% in Walvis Bay/Swakopmund. Few reported difficulties in accessing services, ranging from 1.6% in Katima-Mulilo to 3.1% in Walvis Bay/Swakopmund.

Table 4. 8: Use and access to medical care among FSW in Windhoek, Walvis Bay/Swakopmund, Katima-Mulilo, 2019

Variable	Windhoek (n=230)			Walvis Bay/Swakopmund (n=417)			Katima-Mulilo (n=271)		
	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI
Sought healthcare for any reason during 12 months preceding IBBS	92	41.2	31.5, 50.8	193	45.8	41.4, 50.1	55	21.1	16.5, 25.8
Experienced difficulty accessing healthcare service during 12 months preceding IBBS	10	1.7	0.3, 3.0	13	3.1	2.7, 3.5	6	1.6	1.4, 1.8
Experienced difficulty filling a prescription during 12 months preceding IBBS (among FSW who sought a prescription)	16	7.3	0.0, 14.4	19	5.0	4.5, 5.6	6	2.1	1.3, 2.7

Recent Pregnancy and Use of Antenatal Care Services

The percentage of FSW who were pregnant at the time of the interview ranged from 3.1% in Walvis Bay/Swakopmund to 6.5% in Windhoek (Table 4.9). The majority women had given birth (range 68.2% to 86.7%), of whom a majority received antenatal care during the last pregnancy (range 63.4% to 86.5%). Over 90% of women receiving antenatal care in Windhoek (94.9%) and Walvis Bay/Swakopmund (96.4%) recall being offered an HIV test. Slightly below 90% of women receiving antenatal care in Katima-Mulilo recall being offered an HIV test (89.7%).

Table 4. 9 Recent pregnancy and use of antenatal care services among FSW in Windhoek, Walvis Bay/Swakopmund, Katima-Mulilo, 2019

Variable	Windhoek (n=230)			Walvis Bay/Swakopmund (n=417)			Katima-Mulilo (n=271)		
	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI
Currently pregnant at time of IBBS	15	6.5	0.0, 13.8	13	3.1	2.8, 3.4	8	4.0	3.2, 4.8
Ever given birth	182	85.2	79.9, 90.4	344	86.7	82.8, 90.6	175	68.2	63.4, 73.1
Received antenatal care services during pregnancy of most recent birth (among FSW who have ever been pregnant)	149	81.2	69.8. 92.8	296	86.5	83.6, 90.0	123	63.4	56.3, 70.2
Offered an HIV test during antenatal care services (among FSW who gave birth during 5 years preceding IBBS and received antenatal care)	141	94.9	87.1, 100.0	284	96.4	95.7, 96.9	114	89.7	81.5, 97.0

Recent Diagnosis or Symptoms of STI

Table 4.10 presents report of diagnosis of sexually transmitted infections (STI) by a medical professional among FSW, ranging from 12.0% in Katima-Mulilo to 23.7% in Windhoek. These figures do not necessarily represent an estimate of STI incidence or prevalence and must be interpreted cautiously. Reporting this means that respondents had STI symptoms (many infections remain asymptomatic), recognized such symptoms, sought services at healthcare facilities, and were diagnosed. This underreports actual STI burden among FSW.

Table 4.10: Recent diagnosis and syphilis rapid testing results of sexually transmitted infections (STI) among FSW in Windhoek, Walvis Bay/Swakopmund, Katima-Mulilo, 2019

Variable	Windhoek (n=230)			Walvis Bay/Swakopmund (n=417)			Katima-Mulilo (n=271)		
	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI
STI diagnosis by a medical professional in the past 12 months	69	23.7	16.0, 31.4	60	13.9	12.8, 15.1	31	12.0	8.1, 15.9
Laboratory confirmed syphilis during the survey	<5	--	--	13	2.9	1.3, 4.6	24	9.0	6.1, 12.0

HIV Knowledge

Table 4.11 presents FSW's comprehensive knowledge about HIV prevention. Comprehensive HIV transmission knowledge was measured by five statements relating modes of preventing HIV infection and three common misconceptions about HIV transmission that participants were asked to identify as being true or false (e.g., a healthy-looking person can be HIV-positive). Participants were classified as having "correct" HIV transmission knowledge if they correctly identified all five statements as being true or false. The proportion of FSW who displayed correct HIV prevention knowledge ranged from 40.0% in Katima-Mulilo to 60.8% in Walvis Bay/Swakopmund.

Table 4.11 also presents results concerning FSW's knowledge of prevention of mother to child transmission (PMTCT) of HIV. Comprehensive PMTCT knowledge was measured as correctly identifying four statements as being true or false (i.e., HIV can be transmitted from a mother to her baby during pregnancy, at delivery, or through breastfeeding, and ARV can reduce the risk of MTCT. Correct knowledge about PMTCT ranged from 60.2% in Katima-Mulilo to 70.5% in Windhoek. The most common questions answered incorrectly in Windhoek were whether abstaining from sex reduces risk for HIV and whether having only one uninfected sex partner who has no sex outside partnership reduces the risk for HIV. In Walvis Bay/Swakopmund, the most common incorrect answers were around PMTCT; that a mother can transmit HIV to her baby during pregnancy and, secondly, during delivery. In Katima-Mulilo, HIV being transmitted during pregnancy and having one uninfected sex partner were the two most common incorrect answers.

Table 4. 11: Knowledge about HIV transmission and prevention of mother to child transmission (PMTCT) among FSW in Windhoek, Walvis Bay/Swakopmund, Katima-Mulilo, 2019

Variable	Windhoek (n=230)			Walvis Bay/Swakopmund (n=417)			Katima-Mulilo (n=271)		
	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI
Correct knowledge about HIV transmission	116	46.2	35.6, 56.8	262	60.8	56.5, 65.1	118	40.0	34.5, 45.8
Correct knowledge about HIV transmission relating to PMTCT	169	70.5	60.6, 80.3	260	61.3	56.3, 66.3	172	60.2	54.0, 66.5

PrEP Awareness and Contact with HIV Prevention Programs

Being aware of PrEP as a means of preventing HIV acquisition was reported by 59.8% of FSW in Windhoek, 60.7% in Walvis Bay/Swakopmund, and 26.9% in Katima-Mulilo. Among those aware of PrEP, 16.7% in Windhoek, 13.3% in Walvis Bay/Swakopmund, and 9.3% in Katima-Mulilo had ever used PrEP.

The UNAIDS Global AIDS Response Progress Reporting (GARPR) indicator for HIV prevention coverage is based on members of the population reporting two or more specific prevention programs (condoms/lube, counseling, and/or STI treatment) in a three-month period. This survey asked the question with a 6 month recall and is used as a proxy in the absence of the GARPR definition. Using this definition, FSW reached with prevention programs was achieved by only 16.0% in Windhoek, 21.9% in Walvis Bay/Swakopmund, and 5.3% in Katima-Mulilo. Only 14.6% of FSW in Windhoek, 10.8% in Walvis Bay/Swakopmund, and 3.1% in Katima-Mulilo had contact with a peer educator in the last six months. Participation in an HIV-focused meeting and receiving HIV-related educational materials were also low.

Table 4. 12: Receipt of HIV focused peer outreach and prevention interventions among FSW in Windhoek, Walvis Bay/Swakopmund, Katima-Mulilo, 2019

Variable	Windhoek (n=230)			Walvis Bay/Swakopmund (n=417)			Katima-Mulilo (n=271)		
	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI
Aware of PrEP	135	59.8	49.1, 70.5	254	60.7	55.3, 66.2	92	26.9	20.8, 32.6
Ever Used PrEP (of those aware)	19	16.7	3.3, 30.2	33	13.3	7.6, 19.0	9	9.3	1.9, 16.6
Reached (according to GARPR definition) with prevention programs during 6 months preceding the IBBS	45	16.0	6.7, 25.4	94	21.9	18.6, 25.2	23	5.3	3.6, 7.0
Had contact with an HIV-focused peer educator during 6 months preceding the IBBS	32	14.6	8.5, 20.6	46	10.8	9.9, 11.8	11	3.1	1.4, 4.8
Participated in an HIV-focused meeting during 6 months preceding the IBBS	38	17.5	7.6, 27.5	61	14.6	10.8, 18.4	20	6.1	3.2, 9.0
Received HIV/AIDS related pamphlet/literature during 6 months preceding the IBBS	17	6.5	0.0, 16.2	25	5.9	5.2, 6.6	16	3.7	3.2, 4.1

HIV Testing and Status Awareness

Table 4.13 describes awareness and use of HIV counseling and testing services among FSW. Large majorities of FSW in each city knew where they could get an HIV test (range: 81.8% in Katima-Mulilo to 99.7% in Windhoek). Ever receiving counseling and testing ranged from 67.5% in Katima-Mulilo to 94.9% in Windhoek. Being currently aware of one's HIV status (defined as testing HIV-negative in the study and self-reporting a last test of HIV-negative, or self-reporting HIV-positive status) was lowest in Katima-Mulilo (45.2%) and highest in Windhoek (87.9%). Among those not already known to be HIV positive, being tested in the last year ranged from 31.6% in Katima-Mulilo to 87.9% in Windhoek. Perception of HIV risk among FSW who self-reported their HIV status as negative or unknown varied between the sites, with 95.7% of FSW in Katima-Mulilo feeling they had a moderate or great risk compared to 58.8% in Windhoek and 40.2% in Walvis Bay/Swakopmund.

Table 4. 13: Awareness and use of HIV counseling and testing among FSW in Windhoek, Walvis Bay/Swakopmund, Katima-Mulilo, 2019

Variable	Windhoek (n=230)			Walvis Bay/Swakopmund (n=417)			Katima-Mulilo (n=271)		
	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI
Knows where to receive HIV counseling and testing	228	99.7	98.5, 100.0	376	88.9	85.7, 92.1	229	81.8	77.8, 85.9
Ever received HIV counseling and testing	215	94.9	91.0, 98.9	360	85.5	81.8, 89.2	180	67.5	62.0, 73.0
Currently aware of HIV serostatus	199	87.9	79.9, 95.9	329	79.6	76.1, 83.0	116	45.2	39.7, 50.7
Tested for HIV during 12 months preceding the IBBS (among FSW not already known to be HIV positive)	116	65.1	56.7, 73.5	195	55.6	50.3, 60.9	60	31.6	25.0, 38.7
HIV risk perception (among HIV-negative and new diagnosis)									
No/small risk	74	41.2	30.6, 52.0	203	59.8	55.1, 64.7	10	4.3	1.4, 7.3
Moderate/great risk	123	58.8	48.0, 69.4	147	40.2	34.8, 45.3	218	95.7	92.7, 98.6

HIV Prevalence, Continuum of Engagement in Care, and Risk Factors for Infection

HIV Prevalence

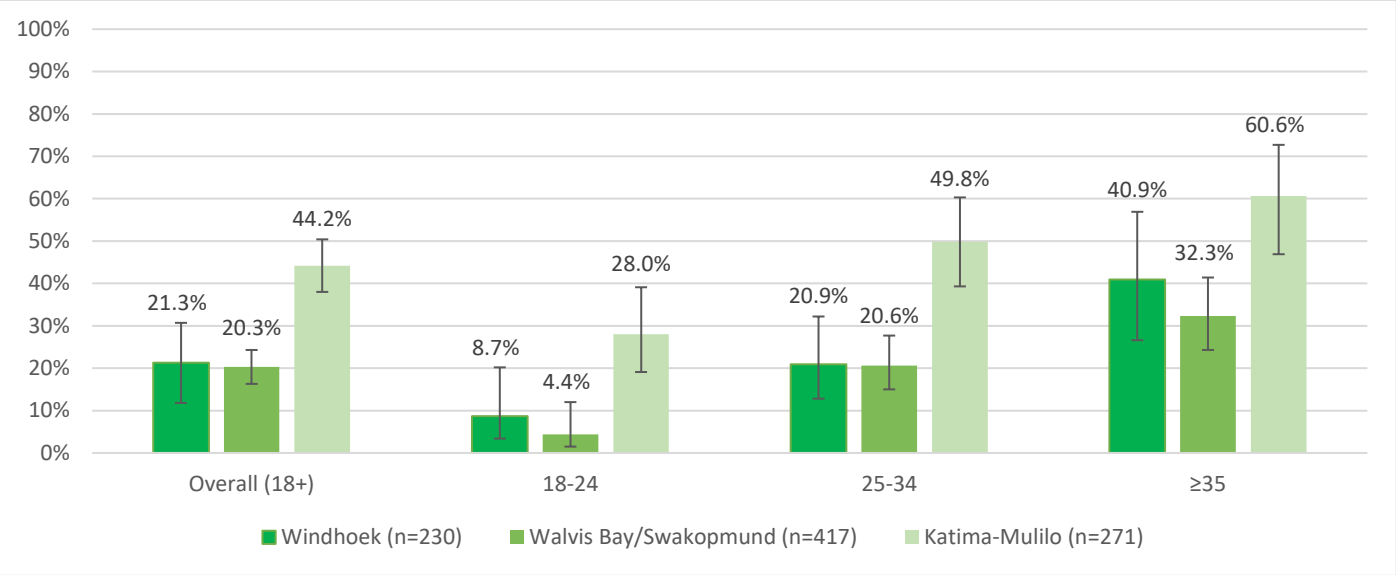
HIV prevalence is estimated at 21.3% of FSW in Windhoek, 20.3% in Walvis Bay/Swakopmund, and 44.2% in Katima-Mulilo. In comparison, the national HIV prevalence for adult women (15-64 years) was 15.7% with 14.5-16.8 (95% CI) from the NAMPHIA survey, 2017.

Table 4. 14: HIV prevalence among FSW in Windhoek, Walvis Bay/Swakopmund, Katima-Mulilo, 2019

Variable	Windhoek (n=230)			Walvis Bay/Swakopmund (n=417)			Katima-Mulilo (n=271)		
	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI
HIV test result									
Positive	53	21.3	11.8, 30.7	91	20.3	16.3, 24.3	119	44.2	38.0, 50.4
Negative	177	78.7	69.3, 88.2	326	79.7	75.7, 83.7	152	55.8	49.6, 62.0

HIV prevalence rises with increasing age, reaching 40.9% among FSW 35 years and older in Windhoek, 32.3% in Walvis Bay/Swakopmund, and 60.5% in Katima-Mulilo. HIV prevalence among young FSW aged 18-24 years, a proxy for HIV incidence, was substantial: 8.7% in Windhoek, 4.4% in Walvis Bay/Swakopmund, and 28.0% in Katima-Mulilo.

Figure 4. 4: HIV Prevalence by Age, FSW NAM-IBBS, 2019



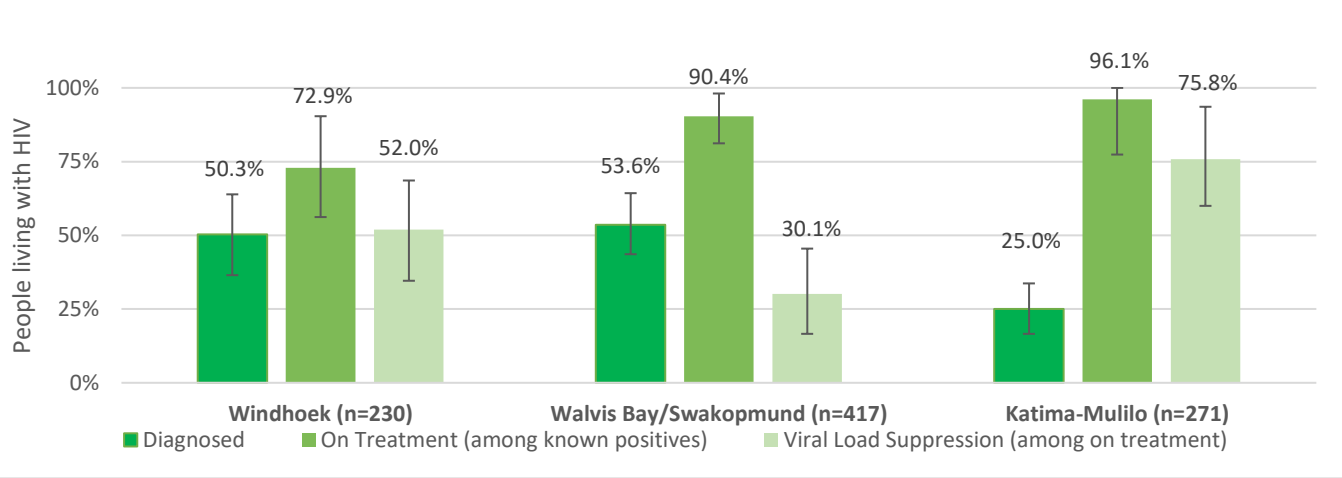
Continuum of Engagement in HIV Care

The continuum of engagement in HIV care or "care cascade" provides a framework to assess the impact of scaling up the national response. A strategy to end the epidemic is to slow HIV transmission through maximizing viral suppression through the use of ART. Use of ART, in turn, is dependent upon persons living with HIV being diagnosed. UNAIDS set targets that >90% of persons living with HIV should be aware of their infection status, of whom, >90% should be on ART, of whom, >90% should achieve viral suppression. The NAMPHIA survey of 2017 indicated that these targets had been achieved for women in the general population: 89.5% of adult women living with HIV knew their HIV status, of whom, 97.1% were receiving ART, of whom, 92.2% achieved VLS.

However, data from the Nam-IBBS 2019 indicate FSW fall short on several of these targets, particularly in the diagnosis of HIV infection. The percentage of FSW living with HIV who were diagnosed fell well below 90% in all three cities (50.3% in Windhoek, 53.6% in Walvis Bay/Swakopmund, and 25.0% in Katima-Mulilo). If diagnosed, being on ART

was higher (72.9% in Windhoek, 90.4% in Walvis Bay/Swakopmund, and 96.1% in Katima-Mulilo). Viral load suppression among those on ART, however, fell below 90%, to 52.0% in Windhoek, 30.1% in Walvis Bay/Swakopmund, and 75.8% in Katima-Mulilo.

Figure 4. 5 HIV Care and Treatment Continuum among FSW in Windhoek, Walvis Bay/Swakopmund, Katima-Mulilo, 2019



Risk factors for HIV infection

HIV prevalence by demographic factors

As noted in the figure above, HIV prevalence was significantly higher in older age groups of FSW in all three cities. HIV prevalence among young FSW (age 18-24 years) was 8.7% in Windhoek, rising to 40.9% for FSW age 35 years and above (P = 0.006). In Walvis Bay/Swakopmund, HIV prevalence rises to 32.3% among those 35 and above (P <0.001). In Katima-Mulilo, HIV prevalence among young FSW (age 18-24) was already 28.0%, rising even further to 60.5% among FSW 35 years and older (P <0.001). Lower education level was associated with significantly higher HIV prevalence among FSW in Windhoek (37.8% for primary or less vs. 13.0% for secondary or higher, P <0.001), a pattern that was borderline significant in Walvis Bay/Swakopmund (P = 0.08).

Table 4. 15: HIV prevalence stratified by age, marital status, education, and source of income among FSW in Windhoek, Walvis Bay/Swakopmund, Katima-Mulilo, 2019

Variable	Windhoek (n=230)			Walvis Bay/Swakopmund (n=417)			Katima-Mulilo (n=271)		
	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI
Age									
18-24 years	7	8.7	3.4, 20.2	<5	--		27	28.0	19.1, 39.1
25-34 years	20	20.9	12.8, 32.2	41	20.6	15.0, 27.7	51	49.8	39.3, 60.3
≥ 35 years	26	40.9	26.6, 56.9	46	32.3	24.3, 41.4	41	60.5	46.9, 72.7
Highest level of education completed									
Primary or less	32	37.8	26., 50.9	24	27.8	18.6, 39.4	55	45.2	35.4, 55.4
Secondary or Higher	21	13.0	7.8, 21.0	67	18.5	14.4, 23.5	64	43.3	34.9, 52.0
Marital Status									
Ever married	15	22.8	12.6, 37.5	<5	--	6.7, 46.8	6	32.7	14.2, 58.9
Never married	41	20.6	14.3, 28.9	88	20.3	16.4, 24.9	113	44.8	38.1, 51.7
Main Source of Income									
Not employed	<5	--	8.6, 65.4	5	17.1	7.0, 36.2	<5	71.5	18.1, 96.6

Employed as a sex worker	46	22.2	15.9, 30.0		63	21.5	16.8, 24.8		111	46.2	39.2, 53.3
Employed as other employment	<5	--	3.9, 31.6		23	18.6	11.8, 27.9		6	22.3	10.0, 42.6

HIV prevalence by sexual behaviors

HIV prevalence was high across all indicators of sexual behavior among FSW, including age at first exchanging sex for money, and number of client and non-client partners in the last month. Age of first exchanging sex for money showed borderline variation in HIV prevalence in Katima-Mulilo (P = 0.1).

Table 4. 16: HIV prevalence stratified by age at debut of female sex work and recent sexual partnerships among FSW in Windhoek, Walvis Bay/Swakopmund, Katima-Mulilo, 2019

Variable	Windhoek (n=230)				Walvis Bay/Swakopmund (n=417)				Katima-Mulilo (n=271)		
	#	RDS Adj. %	95% CI		#	RDS Adj. %	95% CI		#	RDS Adj. %	95% CI
Age when first exchanged sex for money											
< 15 years	5	26.2	9.1, 55.9		6	31.6	14.1, 56.6		13	42.4	26.0, 60.7
15-19 years	25	20.2	13.0, 30.0		29	20.6	14.2, 28.9		68	40.2	32.3, 48.7
≥ 20 years	22	21.1	12.8, 32.9		53	18.6	14.1, 24.3		38	56.4	43.1, 68.9
Number of client sex-partners during 30 days preceding IBBS											
< 5	37	22.5	15.5, 31.5		81	19.7	15.8, 24.4		110	44.5	37.8, 51.6
≥5	15	18.7	10.6, 30.8		7	21.6	10.2, 40.0		9	39.8	21.5, 61.6
Number of non-client sex partners during 30 days preceding IBBS											
None	15	16.1	8.8, 27.4		42	19.3	14.0, 26.1		68	43.0	34.6, 51.8
1-3	28	26.1	17.5, 37.0		41	19.3	14.2, 25.8		48	46.3	36.2, 56.8
> 3	9	16.0	7.2, 31.8		5	40.8	166, 70.5		<5	--	14.0, 78.5

HIV prevalence by alcohol and drug use

Illicit drug use, principally reported as marijuana, was associated with significantly higher HIV prevalence among FSW in Katima-Mulilo (P = 0.03). Problematic drinking determined by AUDIT-C criteria for women was associated with a borderline lower HIV prevalence among FSW in Walvis Bay/Swakopmund (P = 0.1).

Table 4. 17: HIV Prevalence stratified by alcohol and drug abuse among FSW in Windhoek, Walvis Bay/Swakopmund, Katima-Mulilo, 2019

Variable	Windhoek (n=230)				Walvis Bay/Swakopmund (n=417)				Katima-Mulilo (n=271)		
	#	RDS Adj. %	95% CI		#	RDS Adj. %	95% CI		#	RDS Adj. %	95% CI
Problematic consumption of alcohol (AUDIT-C) during 6 months preceding IBBS											
Yes	43	20.8	14.8, 28.5		47	17.6	13.0, 23.2		31	52.1	39.6, 64.3
No	10	23.4	10.9, 43.2		42	24.8	18.2, 32.8		70	41.3	33.0, 50.0
Ever used any illicit drugs											
Yes	7	16.4	6.6, 35.3		11	13.9	7.5, 24.2		5	88.6	45.4, 98.6
No	46	22.2	16.0, 30.1		80	21.6	17.3, 26.7		115	43.6	37.0, 50.3

HIV prevalence by history of STI and syphilis serology

Although history of symptoms or diagnosis of STI in the last year was not associated with HIV prevalence, having at positive serological results for syphilis at the time of the survey was associated with significantly higher HIV prevalence among FSW in Katima-Mulilo (67.4% prevalence with a positive syphilis result, P = 0.03).

Table 4. 18: HIV prevalence stratified by diagnosis or syphilis diagnosis among FSW in Windhoek, Walvis Bay/Swakopmund, Katima-Mulilo, 2019

Variable	Windhoek (n=230)			Walvis Bay/Swakopmund (n=417)			Katima-Mulilo (n=271)		
	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI
Diagnosis or symptoms of STI during 12 months preceding IBBS									
Yes	18	21.7	12.5, 35.1	13	20.7	16.5, 25.6	15	45.3	27.7, 64.2
No	34	21.0	14.5, 29.4	78	18.9	10.6, 31.3	104	44.0	37.2, 51.2
Laboratory confirmed syphilis during the survey									
Yes	52	63.4	13.4, 95.1	<5	--	--	17	67.4	45.1, 83.8
No	<5	--	--	87	20.3	16.4, 24.9	7	41.9	35.2, 48.9

HIV prevalence by experiences of violence

In all three cities, HIV prevalence was higher among FSW who had experienced physical and sexual violence in the preceding 12 months. Experiences of physical violence was borderline significant in its association with HIV in all three locations.

Table 4. 19: HIV prevalence stratified by physical or sexual assault among FSW in Windhoek, Walvis Bay/Swakopmund, Katima-Mulilo, 2019

Variable	Windhoek (n=230)			Walvis Bay/Swakopmund (n=417)			Katima-Mulilo (n=271)		
	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI
Physically abused during 12 months preceding the IBBS									
Yes	25	27.9	17.7, 41.2	19	29.3	19.5, 41.4	25	45.3	27.7, 64.2
No	27	16.9	10.9, 25.3	33	18.7	14.6, 23.6	93	44.0	37.2, 51.2
Sexually assaulted or raped during 12 months preceding the IBBS									
Yes	19	26.1	15.0, 41.4	23	24.6	14.2, 39.2	20	55.4	40.4, 69.6
No	33	19.3	13.0, 27.6	68	19.8	15.7, 24.5	99	41.3	34.6, 48.9

Multivariable logistic regression to assess predictors of HIV infection

Multivariable logistic regression analysis was performed to assess risk-profile variable predictors of HIV infection among FSW in the three cities, controlling for potential confounding variables. Risk-profile variables were considered for inclusion in the full multivariable models if tests for statistical significance of bivariable associations produced a P value < 0.2. Final models were chosen by retaining variables with $P < 0.1$, with the level of significance considered $P < 0.05$. Of note, bivariate and multivariate tests for significance were done using exported weights from RDS-A and the SVY commands in Stata. Of note, 95% confidence intervals (CI) are wide due to RDS adjustments and low numbers of observations in many categories.

Among FSW in Windhoek, age 25 years and older was significantly and independently associated with higher HIV prevalence (aOR 3.70, 95% CI 1.30-10.55) while higher education level (secondary or more), was associated with lower HIV prevalence (aOR 0.27, 95% CI 0.12-0.60). Among FSW in Walvis Bay/Swakopmund, only age 25 years and older was associated with higher HIV prevalence (aOR 7.37, 95% CI, 2.41-22.58). Among FSW in Katima-Mulilo, higher HIV

prevalence was associated with age 25 years and older (aOR 3.19, 95% CI 1.72-5.92), and syphilis seropositivity (aOR 3.46, 95% CI 1.12-10.77).

Table 4. 20: Correlates of HIV infection among FSW in Windhoek, Walvis Bay/Swakopmund, Katima-Mulilo, 2019

Study site	Variable	Full multivariable model ☨	Final multi- variable model ‡
		aOR (95% CI) §	aOR (95% CI) §
Windhoek	Age 25 years and older	3.96 (1.27-12.32)*	3.70 (1.30-10.55)
	Secondary education or higher attained	0.29 (0.13-0.66)*	0.27 (0.12-0.60)
	Laboratory confirmed positive for syphilis	3.76 (0.28-49.95)	(--)
	Physically abused during 12 months preceding the IBBS	1.76 (0.77-4.02)	(--)
Walvis Bay/Swakopmund	Age 25 years and older	8.31 (2.12-32.67)*	7.37 (2.41-22.58)
	Secondary education or higher attained	0.62 (0.33-1.15)	(--)
	5 or more clients in previous 30 days	1.23 (0.51-2.98)	(--)
	Hazardous drinker	0.69 (0.40-1.21)	(--)
	Ever used any illicit drugs	0.52 (0.20-1.32)	(--)
	Laboratory confirmed positive for syphilis	1.46 (0.77-3.23)	(--)
	Physically abused during 12 months preceding the IBBS	1.58 (0.77-3.23)	(--)
Katima-Mulilo	Age 25 years and older	4.20 (1.97-8.97)	3.19 (1.72-5.92)
	Debut of sex work <15	1.03 (0.44-2.40)	(--)
	5 or more clients in previous 30 days	0.56 (0.19-1.70)	(--)
	Hazardous drinker	1.66 (0.87-3.19)	(--)
	Ever used any illicit drugs	18.04 (1.56-208.8)	(--)
	Laboratory confirmed positive for syphilis	4.73 (1.24-18.01)	3.47 (1.12-10.77)
	Physically abused during 12 months preceding the IBBS	1.07 (0.50-2.29)	(--)

☨ full multivariable model includes independent variables that produced a P value ≤ 0.2 in tests for statistical significance of bivariate associations. Variables that were significantly (P < 0.05) or borderline significantly (P < 0.1) associated with HIV infection in the full multivariable were included in the final multivariable model.

*All adjusted odds ratios (aOR) are weighted with RDSAT-exported survey weights. * Indicates a significant association (P < 0.05). ** Indicates a borderline significant association (P < 0.1). "(- -)" indicates that variable was not included in the final model and an estimate is therefore not presented.*

FSW Population Size Estimation Update

The 2019 NAM-IBBS survey updated previous estimates on the number of FSW living in the three cities from the 2014 IBBS. The updated figures are based on the personal network sizes of FSW (i.e., how many other FSW they know), how this changes over the waves of recruitment, and taking into account the 2014 estimates. The 2019 estimates shown in the table are comparable to those estimated in 2014: 3,000 (1,800-3,400) in Windhoek, 900 (825-1,500) in Walvis Bay/Swakopmund, and 800 (380-2,000) in Katima-Mulilo.

Windhoek		Walvis Bay/Swakopmund		Katima-Mulilo	
Estimated FSW	95% CI*	Estimated FSW	95% CI	Estimated FSW	95% CI

2196	1651, 2382	1057	576, 3369	674	318, 2426

*95% Credible interval: a Bayesian statistical calculation that the population size has 95% probability of lying within this range

Conclusions and Recommendations

FSW in all three cities included in the Nam-IBBS have substantially higher prevalence of HIV compared to women in the general population. Yet, FSW engagement in HIV care falls far below the general population on the key 90-90-90 benchmarks for epidemic control. The largest shortfall is in the diagnosis of infection, ranging from a low only one in four FSW living with HIV being aware of their infection in Katima-Mulilo to little more than half in Windhoek and Walvis Bay/Swakopmund. Since the next two benchmarks, ART use and viral suppression, are contingent upon being diagnosed, there is substantial unmet need for treatment of HIV among FSW. Further, the low levels of viral suppression, *even among those in care*, can translate to high potential for onward transmission from FSW to their clients, other partners, and children.

The Nam-IBBS 2019 data point to avenues to improve diagnosis of HIV among FSW. Only one-third to two-thirds of FSW had tested for HIV in the year preceding Nam-IBBS 2019. Between half and three-quarters of FSW testing positive were previously undiagnosed. Updated estimates place the number of FSW living or working in the three cities in the range of several thousand. These data indicate that the unmet need for HIV care and treatment can be reached if KP-focused testing programs are scaled up for high coverage and high frequency of testing FSW in the major cities and towns. Even among KP, there also needs to be a more targeted testing approach (e.g., peer referral, index testing, self-testing). The Nam-IBBS 2019 data also highlight the value of the "peer-driven intervention" approach to reach undiagnosed FSW.

Disparities and risk factors for HIV identified in Nam-IBBS 2019 help target programs for FSW. The situation in Katima-Mulilo merits particular attention. With HIV prevalence already high among young FSW age 18-24 years, over three out of five FSW are infected over the age of 34 years. In our survey data, only one in four FSW testing positive for HIV in Katima-Mulilo had been previously diagnosed. Ever testing for HIV and testing in the last year were also low. In addition to age, risk factors for HIV infection among FSW in Katima-Mulilo include syphilis infection and drug use. These finding speak to the need for increased FSW-focused STI screening and treatment programs, and greater contextual information on the relationship between drug use and HIV risk. In-depth studies are needed to better document which drugs are used, specific partners and behaviors associated with drug use, and the potential for treatment programs to address substance use among FSW. Fortunately, once diagnosed FSW in Katima-Mulilo have higher levels of ART use and viral suppression. PrEP awareness was also substantially lower among FSW in Katima-Mulilo that elsewhere, although PrEP use was very low in all three cities. FSW-focused promotion, demand creation, and educational campaigns on PrEP safety and efficacy are needed for this prevention method to reach its full potential. In Windhoek, HIV infection was associated with lower educational attainment, under-scoring few economic options as a root cause of commercial sex work. In all three locations, the onset of sex work was most commonly in the teenage years. Interventions to help adolescent girls and young women stay in school and obtain alternative livelihood, such as those included in the DREAMS initiative throughout the region, are likely to have long-range benefits in reducing HIV transmission linked to sex work.

5. PART A2: IBBS Survey Among MSM and TGW

METHODS

A national-level taskforce was convened to guide the design and implementation of the IBBS. The taskforce was chaired by the MoHSS with representatives from governmental and nongovernmental organizations, development and technical assistance partners, and community members. Following consultations among the IBBS taskforce, the Nam-IBBS included two components: a formative assessment and surveys in two targeted geographic areas.

Formative assessment

The formative assessment was conducted in Walvis Bay/Swakopmund and Windhoek during an eight-week period prior to implementation of the Nam-IBBS survey component. Data from the formative assessment supported the selection of respondent-driven sampling (RDS) as the most effective sampling and recruitment method, the locations of the study sites, the amount of participant reimbursement, and the broad topics of the behavioral questionnaire. The assessment used qualitative methods and tools common to ethnographic studies, including key informant interviews, focus group discussions, observation, and mapping.

Respondent-driven sampling (RDS)

RDS is a peer-referral, social network-based method used in many settings to overcome the problem of achieving representative samples of marginalized or hidden populations such as MSM [13,14,15]. Appropriateness of the RDS methodology depends on meeting theoretical assumptions; namely, the population knows each other to be members of the population; the population comprises one large inter-connected set of networks within a few degrees of separation; sampling occurs with replacement; respondents randomly recruit other members of their social network; network size is accurately reported; and that there is sufficient cross-group recruitment to stabilize the sample enabling the statistical adjustments of population estimates. If these assumptions are not met, estimations of population proportions may be biased.

According to theory and protocol, the RDS surveys were initiated with a purposely chosen set of 6-9 initial "seeds" from each of the two study sites who were diverse with regards to age, marital status, employment or student status, HIV serostatus, income, and having known access to MSM-friendly services. They were known members of the MSM population who were instructed to recruit a limited number of other MSM from their social network, who in turn were enrolled (if found eligible) and instructed to recruit other MSM peers, and so on. In some study sites, additional seeds were added in response to low levels of recruitment from the seeds initially selected. To ensure rapid recruitment, care was taken that seeds were well connected within their networks, well regarded by their peers, sympathetic to the survey's goals, and diverse with respect to the above characteristics. During recruitment, key variables are tracked to gauge that the composition of the sample stabilizes (i.e., achieves "equilibrium") as the sample size is approached. In the present surveys, we tracked age, education, student status, marital status, sex with females, contact with peer educators, HIV testing, and HIV serostatus.

Coupons were used to refer peers to the study and to link who recruited whom (needed to track network connections and recruitment patterns) through the use of codes (coupon numbers). An electronic RDS Coupon Management spreadsheet and logbook were used to document and analyze the recruitment links. Being in possession of a valid coupon was an eligibility criterion for the survey. The number of recruitment coupons given for each person ranged from three to six based on the progress of recruitment at each study site in response to varying degrees of difficulty in attaining the needed sample size. Where weekly recruitment monitoring data showed that certain sub-populations of MSM identified in formative research were underrepresented in the crude sample, members of those sub-populations were issued additional coupons for a period of time to promote recruitment within that social network. As the survey drew to a close and

recruitment targets were achieved, the number of coupons issued to participants was systematically reduced to three, to two, to one, and to zero, as is consistent with RDS methodology.

IBBS Study Sites and Study Offices

The two urban areas were selected for the Nam-IBBS based on stakeholder input that they accounted for the largest networks of MSM in Namibia. The two Nam-IBBS sites were Walvis Bay/Swakopmund and Windhoek. Stakeholders also believed that these areas had the necessary geographical and cultural diversity, large enough male adult populations to obtain the required sample sizes, and the availability of MSM-friendly services for needed referrals of participants. The surrounding metropolitan areas of each city were included as part of the survey site to improve coverage of the target population.

Discrete study offices in each site were selected based on being accessible to the largest numbers and most diverse groups of MSM, near to public transportation, easy to locate through nearby landmarks, and situated near a community-based partner providing services to MSM.

Eligibility criteria

Men who met all of the following criteria were eligible to participate in the Nam-IBBS:

- At least 18 years of age
- Cisgender male or TGW,
- Able to speak English, Oshiwambo, Silozi, or Afrikaans
- Engaged in oral or anal sex with another male during the 6 months preceding the IBBS
- Lived, worked, and/or socialized in the survey area for at least six months preceding the IBBS
- Provided informed consent for the survey, testing, and return of results

Sample size

Sample size calculations were based on achieving reasonable precision on the point estimate for the prevalence of viral load suppression (VLS) for MSM in each study site. Given the VLS measure is made among the small subsample of MSM who are HIV positive, the choice of this measure was conservative when considering precision on estimates measured in the whole sample (e.g., HIV prevalence). To make the calculations, we used the CDC DGHT-developed "Sample Size Calculator for Survey-based Viral Load Suppression" following the "CDC DGHT Technical Considerations for Estimating Population Viral Load through HIV Surveys".[26,27] Parameters for HIV prevalence, status awareness, and ART use were based on data from the previous round of IBBS and an assumption that VLS would be 85% among those on ART.

Table 5. 1: MSM Sample Size by Survey Site

MSM and TGW*	Sample Size
Windhoek	306 and 100 TGW
Walvis Bay/Swakopmund	320 and 100 TGW

**The targeted number of TGW was set in addition to the sample size calculated for MSM. The experience of previous rounds of IBBS in Namibia and elsewhere has been that the social networks of MSM and TGW are closely interconnected. MSM tend to recruit TGW, and vice versa, and TGW are important nodes in the chains of recruitment. That is, they have high degree social networks and bridge different groups within the population of MSM. However, due to their relatively smaller numbers in the population, it was anticipated that the present study would not be able to*

enroll a large enough sample size to have sufficient precision around VLS separately for TGW. We set the number of TGW to be recruited as 100 additional participants in the MSM samples for each site.

Informed consent

Participants gave written informed consent prior to enrollment in the survey. Eligible recruits read or had read to them the informed consent information sheet in English, Oshiwambo, Silozi, or Afrikaans with the opportunity to have any questions answered by the interviewer. Consent allowed for separate agreement to the different components of the study:

- Risk behavior questionnaire
- Rapid testing for HIV and syphilis, including receipt of results
- Biological specimen storage for laboratory testing, with a stipulation that the participant can have their specimen removed and destroyed at any time

The minimum level of participation required was the questionnaire and rapid HIV testing with receipt of results.

Behavioral data collection

Behavioral data were collected using a standardized questionnaire based the prior IBBS and similar surveys among MSM in other countries and adapted to the Namibian MSM context. The instrument included questions to inform national programs, to measure international indicators related to the response to the HIV epidemic (e.g., UNAIDS Global Indicators), and to allow for the specialized analysis of RDS data. The topics included demographic data, behaviors potentially related to HIV infection and other STI, stigma and discrimination, access and use of HIV prevention, care, treatment, and other health services. Alcohol abuse was measured by screening positive by The Alcohol Use Disorders Identification Test Consumption (AUDIT-C) scale [Bradley, 2007]. Each participant answered questions about the size of their MSM social network. The personal social network size was used to calculate weights that adjust point estimates and 95% confidence intervals to be representative of the underlying population. The full survey questionnaire is included as an appendix.

The questionnaire was developed in English and was tested and reviewed by study investigators and staff during formative assessment and training for survey implementation. It was then translated and programed for data collection in English, Oshiwambo, Silozi, and Afrikaans. Following training, study staff, fluent in the those survey languages, administered the behavioral questionnaires to participants. IBBS questionnaire was designed for electronic data collection using the Questionnaire Development System (QDS™) software, version 2.6.1, and administered face-to-face by interviewers using a notebook computer.

Laboratory procedures

Serological testing for markers of HIV and syphilis used MoHSS-approved assays following a parallel algorithm based on national protocols. HIV and syphilis rapid testing was conducted at the study sites by certified study staff. Persons testing positive for HIV and/or syphilis were referred to care services with further counseling and testing. Testing procedures were supervised by study site coordinators, who were certified nurses. Waste disposal standards were adhered to for biological testing procedures. Laboratory staff were trained to ensure proper disposal practices.

Quality Assurance of the HIV and syphilis rapid testing was conducted by the Namibia Institute of Pathology (NIP). IBBS testing procedures fell under external quality assurance (EQA) procedures for MoHSS rapid testing, which use proficiency testing. All HIV-positive and syphilis-positive rapid test results and 10% of negative results were sent to NIP for re-testing.

Method for population size estimation

The current IBBS updates the MSM population size estimates produced by the prior IBBS round. The prior population size estimate was based on multiple methods integrated into the IBBS conducted in 2013/2014. These methods included key informant estimates, mapping with census and enumeration, literature review, unique object multiplier, and wisdom of the crowds [Wesson, 2017]. After calculating the point estimates and ranges using each method, stakeholder panels were consulted to assess potential biases, segments of the populations over- or under- represented, and to reconcile discordant results. After iterative discussions, final consensus estimates for the number MSM at each site, along with a plausible range for the estimates, were agreed upon.

The present IBBS updated the prior consensus estimates using new data derived from the Nam-IBBS 2019 survey. The approach is referred to as the "successive-sampling" method that is integrated into RDS analysis methods [Handcock, 2014]. Successive-sampling population size estimation is a statistical (Bayesian) method based on a participant's self-reported personal network size and prior knowledge (in this case, the estimate from the 2013/2014 IBBS). Calculations use the imputed visibility model to smooth and reduce unrealistic network size responses and incorporate error measurement. The model for the total population size of MSM in the survey area is based on the probability of participants being sampled for the survey, the number of people they recruit into the survey, and the time it took to recruit those participants. Bayesian models produce a range of probable estimates, generating a likely population size, and a range of population sizes referred to as the "95% credible interval."

Pre-survey implementation training

Prior to implementation, IBBS field staff received a one-week standardized training together in one site, followed by a half-day refresher training at their respective sites. These trainings focused on general knowledge of MSM in the world and in sub-Saharan Africa, ethical issues in human subject research, and standard operating procedures for the RDS survey implementation. The training included theory, as well as practical exercises, simulating, and role-playing survey procedures facilitated by study investigators. Training included field team members from the two study locations, the Site Coordinator/Nurse, coupon manager, receptionist, interviewers, counselors, and community mobilizers. Staff were trained and certified in HIV testing and counseling by the MoHSS. Study staff also completed the Collaborative Institutional Training Initiative (CITI) Human Subjects Research, Human Subjects Protection Training certification and we supervised by the site coordinator and study investigators.

Data entry and management

Data from behavioral questionnaire were entered directly by the interviewer on a laptop computer using QDS™ software. The results of on-site rapid and laboratory tests and were entered into an electronic spreadsheet and later merged centrally with the QDS™ survey database. Coupon distribution data were entered by the coupon manager using an RDS Coupon management spreadsheet, which was also merged with the lab and survey datasets. The Site Coordinator copied all QDS™ files from the individual laptops onto an on-site password protected computer and e-mailed the encrypted files to the project Data Manager in Windhoek each day. Paper files were kept in a locked filing cabinet at the study offices before being transferred to the national IBBS office.

Data analysis

Data for the two study sites were cleaned using SPSS v26 (IBM Corp., Armonk, N.Y., USA) and exported into RDS-analyst (RDS-A). RDS-A (using the Giles estimator [Giles et al, 2011]) was used to produce point estimates and 95% confidence intervals of the demographic and risk behavior variables and HIV prevalence by study site. The 2014 consensus estimates were used as the prior population sizes. RDS network size of each participant was determined by the following question: "How many men who have sex with men age 18 years and over, living in [site] do you know and would consider giving a recruitment coupon to?" RDS-A produced survey weights were exported to SPSS for analysis using generalized linear models to determine individual associations between HIV infection and candidate demographic and risk behavior variables. Candidate variables were selected for inclusion in the bivariate models if they were assumed to have potential utility for establishing a risk-profile that could be used by the MoHSS and its partners to develop targeted

interventions for primary prevention and/or identification of existing infections. Bivariate tests for association between variables were considered statistically significant when the resulting P values were < 0.05 or borderline significant at P 0.05 - 0.10. Multivariable logistic regression analysis was performed to assess risk-profile predictors of HIV infection while controlling for potential confounding variables. Risk-profile variables were considered for inclusion in the full multivariable models if tests for statistical significance of bivariate associations produced a P value $\leq$0.2. Adjusted odds ratios, 95% confidence intervals and P values were calculated. Variables that were significantly ($P \leq 0.05$) or borderline significantly ($P \leq 0.1$) associated with HIV infection in the full multivariable were retained in the final multivariable model. Recruitment network figures were created using RDS-A.

ETHICAL CONSIDERATIONS

Ethical review and informed consent

The survey was reviewed and approved by the Research Committee of the Directorate for Policy, Planning, and Human Resources of the MoHSS in Windhoek and the Committee on Human Research (CHR) at the University of California, San Francisco (UCSF) in the USA. The protocol was also reviewed by the CDC office in Namibia and at the CDC Center for Global Health in Atlanta, USA. Data collection staff completed training on human subjects research and signed a confidentiality agreement before commencing their survey duties. All participants provided written informed consent.

Participant confidentiality

No identifying information was asked for or collected for the survey or formative assessment. Written informed consent forms were kept in separate locked filing cabinets in security-protected offices. Participant and data confidentiality were protected in the collection, transmission, and processing of data by using unique numeric and alpha-numeric codes that were not derived from any personal identifying information. In addition, access to data was password protected and limited to study investigators and staff with data management or analysis responsibilities. Throughout this report, response categories with fewer than 5 individuals are presented as "<5" in order to preserve their confidentiality.

Participant compensation

Participants were reimbursed N$50 (~US$3.50) for transportation costs during their first visit and N$30 in mobile phone network vouchers as secondary compensation for each successful referral recruiting into the survey. The amount of reimbursement for transportation and the total cash value for both primary and secondary reimbursements were gauged to be modest enough not to be coercive or encourage the participation of persons outside the target population.

Participant referrals

Participants were provided with pre- and post- test counseling by certified counselors for HIV and syphilis. Participants with positive results were linked to nearby health facilities where HIV care and treatment and prevention services were freely available. Staff at these facilities already provide services to MSM as part of their program scope. Participants screened for participation but ineligible were referred to HIV counseling and testing services. Additionally, ineligible non-enrolled persons were referred to psycho-social support services as necessary. Persons under the age of 18 years who self-reported or were suspected to be involved in sex work during the eligibility screening were referred to the appropriate public or non-governmental service provider for psycho-social support. Service providers who provided psycho-social support, including legal assistance, appropriate to minors involved in sex work were identified by the investigators in each of the study sites. Standardized, anonymous bidirectional referral forms of the community linkages partner were used for the purpose of tracking referral completion.

RESULTS

Recruitment, Eligibility and Enrollment, HIV Rapid Testing Refusal

Recruitment

Nam-IBBS 2019 recruited MSM and TGW from March to July 2019 in Windhoek (5 months) and from March to August (6 months) in Walvis Bay/Swakopmund.

Thirteen seeds were recruited for the Windhoek site. These seeds initiated peer referral chains that progressed to a maximum of 15 waves of recruitment. Fifteen seeds were recruited for the Walvis Bay/Windhoek site. These seeds initiated peer referral chains that progress to a maximum number of 16 waves of recruitment.

The figures below illustrate the recruitment chains in the two study sites. Seeds failing to recruit are those not connected to other participants. Circles are color-coded as red indicating the participant was age 18 to 24 years vs. blue as 25 years and above. The recruitment patterns in both sites illustrate cross recruitment of groups by age. Equilibrium (i.e.., sample stability) was broadly achieved after several waves on key variables tracked through recruitment, namely on age, education, student status, marital status, sex with women, sex for money, contact with peer educators, HIV testing, and HIV serostatus.

Figure 5. 1: Windhoek MSM Recruitment Tree

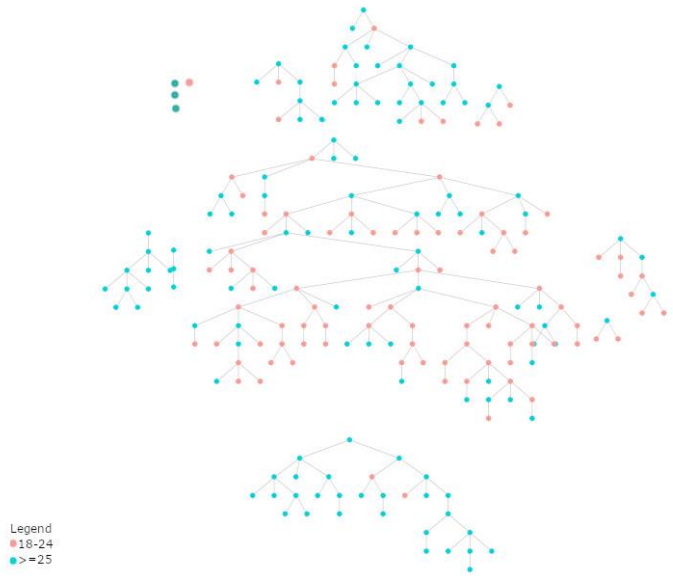
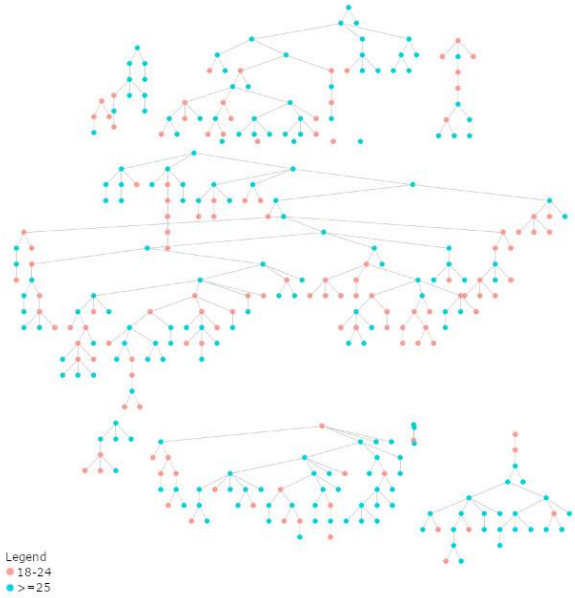


Figure 5. 2: Walvis Bay/Swakopmund Recruitment Tree



Eligibility and Enrollment

A total of 651 and 859 coupons were distributed in Windhoek and Walvis Bay/Swakopmund, respectively. Of coupons distributed, 265 (40.7%) and 373 (43.4%) were returned by potential participants to the study sites in Windhoek and Walvis Bay/Swakopmund, respectively. The eligibility rate (i.e., number of participants screened eligible / the number of coupons returned) was 81.1% in Windhoek and 86.3% in Walvis Bay/Swakopmund. The most common reasons for ineligibility were not having had anal or oral sex with a man in the previous 6 months and being a female, non-transgender individual presenting with an MSM coupon. The final sample size was 215 in Windhoek and 322 in Walvis Bay/Swakopmund, including 8 TGW across both sites.

Description of the Study Population

Results in this section present univariate description the MSM and TGW in the two study sites according to demographic characteristics and HIV risk-related behaviors.

Demographic Characteristics

Table 5.2 describes basic demographic characteristics. Substantial numbers of MSM and TGW were in their teens (18 and 19 years), including 13.3% in Windhoek and 14.5% in Walvis Bay/Swakopmund. Together with those age 20-24 years, youth comprised under half the samples. Unemployment was high, at 69.5% in Windhoek and 51.0% in Walvis Bay/Swakopmund. Current homelessness was reported by 2.2% of MSM and TGW in Windhoek and 1.3% in Walvis Bay/Swakopmund. Being currently or formerly married to a woman was reported by 15.0% in Windhoek although <5% in Walvis Bay/Swakopmund, with 9.7% reporting living as if married to a man in Windhoek and <5% in Walvis Bay/Swakopmund.

Table 5. 2: Age, educational level, employment, and marital status among MSM in Windhoek and Swakopmund/Walvis Bay, Namibia, 2019.

Variable	Windhoek (n=215)			Walvis Bay/Swakopmund (n=322)		
	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI
Age group						
18-19 years	24	13.3	7.8, 18.9	42	14.5	10.2, 18.8
20-24 years	69	29.2	19.4, 38.9	86	26.6	22.1, 31.1
25-29 years	64	29.0	18.5, 39.8	84	24.6	20.5, 28.7
30 and older	58	28.4	17.6, 39.1	110	34.3	29.4, 39.2
Student Status						
Currently a student	15	4.5	1.1, 7.9	39	11.8	8.9, 14.8
Currently not a student	200	95.5	9.2, 98.9	283	88.2	85.2, 91.1
Highest level of education completed						
Primary or less	28	16.7	10.8, 22.7	35	10.4	7.5, 13.3
Grade 10	138	65.9	58.1, 73.6	185	58.6	54.2, 63.0
Grade 12 and/or vocational	41	16.2	11.1, 21.2	93	29.1	25.0, 33.2
Tertiary	8	1.2	0.2, 2.3	8	1.9	1.1, 2.8
Employment status						
Employed at any time during 12 months preceding the IBBS	73	30.5	19.8, 41.1	163	49.0	44.8, 53.0
Not employed at any time during 12 months preceding the IBBS	142	69.5	58.9, 80.2	158	51.0	47.0, 55.2
Marital status						
Never married or committed as if married	169	75.3	68.8, 81.7	315	97.9	96.6, 99.2
Currently/ formerly married or committed as if married to a woman	28	15.0	9.7, 20.3	<5	--	
Currently/ formerly married or committed as if married to a man	18	9.7	5.5, 13.9	<5	--	
Currently homeless	6	2.2	0.3, 4.1	5	1.3	0.4, 2.2

Sexual Behaviors with Men

Virtually all participants had anal sex with a man ever and in the last 12 months. Multiple male partners (that is, combining the categories above 1 male partner) was reported by majorities of MSM in Windhoek (70.4%) and Walvis Bay/Swakopmund (55.5%). Transactional sex with other men was common, with 83.4% in Windhoek and 68.1% in Walvis Bay/Swakopmund receiving money, goods, or services for sex from a man. Fewer reported paying money or in kind for sex.

Table 5. 3: Sexual history and recent sexual behavior with other men among MSM in Windhoek and Swakopmund/Walvis Bay, Namibia, 2019.

Variable	Windhoek (n=215)			Walvis Bay/Swakopmund (n=322)		
	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI
Ever had anal sex with a man	214	>99.9	99.9, 100.0	315	99.2	99.0, 99.3
Age at first anal sex with a man (among MSM who ever had anal sex with a man)						
< 15 years	10	3.8	1.2, 6.5	19	6.2	3.7, 8.7
15-19 years	84	38.5	2.8, 48.8	135	44.4	39.6, 49.3
≥ 20 years	119	57.6	47.4, 67.8	158	49.4	44.5, 54.3
Number of male anal sex partners during 12 months preceding the IBBS						
none	<5	--		<5	--	
1	61	29.6	21.2, 38.1	131	43.8	38.7, 48.9
2 to 3	108	50.4	40.2, 60.6	112	34.8	29.8, 39.8
≥4	44	20	10.2, 29.7	72	20.7	17.1, 24.2

Received money, goods or services for sex from a man during 12 months preceding the IBBS	177	83.4	78.5, 88.3		215	68.1	64.3, 72.0
Paid money, goods or services for sex to a man during 12 months preceding the IBBS	23	8.2	0.0,17.2		76	22.8	21.0, 24.5

Sexual Behaviors with Women

Majorities of MSM and TGW in both cities reported ever having sex with women (94.4% in Windhoek and 91.9% in Walvis Bay/Swakopmund) and having sex with multiple female partners (>1) in the last 12 months (58.6% in Windhoek and 55.0% in Walvis Bay/Swakopmund). Most MSM and TGW had their first sexual encounter with a woman before they turned 15 years of age (64.7% in Windhoek, 63.0% in Walvis Bay/Swakopmund). Many respondents reported both receiving and giving money for sex with women in the last 12 months. These data speak to sexual network connections between the KP of MSM, TGW, and FSW, as well as to the general population of women.

Table 5. 4: Sexual history and recent sexual behavior with women among MSM in Windhoek and Swakopmund/Walvis Bay, Namibia, 2019.

Variable	Windhoek (n=215)				Walvis Bay/Swakopmund (n=322)		
	#	RDS Adj. %	95% CI		#	RDS Adj. %	95% CI
Ever had anal or vaginal sex with a woman	196	94.4	90.5, 98.2		287	91.9	89.9, 94.0
Age at first sex with woman *(among MSM who ever had sex with a woman, anal or vaginal)*							
< 15 years	126	64.7	54.5, 74.9		176	63.0	58.1, 68.0
15-19 years	64	31.9	22.0, 41.8		98	33.0	28.2, 37.6
≥ 20 years	6	3.4	0.6, 6.2		12	4.0	2.3, 5.7
Number of female sex partners during 12 months preceding the IBBS.							
None	41	17.0	10.4, 23.6		84	26.0	21.3, 30.6
1	43	24.4	16.6, 32.3		56	18.9	14.2, 23.7
2 to 3	56	25.4	17.0, 33.8		89	28.4	23.8, 33.0
≥ 4	72	33.2	23.9, 42.4		84	26.6	22.3, 31.0
Received money, goods or services for sex from a woman during 12 months preceding the IBBS	64	27.4	19.5, 35.4		108	32.2	27.9, 36.4
Paid money, goods or services for sex to a woman during 12 months preceding the IBBS	64	28.3	20.3, 36.3		108	34.6	30.3, 38.8

Condom Use

Consistent condom use (100% of acts with the most recent partner) was reported by approximately half MSM and TGW for receptive anal sex (58.3% in Windhoek, 46.5% in Walvis Bay/Swakopmund), for insertive anal sex with a man (58.5% in Windhoek, 61.7% in Walvis Bay/Swakopmund), or for vaginal sex (51.4% in Windhoek, 46.8% in Walvis Bay/Swakopmund). Majorities of MSM and TGW perceived that condoms were "very affordable" and "very easy to obtain." Lubricant use during anal sex was inconsistent among MSM and TGW in Windhoek or Walvis Bay/Swakopmund.

Table 5. 5: Condom and lubricant use among MSM in Windhoek and Swakopmund/Walvis Bay, Namibia, 2019.

Variable	Windhoek (n=215)			Walvis Bay/Swakopmund (n=322)		
	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI
Condom used during most recent sex *(with male or female partner, depending on sex of most recent partner)*	139	68.1	60.2, 75.8	203	67.6	63.0, 72.4
Percentage of receptive sex acts where a condom was used with most recent male sexual partner (participant was receptive)						
0%	9	31.7	7.3, 54.9	25	43.5	31.4, 57.4
1% - 49%	<5	--		0	--	
50% - 99%	<5	--		6	10.0	1.4, 18.7
100%	13	58.3	35.7, 83.8	30	46.5	33.1, 57.9
Percentage of insertive sex acts where a condom was used with most recent male sexual partner (participant was insertive)						
0%	46	22.4	13.2, 31.8	61	20	15.8, 24.0
1% - 49%	14	5.0	0.0, 13.9	8	2.3	1.1, 3.5
50% - 99%	23	14.1	7.5, 20.6	45	16.0	12.2, 20.0
100%	116	58.5	47.3, 69.7	176	61.7	56.5, 67.1
Percentage of vaginal sex acts where a condom was used with most recent female sexual partner						
0%	41	28	16.1, 39.7	35	22.7	15.6, 27.9
1% - 49%	<5	--	0.0, 8.5	12	7.8	3.8, 11.2
50% - 99%	21	16.6	9.9, 23.5	30	22.8	14.3, 32.4
100%	60	51.4	40.3, 62.6	64	46.8	37.3, 57.6
Perception about affordability of condoms						
Very affordable	162	72.6	60.3, 84.8	224	71.0	66.5, 75.4
Somewhat affordable	43	24.2	13.9, 34.6	49	14.4	11.7, 17.0
Not affordable	8	3.2	0.0, 19.5	46	14.6	11.1, 18.2
Perception of ease of obtaining condoms						
Very easy	172	81.4	73.1, 89.8	240	76.5	72.5, 80.4
Somewhat easy	36	16.9	9.3, 24.3	58	17.8	14.6, 21.1
Not easy	6	1.7	0.0, 9.9	23	5.7	3.9, 7.5
Frequency of lubricant use						
Always	20	6.2	1.6, 10.7	67	21	17.4, 24.7
Usually	15	7.6	0.0, 19.4	17	5.4	4.8, 6.0
Sometimes	55	22.9	15.0, 30.7	100	29	25.3, 32.7
Rarely	27	14.4	3.0, 25.9	28	7.5	6.1, 8.9
Never	96	49	43.0, 54.8	109	37	32.9, 41.2

Experiences of Violence and Discrimination

Table 5.6 presents the proportions of MSM and TGW experiencing physical and sexual violence that they attribute to due to persons perceiving their sexual/gender minority status. In the last 12 months, 2.0% in Windhoek and 7.1% in Walvis Bay/Swakopmund experienced physical violence, and 2.8% and 6.1%, respectively, perceived they experienced this sexual violence due to being MSM or TGW. Discrimination in the last year (defined as being refused healthcare, employment, religious services, restaurant or bar patronage, housing, or police assistance) was experienced by 6.5% in Windhoek and 13.9% in Walvis Bay/Swakopmund. Interpretation should bear in mind that MSM and TGW are not necessarily "out" about their sexual/gender minority status to many people.

Table 5. 6: Experiences of physical violence and discrimination among MSM in Windhoek and Swakopmund/Walvis Bay, Namibia, 2019.

Variable	Windhoek (n=215)			Walvis Bay/Swakopmund (n=322)		
	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI
Physically assaulted for being MSM during 12 months preceding the IBBS	11	2.0	0.4, 3.7	24	7.1	4.5, 9.6
Sexually assaulted for being MSM during 12 months preceding the IBBS	10	2.8	0.0, 5.6	18	6.1	5.6, 6.5
Experienced any discrimination as a result of being MSM during 12 months preceding the IBBS †	20	6.5	0.0, 14.3	43	13.9	13.1, 14.8
Jailed for any reason in previous 12 months	47	19.4	10.8, 28.1	49	14.9	11.2, 18.6

Alcohol and Drug Use

Most MSM and TGW consumed alcohol, with any alcohol consumption in the last year at 85.1% in Windhoek and 76.5% in Walvis Bay/Swakopmund. Alcohol abuse as screened by AUDIT-C was prevalent among MSM in Windhoek (81.6%) and Walvis Bay/Swakopmund (61.6%). The use of any illicit drug was reported by 34.2% in Windhoek and 43.1% in Walvis Bay/Swakopmund, with marijuana being the drug used by most in the 6 months preceding the survey. Cocaine use in the previous 6 months was reported by 2.9% in Windhoek and 2.1% in Walvis Bay/Swakopmund. Few respondents reported methamphetamine or ecstasy use in the previous 6 months and any injection drug use was reported by few individuals.

Table 5. 7: Alcohol and drug use among MSM in Windhoek and Swakopmund/Walvis Bay, Namibia, 2019.

Variable	Windhoek (n=215)			Walvis Bay/Swakopmund (n=322)		
	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI
Consumed any alcohol during 12 months preceding IBBS	179	85.1	79.7, 90.4	248	76.5	72.8, 80.2
Screened positive for alcohol abuse *(using AUDIT-C measure)* †	171	81.6	75.7, 87.5	202	61.6	57.5, 65.7
Ever used any illicit drugs	74	34.2	23.4, 45.0	139	43.1	38.1, 48.1
Used marijuana in previous 6 months	59	29.0	22.2, 36.0	132	40.9	36.6, 45.1
Used cocaine in previous 6 months	7	2.9	0.0, 18.0	7	2.1	1.8, 2.3
Used heroin in previous 6 months	<5	--		<5	--	
Used methamphetamine ("cat" or "crystal meth") in previous 6 months	<5	--		<5	--	
Used ecstasy in previous 6 months	<5	--		<5	--	
Ever injected any illicit drug with a syringe	<5	--		<5	--	

Access to Medical Care

Less than one-third of MSM and TGW in each study sites sought medical care for any reason in the last year (32.2% in Windhoek, 30.5% in Walvis Bay/Swakopmund). Among those who sought medical care, few experienced difficulties in obtaining care or in filling prescriptions.

Table 5. 8: Use and access to medical care among MSM in Windhoek and Swakopmund/Walvis Bay, Namibia, 2019.

Variable	Windhoek (n=215)			Walvis Bay/Swakopmund (n=322)		
	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI
Sought medical care for any reason during 12 months preceding IBBS	61	32.2	22.7, 41.6	101	30.5	26.3, 34.7
Experienced difficulty accessing medical care	<5	--		11	3.1	2.8, 3.5
Experienced difficulty filling a prescription *(among MSM who sought a prescription)*	6	3	0.0, 9.6	8	2	1.6, 2.4

Diagnosis or Symptoms of STI

Having symptoms or being diagnosed with an STI in the last year was reported by 7.4% of MSM in Windhoek and 8.1% in Walvis Bay/Swakopmund. These figures do not necessarily represent an estimate of STI incidence and must be interpreted cautiously. Respondents would have to have STI symptoms (many infections remain asymptomatic), recognize such symptoms, seek services at Western medical facilities, and be diagnosed. Non-urethral sites of infection with STI may be particularly under-recognized and under-diagnosed.

Table 5. 9: Diagnosis or symptoms of sexually transmitted infection (STI) among MSM in Windhoek and Swakopmund/Walvis Bay, Namibia, 2019.

Variable	Windhoek (n=215)			Walvis Bay/Swakopmund (n=322)		
	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI
Had symptom or diagnosis of an STI during 12 months preceding the IBBS (among non-transgender population)	16	7.4	1.9, 13.0	28	8.1	7.6, 8.5
Laboratory confirmed syphilis during the survey	0	--		8	2.4	0.4, 4.3

HIV Knowledge

Correct answers for five out of five questions concerning HIV transmission and prevention were provided by 44.4% of MSM/TG in Windhoek and 59.3% in Walvis Bay/Swakopmund (see appendix for full knowledge questions). The most common incorrect answers in both Windhoek and Walvis Bay were having one uninfected partner who has no other partners and abstaining from sexual intercourse reduces risk of HIV. When asked if they were aware that antiretroviral therapy (ART) can be used to treat HIV, 83.9% in Windhoek and 40.7% in Walvis Bay/Swakopmund answered affirmatively.

Table 5. 10: HIV transmission knowledge and awareness of antiretroviral therapy (ART) to treat HIV among MSM in Windhoek and Swakopmund/Walvis Bay, Namibia, 2019.

Variable	Windhoek (n=215)			Walvis Bay/Swakopmund (n=322)		
	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI
Correct HIV transmission knowledge	106	44.4	36.5, 52.2	190	59.3	54.4, 64.1
Aware of the existence and availability of ART to treat HIV infection	185	83.9	72.5, 95.3	292	40.7	35.9, 45.6

PrEP Awareness and Contact with HIV Prevention Programs

Being aware of PrEP as a means of preventing HIV acquisition was reported by 34.5% of MSM and TGW in Windhoek and 51.1% in Walvis Bay/Swakopmund. Among those aware of PrEP, 3.2% in Windhoek and 13.7% in Walvis Bay/Swakopmund had ever used PrEP. Contact with HIV prevention programs was low among MSM and TGW. Only 8.9% in Windhoek and 9.5% in Walvis Bay/Swakopmund had contact with a peer educator in the last six months. Participation in an HIV-focused meeting (11.3% in Windhoek, 12.9% in Walvis Bay/Swakopmund) was also low. The UNAIDS GARPR indicator for having "received HIV prevention interventions (i.e., answered yes to both "Do you know where to receive a free HIV test?" and "Have you received free condoms in the last 12 months?") was achieved by only 20.2% in Windhoek and 19.4% in Walvis Bay/Swakopmund.

Table 5. 11: Receipt of HIV focused peer outreach and prevention interventions among MSM in Windhoek and Swakopmund/Walvis Bay, Namibia, 2019.

Variable	Windhoek (n=215)			Walvis Bay/Swakopmund (n=322)		
	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI
Aware of PrEP	79	34.5	25.7, 43.5	172	51.1	46.3, 55.6
Ever used PrEP (of those aware)	<5	--		22	13.7	9.3, 18.2
Had contact with an HIV-focused peer educator during 6 months preceding the IBBS	20	8.9	3.7, 14.0	31	9.5	6.3, 12.8
Participated in an HIV-focused meeting during 6 months preceding the IBBS	30	11.3	5.9, 16.8	47	12.9	10.0, 15.9

Reached with prevention programs during 6 months preceding the IBBS	50	20.2	10.0, 30.2		70	19.4	15.5, 23.4

Circumcision status among MSM

Following several years of the scale up of medical male voluntary circumcision programs in Namibia, the majority of MSM in Windhoek (62.5%) and Walvis Bay/Swakopmund (60.0%) reported being circumcised.

Table 5. 12: Circumcision status among MSM in Windhoek and Swakopmund/Walvis Bay, Namibia, 2019.

Variable	Windhoek (n=215)				Walvis Bay/Swakopmund (n=322)		
	#	RDS Adj. %	95% CI		#	RDS Adj. %	95% CI
Circumcision status							
Circumcised	136	62.5	54.4, 71.2		191	60.0	55.9, 64.1
Not circumcised	76	37.5	28.8, 75.6		126	40.0	35.9, 44.1

HIV Testing and Status Awareness

All MSM and TGW (100%) in Windhoek knew where to get an HIV test compared to 82.9% of MSM and TGW in Walvis Bay/Swakopmund. Over three fourths had ever tested for HIV (79.7% in Windhoek, 78.0% in Walvis Bay/Swakopmund); 12.3% in Windhoek and 18.6% in Walvis Bay/Swakopmund had tested in the last year. Of note, 10.6% of MSM and TGW in Windhoek and 24.5% in Walvis Bay/Swakopmund reported testing for HIV at least every six months.

Table 5. 13: Previous HIV counseling and testing among MSM in Windhoek and Swakopmund/Walvis Bay, Namibia, 2019.

Variable	Windhoek (n=215)				Walvis Bay/Swakopmund (n=322)		
	#	RDS Adj. %	95% CI		#	RDS Adj. %	95% CI
Knows where to receive HIV counseling and testing	215	100	--		272	82.9	78.6, 87.2
Ever received HIV counseling and testing	175	79.7	71.9, 87.8		252	78.0	73.4, 82.5
Currently aware of HIV serostatus †	164	74.9	70.1, 79.6		234	74.2	70.7, 77.8
Tested for HIV at least every 6 months	32	10.6	6.9, 14.2		80	24.5	20.5, 28.5
Tested for HIV during 12 months preceding the IBBS (among MSM not already known to be HIV positive)	24	12.3	4.7, 19.8		50	18.6	15.2, 22.1

Perception of Risk for HIV

Among MSM and TGW who did not already know they were HIV positive, majorities perceived themselves to be at no or low risk for infection (57.1% in Windhoek, 64.1% in Walvis Bay/Swakopmund).

Table 5. 14: Perception of risk for HIV infection among MSM in Windhoek and Swakopmund/Walvis Bay, Namibia, 2019.

Variable	Windhoek (n=215)				Walvis Bay/Swakopmund (n=322)		
	#	RDS Adj. %	95% CI		#	RDS Adj. %	95% CI
Self-perception of risk of getting HIV (among MSM not already known to be HIV positive)							
No risk to small risk	113	57.1	48.3, 66.0		179	64.1	59.7, 68.9
Moderate risk to high risk	83	42.9	34.0, 51.7		108	35.9	31.1, 40.3

HIV Prevalence, Continuum of Engagement in Care, and Risk Factors for Infection

HIV Prevalence

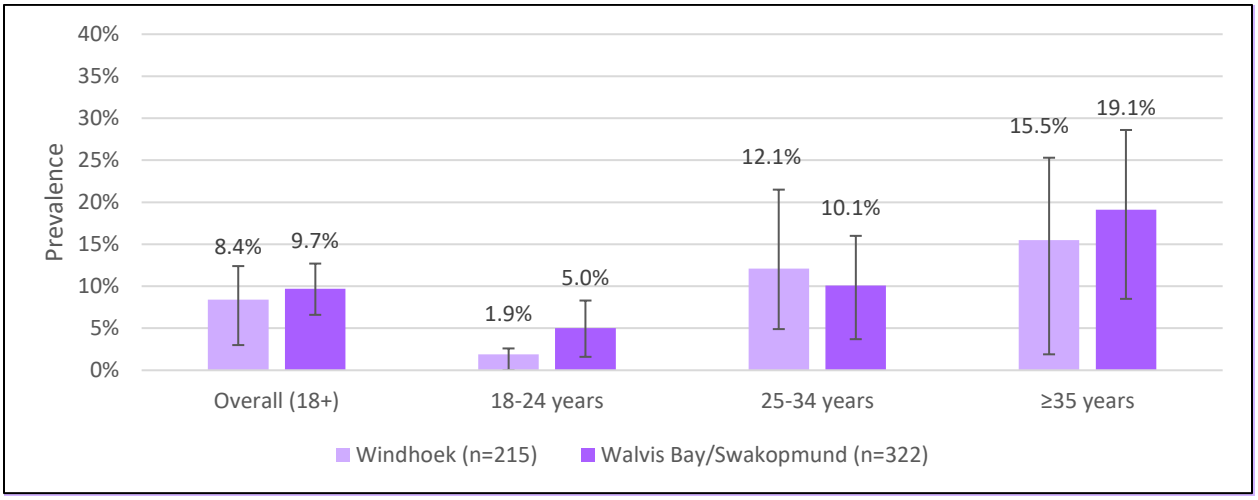
According to the testing algorithm performed during the Nam-IBBS 2019, HIV prevalence is estimated at 8.4% of MSM/TG in Windhoek and 9.7% of MSM/TG in Walvis Bay/Swakopmund. In comparison, the national HIV prevalence for adult men (15-64 years) was 9.3% (95% CI 8.5-10.1) from the NAMPHIA survey, 2017.

Table 5. 15: HIV prevalence among MSM in Windhoek and Swakopmund/Walvis Bay, Namibia, 2019.

Variable	Windhoek (n=215)				Walvis Bay/Swakopmund (n=322)		
	#	RDS Adj. %	95% CI		#	RDS Adj. %	95% CI
HIV test result †							
Positive	17	8.4	2.8, 14.0		32	9.7	6.6, 12.8
Negative	198	91.6	86.0, 97.2		290	90.3	87.2, 93.4

HIV prevalence rises with increasing age, reaching 15.5% seropositivity among MSM/TG 35 years and older in Windhoek and 19.1% in Walvis Bay/Swakopmund. HIV prevalence among young MSM/TG aged 18-24 years, a proxy for HIV incidence, was 1.9% and 5.0%, respectively.

Figure 5. 3: HIV prevalence by age among MSM in Windhoek and Swakopmund/Walvis Bay, Namibia, 2019.



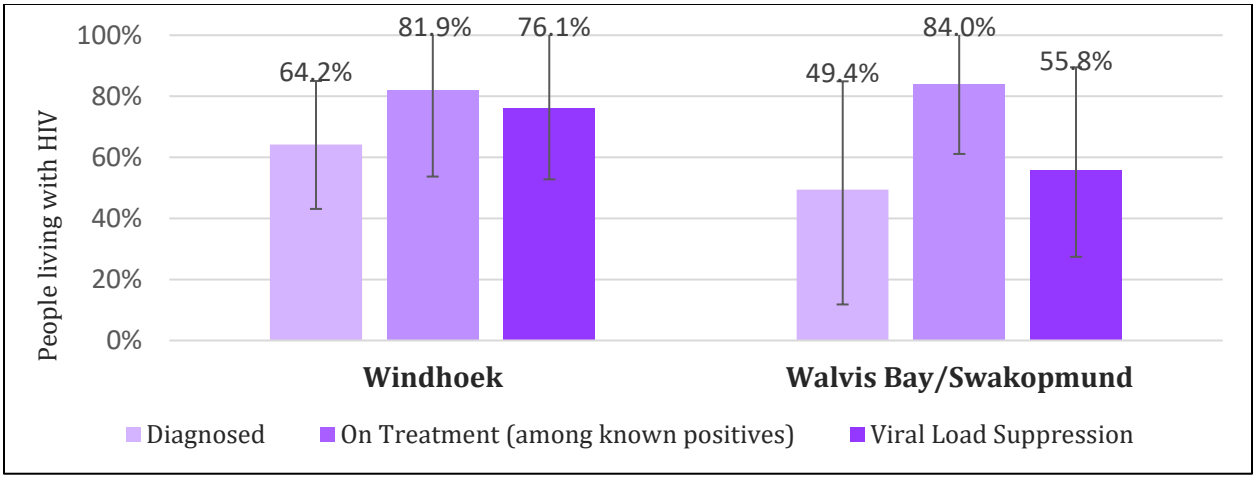
Continuum of Engagement in HIV Care

The continuum of engagement in HIV care or "care cascade" provides a framework to assess the impact of scaling up the national response. A major strategy to end the epidemic is to slow HIV transmission through maximizing viral suppression through the use of ART. The use of ART in turn is dependent upon persons living with HIV being diagnosed. UNAIDS set targets that >90% of persons living with HIV should be aware of their infection status, of whom >90% should be on ART, of whom >90% should achieve viral suppression. The NAMPHIA survey of 2017 indicated that these targets had virtually been achieved for the general population: 86.0% of adults living with HIV knew their HIV status (89.5% of HIV-positive women and 79.6% of HIV-positive men), of whom 96.4% were receiving ART (97.1% among women, 94.9% among men), of whom 91.3% achieved VLS (92.2% among women, 89.5% among men).

Unfortunately, data from the Nam-IBBS 2019 indicate MSM fall short on all three targets in Windhoek and Walvis Bay/Swakopmund. MSM living with HIV who were diagnosed fell particularly below 90% (64.2% in Windhoek, 49.4% in Walvis Bay/Swakopmund). If diagnosed, being on ART was higher (81.9% in Windhoek, 84.0% in Walvis

Bay/Swakopmund). Viral load suppression among those on ART, however fell further below 90%, to 76.1% in Windhoek and 55.8% in Walvis Bay/Swakopmund.

Figure 5. 4: HIV Care and Treatment Continuum, MSM in Windhoek and Swakopmund/Walvis Bay, Namibia, 2019.



Risk factors for HIV infection

HIV prevalence by demographic factors

As noted in the figure below, HIV prevalence was higher for older age groups. HIV prevalence among young MSM (age 18-24 years) was 1.9% in Windhoek, rising to 13.2% for MSM age ≥25 years (P = 0.02). In Walvis Bay/Swakopmund, HIV prevalence was 5.0% among MSM age 18-24 years compared to 13.0% among those 25 and above (P = 0.03). MSM with primary education or less had higher HIV prevalence compared to MSM with secondary education or more (19.4% vs. 6.2%, P = 0.03) in Windhoek.

Table 5. 16: HIV prevalence stratified by age, marital status, and education among MSM in Windhoek and Swakopmund/Walvis Bay, Namibia, 2019.

Variable	Windhoek (n=215)				Walvis Bay/Swakopmund (n=322)		
	#	RDS Adj. %	95% CI		#	RDS Adj. %	95% CI
Age							
<25	<5	1.9	na		7	5.0	2.3, 10.6
≥25	16	13.2	7.6, 21.9		25	13.0	8.3, 19.6
Marital Status							
Never Married	10	5.9	2.9, 11.6		31	9.74	6.6, 14.2
Married or formerly married to a man	5	6.7	1.6, 24.2		<5	--	
Married or formerly married to a woman	<5	--			0		
Completed Education Level							
Primary or less	5	19.4	7.9, 40.3		<5	--	
Secondary or more	12	6.2	3.2, 11.5		29	9.5	6.4, 13.9

HIV prevalence by alcohol abuse

HIV prevalence did not vary significantly according to hazardous alcohol consumption as measured by AUDIT-C among MSM in either city. Ever using a drug, predominantly marijuana, was associated with lower HIV prevalence among MSM in Walvis Bay/Swakopmund (5.2% among users vs. 13.1% among non-users, P = 0.02).

Table 5. 17: HIV prevalence stratified by alcohol and drug use, among MSM in Windhoek and Swakopmund/Walvis Bay, Namibia, 2019.

Variable	Windhoek (n=215)				Walvis Bay/Swakopmund (n=322)		
	#	RDS Adj. %	95% CI		#	RDS Adj. %	95% CI
AUDIT-C hazardous drinker designation							
Yes	14	8.2	4.5, 14.4		18	7.7	4.8, 12.2
No	<5	--			14	13.0	7.1, 22.6
Any drug use ever							
Yes	<5	--			9	5.2	2.6, 10.0
No	15	11.4	6.6, 19.1		23	13.1	8.3, 20.1

HIV prevalence by history of diagnosis of STI and syphilis serology

Having a positive syphilis test was significantly associated with having a positive HIV test among MSM in Walvis Bay/Swakopmund (P < 0.001) (data not available for Windhoek).

Table 5. 18: HIV prevalence stratified by diagnosis or symptoms of sexually transmitted infection (STI) among MSM in Windhoek and Swakopmund/Walvis Bay, Namibia, 2019.

Variable	Windhoek (n=215)				Walvis Bay/Swakopmund (n=322)		
	#	RDS Adj. %	95% CI		#	RDS Adj. %	95% CI
Had diagnosis of an STI during 12 months preceding the IBBS (among non-transgender population)							
Yes	<5	19.2	5.1, 51.1		<5	10.3	3.2, 28.4
No	14	7.4	4.1, 12.8		29	9.7	6.4, 14.3
Laboratory confirmed syphilis during the survey							
Yes	No observations				<5	53.2	20.9, 83.1
No					27	8.4	5.4, 12.7

HIV prevalence by circumcision status

Circumcision was associated with a significantly lower HIV prevalence among MSM in Walvis Bay/Swakopmund (3.2% vs. 17.5%, P < 0.001).

Table 5. 19: HIV Prevalence stratified by circumcision status among MSM in Windhoek and Swakopmund/Walvis Bay, Namibia, 2019.

Variable	Windhoek (n=215)				Walvis Bay/Swakopmund (n=322)		
	#	RDS Adj. %	95% CI		#	RDS Adj. %	95% CI
Circumcision status							
Yes	8	6.0	2.7, 13.0		8	3.2	1.6, 6.6
No	7	10.4	4.6, 21.7		21	17.5	11.0, 26.9

HIV prevalence by sexual behaviors with men

In Windhoek and Walvis Bay/Swakopmund, HIV prevalence was significantly higher among MSM whose first anal sex was before the age of 15 years in Windhoek (data not show due to <5 persons, P = 0.02) and 22.7% in Walvis Bay/Swakopmund (P = 0.01). HIV prevalence did not vary significantly across other markers of sexual behavior with men.

Table 5. 20: HIV prevalence stratified by sexual history and recent sexual behavior with other men in Windhoek and Swakopmund/Walvis Bay, Namibia, 2019.

Variable	Windhoek (n=215)			Walvis Bay/Swakopmund (n=322)		
	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI
Age at first anal sex with man						
< 15 years	<5	--	--	7	22.7	9.7, 44.4
15-19 years	<5	--	--	7	4.2	2.0, 8.9
> 20 years	11	9.9	5.2, 18.1	14	11.1	6.2, 1.9
Received payment for sex from a man during 12 months preceding the IBBS						
Yes	15	8.6	4.9, 14.7	18	7.3	4.5, 11.8
No	<5	--		11	12.6	6.3, 23.6
Made payment to a man for sex during 12 months preceding the IBBS						
Yes	<5	--		8	7.3	3.5, 14.6
No	13	8.1	4.5, 14.0	21	9.5	5.9, 15.0
Number of male anal sex partner during 12 months preceding the IBBS						
0	0			<5	--	
1	<5	-		11	9.0	4.6, 16.8
2 to 3	9	9.8	4.8, 19.0	9	8.2	3.8, 16.8
≥ 4	5	10.0	3.4, 2.6	8	9.1	4.4, 17.9

HIV prevalence by sexual behaviors with women

Among MSM in Windhoek, paying for sex from a woman had a borderline significant association with higher HIV prevalence (14.0%, P = 0.07). HIV prevalence was also higher among MSM in Windhoek who reported no female sex partners (18.0%) with a borderline level of significance (P = 0.1).

Table 5. 21: HIV prevalence stratified by sexual history and recent sexual behavior with women among MSM in Windhoek and Swakopmund/Walvis Bay, Namibia, 2019.

Variable	Windhoek (n=215)			Walvis Bay/Swakopmund (n=322)		
	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI
Received payment from a woman for sex during 12 months preceding the IBBS						
Yes	6	9.7	4.0, 21.7	6	7.4	2.9, 17.4
No	10	7.1	3.5, 13.8	22	9.4	5.9, 14.7
Made payment to a woman for sex during 12 months preceding the IBBS						
Yes	7	14.0	6.5, 27.5	9	10.6	5.2, 20.4
No	9	5.4	2.4, 11.4	19	7.8	4.6, 12.8
Number of female anal or vaginal sex partner during 12 months preceding the IBBS						
None	7	18.0	7.5, 37.1	17	17.3	10.1, 28.2
1	<5	--		<5	--	
2 to 3	<5	--		6	6.5	2.7, 14.7
> 4	6	9.4	4.0, 20.2	<5	--	

HIV prevalence by experiences of violence

Although data are not shown due to small cell sizes, there was an indication that participants experiencing physical violence due to being MSM had elevated risk for HIV in Windhoek (see multivariate table 5.23).

Table 5. 22 HIV prevalence stratified by physical and sexual assault, among MSM in Windhoek, Walvis Bay/Swakopmund, Namibia, 2019.

Variable	Windhoek (n=215)			Walvis Bay/Swakopmund (n=322)		
	#	RDS Adj. %	95% CI	#	RDS Adj. %	95% CI
Physically abused for being MSM during 12 months preceding the IBBS						
Yes	<5	--	--	<5	--	--
No	14	7.6	4.3, 13.1	28	9.2	6.0, 13.7
Sexually assaulted for being MSM during 12 months preceding the IBBS						
Yes	0	0	0	<5	--	--
No	17	8.6	5.1, 14.3	29	9.4	6.2, 13.9

Multivariable logistic regression to assess predictors of HIV infection

Multivariable logistic regression analysis was performed to assess risk-profile variable predictors of HIV infection while controlling for potential confounding variables. Risk-profile variables were considered for inclusion in the full multivariable models if tests for statistical significance of bivariable associations produced a P value < 0.2 as noted in the text above. Final models were chosen by retaining all variables with P < 0.1, with the level of significance considered P < 0.05. Of note, bivariable and multivariable tests for significance were done using exported weights from RDS-A and the SVY commands in Stata. Of note, 95% confidence intervals (CI) are wide due to RDS adjustments and low numbers of observations in many categories.

Among MSM in Windhoek, the final model found paying for sex with a man was associated with higher HIV prevalence (aOR 11.49, 95% CI 1.79-73.90), while having any female sex partner in the last year was associated with lower HIV prevalence (aOR 0.06, 95% CI 0.01-0.44). Among MSM in Walvis Bay/Swakopmund, circumcision (aOR 0.15, 95% CI 0.05-0.39) and having at least one female partner (aOR 0.36, 95% CI 0.14-0.92) were independently associated with lower HIV prevalence. Being aged 25 or older had a borderline association with higher HIV prevalence (aOR 2.94, 95% CI 0.95-9.13, P = 0.06) and was retained in the final model.

Table 5. 23: Correlates of HIV infection among MSM in Windhoek and Walvis Bay/Swakopmund, 2019

		Full multivariable model †	Final multi- variable model ‡
Study site	**Variable**	**aOR (95% CI) §**	**aOR (95% CI) §**
Windhoek	Age 25 years or older	4.17 (0.60-28.93)	(--)
	Formerly or currently married	1.79 (0.41-7.88)	(--)
	Secondary education or higher attained	0.30 (0.07-1.26)**	(--)
	Ever used any illicit drugs	0.23 (0.04-1.30)**	(--)
	Diagnosed with STI in previous12 months	1.35 (0.15-12.31)	(--)
	Physically abused during 12 months preceding the IBBS	3.76 (0.70-20.30)	(--)
	Gave money, goods, or services for sex with a man	6.31 (0.97-40.97)**	11.49 (1.79-73.90)
	At least 1 female partner in previous 12 months	0.073 (0.01-0.54)*	0.06 (0.01-0.44)
Walvis Bay/Swakopmund			
	Age 25 years or older	2.54 (0.85-7.56)**	2..94 (0.95-9.13)
	Ever used any illicit drugs	0.47 (0.18-1.24)	(--)
	Laboratory confirmed positive for syphilis	3.31 (0.12-89.60)	(--)
	Circumcised	0.15 (0.05-0.44)*	0.15 (0.05-0.39)
	Younger than 15 years old at sexual debut	1.69 (0.60-4.76)	(--)
	At least 1 female partner in previous 12 months	0.42 (0.16-1.10)**	0.36 (0.14-0.92)

† full multivariable model includes independent variables that produced a P value ≤ 0.2 in tests for statistical significance of bivariate associations. Variables that were significantly (P < 0.05) or borderline significantly (P < 0.1) associated with HIV infection in the full multivariable were included in the final multivariable model.

*All adjusted odds ratios (aOR) are weighted with RDSAT-exported survey weights. * Indicates a significant association (P < 0.05). ** Indicates a borderline significant association (P < 0.1). "(- -)" indicates that variable was not included in the final model and an estimate is therefore not presented.*

MSM Population Size Estimation Update

The 2019 Nam-IBBS survey updated previous estimates on the number of MSM living in the two cities from estimates made in 2014. As described in the methods section above, the successive-sampling population size estimation (SS-PSE) method was used. SS-PSE methods are integrated into the RDS survey, using the respondents' network size (imputed visibility model), the time it takes to recruit participants, and the prior 2014 estimates and ranges.

The 2019 estimates of the population sizes of MSM in the two cities are shown in Table 6.4.1. The updated figures are comparable to those estimated in 2014. For comparison, in 2014 there were an estimated 2,416 (850-4,000) MSM residing in Windhoek and 610 (475-658) in Walvis Bay/Swakopmund.

Table 5. 24: Estimated number of MSM in Windhoek and Walvis Bay/Swakopmund, Namibia, in 2019

Windhoek		Walvis Bay/Swakopmund	
Estimated number of MSM in 2019	95% CI*	Estimated number of MSM in 2019	95% CI
2,210	380 - 10,410	670	410 - 1,610

*95% CI: Credible Interval

Conclusions and Recommendations

The Nam-IBBS 2019 survey demonstrated that Namibian MSM fall short of the UNAIDS 90-90-90 indicators for engagement in HIV care, behind adult men in the general population of the country. Barriers to the diagnosis of HIV infection are the largest obstacle. Fewer than half of MSM living with HIV in Walvis Bay/Swakopmund and under two-thirds in Windhoek had been diagnosed. Since the next two benchmarks, ART use and viral suppression, are contingent upon being diagnosed, there is substantial unmet need for treatment of HIV among MSM. Further, the low levels of viral suppression, even among those in care, can translate to high potential for onward transmission.

The Nam-IBBS data do not indicate that the prevalence of HIV among MSM in Namibia exceeds that of the general adult male population as of 2019. Nonetheless, HIV prevalence is substantial and risk factors for HIV infection draw attention to areas of prevention that should not be neglected for MSM, namely the risk of HIV to and from women, the early age of onset of risk behaviors with men, and the preventive effect of circumcision. In the Nam-IBBS 2019 data, HIV prevalence was elevated among MSM engaging in transactional sex with female partners in Windhoek and among those with younger age for onset of anal sex in Walvis Bay/Swakopmund. The Nam-IBBS data also detected a lower prevalence of HIV among circumcised MSM in Walvis Bay/Swakopmund. Meanwhile, risk behaviors among MSM point to the high potential for on-going acquisition and transmission of HIV, including having multiple male and female partners, receiving money for sex from men, coupled with inconsistent condom use with all types of partners. Moreover, HIV testing is infrequent among MSM. Fewer than one in five MSM not already known to be HIV positive had tested for HIV in the last year. Indeed, Nam-IBBS 2019 data documented that the reach of any HIV prevention program is low, on the order of one in five MSM had any contact in the last six months. Finally, the low awareness and use of PrEP among MSM are disappointing in the few years following roll-out. Higher profile campaigns on PrEP's efficacy, safety, and availability are needed with specific messages tailored for each of the KP. Formative research is needed on barriers to PrEP and ways to overcome them among FSW, TGW, and MSM. In addition, training is needed through the health system to increase provider competency in recognizing KP risk and recommendations for PrEP.

6. Part B: Pilot Study Among Transgender Women

Background

Transgender women (TGW) represent a stigmatized population who experience high levels of discrimination, barriers to care, suicide, violence, and HIV acquisition.[40] The social networks of TGW often overlap with MSM, FSW, and other key populations (KP).[41] However, prior data often treat TGW as a subset of MSM, and include them in RDS surveys designed for MSM or other populations. However, TGW face different risks than MSM through different sexual networks, legal status, and structural barriers to prevention and care. Previous studies that include TGW with MSM or FSW often lack appropriate questions to gauge the specific behavior they face. Moreover, recruitment in studies design for MSM and FSW often lack the statistical power to derive meaningful inferences on TGW. Finally, the assumption that all segments of the population of TGW are socially linked to MSM communities has not been validated.[42,43] In brief, studies of TGW need to be specifically designed to reach, sample, and appropriately measure their health needs.

RDS studies specifically for transgender populations have encountered challenges.[44] For example, different groups of TGW are often missed.[45] Limited intergenerational contact between networks and social anxiety around in-person recruitment are thought to exclude important population subgroups.[45] Moreover, the population size may be too small to meet the underlying assumptions of RDS sampling, and social networks may be too diffuse to efficiently propagate long peer referral chains. Conventional RDS methods may therefore not work for IBBS surveys of TGW.

Research indicates that TGW rely on alternative social support systems in their daily lives.[46] Applications such as Facebook, WhatsApp, Skype, and Instagram provide digital platforms where communities with shared interests can congregate without being in the same physical location. The privacy of being online provides may allow once-hidden individuals to link to the greater network. A digital component may therefore be added to conventional RDS by allowing TGW to recruit peers online, removing barriers of face-to-face recruitment or meeting other TGW in physical spaces. Given that TGW networks appear to be diffuse yet networked online, there is strong appeal to efficiently reach large numbers of TGW using social media platforms.

In the previous IBBS conducted in 2012-2014, TGW were neither excluded nor specifically recruited. Questionnaires were not specifically developed for measuring TGW's health issues and risks for HIV. TGW are believed to have responded to the MSM survey, but their results were not disaggregated. As a result of not capturing any data specific to TGW in IBBS round 1, the Key Populations Technical Working Group suggested ways to specifically include TGW for surveillance. For consistency between rounds of IBBS, TGW were included in Part A of Nam-IBBS 2019 using the same inclusion criteria. As indicated above, a few TGW were included but not enough for statistical analysis.

Anticipating this continued gap in data for TGW in Part A, Nam-IBBS 2019 included a qualitative study with TGW referred to as "Part B". This qualitative study was carried out in, Windhoek, Keetmanshoop and Walvis-Bay/Swakopmund. The objectives, methods, results and conclusions for this qualitative study of TGW are described here.

Project Objectives

- To describe online methods of social networking among TGW in Namibia
- To assess the feasibility and acceptability of using a social media driven recruitment strategy to derive a sample of TGW in Namibia

Methods

Overall Design

Qualitative research methods were used for this pilot study, including individual in-depth interviews (IDI), focus group discussions (FGD), observation, and field testing with feedback. Because this study was exploratory and the underlying population unknown, the sampling design was purposive and was conducted until data saturation was reached (i.e., when no new information was obtained from additional interviews).

Study Population

Inclusion criteria for members of the target populations:

- Age 18 years and older
- Able to communicate in English, Oshiwambo, Afrikaans, or Silozi
- Able to provide verbally informed consent to survey participation
- Resided in the study area for the past six months
- Biologically male at birth, TGW or female by self-identity

Exclusion criteria for members of the target populations:

- Unable to provide verbal consent to survey participation
- Visibly under the influence of drugs or alcohol
- Previous participation in the study.

Recruitment of Participants

Recruitment of participants for IDI and FGD was initially done through engagement with local stakeholders and known members of the population. Attempts were also made to recruit from different social networks and online platforms. Local NGOs that work with TGW typically use outreach workers who are themselves TGW linked into the community. Initial contact was made by the organization/person to a contact trusted by local TGW, who informed potential participants about the study. The potential participant then contacted the study team or gave permission to the person who contacted them to share their contact details with the study team. Participants were screened for eligibility and scheduled for IDI or FGD. Key informants were further assessed for how well connected they were within the TGW community and for having a strong online presence. Two such key informants from each site were asked to participate in the field testing of recruitment methods. After taking part in the IDI or FGD, these key informants were asked to recruit from their online social networks. Interested individuals contacted by these peers could then contact the study office to set up an appointment for an interview.

Locations

IDI and FGD were conducted in each of the three study sites (Windhoek, Walvis Bay/Swakopmund, and Keetmanshoop). Online locations where TGW are networked were explored among the recruits. While Facebook and WhatsApp were well known online venues for TGW through previous stakeholder engagement, other applications were revealed as peers recruited through their social networks.

Individual In-Depth Interviews and Focus Group Discussions

Interview guides, consent forms, and questionnaires were developed in English and translated into Oshiwambo, Afrikaans, and Silozi with back-translation to English to confirm accuracy. Training interviewers entailed a question by question discussion and consensus building process on how to ask each question based on intent and current terms in common usage. Interviews and FGD were conducted in the language preferred by participants. Semi-structured qualitative data (individual and focus group) were collected with members of the target population. The thematic interview guides lead the participant through the following major domains:

1. Social network types and locations
2. Crossover of MSM and TGW social networks
3. Number using different types of social media applications, overlap between
4. Types of TGW social groups formed, numbers, overlap
5. Acceptability and feasibility of contact and recruitment through social groups

Informed Consent

Verbal informed consent was required before starting the IDI and FGD. If consent to be interviewed was declined, the interview did not take place. If consent was given, the interviewer proceeded with the interview; however, participants could choose not to answer questions they do not wish to answer or withdraw from the study at any point during the interview. Participants orally consented to the interview on the recording. Once consent was obtained, the interviewer documented the following on each recording for each IDI and FGD:

- the date of the interview/focus group discussion
- the starting and ending times of the interview
- the interviewer's and note taker's names
- the location of the interview
- type of interviewee
- participant or focus group identification code

The note-taker documented the same identifying information as the digital recording in the notes. The interview notes identified non-verbal cues, key points raised by the interviewee, etc. These notes had a unique code affixed to the top of the sheet matching the participant or focus group identification code.

Sample Size

As a qualitative study, the sample size is geared towards achieving saturation of the topics being explored. The final sample size for Part B was 58 TGW, which fell within the protocol's anticipated range. The planning phase estimated 24 to 72 participants would be needed, approximately 8 to 24 per site. The projection included 3-6 FGD (1 or 2 per site) of 4 to 8 participants each, plus 4 to 8 IDI per site. Secondary key informants, that is persons who have experience and insights with the TGW population but who were not TGW themselves were also included as IDI. Diversity of participants was sought on demographic characteristics (e.g., age, socioeconomic status, engagement in commercial sex work, and language) and with respect to the types of social media used to reach other TGW (e.g., transgender specific chat rooms, Facebook groups, WhatsApp groups).

Reimbursement for Transportation Costs

Participants received a reimbursement for transportation costs of NAD50 ($3.50 USD), and given condoms, lubricants, and information about HIV prevention.

Transcription and Translation

Transcription of IDI and FGD was done by team members fluent in the relevant languages. Audio recordings were prepared using a direct meaning-based translation for interviews in a language other than English. Study staff audited two randomly selected transcripts for accuracy: one from each set of interviews and focus groups to ensure the accuracy of meaning-based translation. Participants were instructed not to use real names for themselves and other participants; however, if names were mention, they were not included in the transcripts. Instead, pseudonyms or generic arbitrary codes were used. Additionally, no potentially identifying information was transcribed. Each transcription was labeled with the interview or focus group identification code. Digital recordings were destroyed once the transcription has been made and reviewed for accuracy.

Data Entry and Analysis

Analysis was iterative. During data collection, the field teams met daily to debrief, review the expanded field notes, discuss impressions, identify common and divergent themes among focus group participants and across groups or individual interviews, and detect emerging concepts. Once saturation was reached on topic areas and as new themes emerged, we refined the interview/discussion guides. The potential significance of the findings for both immediate questions and broader issues was discussed. The team identified analytic domains, major thematic areas, and minor thematic areas and began to build a theoretical framework, while systematically analyzing the commonalities and

contradictions reflected in the data. The study coordinator facilitated these daily debriefings. In the case that one team member was not present for a meeting, the field team member reviewed the recordings to recover missed details or information.

The study coordinator was responsible for producing summary reports from the daily debriefing sessions and any other field observations. These summary reports extracted the data that was most critical to the design, operational, and logistical needs of IBBS surveys. Expanded field notes were used to complete the summary reports; these summary reports were sent to the study coordinator, who was responsible for keeping track of emerging concepts and findings and maintaining a summary table. The expanded field notes, debriefing sessions, summary reports, and summary table constituted an ongoing and iterative process of analysis that began with the first interview and continued until all data were collected.

Based upon the themes and domains identified, we sought greater insight into:

- How TGW use social media to engage social networks
- Descriptors of various online social networks
- Acceptability of using online social networks to recruit TGW to surveys and services
- Measures of frequency of use, numbers of TGW in groups, overlaps between groups, geographic spread of groups, other KP within groups

We followed a grounded approach theory to data analysis, using Atlas.ti Analytic Software, to index and analyze qualitative data. Two ethnographers read 10% of field notes and interview transcripts to identify emergent themes within the topical domains of the interview guides relevant to recruitment via social media and develop a taxonomy of emergent sub-themes. Results were discussed and evaluated in order to reach consensus on an initial code list. The ethnographers then independently applied this code list to all transcripts, observation inventories, and field notes. Preliminary coding discrepancies were discussed and resolved, and codes refined as appropriate for a final code list. When the codelist was finalized, the ethnographers independently coded the data set. Using coded data, the ethnographers developed basic narratives that addressed the structural, social, and individual dimensions of recruitment of TGW via social media. These analytic narratives formed the basis of our adaptation of a social media driven recruitment strategy to better inform future surveillance activities.

Confidentiality Quality Control and Assurance

All staff involved with handling and analyzing the data were trained to adhere to all data collection, management, confidentiality, and analysis procedures. No personal identifiers were collected. Electronic data was stored in password-protected databases and the original data was kept in locked file cabinets until they are destroyed. Transcripts were checked against their recordings by project staff fluent in English to ensure accuracy. During data coding and analysis, decisions made in managing and arranging qualitative data that may affect the conclusions and subjective interpretation of qualitative data were noted. Any instances of protocol deviations or other problems identified during the meetings were shared with and promptly addressed by the investigators.

Field Testing

The pilot study tested social media based recruitment through a short recruitment process. For one month, we enlisted key informants to recruit from their social media groups to HIV testing at Society for Family Health (SFH). Data collection was limited to routine intake forms for the provision of HIV testing. The field test gauged the acceptability, feasibility, and efficiency of using social media for recruiting and potentially sampling TGW. To track if participants came as a result of the social media recruitment, we included a code word in the announcements that was changed twice a week. Study staff asked participants to give the code word when they come to the study site. Study staff changed the code word on a weekly basis.

Results

Sample Size and Participant Demographics

A total of 58 participants were recruited for the IDI and FGD. A small, but unknown, number of participants participated in both the IDI and the FGD (Table 6.1). The sample was diverse with respect to demographic characteristics (e.g., age, socioeconomic status, engagement in commercial sex work, and language). Notably, many TGW were self-employed, including sex work, catering, domestic work, event planning/décor, and beautician services. Many were also unemployed.

Table 6. 1: Sample size

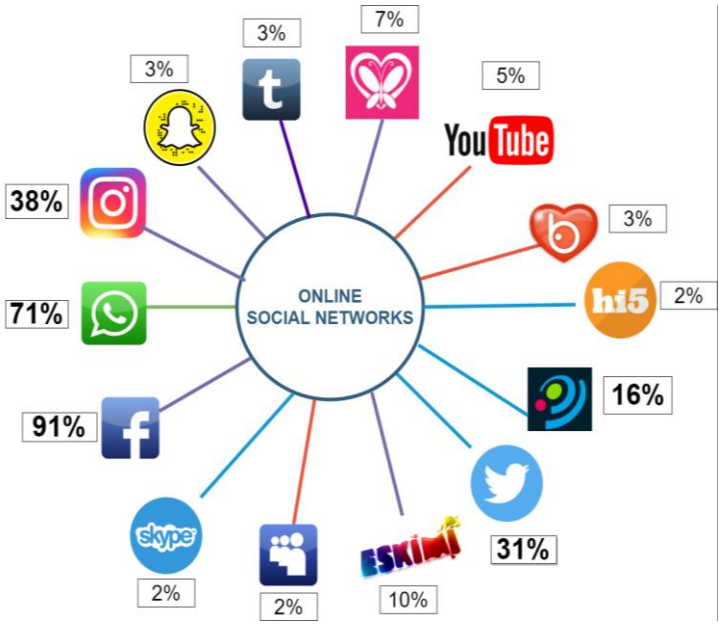
Study region	Timeline (2019)	In-depth Interviews	Focus Group Discussion 1	Focus Group Discussion 2	Total
Keetmanshoop	8 April – 11 April	8	5	7	20
Walvis Bay	15 April – 18 April	8	7	4	19
Windhoek	23 April – 26 April	8	5	6	19
Total	8 April – 26 April	24	17	17	58

Spaces Where TGW Interact

Online Platforms

Most participants were familiar with the use of online social networks. Facebook and WhatsApp were the most popular online platforms (Figure 6.1). Other popular platforms included: Twitter, Instagram, and Planet Romeo, where the participants communicated with other TGW. Keeping caution in mind given the qualitative study design, participants gave a sense of the frequency of use for different social media. Personal network size was defined as the number of participant interactions with TGW. The average personal network size of Facebook was 19 [interquartile range (IQR): 6-26], and an average network size of 22 (IQR: 9-33) on WhatsApp. Group network size was defined the number of TGW on the social media network. The average group network size was 135 (IQR: 30-150) on Facebook, and an average of 171 (IQR: 43-325) on WhatsApp. Daily use of WhatsApp and Facebook were common at every site. Online topics ranged from everyday greetings, commenting on pictures, gossiping, men, asking for clinic referrals, discrimination they experienced in the past week, scoping out hotspots for sex work, and promoting events/parties.

Figure 6. 1: Online social networks used by TGW to communicate with each other. The most popular social media platforms that TGW use to interact with each other were Facebook and Whatsapp, followed by Instagram, Twitter, and Planet Romeo.



Physical Venues

Bars and clubs were the most popular physical locations across all cities where TGW interacted with one another. Attending bars and clubs every weekend was common among all sites, and most reported going at the end of month. Jealousy and competition for the attention of men amongst TGW are common at bars and clubs:

> *"We dance together and then maybe one gets approached by a guy and the rest get jealous. Not everyone is jealous, there is always just that when that has issues."*

Other popular venues included netball (similar to basketball) practices and tournaments, churches, and workshops. Attending church was most popular in Walvis Bay, where participants reported participating in a church choir:

> *"I also do sing in the choir and there are about 3-4 transwomen I'm interacting with. We mostly talk about the choir rehearsal, church activities and the congregation who is doing what, how they are spending the church money and stuff. And if we go for choir competitions in different places then I will also be meeting other trans woman"*

Netball practice, games, and tournaments were the most common in Keetmanshoop, where practices took place at least three times a week with sufficient numbers to create teams and have cheerleaders. Text messaging is used to communicate about netball practices and emails to communicate with netball sponsors.

Workshops were most commonly reported in Windhoek. Workshop topics ranged from access to care, HIV prevention, coping with stigma/discrimination, sexual and reproductive health, and gender identity. Workshops are a way to initially meet other TGW:

> *"We met through meetings like this and general workshops because when you are in the activism of this movement you are always involved in gatherings or invited. We are always mobilized then we just go and meet at that particular event and we do mingle a lot."*

Events

TGW also interact with other TGW at events such as local pageants, funerals, house parties, and weddings. Among all sites, pageants were the most common event and had the largest attendance. There are two annual pageants that cater to TGW.

More than a quarter of participants reported meeting other TGW at house parties among all cities. House parties can consist of braais (BBQ) or "potjies", bonfires, and "camping". "Camping" was described as a gathering of TGW at homes (indoors). These parties occur every month or when there are special events such as birthdays and graduations and are often advertised on Facebook and WhatsApp groups as well as text messages. New friendships often occur at these gatherings:

> *"You know sometimes my friend would invite me to her 'potjie' and I would bring along another friend and the two of them do not know each other but I'll introduce them so that's also how we meet."*

Many participants reported meeting other TGW at funerals among all sites. Participants described support from the entire LGBTI community at funerals:

"The other event that we also mostly do attend is when someone in the LGBTI Community has passed. This is actually where the LGBTI community comes together from different regions to meet each other and just to support the family of the deceased or one another. That is actually also one of the biggest platforms we do meet. Whenever there are funerals there would be organisations that would call to donate money, even if it is little. Then those that do not work will be transported or those that do have cars will also give a helping hand to see how they can assist. Each town is represented by a TGW and that is where we also meet. women."

Social Hierarchy among TGW

There was a distinct theme of social hierarchy among TGW, often classified by employment status. Participants described a high, middle, and low class of TGW.

"I have realized that the upper class ladies are all employed, the middle class ladies are hunting for employment opportunities, most of them doing sex work. They would not go out to go and socialize but they would rather be on the hunting spree to get money. The low class ones are those ones who are not in that space even if you see them anytime they are not in the position to afford things. At entertainment places the security guards will also not allow them to enter. Because the way they are dressed is already indicating to them that this person is basically here for nothing. They would be there asking for alcohol, begging, asking for $1.00 to buy beer and this type of things."

High class, also called "upper class" or "high society", are financially independent, live in stable housing, own cars, and are often clients of sex workers. Among the high class, there are two specific groups: "slay queens" and "savage queens". There is a great deal of competition among the high class, such as competing for men (and their attention) and competing to be the "best". One participant described the high class as:

"There is that thing of I drive a car, I have a job, I can afford a guy so I'm better than you so there is that perception. They are having the best makeup, their hair is on flick, the nails are done every weekend."

The middle class were described as TGW who are self-employed (often sex work), but who were not well-off. TGW in the middle class attend bars, clubs and other entertainment venues where they may greet TGW in the high class, but do not communicate with the high class beyond that. One participant described the middle class as:

"I want to add that too, the middle class TGW especially who are doing sex work you will find them going to that extent of hanging out with the upper class TGW, at that moment they can afford what the upper TGW are drinking because they are still working and will be able to find clients but then the interacting with the upper class will not be there, maybe just greeting each other that's it because the middle class TGW is actually there to work."

TGW who represent the low class were described as unemployed, have unstable housing, and are often beggars. They are often discriminated against by the high class:

"And then they don't like us, they are high people and the mostly they must not work in a bank or in an office then they are more, they can even come ask you neh, they can even come ask you and say come clean my house, come wash my whatever and if you don't have anything you will go for it."

Development of Social Classes

Participants described how these social classes were developed. Most TGW develop relationships while they are young, but once opportunities arise for one friend and not the other, a rift starts to form, and they go their separate ways:

> *"People from these two groups may have grown up together and gone to school together, but once the one starts working and the other does not, separation comes in. The one working may feel they have to help support the unemployed one thus they just stop being friends."*

Lack of Trust

Among and within these social classes of TGW, lack of trust is a distinct theme. Participants expressed that there is a great deal of jealousy among TGW, driving their inability to trust one another. One participant shared:

> *"In some cases, I do want to be friends with other TGW, but fear that the other person will spread rumors or stories about me if they get to close and share too much information. Jealousy is a big issue amongst TGW, so at first we will first observe each other, before we decide if we want to interact with the other person."*

TGW without Access to Internet/smartphone

We found a number of potential barriers to recruitment for future studies. The largest barrier to online recruitment is the lack of a smartphone or internet connection among TGW. Without probing, over a quarter of participants openly admitted that they do not currently have a phone. Participants acknowledged that their phones are stolen frequently or that they give them away to men as a token of affection. TGW without access to a smartphone or internet often communicate through word of mouth, text messaging or phone calls, or through email. Most participants reported face-to-face communication including sharing of information learned from smartphones to those without such.

Transitioned TGW

Participants described TGW who have medically transitioned to women as no longer wanting to be associated with the transgender community and no longer identifying as TGW. This presents as a major barrier, as they are no longer visible in the TGW community after their transition.

> *"There are TGW who do not associate themselves with the rest of the movement because some of them have transitioned medically so they do not want to be associated with transwomen anymore, she just wants to be classified as cis woman or a heterosexual woman. That is also a challenge within the community whereby they feel they have done their part, the journey with the community has ended so they are in a new journey in the community, that is how some of them are not connected to the rest of the transwoman community."*

Discrimination

Stigma and discrimination were frequent experiences among most participants. TGW face discrimination from the general population, other KP, and even within their TGW community. Many participants described difficulties performing everyday activities such as using public restrooms and accessing health services, for example. Nearly all participants shared a common fear for their safety and the likelihood of being targeted for discrimination because of their gender identity.

> *"It's like going to the club and the bar tender tells you that you can't use the ladies toilet, it's going to services and you are being told you need to come dressed as a male body person as your body confirms so it's a challenge"*

Participants reported the difficulties they face when accessing health services. This is concerning as TGW are at high risk of acquiring and transmitting HIV.

"At some health institutions we are treated equally, but at others not. I was not feeling well and went to the clinic where a Herero man just asked if I had had an HIV test done even without looking at me or asking me any questions. I just turned around and left the clinic."

For some TGW, even seeking help resulted in stigma and discrimination. Several participants reported harassment from police officers when reporting abuse.

"In another instance a man was waiting on me and he hit and almost raped me. I ran down the street bleeding. The police came by and I asked for help, but they did not want to help me and told me that since I was a man I should just fight back."

Multiple participants acknowledged being the target of discrimination from other KP, specifically MSM. Because of the visible identity of a TGW, some MSM feel that they are being "outed" if they are seen with a TGW. Some participants shared that the MSM who abuse them in public, are normally the ones making sexual advances in private. One participant shared her relationship with an MSM:

"Yes, I was in an abusive relationship with an MSM for about 2 years. The MSM had not yet come out of the closet. In public we acted as if we did not know each other or sometimes he would just act like we are friends, but in private the MSM wanted the privileges of a relationship like sex. This resulted in us having a lot of arguments and the MSM then physically abused me by beating me up pretty badly or stabbing me."

Rejection

Multiple participants who disclosed their gender identity experienced rejection from family members. Different forms of rejection reported were: verbal abuse, isolation, and even physical abuse. One described her abuse and rejection from her stepfather:

"I remember I was in grade 10 transforming [to] transgender and there was a time that he said while I was sleeping he will cut my hair off. Then I just wake suddenly up and just look myself in the mirror and why is this man doing this to me? There were even times the man was like burning my clothes up, my whole female clothes and then he will chase me out. He says yah what are you doing in this house like are you supposed to be a man, you are Satan you are a demon those type of things. Then he will chase me away."

Others indicated that there are many TGW in the community who are closeted due to the fear of rejection from family members and the consequences of disclosing their identity in a stigmatized environment.

"The visibility of the person some TGW they are actually hiding their identity into the public space but you get to know the person by cultivation and get a conversation with that person on that hand then you will see that this is a transgender."

Violence

Many participants reported being victims of violence and how this prevents them from being visible in the community. Experiences of violence may lead to a decline in mental health and social isolation, which may present as a barrier to recruitment.

"I just wanted to add, uhmm mostly TGW pull themselves back is when something terrible happened to them like someone abused them, someone raped them or molested the so they decide to live their trans identity as either a guy woman or a guy man and hide themselves away from the world because something like that happened to them."

Participants also expressed that the potential threat of violence can prevent TGW from visiting public places.

> *"Some of us do not go to such events out of fear of being in Katutura. We really fear violence and because it has the tendency to escalate there especially if you are seen as a transgender. TGW will not be included in these social gatherings… that's why I avoid these places as much as possible"*

Mental Health

Challenges to stable mental health were reported by many participants. TGW experience significant stigma and discrimination from the public, which can have detrimental effect on their mental health. One participant shared the emotions she goes through as a TGW:

> *"Walking out the door you have to prepare, mentally, physically, emotionally, psychologically for stigma on the street and apart from that access to services is also a challenge because would go to a clinic then everyone will be staring at you, gossiping [about] you and saying words at you, even the treatment from the nurses and other health workers is also not very friendly you know. It's just…very difficult for us as a transwoman to access services and even the way I'm dressed they can see that I'm a transwoman something is not right here. It's like you are the odd one out and you are treated so horribly that even accessing services becomes difficult. You have to think first 'do I really want to go to the clinic?' and like literally you need to prepare yourself mentally, emotionally and physically for what is out there. Psychologically and mentally it has a down side because you think to yourself: 'is it really worth it, am I really worth it? Am I able to know that I'm good enough for this world?"*

Willingness to Recruit

A majority of participants agreed to recruit TGW to future studies. Some felt their willingness to participate and to recruit other TGW into future surveys would be contingent on clear study objectives and outcomes, specific questions for TGW, confidential data collection, a safe study location, and reimbursement of mobile data. Almost half of the participants were comfortable attending the same study site as MSM. Those who did not want to share study sites voiced concerns about being discriminated by MSM, not feeling comfortable or safe among MSM, and the need for specific questions for TGW, because it may be degrading to be asked questions that are specifically designed for MSM populations. One participant described her experience during the previous (2014) integrated biological and behavioral survey (IBBS) that combined MSM and TGW populations:

> *"Even during the first IBBS Study, I refused to take part because they were asking very uncomfortable questions about my biological identity that I do not identify with. I felt violated as a person. I'm glad that such initiatives are coming up whereby trans is being separated from MSM."*

Field Test Results

Field test results (Table 6.2) indicated that slightly more than half (53%) of the participants were recruited to the HIV service site through face-to-face peer recruitment. Walvis Bay had the fewest TWG; all of whom were recruited via social media. Windhoek had the largest number of TGW recruited, at 56, with a majority (70%) recruited through face-to-face communication.

Table 6. 2: Field Test Results

Study region	Total # TGW Recruited	Recruited through Friends n (%)	Recruited through Social Media n (%)
Keetmanshoop	44	29 (66)	15 (34)
Walvis Bay	28	0 (0)	28 (100)
Windhoek	56	39 (70)	17 (30)
Total	128	68 (53)	60 (47)

TGW Community Size Estimates

Participants were asked to estimate the number of TGW in their specific study region. Participants believed Windhoek had the largest population of TGW, with an estimate of 650 TGW (Table 6.3).

Table 6. 3: Community Size Estimates

Study region	Median	Range*
Keetmanshoop (n=20)	40	30-78
Walvis Bay (n=19)	39	20-50
Windhoek (n=19)	650	175-12750

**Range was defined as the difference between the upper (75%) and lower (25%) quartile values*

Conclusions and Recommendations

Although the use of social media as a sampling and recruitment tool for hidden, hard-to-reach, small and diffuse populations has strong appeal, we conclude that social media alone is unlikely to achieve sufficient sample sizes of TGW in Namibia. While many participants reported common use of multiple online platforms, there are critical barriers to recruiting TGW via social media. The most significant barrier to online recruitment is the lack of smartphones or internet connection. Without access to a phone or a stable internet connection, a participant may never have the opportunity to participate in a survey. Participants emphasized that TGW who have a smartphone will often notify peers without a phone about parties or gatherings.

Our findings also suggest that successful recruitment sites should include physical venues and events that TGW frequent. It is imperative that researchers conduct a comprehensive formative assessment to identify venues and events that are unique for TGW and keep in mind that they may differ among study sites. Bars, clubs, pageants, workshops, and netball practices and games were among the venues and events that TGW often attended. However, some venues and events were more popular at some study sites than others. For example, the most popular venues and events by city were netball practice and games in Keetmanshoop, church choir in Walvis Bay, and workshops in Windhoek. Additionally, researchers need to be aware that the type of TGW they recruit may be different at each of these venues and events with potentially little to no social interaction between them. In Windhoek, where workshops are common, the majority in attendance are considered low class TGW who are often discriminated against and shunned by the upper class TGW. In contrast, many of the TGW who attend bars and clubs represent the high and middle class. The social networks and groups of TGW are divided with few overlaps.

Other barriers to TGW participation in surveys and other research in general were identified. There is a great deal of jealousy and judgment between and within these social classes, causing a lack of trust among the transgender community. Tension between these different groups can break network connections within the transgender community, making it difficult to recruit for future HIV surveys. Identifying TGW who transcend the social hierarchy and members of each social class within the community will be essential to achieving a representative TGW sample.

In conclusion, this study showed that TGW do frequently communicate with each other through online platforms or social media; however, interactions resulting in referrals to studies are frequently face-to-face. Online recruitment, though feasible and acceptable, should be viewed as supplemental to other methods of recruitment such as mobilization at events and venues, one-on-one through SMS and email, or appeals through conventional mass media including newspapers or radio. Findings also suggest that it is essential to have TGW key informants or advocates with high social visibility communicate to other TGW in the community.

7. Overall Conclusions and Recommendations

Key Interpretations

Key Interpretations for FSW

FSW in all three cities included in the Nam-IBBS have substantially higher prevalence of HIV compared to women in the general population. Yet, FSW engagement in HIV care falls far below the general population on the key 90-90-90 benchmarks for epidemic control. The largest shortfall is in the diagnosis of infection, ranging from a low only one in four FSW living with HIV being aware of their infection in Katima-Mulilo to little more than half in Windhoek and Walvis Bay/Swakopmund. Since the next two benchmarks, ART use and viral suppression, are contingent upon being diagnosed, there is substantial unmet need for treatment of HIV among FSW. Further, the low levels of viral suppression, *even among those in care*, can translate to high potential for onward transmission from FSW to their clients, other partners, and children.

The Nam-IBBS 2019 data point to avenues to improve diagnosis of HIV among FSW. Only one-third to two-thirds of FSW had tested for HIV in the year preceding Nam-IBBS 2019. Updated estimates place the number of FSW living or working in the three cities in the range of several thousand. Service data from 2019 collected in seven regions tested over 9,000 FSW with a substantial yield of new HIV diagnoses (>5%). Taken together, these data indicate that the unmet need for HIV care and treatment can be reached if KP-focused testing programs are scaled up for high coverage and high frequency of testing FSW in the major cities and towns. The Nam-IBBS 2019 data also highlight the value of the "peer-driven intervention" approach to reach undiagnosed FSW. Across the survey sites, between half and three-quarters of FSW testing positive were previously undiagnosed. Yet, the potential remains tapped as only one in twenty to one in five FSW reported contact with a peer educator in the last six months.

Disparities and risk factors for HIV identified in Nam-IBBS 2019 help target programs for FSW. The situation in Katima-Mulilo merits particular attention. With HIV prevalence already high among young FSW age 18-24 years, over three out of five FSW are infected over the age of 34 years. In our survey data, only one in four FSW testing positive for HIV in Katima-Mulilo had been previously diagnosed. Ever testing for HIV and testing in the last year were also low. In addition to age, risk factors for HIV infection among FSW in Katima-Mulilo include syphilis infection and drug use. These finding speak to the need for increased FSW-focused STI screening and treatment programs, and greater contextual information on the relationship between drug use and HIV risk. In-depth studies are needed to better document which drugs are used, specific partners and behaviors associated with drug use, and the potential for treatment programs to address substance use among FSW. Fortunately, once diagnosed FSW in Katima-Mulilo have higher levels of ART use and viral suppression. PrEP awareness was also substantially lower among FSW in Katima-Mulilo that elsewhere, although PrEP use was very low in all three cities. FSW-focused promotion, demand creation, and educational campaigns on PrEP safety and efficacy are needed for this prevention method to reach its full potential. In Windhoek, HIV infection was associated with lower educational attainment, under-scoring few economic options as a root cause of commercial sex work. In all three locations, the onset of sex work was most commonly in the teenage years. Interventions to help adolescent girls and young women stay in school and obtain alternative livelihood, such as those included in the DREAMS initiative throughout the region, are likely to have long-range benefits in reducing HIV transmission linked to sex work.

Key Interpretations for MSM

The Nam-IBBS 2019 survey demonstrated that Namibian MSM fall short of the UNAIDS 90-90-90 indicators for engagement in HIV care, behind adult men in the general population of the country. Barriers to the diagnosis of HIV infection are the largest obstacle. Fewer than half of MSM living with HIV in Walvis Bay/Swakopmund and under two-thirds in Windhoek had been diagnosed. Since the next two benchmarks, ART use and viral suppression, are contingent upon being diagnosed, there is substantial unmet need for treatment of HIV among MSM. Further, the low levels of viral suppression, even among those in care, can translate to high potential for onward transmission.

The Nam-IBBS data do not indicate that the prevalence of HIV among MSM in Namibia exceeds that of the general adult male population as of 2019. Nonetheless, HIV prevalence is substantial and risk factors for HIV infection draw attention to areas of prevention that should not be neglected for MSM, namely the risk of HIV to and from women, the early age of onset of risk behaviors with men, and the preventive effect of circumcision. In the Nam-IBBS 2019 data, HIV prevalence was elevated among MSM engaging in transactional sex with female partners in Windhoek and among those with younger age for onset of anal sex in Walvis Bay/Swakopmund. The Nam-IBBS data also detected a lower prevalence of HIV among circumcised MSM in Walvis Bay/Swakopmund. Meanwhile, risk behaviors among MSM point to the high potential for on-going acquisition and transmission of HIV, including having multiple male and female partners, receiving money for sex from men, coupled with inconsistent condom use with all types of partners. Moreover, HIV testing is infrequent among MSM. Fewer than one in five MSM not already known to be HIV positive had tested for HIV in the last year. Indeed, Nam-IBBS 2019 data documented that the reach of any HIV prevention program is low, on the order of one in five MSM had any contact in the last six months. Finally, the low awareness and use of PrEP among MSM are disappointing in the few years following roll-out.

Key Interpretations for TGW

Transgendered women and men are prominent members of the LGBTI communities in Namibia and are highly interconnected with MSM and FSW. For Part A, TG key informants provided insights during the formative phase on how to successfully conduct the Nam-IBBS 2019 and participated in in the larger surveys. Unfortunately, the numbers of TG recruited were too small for statistical inference. Measures of HIV prevalence, engagement in care and prevention, risk and preventive behaviors, and other indicators of health and social welfare needs remain a gap in strategic information. A key lesson learned from Part B is that surveillance activities and research studies need to combine sampling and recruitment methods, including from online venues, physical venues, trans-focused events, and by peer referral.

Limitations

No study is without limitations. We therefore highlight errors and potential biases that may affect interpretation of the results. First, although RDS surveys are held to approximate probability-based samples, and may be among the most robust methods available for hidden populations at this time, it is possible that certain sub-groups of KP were not reached or well represented due to how social networks are formed. Second, at present there is no gold standard or complete census of KP against which to validate the findings. Third, the surveys were only conducted in a limited number of urban areas. The HIV prevalence surveys were conducted only in Windhoek, Walvis Bay/Swakopmund, and Katima-Mulilo (FSW only). The qualitative study of TGW also included Keetmanshoop. The service data had a wider seven-region coverage area. Findings here may not apply to other urban areas and the situation among KP in more rural areas and other hotspots may be different from the data presented here. Fourth, many of our results are based on self-reported responses of participants and may therefore be prone to social desirability response bias. These may especially include over-stating preventive behaviors and under-stating illegal or more stigmatized behaviors. While the compensation offered in the study was modest, some ineligible participants motivated by the amount may have eluded the eligibility screening. Moreover, we noted that some women referred to the study by FSW denied selling sex upon the interview; others reported having participated in the survey previously. It is possible that others participating in the survey did not disclose information that would have made them ineligible. Finally, we recognize the impact of small sample sizes on the interpretation of findings, particularly for sub-group analyses such as for TGW and persons living with HIV.

Recommendations

Based on measures of HIV prevalence, levels of engagement in programs, strengths of associations with infection, and indicators of risk and preventive behaviors, the Nam-IBBS 2019 data support the following recommendations.

1. **Scale-up of HIV testing through KP peer-driven interventions.** The most serious shortfall on the HIV care cascade is diagnosis, for FSW and MSM. Given the levels of diagnoses are lower than in the general population, reliance on general access to HIV testing will not close this gap. The use of trained peers and LGBTI-sensitized MoHSS staff holds promise to reach, counsel, and test KP as evidence by the information of

Parts A, B, and C of this study. A higher frequency of testing needs to be promoted for KP (e.g., every six months or more frequently), as the Nam-IBBS 2019 data show high levels of ever testing with low levels of testing in the last year. Moreover, the high yields of new HIV diagnoses in KP-focused programs indicate that a scale up in absolute numbers and in higher frequency of testing by individuals will continue to find many previously undiagnosed infections.

2. **PrEP promotion and demand creation programs specifically tailored to each of the three KP.** The disproportionate burden of HIV and onward transmission of infection point to high efficiency in the prioritization and concentration of PrEP resources to KP. The Nam-IBBS data do not show over-reliance on PrEP by KP. On the contrary, PrEP awareness and use are low considering the high risk for HIV among KP. Higher level campaigns on PrEP's efficacy, safety, and availability are needed with specific messages tailored for each of the KP. Formative research is needed on barriers to PrEP and ways to overcome them among FSW, TGW, and MSM. In addition, training is needed through the health system to increase provider competency in recognizing KP risk and recommendations for PrEP.
3. **DREAMS-type interventions to prevent commercial and transactional sex among adolescent girls and young women, and among boys and young men.** The Nam-IBBS 2019 data point to economic factors, particularly the limited opportunities resulting from low educational attainment among young women, as drivers of elevated risk for HIV among FSW. Lessons learned and best practices from DREAMS programs throughout the region need to be transferred, adapted, and evaluated in the Namibian context. Of note, receiving money for sex from a woman and early onset of sex with men were risk factors for HIV infection among MSM. DREAMS programs tailored for sexual and gender minority populations are needed.
4. **Address the dire situation of high prevalence of HIV and low engagement in care among FSW in Zambezi as an outbreak.** The Nam-IBBS 2019 data confirm that HIV among FSW in Zambezi is an epidemic within an epidemic. The high prevalence in the general population of Zambezi is likely linked to and a source of the extremely high prevalence of HIV among FSW. Intensive measures akin to an outbreak investigations and responses are needed. These include resource-intensive wide scale hotspot and population level HIV testing, partner notification and contact tracing, vigorous promotion of PrEP, and enforcement of 100% condom use with commercial sex. Coordination of more radical efforts will need to include FSW and LGBTI civil society involvement.
5. **Promote voluntary medical male circumcision (VMMC) for MSM.** The Nam-IBBS 2019 data showed a protective effect of circumcision and HIV among MSM. The risk of lack of circumcision may stem from sex with female partners or male partners as the majority of MSM had multiple partners of both sexes. Reaching MSM may require specific messages on the protective benefits of circumcision for MSM.
6. **Fill the strategic information gap for transgendered persons.** The Nam-IBBS 2019 took initial steps for greater inclusion of TG in the data needed for the HIV response. However, too few TG participants were enrolled in Part A to obtain measures of HIV prevalence, engagement in HIV care, and risk and preventive behaviors. The qualitative data from Part B provides a framework for a hybrid recruitment approach, led by peers, that includes online venues, physical locations, trans-specific events, and peer referral.
7. **Raise targets for engagement in HIV to 95-95-95 for KP.** As Namibia has likely surpassed the 90-90-90 targets for the general population, the country is looking ahead to higher targets to end the epidemic, namely achieving 95% diagnosis, 95% ART initiation, and 95% viral suppression. Although the 90-90-90 targets have not been met for FSW and MSM, setting lower goals for KP risks having them fall further behind.

Success in implementing these recommendations and their impact on the HIV epidemic among KP can be measured in future rounds of IBBS. The technology of RDS has been transferred to Namibia and reinforced over two rounds in multiple cities in multiple populations. Cadres of MoHSS staff and KP peers have been trained and engaged in all stages. RDS approaches have been adapted for use in peer-driven interventions to increase their reach. We envision that future RDS surveys will play an important role demonstrating Namibia's success towards "getting to zero new HIV infections" by demonstrating that KP have not been left out of the national response.

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9. Appendix

Questionnaire for FSW and MSM

Question	Response set
Q1. Interviewer ID	__ __ id number
Q2. What survey city is this? (Choose one)	3 Katima
	2 Swakopmund/Walvis Bay
	1 Windhoek
Q3. Does the person have a valid referral coupon?	1 Yes
	0 No
Q4. Is the candidate a seed?	1 Yes
	0 No
Q5. Participant is neither a seed, nor holding a referall coupon? Is this correct? Selecting, yes makes them ineligible and will end the survey.	1 Yes
	0 No
Q6. Is participant holding an MSM or FSW referall coupon? If seed, select which population they are a seed for. (Choose one)	1 FSW
	0 MSM
Q7. What is the participants coupon code?	__ __ __ __ coupon code number
Q8. What is your current sex or gender? (Choose one)	3 TransFemale/TransWoman
	2 TransMale/Transman
	1 Female
	0 Male
Q9. What sex were you assigned at birth? (Choose one)	2 Intersex
	1 Female
	0 Male
Q10. Have you previously participated in this study?	1 Yes
	0 No
Q11. What is your date of birth?	2099 Not Applicable (Year)
	2098 Refuse to Answer (Year)
	2097 Don't Know (Year)
	__ __ / __ __ / __ __ __ __ mm / dd / yyyy
Q12. This makes you [AGE] old, correct?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
	9 Not Applicable

Q13. Participant has stated they are under 18 years of age, Please ask: "Are you under 18 years of age?"	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q14. How long have you lived, worked, or socialized in [Response to Q2]? (Choose one)	1 6 Months or more
	0 Less than 6 months
Q15. Have you received money in exchange for sex in the previous 30 days?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q16. Have you had either anal or oral sex with a man in the last 6 months?	1 Yes
	0 No
Q17. I would like to know the main reason that you decided to participate in this study.	98 Refuse to Answer
	97 Don't Know
	08 Other (specify)
	07 I am a KP group leader
	06 Incentive/gift for participating
	05 Someone forced me to participate
	04 My friend wanted me to participate
	03 Wanted to help the community
	02 Interested in issues relating to &[POP]
	01 Want to be tested for HIV
	00 Interested in HIV and sexual health issues
Q19. Thinking about the recruitment coupon you brought here today. How did you get this coupon?	8 Refuse to Answer
	7 Don't Know
	3 From an agency/project activity
	2 Bought or exchanged it for something (specify)
	1 Found the coupon laying around somewhere
	0 Received the coupon from a friend
Q21. How long have you known the person who gave you the recruitment coupon? (Choose one)	8 Refuse to Answer
	7 Don't Know
	3 I did not know this person
	2 More than 1 year
	1 6 months to 1 year
	0 Less than 6 months
	2 Not confident

Q22. DO NOT READ: Interviewer: How confident are you that the candidate is really a [SUBPOP] (Choose one)	1 Somewhat confident
	0 Confident
Q23. Did participant provide informed consent for the survey and HIV test with return results?	1 Yes
	0 No
Q25. What is your citizenship? (Choose one)	8 Refuse to Answer
	7 Don't Know
	2 Other (specify)
	1 Namibian
Q26. What is your citizenship?	OTHER:_____
Q27. In which country were you born? (Choose one)	8 Refuse to Answer
	7 Don't Know
	2 Other
	1 Namibia
Q28. Which country were you born in?	OTHER:_____
Q29. Which language(s) do you speak most commonly at home? (Check all that apply)	__ Silozi
	__ Rukwangali
	__ Refuse to Answer
	__ Otjiherero
	__ Other (specify)
	__ Oshiwambo
	__ English
	__ Don't Know
	__ Damara
	__ Afrikaans
Q30. Which language(s) do you speak most commonly at home?	OTHER___
Q31. What is the highest level of education you completed? (Choose one)	98 Refuse to Answer
	97 Don't Know
	09 Other
	08 Graduate school or higher
	07 University
	06 Vocational training or technician
	05 Secondary school (grades 11-12)
	04 Secondary School (grades 9-10)
	03 Primary school (Grades 1-8)
	02 Attended school, but did not complete any level
	01 Never attended school

Q32. What is the highest level of education you completed?	OTHER_____
Q33. Are you currently a student or enrolled as a learner?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q34. Is sex work your main form of employment?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q35. What is your main occupation or income generating activity? (Interviewer: DO NOT READ ANSWERS, RECORD ONLY ONE) (Choose one)	98 Refuse to Answer
	97 Don't Know
	16 Other (specify)
	15 Community Organization (peer educator/development)
	14 Teacher
	13 Taxi driver/truck driver
	12 Street vendor/Casual laborer
	11 Shop worker/retail-worker/staff
	10 Sex work
	09 Professional/Banker/Accountant/business owner
	08 Police officer/security guard/military
	07 Beautician/Masseuse/Performer
	06 Fisherman/Seafarer
	05 Farming/agricultural worker
	04 Factory worker
	03 Construction worker
	01 Not employed
Q36. What is your main occupation or income generating activity?	Other:_____
Q37. What is your overall monthly household income? (total income from ALL sources) (Choose one)	8 Refuse to Answer
	7 Don't Know
	5 NAD20,000 or more
	4 NAD10,000-NAD19,999
	3 NAD5,000-9,999
	2 NAD2,500-4,999
	1 Below NAD2,499

Q38. Including yourself, how many people depend on this income?	98 Refuse to Answer
	97 Don't Know
	__ __
Q39. How much money did you personally earn last month? (Total income from all sources)	9999999 Not Applicable
	9999998 Refuse to Answer
	9999997 Don't Know
Q40. How long have you lived in or around [Response to Q2]?	99 Not Applicable (Years)
	98 Refuse to Answer (Years)
	97 Don't Know (Years)
	__ __ YEARS
	__ __ MONTHS
Q41. Is [Response to Q2] your primary residence?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q42. Where is your primary residence?	__ __
Q43. Please look at this card [Zone card] and tell me which area of [Response to Q2] is closest to your current residence (Choose one)	8 Refuse to Answer
	7 Don't Know
	6 Zone 6
	5 Zone 5
	4 Zone 4
	3 Zone 3
	2 Zone 2
	1 Zone 1
Q44. Please look at this card [Zone card] and tell me which area of [Response to Q2] is closest to your current residence (Choose one)	8 Refuse to Answer
	7 Don't Know
	6 Zone 7
	5 Zone 6
	4 Zone 5
	3 Zone 4
	2 Zone 3
	1 Zone 2
	0 Zone 1
Q45. In the past 12 months, that is since [PAST12], have you been homeless at any time? By homeless I mean you were living on the street, under a bridge, or in an abandoned house or structure?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No

Q46. Are you currently homeless?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q47. What is your current marital status? Interviewer: Read all answers, record only one (Choose one)	8 Refuse to Answer
	7 Don't Know
	5 Never married or committed to a woman or man as if married
	4 Formally married or committed to a man as if married
	3 Formerly married or committed to a woman as if married
	2 Currently married or committed to a man as if married
	1 Currently married or committed to a woman as if married
Q48. If previously married or committed: Which of the following apply? (Interviewer: Read answers and record only one). (Choose one)	8 Refuse to Answer
	7 Don't Know
	3 Separated
	2 Divorced
	1 Widowed
Q49. Who do you currently live with? (Interviewer: Do not read answers, record all mentioned) (Check all that apply)	__ Spouse/partner
	__ Siblings
	__ Refuse to Answer
	__ Parents
	__ Other family/relatives
	__ Other
	__ I live alone
	__ Girlfriend or woman I am committed to
	__ Friend or roomate (not sexual partner)
	__ Don't Know
	__ Children
	__ boyfriend or man i am committed to
Q50. Who do you currently live with?	Other:_____
Q51. Have you ever been held in a detention center, jail, or prison for more than 24 hours?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
	8 Refuse to Answer
	7 Don't Know

Q52. During the past 12 months, that is, since [PAST12] have you been held in a detention center, jail, or prison, for more than 24 hours?	1 Yes
	0 No
Q53. Have you ever had vaginal sex with a woman?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q54. At what age did you first have vaginal sex with a woman?	99 Not Applicable
	98 Refuse to Answer
	97 Don't Know
	__ __
Q55. Have you ever had anal sex with a woman?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q56. At what age did you first have anal sex with a woman?	99 Not Applicable
	98 Refuse to Answer
	97 Don't Know
	__ __
Q57. In total, with how many different women have you had sex with in the last 12 months? Sex being defined as vaginal or anal sex. If you don't remember, give your best estimate.	9999 Not Applicable
	9998 Refuse to Answer
	9997 Don't Know
Q58. of these [Response to Q57], how many did you NOT use a condom with?	9998 Refuse to Answer
	9997 Don't Know
Q59. of these [Response to Q57], how many did you give money, goods or services in exchange for sex?	9999 Not Applicable
	9998 Refuse to Answer
	9997 Don't Know
Q60. of these [Response to Q57], how many did you Receive money, goods or services from in exchange for sex?	9999 Not Applicable
	9998 Refuse to Answer
	9997 Don't Know
Q61. Have you ever had anal sex with a man?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
	99 Not Applicable

Q62. At what age did you first have anal sex with a man?	98 Refuse to Answer
	97 Don't Know
	__ __
Q63. In total, with how many different men have you had anal sexual intercourse with in the last 12 months? If you don't remember, give your best estimate.	9999 Not Applicable
	9998 Refuse to Answer
	9997 Don't Know
Q64. of these [Response to Q63], how many did you NOT use a condom with?	9999 Not Applicable
	9998 Refuse to Answer
	9997 Don't Know
Q65. of these [Response to Q63], how many did you give money, goods or services in exchange for sex?	9999 Not Applicable
	9998 Refuse to Answer
	9997 Don't Know
Q66. of these [Response to Q63], how many did you Receive money, goods or services from in exchange for sex?	9999 Not Applicable
	9998 Refuse to Answer
	9997 Don't Know
Q67. Where or how do you normally meet sexual partners? (Choose one)	98 Refuse to Answer
	97 Don't Know
	15 Other (specify)
	14 Community meetings
	13 Border crossing
	12 Truck stop
	11 Service station
	10 Intermediary
	09 Party
	08 School
	07 Motel or pension
	06 Internet (e.g. facebook), chat, or SMS
	05 Dating application (i.e. Grindr)
	04 Street, park or public transport
	03 Hotel
	02 Bar/Cafe/Disco/Shabeen/Restaurant
	01 Through friends
Q68. Where or how do you normally meet sexual partners?	Other
Q69. How many venues do you go to to find sex partners? (Choose one)	8 Refuse to Answer
	7 Don't Know
	3 I have three or more venues
	2 I have two venues

	1 I have one venue
	0 I don't go to venues
Q70. What is the name of the venue you go to most frequently to find clients (Write-in response)?	.
Q71. In the past 30 days, how often did you attend this venue? (Choose one)	8 Refuse to Answer
	7 Don't Know
	5 26+ times
	4 21-25 times
	3 16-20 times
	2 11-15 times
	1 6-10 times
	0 1-5 times
Q72. In the past 6 months (since [PAST6]), how many people have you had either vaginal, oral or anal sex with? Please include males, females, or transgender partners. Partners can be main or casual partners, as well as anyone you gave or received money or goods in exchange for sex.	9998 Don't Know
	9997 Refuse to Answer
	__ __ __ __ number of partners
Q73. INTERVIEWER: Participant has stated they have	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
	0 sex partners. Please confirm that participant has had zero sex partners in the previous 6 months. Click "Yes" for no partners in previous 6 months (will end the interview) or "No" to go back to previous question and change response.
Q74. How old was your last partner? if you don't know, take your best guess	__ __ age
Q75. What is the nationality of this person? (Choose one)	8 Refuse to Answer
	7 Don't Know
	2 Other (specify)
	1 Namibian
Q77. What type of partner was your last partner? Regular, casual, or one time only? Read answers, recrod only one (Choose one)	8 Refuse to Answer
	7 Don't Know
	3 Other
	2 One time only
	1 Casual

	0 Regular
Q78. What type of partner was your last partner? Regular, casual, or one time only? -	Other
Q79. Where and how did you two meet? (Choose one)	98 Refuse to Answer
	97 Don't Know
	13 Other
	12 Border crossing
	11 Truck stop
	10 Service station
	09 Intermediary
	08 Party
	07 School
	06 Motel or pension
	05 Internet, chat, or SMS
	04 Through friends
	03 Street, park, or public transport
	02 Hotel
	01 Bar/cafe/disco/shabeen/restaurant
	00 Brothel
Q81. Did you give this partner money, goods or services in exchange for sex?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q82. Did you receive this partner money, goods or services in exchange for sex?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q83. When did you first have sex with this person?	__ __ __ YEARS
	__ __ __ WEEKS
	__ __ __ MONTHS
Q84. When did you last have sex with this person ?	__ __ __ WEEKS
	__ __ __ MONTHS
	__ __ __ DAYS
Q85. Do you plan on having sex with this person again in the future?	8 Don't Know
	7 Refuse to Answer
	2 No
	1 Yes

Q86. The last time you had sex with this partner, what did you know or believe this persons HIV status to be? (Choose one)	9 Not Applicable
	7 Refuse to Answer
	2 HIV Positive
	1 HIV Negative
Q87. The last time you had sex with this partner, did you use a condom?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q88. Is this partner biologically female or male? (Choose one)	2 Biological Male
	1 Biological female
Q89. IF FEMALE PARTNER: During the past 6 months, how many times did you have vaginal intercourse with this person?	999 Not Applicable
	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of times
Q90. IF FEMALE PARTNER: How many of those [Response to Q89] times that you had vaginal sex did you NOT use a condom?	999 Not Applicable
	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of times
Q91. IF FEMALE PARTNER: How many of those [Response to Q90] times that you had vaginal intercourse without a condom were you high or drunk?	999 Not Applicable
	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of times
Q92. IF FEMALE PARTNER: During the past 6 months, how many times did you have anal intercourse with this person?	999 Not Applicable
	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of times
Q93. IF FEMALE PARTNER: How many of those [Response to Q92] times that you had anal intercourse was a condom NOT used?	999 Not Applicable
	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of times
Q94. IF FEMALE PARTNER: How many of those [Response to Q93] times that you had anal sex without a condom were you high or drunk?	999 Not Applicable
	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of times
Q95. IF FEMALE PARTNER: The last time you had sex (vaginal or anal) with this person was a condom used?	9 Not Applicable
	8 Don't Know
	7 Refuse to Answer
	2 No
	1 Yes

Q96. IF FEMALE PARTNER: Could you tell me why a condom was not used?	__ Use Other Contraceptives
	__ Trust Partner
	__ Refuse to Answer
	__ Partner Refused
	__ Other
	__ No Condom Available
	__ My partner is faithful
	__ I Am Married
	__ I Am Faithful
	__ Don't Know
	__ Condom Reduces Sexual Pleasure
Q98. IF FEMALE PARTNER: Could you tell me why a condom a condom was used?	__ Saw or heard messages/campaign about using condoms
	__ Refuse to Answer
	__ Prevent STI/HIV
	__ Prevent Pregnancy
	__ Other
	__ Don't Know
	__ Do Not Trust Partner
Q100. Did this partner give you the coupon you brought in today?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q101. To the best of your knowledge, does this partner also have sex with women? (Choose one)	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	4 No, he probably does not
	3 No, I know he does not
	2 Yes, he probably does
	1 Yes, I know he does
Q102. To the best of your knowledge, was this partner circumcised?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q103. IF MALE PARTNER: During the past 6 months, how many times did you have INSERTIVE anal	999 Not Applicable
	998 Don't Know
	997 Refuse to Answer

intercourse with this person, where you put your penis in his anus?	__ __ __ number of times
Q104. IF MALE PARTNER: How many of those [Response to Q103] times that you had INSERTIVE anal intercourse, was a condom not used?	999 Not Applicable
	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of times
Q105. IF MALE PARTNER: How many of those [Response to Q104] times that you had INSERTIVE anal intercourse without a condom were you high or drunk?	999 Not Applicable
	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of times
Q106. IF MALE PARTNER: During the past 6 months, how many times did you have RECEPTIVE anal intercourse with this person, where he puts his penis in your anus?	999 Not Applicable
	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of times
Q107. IF MALE PARTNER: How many of those [Response to Q106] times that you had RECEPTIVE anal intercourse, was a condom NOT used?	999 Not Applicable
	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of times
Q108. IF MALE PARTNER: How many of those [Response to Q107] times that you had RECEPTIVE anal intercourse without a condom were you high or drunk?	999 Not Applicable
	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of times
Q109. IF MALE PARTNER: The last time you had anal sex (INSERTIVE OR RECEPTIVE) with this person was a condom used?	9 Not Applicable
	8 Don't Know
	7 Refuse to Answer
	2 No
	1 Yes
Q110. IF MALE PARTNER: Could you tell me why a condom was NOT used?	__ Use Other Contraceptives
	__ Trust Partner
	__ Refuse to Answer
	__ Partner Refused
	__ Other
	__ Not Applicable
	__ No Condom Available
	__ My partner is faithful
	__ I Am Married
	__ I Am Faithful
	__ Don't Know
	__ Condom Reduces Sexual Pleasure

Q112. IF MALE PARTNER: Could you tell me why a condom was used? (Check all that apply)	__ Saw or heard messages/campaign about using condoms
	__ Refuse to Answer
	__ Prevent STI/HIV
	__ Prevent Pregnancy
	__ Other
	__ Don't Know
	__ Do Not Trust Partner
Q114. Who suggested a condom be used? (Choose one)	8 Refuse to Answer
	7 Don't Know
	3 We both did
	2 My partner did
	1 I did
Q115. Did you ONLY have oral sex with this partner in the past 6 months?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
***Repeat questions Q74 to Q115 for each partner, then continue at question Q281**	
Q281. Have you ever had vaginal sex?	7 Refuse to Answer
	2 No
	1 Yes
Q282. At what age did you first have vaginal sex?	98 Don't Know
	97 Refuse to Answer
	__ __ age
Q283. Have you ever had anal sex? (where a person puts his penis in your anus)	7 Refuse to Answer
	2 No
	1 Yes
Q284. At what age did you first have anal sex?	98 Don't Know
	97 Refuse to Answer
	__ __ age
Q285. Have you ever had insertive anal intercourse?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q286. Have you ever had receptive anal intercourse?	8 Refuse to Answer
	7 Don't Know

	1 Yes
	0 No
Q287. At what age did you first receive money for sex?	98 Refuse to Answer
	97 Don't Know
	__ __
Q288. What were the reasons that led you to exchange sex for money the first time?	__ So that I can have extra money to buy material things I want
	__ Refuse to Answer
	__ Other (specify)
	__ It pays well/you can make a lot of money
	__ I was forced/pressured into it
	__ I was encouraged by friends/people I know
	__ I was abandoned by my parents/siblings
	__ I was abandoned by my husband
	__ I needed money
	__ I like it/for pleasure
	__ I grew up around people who did sex work
	__ I didn't have any other job
	__ Don't Know
	__ Because I am an orphan/I don't have a mother or father?
Q290. In the last 3 months, how many (non-client) men have you had vaginal or anal sex with? If you cannot remember the exact number, please give me an estimate.	9998 Don't Know
	9997 Refuse to Answer
	__ __ __ __ number of partners
Q291. Of these [Response to Q290] partners in the last three months, how many did you NOT use a condom with?	9999 Not Applicable
	9998 Refuse to Answer
	9997 Don't Know
Q292. In the last 3 months, from how many men did you receive money in exchange for sex (vaginal or anal)? If you don't remember, give me your best estimate.	9999 Not Applicable
	9998 Don't Know
	9997 Refuse to Answer
Q293. Of these [Response to Q292] partners in the last 3 months, how many did you not use a condom with?	9998 Don't Know
	9997 Refuse to Answer
	__ __ __ __ number of partners
Q294. Of these [Response to Q292] partners, how many have you had sex with only once?	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of partners

Q295. How much money do you typically receive when you exchange money for sex (in NAD)?	99998 Refuse to Answer
	99997 Don't Know
	__ __ __ __ __ number of partners
Q296. The last time you received that amount, what service(s) did you provide? READ ANSWERS, RECORD ALL MENTIONED (Check all that apply)	__ Vaginal sex
	__ Short term (hours or less) companionship
	__ Refuse to Answer
	__ Oral sex
	__ Long term (i.e.: night/weekend) companionship
	__ Don't Know
	__ Anal sex
Q297. In the past three months, did you do any other type of work to receive money/income?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q298. What is the main occupation or activity through which you earned this other income? (Choose one)	98 Refuse to Answer
	97 Don't Know
	15 Other
	14 Teacher
	13 Taxi driver/truck driver
	12 Street vendor/Casual laborer
	11 Shop worker/retail-worker/staff
	10 Sex work
	09 Professional/Banker/Accountant/business owner
	08 Police officer/security guard/military
	07 Beautician/Masseuse/Performer
	06 Fisherman/Seafarer
	05 Farming/agricultural worker
	04 Factory worker
	03 Construction worker
	01 Not employed
Q299. What is your main occupation or income generating activity?	Other:_____
Q300. Where do you normally go to find clients? DO NOT READ ANSWERS, RECORD ONLY ONE (Choose one)	98 Don't Know
	97 Refuse to Answer
	12 Other (specify)
	11 a real/general hotel

	10 Dating service or newspaper advertisements
	09 truck stop/border crossing
	08 Private party or social club
	07 Through an intermediary (pimp, bartender, taxi driver, security guard)
	06 work or school
	05 Internet (e.g. facebook) chat, or SMS
	04 Dating sites
	03 Introduced by friends
	02 Street, park, library, public transit
	01 bar, cafe, disco, shebeen, restaurant
	00 brothel/hotel
Q301. Where do you normally go to find clients?	Other
Q302. How many venues do you go to to find clients? (Choose one)	8 Refuse to Answer
	7 Don't Know
	3 I have three or more venues
	2 I have two venues
	1 I have one venue
	0 I don't go to venues
Q303. What is the name of the venue you go to most frequently to find clients (Write-in response)?	.
Q304. In the past 30 days, how often did you attend this venue? (Choose one)	8 Refuse to Answer
	7 Don't Know
	5 26+ times
	4 21-25 times
	3 16-20 times
	2 11-15 times
	1 6-10 times
	0 1-5 times
Q305. In the past 30 days (since [PAST30D]), how many paying (i.e. client) partners have you had either vaginal, oral, or anal sex with?	99998 Refuse to Answer
	99997 Don't Know
Q306. In the past 30 days (since [PAST30D]), how many non-paying (i.e. non-client) partners have you had either vaginal, oral, or anal sex with?	99998 Refuse to Answer
	99997 Don't Know
Q307. How old is this person? (Best estimate if you dont know)	__ __ age
Q308. What is the nationality of this person? (Choose one)	8 Refuse to Answer
	7 Don't Know

	1 Other (specify)
	0 Namibian
Q310. What was your relationship with this person? Read answers, record only one (Choose one)	8 Don't Know
	7 Refuse to Answer
	2 Hit and run (one night stand)
	1 Occassional (see regularly, but casually)
	0 Permanent/Main (boyfriend/husband who pays for sex)
Q311. Where or how did you find this person?	99 Not Applicable
	98 Don't Know
	97 Refuse to Answer
	12 Other (specify)
	11 a real/general hotel
	10 Dating service or newspaper advertisements
	09 truck stop/border crossing
	08 Private party or social club
	07 Through an intermediary (pimp, bartender, taxi driver, security guard)
	06 work or school
	05 Internet (e.g. facebook) chat, or SMS
	04 Dating sites
	03 Introduced by friends
	02 Street, park, library, public transit
	01 bar, cafe, disco, shebeen, restaurant
	00 brothel/hotel
Q313. What was the gender of this person? (Choose one)	8 Refuse to Answer
	7 Don't Know
	3 Transgender Female
	2 Transgender Male
	1 Female
	0 Male
Q314. When did you first have sex with this person?	__ __ __ YEARS
	__ __ __ WEEKS
	__ __ __ MONTHS
Q315. When did you last have sex with this person?	__ __ __ __ WEEKS
	__ __ __ __ MONTHS
	__ __ __ __ DAYS
	8 Refuse to Answer

Q316. The last time you had sex with this person did you use a barrier (male condom, female condom, dental dam)?	7 Don't Know
	1 Yes
	0 No
Q317. Do you plan on having sex with this person again in the future?	8 Don't Know
	7 Refuse to Answer
	2 No
	1 Yes
Q318. What did you know or believe this persons HIV status to be? (Interviewer: Participant should try and answer positive or negative - have them think about it. Only respond "don't know" if participant truly doesn't know). (Choose one)	8 Don't Know
	7 Refuse to Answer
	2 HIV Positive
	1 HIV Negative
Q319. During the past 30 days, how many times did you have vaginal intercourse with this person?	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of times
Q320. How many of those [Response to Q319] times that you had vaginal intercourse, did you NOT use a male or female condom?	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of times
Q321. How many of those [Response to Q320] times that you had vaginal intercourse and did not use a condom were you high or drunk?	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of times
Q322. During the past 30 days, how many times did you have anal intercourse with this person?	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of times
Q323. How many of those [Response to Q322] times that you had anal intercourse, did you NOT use a male or female condom?	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of times
Q324. How many of those [Response to Q323] times that you had anal intercourse and did not use a condom were you high or drunk?	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of times
Q325. The last time you had sex (vaginal or anal) with this person was a condom used?	8 Don't Know
	7 Refuse to Answer
	2 No
	1 Yes
Q326. Who suggested condom use? (Choose one)	8 Don't Know
	7 Refuse to Answer
	2 Partner did
	1 I did
	__ Use Other Contraceptives

Q327. Could you tell me why you did not use a condom?	__ Trust Partner
	__ Refuse to Answer
	__ Partner Refused
	__ Other
	__ No Condom Available
	__ My partner is faithful
	__ I Am Married
	__ I Am Faithful
	__ Don't Know
	__ Condom Reduces Sexual Pleasure
Q329. Could you tell me why you used a condom?	__ Saw or heard messages/campaign about using condoms
	__ Refuse to Answer
	__ Prevent STI/HIV
	__ Prevent Pregnancy
	__ Other
	__ Don't Know
	__ Do Not Trust Partner
Q331. The last time you had sex with this individual, how much money did this client give you in exchange for sex?	9999 Not Applicable
	9998 Don't Know
	9997 Refuse to Answer
	__ __ __ __ ZAR
Q332. How old is this person? (Best estimate if you dont know)	__ __ age
Q333. What is the nationality of this person? (Choose one)	8 Refuse to Answer
	7 Don't Know
	1 Other (specify)
	0 Namibian
Q335. What was your relationship with this person? Read answers, record only one (Choose one)	8 Don't Know
	7 Refuse to Answer
	2 Hit and run (one night stand)
	1 Occassional (see regularly, but casually)
	0 Permanent/Main (boyfriend/husband who pays for sex)
Q336. Where or how did you find this person?	99 Not Applicable
	98 Don't Know
	97 Refuse to Answer
	12 Other (specify)
	11 a real/general hotel

	10 Dating service or newspaper advertisements
	09 truck stop/border crossing
	08 Private party or social club
	07 Through an intermediary (pimp, bartender, taxi driver, security guard)
	06 work or school
	05 Internet (e.g. facebook) chat, or SMS
	04 Dating sites
	03 Introduced by friends
	02 Street, park, library, public transit
	01 bar, cafe, disco, shebeen, restaurant
	00 brothel/hotel
Q338. What was the gender of this person? (Choose one)	8 Refuse to Answer
	7 Don't Know
	3 Transgender Female
	2 Transgender Male
	1 Female
	0 Male
Q339. When did you first have sex with this person?	__ __ __ YEARS
	__ __ __ WEEKS
	__ __ __ MONTHS
Q340. When did you last have sex with this person?	__ __ __ __ WEEKS
	__ __ __ __ MONTHS
	__ __ __ __ DAYS
Q341. The last time you had sex with this person did you use a barrier (male condom, female condom, dental dam)?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q342. Do you plan on having sex with this person again in the future?	8 Don't Know
	7 Refuse to Answer
	2 No
	1 Yes
Q343. What did you know or believe this persons HIV status to be? (Interviewer: Participant should try and answer positive or negative - have them think about it. Only respond "don't know" if participant truly doesn't know). (Choose one)	8 Don't Know
	7 Refuse to Answer
	2 HIV Positive
	1 HIV Negative
Q344. During the past 30 days, how many times did you have vaginal intercourse with this person?	998 Don't Know
	997 Refuse to Answer

	__ __ __ number of times
Q345. How many of those [Response to Q344] times that you had vaginal intercourse, did you NOT use a male or female condom?	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of times
Q346. How many of those [Response to Q345] times that you had vaginal intercourse and did not use a condom were you high or drunk?	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of times
Q347. During the past 30 days, how many times did you have anal intercourse with this person?	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of times
Q348. How many of those [Response to Q347] times that you had anal intercourse, did you NOT use a male or female condom?	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of times
Q349. How many of those [Response to Q348] times that you had anal intercourse and did not use a condom were you high or drunk?	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of times
Q350. The last time you had sex (vaginal or anal) with this person was a condom used?	8 Don't Know
	7 Refuse to Answer
	2 No
	1 Yes
Q351. Who suggested condom use? (Choose one)	8 Don't Know
	7 Refuse to Answer
	2 Partner did
	1 I did
Q352. Could you tell me why you did not use a condom?	__ Use Other Contraceptives
	__ Trust Partner
	__ Refuse to Answer
	__ Partner Refused
	__ Other
	__ No Condom Available
	__ My partner is faithful
	__ I Am Married
	__ I Am Faithful
	__ Don't Know
	__ Condom Reduces Sexual Pleasure
Q354. Could you tell me why you used a condom?	__ Saw or heard messages/campaign about using condoms
	__ Refuse to Answer
	__ Prevent STI/HIV

	__ Prevent Pregnancy
	__ Other
	__ Don't Know
	__ Do Not Trust Partner
Q356. The last time you had sex with this individual, how much money did this client give you in exchange for sex?	9999 Not Applicable
	9998 Don't Know
	9997 Refuse to Answer
	__ __ __ __ ZAR
Q357. How old is this person? (Best estimate if you dont know)	__ __ age
Q358. What is the nationality of this person? (Choose one)	8 Refuse to Answer
	7 Don't Know
	1 Other (specify)
	0 Namibian
Q360. What was your relationship with this person? Read answers, record only one (Choose one)	8 Don't Know
	7 Refuse to Answer
	2 Hit and run (one night stand)
	1 Occassional (see regularly, but casually)
	0 Permanent/Main (boyfriend/husband who pays for sex)
Q361. Where or how did you find this person?	98 Don't Know
	97 Refuse to Answer
	12 Other (specify)
	11 a real/general hotel
	10 Dating service or newspaper advertisements
	09 truck stop/border crossing
	08 Private party or social club
	07 Through an intermediary (pimp, bartender, taxi driver, security guard)
	06 work or school
	05 Internet (e.g. facebook) chat, or SMS
	04 Dating sites
	03 Introduced by friends
	02 Street, park, library, public transit
	01 bar, cafe, disco, shebeen, restaurant
	00 brothel/hotel
Q363. What was the gender of this person? (Choose one)	8 Refuse to Answer
	7 Don't Know
	3 Transgender Female

	2 Transgender Male
	1 Female
	0 Male
Q364. When did you first have sex with this person?	__ __ __ YEARS
	__ __ __ WEEKS
	__ __ __ MONTHS
Q365. When did you last have sex with this person?	__ __ __ __ WEEKS
	__ __ __ __ MONTHS
	__ __ __ __ DAYS
Q366. The last time you had sex with this person did you use a barrier (male condom, female condom, dental dam)?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q367. Do you plan on having sex with this person again in the future?	8 Don't Know
	7 Refuse to Answer
	2 No
	1 Yes
Q368. What did you know or believe this persons HIV status to be? (Interviewer: Participant should try and answer positive or negative - have them think about it. Only respond "don't know" if participant truly doesn't know). (Choose one)	8 Don't Know
	7 Refuse to Answer
	2 HIV Positive
	1 HIV Negative
Q369. During the past 30 days, how many times did you have vaginal intercourse with this person?	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of times
Q370. How many of those [Response to Q369] times that you had vaginal intercourse, did you NOT use a male or female condom?	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of times
Q371. How many of those [Response to Q370] times that you had vaginal intercourse and did not use a condom were you high or drunk?	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of times
Q372. During the past 30 days, how many times did you have anal intercourse with this person?	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of times
Q373. How many of those [Response to Q372] times that you had anal intercourse, did you NOT use a male or female condom?	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of times
	998 Don't Know
	997 Refuse to Answer

Q374. How many of those [Response to Q373] times that you had anal intercourse and did not use a condom were you high or drunk?	__ __ __ number of times
Q375. The last time you had sex (vaginal or anal) with this person was a condom used?	8 Don't Know
	7 Refuse to Answer
	2 No
	1 Yes
Q376. Who suggested condom use? (Choose one)	8 Don't Know
	7 Refuse to Answer
	2 Partner did
	1 I did
Q377. Could you tell me why you did not use a condom?	__ Use Other Contraceptives
	__ Trust Partner
	__ Refuse to Answer
	__ Partner Refused
	__ Other
	__ No Condom Available
	__ My partner is faithful
	__ I Am Married
	__ I Am Faithful
	__ Don't Know
	__ Condom Reduces Sexual Pleasure
Q379. Could you tell me why you used a condom?	__ Saw or heard messages/campaign about using condoms
	__ Refuse to Answer
	__ Prevent STI/HIV
	__ Prevent Pregnancy
	__ Other
	__ Don't Know
	__ Do Not Trust Partner
Q381. The last time you had sex with this individual, how much money did this client give you in exchange for sex?	9999 Not Applicable
	9998 Don't Know
	9997 Refuse to Answer
	__ __ __ __ ZAR
Q382. How old is this person? (Best estimate if you dont know)	__ __ age
Q383. What is the nationality of this person? (Choose one)	8 Refuse to Answer
	7 Don't Know
	1 Other (specify)

	0 Namibian
Q385. What was your relationship with this person? Read answers, record only one (Choose one)	8 Don't Know
	7 Refuse to Answer
	2 Hit and run (one night stand)
	1 Occassional (see regularly, but casually)
	0 Permanent/Main (boyfriend/husband)
Q386. Where or how did you find this person?	98 Don't Know
	97 Refuse to Answer
	12 Other (specify)
	11 a real/general hotel
	10 Dating service or newspaper advertisements
	09 truck stop/border crossing
	08 Private party or social club
	07 Through an intermediary (pimp, bartender, taxi driver, security guard)
	06 work or school
	05 Internet (e.g. facebook) chat, or SMS
	04 Dating sites
	03 Introduced by friends
	02 Street, park, library, public transit
	01 bar, cafe, disco, shebeen, restaurant
	00 brothel/hotel
Q388. What was the gender of this person? (Choose one)	8 Refuse to Answer
	7 Don't Know
	3 Transgender Female
	2 Transgender Male
	1 Female
	0 Male
Q389. When did you first have sex with this person?	__ __ __ YEARS
	__ __ __ WEEKS
	__ __ __ MONTHS
Q390. When did you last have sex with this person?	__ __ __ __ WEEKS
	__ __ __ __ MONTHS
	__ __ __ __ DAYS
Q391. The last time you had sex with this person did you use a barrier (male condom, female condom, dental dam)?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No

Q392. Do you plan on having sex with this person again in the future?	8 Don't Know
	7 Refuse to Answer
	2 No
	1 Yes
Q393. What did you know or believe this persons HIV status to be? (Interviewer: Participant should try and answer positive or negative - have them think about it. Only respond "don't know" if participant truly doesn't know). (Choose one)	8 Don't Know
	7 Refuse to Answer
	2 HIV Positive
	1 HIV Negative
Q394. During the past 30 days, how many times did you have vaginal intercourse with this person?	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of times
Q395. How many of those [Response to Q394] times that you had vaginal intercourse, did you NOT use a male or female condom?	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of times
Q396. How many of those [Response to Q395] times that you had vaginal intercourse and did not use a condom were you high or drunk?	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of times
Q397. During the past 30 days, how many times did you have anal intercourse with this person?	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of times
Q398. How many of those [Response to Q397] times that you had anal intercourse, did you NOT use a male or female condom?	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of times
Q399. How many of those [Response to Q398] times that you had anal intercourse and did not use a condom were you high or drunk?	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of times
Q400. The last time you had sex (vaginal or anal) with this person was a condom used?	8 Don't Know
	7 Refuse to Answer
	2 No
	1 Yes
Q401. Who suggested condom use? (Choose one)	8 Don't Know
	7 Refuse to Answer
	2 Partner did
	1 I did
Q402. Could you tell me why you did not use a condom?	__ Use Other Contraceptives
	__ Trust Partner
	__ Refuse to Answer
	__ Partner Refused

	__ Other
	__ No Condom Available
	__ My partner is faithful
	__ I Am Married
	__ I Am Faithful
	__ Don't Know
	__ Condom Reduces Sexual Pleasure
Q404. Could you tell me why you used a condom?	__ Saw or heard messages/campaign about using condoms
	__ Refuse to Answer
	__ Prevent STI/HIV
	__ Prevent Pregnancy
	__ Other
	__ Don't Know
	__ Do Not Trust Partner
Q406. How old is this person? (Best estimate if you dont know)	__ __ age
Q407. What is the nationality of this person? (Choose one)	8 Refuse to Answer
	7 Don't Know
	1 Other (specify)
	0 Namibian
Q409. What was your relationship with this person? Read answers, record only one (Choose one)	8 Don't Know
	7 Refuse to Answer
	2 Hit and run (one night stand)
	1 Occassional (see regularly, but casually)
	0 Permanent/Main (boyfriend/husband who pays for sex)
Q410. Where or how did you find this person?	99 Not Applicable
	98 Don't Know
	97 Refuse to Answer
	12 Other (specify)
	11 a real/general hotel
	10 Dating service or newspaper advertisements
	09 truck stop/border crossing
	08 Private party or social club
	07 Through an intermediary (pimp, bartender, taxi driver, security guard)
	06 work or school
	05 Internet (e.g. facebook) chat, or SMS

	04 Dating sites
	03 Introduced by friends
	02 Street, park, library, public transit
	01 bar, cafe, disco, shebeen, restaurant
	00 brothel/hotel
Q412. What was the gender of this person? (Choose one)	8 Refuse to Answer
	7 Don't Know
	3 Transgender Female
	2 Transgender Male
	1 Female
	0 Male
Q413. When did you first have sex with this person?	__ __ __ YEARS
	__ __ __ WEEKS
	__ __ __ MONTHS
Q414. When did you last have sex with this person?	__ __ __ WEEKS
	__ __ __ MONTHS
	__ __ __ DAYS
Q415. The last time you had sex with this person did you use a barrier (male condom, female condom, dental dam)?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q416. Do you plan on having sex with this person again in the future?	8 Don't Know
	7 Refuse to Answer
	2 No
	1 Yes
Q417. What did you know or believe this persons HIV status to be? (Interviewer: Participant should try and answer positive or negative - have them think about it. Only respond "don't know" if participant truly doesn't know). (Choose one)	8 Don't Know
	7 Refuse to Answer
	2 HIV Positive
	1 HIV Negative
Q418. During the past 30 days, how many times did you have vaginal intercourse with this person?	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of times
Q419. How many of those [Response to Q418] times that you had vaginal intercourse, did you NOT use a male or female condom?	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of times
Q420. How many of those [Response to Q419] times that you had vaginal intercourse and did not use a condom were you high or drunk?	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of times

Q421. During the past 30 days, how many times did you have anal intercourse with this person?	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of times
Q422. How many of those [Response to Q421] times that you had anal intercourse, did you NOT use a male or female condom?	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of times
Q423. How many of those [Response to Q422] times that you had anal intercourse and did not use a condom were you high or drunk?	998 Don't Know
	997 Refuse to Answer
	__ __ __ number of times
Q424. The last time you had sex (vaginal or anal) with this person was a condom used?	8 Don't Know
	7 Refuse to Answer
	2 No
	1 Yes
Q425. Who suggested condom use? (Choose one)	8 Don't Know
	7 Refuse to Answer
	2 Partner did
	1 I did
Q426. Could you tell me why you did not use a condom?	__ Use Other Contraceptives
	__ Trust Partner
	__ Refuse to Answer
	__ Partner Refused
	__ Other
	__ No Condom Available
	__ My partner is faithful
	__ I Am Married
	__ I Am Faithful
	__ Don't Know
	__ Condom Reduces Sexual Pleasure
Q428. Could you tell me why you used a condom?	__ Saw or heard messages/campaign about using condoms
	__ Refuse to Answer
	__ Prevent STI/HIV
	__ Prevent Pregnancy
	__ Other
	__ Don't Know
	__ Do Not Trust Partner
Q430. *Interviewer: Participant has not listed any male sexual partners for his previous 5 partners.	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know

Please ask: "Have you had any male sexual partners (anal or oral) in the previous 6 months?	1 Yes
	0 No
Q431. Do you find male condoms to be very affordable, somewhat affordable, or not affordable? (Choose one)	8 Refuse to Answer
	7 Don't Know
	3 Not affordable
	2 Somewhat affordable
	1 Very affordable
Q432. Do you find it very easy, somewhat easy, or not easy to obtain male condoms? (Choose one)	8 Refuse to Answer
	7 Don't Know
	3 Not easy
	2 Somewhat easy
	1 Very easy
Q433. Where do you usually get male condoms?	__ Shop/supermarket
	__ Shabeen or bar
	__ Sex partner
	__ Service station
	__ Refuse to Answer
	__ Private hospital or clinic
	__ Pharmacy/chemist/drug store
	__ Peer educator or a Non-Government Organization (NGO)
	__ Other
	__ Neighborhood market/stand/kiosk
	__ Mobile clinic or mobile outreach
	__ HIV counseling and Testing Site (VCT site)
	__ Government hospital/clinic/health centre
	__ Friends
	__ Family planning clinic
	__ Don't Know
Q434. Where do you usually get male condoms? -	Other
Q435. In the last 30 days when you had sexual intercourse, did you or your partner ever put the condom on after you already started having sex?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q436. In the last 30 days when you had sexual intercourse, did you or your partner ever take the condom off before you were finished having sex?	8 Refuse to Answer
	7 Don't Know
	1 Yes

	0 No
Q437. In the last 30 days when you had sexual intercourse, did the condom ever break/leak during sex or while pulling out?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q438. In the last 30 days when you had sexual intercourse, did the condom ever slip off during sex or while pulling out?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q439. In the last 6 months when you had sexual intercourse, did you or your partner ever put the condom on after you already started having sex?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q440. In the last 6 months when you had sexual intercourse, did you or your partner ever take the condom off before you were finished having sex?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q441. In the last 6 months when you had sexual intercourse, did the condom ever break/leak during sex or while pulling out?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q442. In the last 6 months when you had sexual intercourse, did the condom ever slip off during sex or while pulling out?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q443. Have you ever heard of a female condom?	8 Refuse to Answer
	7 Don't Know
	0 No
	1 Yes
Q444. Have you ever used a female condom?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q445. Where can you usually get female condoms?	__ Shop/Supermarket
	__ Shabeen or bar
	__ Sex partner
	__ Service station
	__ Refuse to Answer
	__ Private hospital or clinic

	__ Pharmacy/chemist/drug store
	__ Peer educator or a Non-Government Organization (NGO)
	__ Other (Specify)
	__ Neighborhood market/stand/kiosk
	__ Mobile clinic or mobile outreach
	__ HIV counseling and testing site (VCT site)
	__ Government hospital/clinic/health centre
	__ Friends
	__ Family plannign clinic
	__ Don't Know
Q446. Where can you usually get female condoms?	Other:
Q447. How often do you use female condoms? (Choose one)	8 Refuse to Answer
	7 Don't Know
	3 Rarely
	2 Sometimes
	1 Usually
	0 Always
Q448. What DO you like about the female condom? DO NOT READ ANSWERS, RECORD ALL MENTIONED (Check all that apply)	__ Refuse to Answer
	__ More lubrication than male condoms
	__ Less likely to break or slip
	__ Don't Know
	__ Can use while menstrating
	__ Can use it if partner does not like male condoms
	__ Can put on without partner knowing
	__ Can put it on myself
Q449. What DONT you like about the female condom? DO NOT READ ANSWERS, RECORD ALL MENTIONED (Check all that apply)	__ Too expensive
	__ Refuse to Answer
	__ Other (specify)
	__ Not comfortable
	__ Makes too much noise
	__ Looks ugly/weird
	__ Don't Know
	__ Difficult to insert
	__ Clients don't like it
Q450. What DONT you like about the female condom?	Other (specify)
	8 Refuse to Answer

Q451. How often do you use lubricant during vaginal or anal sex?	7 Don't Know
	5 Never
	4 Rarely
	3 Sometimes
	2 Usually
	1 Always
Q452. What type of lubricant do you usually use?	__ Water-based
	__ Vaseline
	__ Soap
	__ Silicone-based
	__ Saliva or water
	__ Refuse to Answer
	__ Other oil
	__ Other (specify)
	__ Lotion
	__ Glycerin
	__ Don't Know
	__ Cooking oil/sunflower oil
	__ Baby oil
Q453. What type of lubricant do you usually use? -	Other
Q454. Do you know what water-based lubricant is?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q455. How often do you use water-based lube with condoms for anal sex? (Choose one)	8 Refuse to Answer
	7 Don't Know
	5 Never
	4 Rarely
	3 Sometimes
	2 Usually
	1 Always
Q456. How easy would you say it is to obtain water-based lubricants?	8 Refuse to Answer
	7 Don't Know
	3 Not easy
	2 Somewhat easy
	1 Very easy
Q457. Where can somebody obtain water-based lubricants?	__ Shop/supermarket
	__ Shabeen or bar

	__ Sexual partner
	__ Service station
	__ Refuse to Answer
	__ Private hospital or clinic
	__ Pharmacy/pharmacist
	__ Peer educator or NGO
	__ Other (specify)
	__ Mobile clinic or mobile outreach
	__ HIV testing and counseling site (VCT)
	__ Government hospital/clinic
	__ Friends
	__ Family planning clinic
	__ Don't Know
	__ Community market/setup/shop
Q458. Where can somebody obtain water-based lubricants?-	Other
Q459. Apart from HIV, have you heard about other infections that can be transmitted through sex?	7 Refuse to Answer
	2 No
	1 Yes
Q460. How would a person know that he or she had a sexually transmitted infection?	__ Would not have any symptoms
	__ Unusual genital discharge/leaking
	__ Refuse to Answer
	__ Rectal pain
	__ Other (specify)
	__ Lower abdominal pain
	__ Loss of weight
	__ Genital warts
	__ Genital or anal sores/ulcers
	__ Don't Know
	__ Burning pain on urination
	__ Blood in urine
	__ Anal discharge
Q462. In the last 12 months has a doctor or a medical professional told you that you had a sexually transmitted infection?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q463. Sometimes men experience an abnormal discharge from their penis. During the last 12	8 Don't Know
	7 Refuse to Answer

months, have you had an abnormal discharge from your penis?	2 No
	1 Yes
Q464. When did you last have abnormal discharge from your penis?	2099 Not Applicable (Year)
	2098 Refuse to Answer (Year)
	2097 Don't Know (Year)
	__ __ / __ __ __ __ mm / yyyy
Q465. Did you seek treatment for this penile discharge?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q466. Why did you NOT seek treatment?	__ Unable to get transportation
	__ Refuse to Answer
	__ Other (specify)
	__ Embarrased or afraid to seek treatment
	__ Don't Know
	__ Didn't think I needed it
	__ Didn't know where to go for treatment
	__ Didn't have enough time
	__ Could not afford treatment
Q467. Why did you NOT seek treatment? -	Other
Q468. What treatment(s) did you receive?	__ Tablets
	__ Refuse to Answer
	__ Other (Specify)
	__ Don't Know
	__ Cream
Q469. Sometimes men have a sore or ulcer on or near their penis or anus. In the last 12 months, have you had a sore or ulcer on or near your penis or anus?	8 Don't Know
	7 Refuse to Answer
	2 No
	1 Yes
Q470. When did you have a sore or ulcer on or near your penis or anus?	2099 Not Applicable (Year)
	2098 Refuse to Answer (Year)
	2097 Don't Know (Year)
	__ __ / __ __ __ __ mm / yyyy
Q471. Did you seek treatment for this sore or ulcer?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
	__ Unable to get transportation
	__ Refuse to Answer

Q472. Why did you NOT seek treatment?	__ Other (Specify)
	__ Embarrased or afraid to seek treatment
	__ Don't Know
	__ Didn't think I needed it
	__ Didn't know where to go for treatment
	__ Could not afford treatment
Q473. Why did you NOT seek treatment? -	Other
Q474. What treatment(s) did you receive?	__ Tablets
	__ Refuse to Answer
	__ Other (Specify)
	__ Don't Know
	__ Cream
Q476. Where did you seek treatment the last time you had discharge, a sore or ulcer?	__ Traditional healer/herbalist
	__ Refuse to Answer
	__ Private pharmacy or chemist
	__ Private Clinic
	__ Other
	__ Not Applicable
	__ Medicine or herbs from home
	__ Government clinic
	__ Don't Know
Q478. Why did you choose to get treatment from this source/these sources?	__ Refuse to Answer
	__ Recommended by a friend or acquaintence
	__ Quality and/or specialized care given at this place
	__ Proximity/location
	__ Other
	__ Knows the caregivers
	__ Known friendliness of the caregivers
	__ Don't Know
	__ Confidentiality
	__ Affordability
Q479. Why did you choose to get treatment from this source/these sources? -	Other
Q480. When you met with this health care provider, did they ask about your sexual history?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes

	0 No
Q481. The last time you received treatment for any symptom of an STI or had a diagnosis for an STI, did you tell the health care provider that you have sex with other men?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q482. Why did you NOT tell the health care provider that you have sex with other men?	__ Shy/embarrased
	__ Refuse to Answer
	__ Provider already knew
	__ Other (specify)
	__ Little or no contact/interaction with provider
	__ Don't Know
	__ Did not feel it was necessary to discuss
	__ Afraid provider would tell police/legal authorities
	__ Afraid provider would not keep my information confidential
	__ Afraid provider would not give treatment
	__ Afraid provider would discriminate
Q484. Did you feel that the health care provider reacted to you in a negative or discriminatory manner because you have sex with other men?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q485. What did the health care provider do to make you feel this way?	__ Was very uncomfortable discussing
	__ Verbally abused or scolded me
	__ Stopped talking to me
	__ Refuse to Answer
	__ Other (specify)
	__ Don't Know
	__ Asked me to leave
Q487. Overall, how satisfied were you with how the health care provider treated you during this last visit?	8 Don't Know
	7 Refuse to Answer
	3 Not satisfied
	2 Somewhat Satisfied
	1 Very satisfied
Q488. Sometimes women experience an abnormal discharge from their vagina. During the last 12	8 Don't Know
	7 Refuse to Answer

months, have you had an abnormal discharge from your vagina?	2 No
	1 Yes
Q489. Sometimes women have a sore or ulcer on or near their vagina. During the last 12 months, have you had a sore or ulcer on or near your vagina?	8 Don't Know
	7 Refuse to Answer
	2 No
	1 Yes
Q490. IF HAD DISCHARGE, SORE OR ULCER: The last time you had this problem did you seek any kind of advice or treatment?	8 Don't Know
	7 Refuse to Answer
	2 No
	1 Yes
Q491. IF HAD DISCHARGE, SORE OR ULCER: The last time you had this problem where did you go? Any other place?	__ Traditional Doctor/Healer
	__ Religious Pastor/Healer
	__ Refuse to Answer
	__ Public Hospital/Clinic
	__ Private Clinic
	__ Pharmacy
	__ Other
	__ Don't Know
Q493. The last time you received treatment for any symptom of an STI or had a diagnosis for an STI, did you tell the healthcare provider that you are a sex worker?	8 Don't Know
	7 Refuse to Answer
	2 No
	1 Yes
Q494. IF HAD DISCHARGE, SORE OR ULCER: Did you notify any of your sexual partners of your STI problem? (Choose one)	8 Don't Know
	7 Refuse to Answer
	3 No, none of them
	2 Yes, some of them
	1 Yes, all of them
Q495. Can you tell me the name of the clinic or drop in center you last went to?	.
Q496. Why did you go there instead of somewhere else?	__ Refuse to Answer
	__ Recommended by friend or acquaintance
	__ Quality and/or specialized care given
	__ Proximity/location
	__ Other
	__ Knows the caregivers
	__ Known friendliness of the caregivers
	__ Don't Know
	__ Confidentiality

	__ Affordability
Q498. Did you receive any of the following services there?	__ Refuse to Answer
	__ Received lubricants
	__ Received condoms
	__ Psychosocial counseling
	__ PrEP
	__ Other
	__ Info on STI/HIV Prev/Transmission
	__ HIV testing
	__ Don't Know
	__ Counselling by a peer educator
	__ ART
Q500. Generally, where do you get your information about health or HIV? (Select all that apply) (Check all that apply)	__ Refuse to Answer
	__ I don't usually seek out this information
	__ From TV/billboard/magazines
	__ From prevention materials
	__ From my healthcare provider
	__ From friends/partners
	__ Don't Know
Q501. Can people reduce their chance of getting HIV by having just one uninfected sex partner who has no other sex partners?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q502. Can people get HIV from mosquito bites?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q503. Can people reduce their chance of getting HIV by using a condom every time they have sex?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q504. Can people get HIV by sharing food with a person who has HIV/AIDS?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No

Q505. Can people reduce their chance of getting HIV by not having sexual intercourse at all?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q506. Is it possible for a healthy-looking person to have HIV/AIDS?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q507. Have you heard about special drugs that people infected with HIV/AIDS can get from a doctor or nurse to help them live longer?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q508. Can the virus that causes AIDS be transmitted from a mother to her baby: A. During pregnancy?	2 No
	1 Yes
Q509. Can the virus that causes AIDS be transmitted from a mother to her baby: B. During delivery?	2 No
	1 Yes
Q510. Can the virus that causes AIDS be transmitted from a mother to her baby: C. By breastfeeding?	2 No
	1 Yes
Q511. How many men who have sex with men live in [Response to Q2]? WRITE-IN response	9999998 Refuse to Answer
	9999997 Don't Know
Q512. How many female sex workers live in [Response to Q2]? WRITE-IN response	9999998 Refuse to Answer
	9999997 Don't Know
Q513. How many transgender people live in [Response to Q2]? WRITE-IN response	9999998 Refuse to Answer
	9999997 Don't Know
Q514. Please name all places where one can get tested for HIV.	__ Work/employer
	__ School or university
	__ Refuse to Answer
	__ Private facility/clinic
	__ Other (Specify)
	__ Mobile counseling and testing outreach
	__ Government Hopsital/clinic/health centre
	__ Don't Know
	__ A Non Government Organization (NGO) (Specify)

Q516. Please name all places where one can get tested for HIV.	Other (Specify)
Q517. Have you been tested for HIV?	8 Don't Know
	7 Refuse to Answer
	2 No
	1 Yes
Q518. IF NOT TESTED: Why have you not had an HIV test?	__ Refuse to Answer
	__ Other (specify)
	__ Not at risk of getting HIV
	__ Lack of confidentiality
	__ Inconvenient testing location or hours
	__ I trust my partner
	__ I didn't have time/too busy
	__ I always use condoms
	__ Don't know where to go
	__ Don't Know
	__ Afraid of knowing I may be HIV positive
Q519. IF NOT TESTED: Why have you not had an HIV test?	Other
Q520. IF TESTED: What was the date of your last HIV test?	2098 Refuse to Answer (Year)
	2097 Don't Know (Year)
	__ __ / __ __ / __ __ __ __ mm / dd / yyyy
Q521. IF TESTED: Where was the last test done? (Check all that apply)	__ Work/employer
	__ School or university
	__ Refuse to Answer
	__ Private facility/Clinic
	__ Other (Specify)
	__ Mobile counseling and testing outreach
	__ Government hospital/clinic/health center
	__ Don't Know
	__ A Non-Government Organziation (NGO) (Specify)
Q523. IF TESTED: Where was the last test done?	Other
Q524. IF TESTED: For what reasons did you get this last test?	__ Wanted to start sexual relations with a new partner
	__ Wanted to know my HIV status
	__ Wanted to get married
	__ Refuse to Answer
	__ Other

	__ Needed loan/insurance
	__ My partner asked me to get tested
	__ I felt sick
	__ Employer requested the test
	__ Don't Know
	__ Advised by a peer educator
	__ Advised by a health worker
Q526. How many times have you tested for HIV in your life? (Choose one)	3 More than two times
	2 Two times
	1 One time
Q527. IF TESTED more than once: How frequently do you test for HIV? (Choose one)	3 Less frequently than once per year
	2 At least one time every year
	1 At least one time every 6 months
Q528. IF TESTED: What was the result of your most recent HIV test? (Choose one)	8 Don't Know
	7 Refuse to Answer
	4 Didnt get results
	3 Indeterminate
	2 Negative
	1 Positive
Q529. If you didn't get your result, why not? (Choose one)	8 Refuse to Answer
	7 Don't Know
	5 Other (Specify)
	4 The testing centre didn't have my result
	3 I was too scared
	2 I am not infected
	1 I didn't have time/too busy
Q530. If you didn't get your result, why not?	Other
Q531. IF POSITIVE: when was your first HIV positive test?	2098 Refuse to Answer (Year)
	2097 Don't Know (Year)
	__ __ / __ __ __ __ mm / yyyy
Q532. IF POSITIVE: when was your last HIV negative test? (select not applicable if never had an HIV-negative test)	2099 Not Applicable (Year)
	2098 Refuse to Answer (Year)
	2097 Don't Know (Year)
	__ __ / __ __ __ __ mm / yyyy
Q533. IF POSITIVE, What do you think your chances of transmitting HIV to a partner is? No chance, small, moderate or great chance? (Choose one)	8 Don't Know
	7 Refuse to Answer
	4 Great Chance
	3 Moderate Chance
	2 Small Chance

	1 No Chance
Q534. Why do you think you have no chance/small chance of transmitting HIV to a partner?	__ Use condoms
	__ Undetectable/virally suppressed
	__ Refuse to Answer
	__ Other(specificy)
	__ Never had anal sex
	__ I pull out before ejaculation
	__ I only have sex with other HIV-positive people
	__ I do not inject drugs with partners
	__ I am the "bottom" during anal sex
	__ Fidelity to partner/trust in partner
	__ Don't Know
	__ Currently abstaining from sex
Q536. Why do you think you have a moderate chance/great chance of transmitting HIV to a partner? DO NOT READ ANSWERS, RECORD ALL MENTIONED (Check all that apply)	__ Refuse to Answer
	__ Other (specify)
	__ Multiple partners
	__ Infidelity/don't trust partner
	__ I inject drugs with partners
	__ I have sex with HIV-negative people
	__ I have injuries/cuts
	__ I don't use condoms
	__ I don't pull out before ejaculation
	__ I am the "top" during anal sex
	__ High viral load count
	__ Don't Know
Q537. Why do you think you have a moderate chance/great chance of transmitting HIV to a partner?	Other (Specify)
Q538. What do you think are your chances of getting HIV? No chance, small, moderate or great chance? (Choose one)	8 Don't Know
	7 Refuse to Answer
	4 Great Chance
	3 Moderate Chance
	2 Small Chance
	1 No Chance
Q539. IF NOT POSITIVE: Why do you think that you have no chance/small chance of getting HIV?	__ Use condoms
	__ Refuse to Answer
	__ Other (specify)
	__ Never had anal sex

	__ Fidelity to Partner/Trust in The Partner
	__ Don't Know
	__ Currently Abstaining from Sex
Q541. IF NOT POSITIVE: Why do you think that you have a moderate or great chance of getting HIV?	__ Sex work
	__ Refuse to Answer
	__ Other (specify)
	__ Multiple partners
	__ I am injecting drugs
	__ Had injuries/cuts
	__ Don't use condoms
	__ Don't trust partner
	__ Don't Know
Q543. What do you think your HIV status is today? (Choose one)	8 Refuse to Answer
	7 Don't Know
	2 HIV Positive
	1 HIV Negative
Q544. Were you very satisfied, satisfied, a little satisfied, or not satisfied with the quality of services provided at the place where you got the last test? (Choose one)	8 Refuse to Answer
	7 Don't Know
	4 Not satisfied
	3 A little satisfied
	2 Satisfied
	1 Very satisfied
Q545. At any time during your most recent counseling and testing experience, did you reveal to the counselor or health care provider that you are a [SUBPOP]?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q546. When you met with this counsellor or health care provider, did they ask about your sexual history?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q547. Why did you not tell the counselor or health care provider that you are [SUBPOP]?	__ Refuse to Answer
	__ Provider already knew
	__ Other (specify):
	__ Little or no contact/interaction with counselor or provider
	__ Don't Know
	__ Did not feel it was necessary to discuss
	__ Afraid provider would tell police/legal authorities

	__ Afraid provider would not keep my information confidential
	__ Afraid provider would discriminate/not provide testing
Q549. Did you feel that the counselor or health care provider reacted to you in a negative or discriminatory way because you are [SUBPOP]?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q550. What did the counselor or health care provider do to make you feel this way? DO NOT READ ANSWERS, RECORD ALL MENTIONED (Check all that apply)	__ Was very uncomfortable discussing
	__ Verbally abused or scolded me
	__ Stopped talking to me
	__ Refuse to Answer
	__ Other (specify)
	__ Don't Know
	__ Asked me to leave
Q551. What did the counselor or health care provider do to make you feel this way?	Other please specify
Q552. Have you heard of HIV self-testing?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q553. Have you ever done an HIV test on yourself? That is, collected your own saliva or blood and read your own result?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q554. Where did you obtain the self-testing kit?	__ Refuse to Answer
	__ Pharmacy/Chemist
	__ Other (specify)
	__ Non-Goverment Organization (NGO)
	__ Internet
	__ Don't Know
	__ A partner
	__ A friend
Q557. How likely is it that you would use and HIV self-test to test yourself for HIV in the future? (Choose one)	8 Refuse to Answer
	7 Don't Know
	5 Very likely
	4 Somewhat likely

	3 Neutral
	2 Somewhat unlikely
	1 Very unlikely
Q558. Have you ever been screened or tested for TB?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q559. Was the diagnosis or result, negative/non-reactive or positive/reactive? (Choose one)	8 Refuse to Answer
	7 Don't Know
	2 Positive/reactive
	1 Negative/non-reactive
Q560. Did you receive medication for your TB infection?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q561. Did you finish taking all your medication?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q562. Why did you stop taking your medication?	__ They made me sick
	__ They did not work
	__ The pharmacy ran out of medicine
	__ Refuse to Answer
	__ Other (specify)
	__ I was feeling better and did not need them
	__ I could not afford them
	__ I am still taking the medication
	__ Don't Know
	__ Distance to get them is far
	__ A doctor/nurse told me to stop taking them
Q564. Have you seen a nurse, doctor or other health care provider for a medical evaluation or care related to your HIV infection?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes

	0 No
Q565. When you met with this counsellor or health care provider, did they ask about your sexual history?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q566. Why have you never seen a nurse, doctor, or other health care provider for a medical evaluation or care related to your HIV infection? (Choose one)	98 Refuse to Answer
	97 Don't Know
	07 Other (specifiy)
	06 Don't want to think about being HIV+
	05 Previous bad experience with healthcare
	04 Privacy/confidentiality
	03 Too expensive
	02 Don't know where to go
	01 Feel fine/healthy
Q567. Why have you never seen a nurse, doctor, or other health care provider for a medical evaluation or care related to your HIV infection?	Other, please specify
Q568. After you were diagnosed for HIV in [Response to Q531] when did you first see a health care provider relating to your HIV infection?	2099 Not Applicable (Year)
	2098 Refuse to Answer (Year)
	2097 Don't Know (Year)
	__ __ / __ __ __ __ mm / yyyy
Q569. About how often do you see your health care provider for HIV care? (Choose one)	8 Refuse to Answer
	7 Don't Know
	4 Less than once a year
	3 Once every 7-12 months
	2 Once every 4-6 months
	1 At least every 3 months
	0 Was diagnosed in the last 3 months
Q570. Have you ever had a CD4 Count?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q571. When was your last CD4 count?	2099 Not Applicable (Year)
	2098 Refuse to Answer (Year)
	2097 Don't Know (Year)
	__ __ / __ __ __ __ mm / yyyy
Q572. What was your last CD4 count? (Choose one)	8 Refuse to Answer

	7 Don't Know
	4 more than 500 cells/ml
	3 351-500 cells/ml
	2 200-350 cells/ml
	1 Less than 200 cells/ml
Q573. Have you ever had a viral load test?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q574. When was your last viral load test?	2099 Not Applicable (Year)
	2098 Refuse to Answer (Year)
	2097 Don't Know (Year)
	__ __ / __ __ __ __ mm / yyyy
Q575. What was your last viral load? (Choose one)	8 Refuse to Answer
	7 Don't Know
	5 More than 100,000 copies
	4 10,001-100,000 copies
	3 1001-10,000 copies
	2 401-1000 copies
	1 Less than 401 copies/undetectable
Q576. Have you ever taken Cotrimoxazole?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q577. Are you currently taking cotrimoxazole?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q578. Have you ever been on ART (medication to treat your HIV infection?)	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q579. Why have you never taken ARVs? (Choose one)	98 Refuse to Answer
	97 Don't Know
	07 Other (specify)

	06 Don't want to think about being HIV+
	05 Health provider advised not to take
	04 Concerned about side effects
	03 I cannot afford them
	02 Don't know where to get them
	01 Feel fine/healthy
Q580. Why have you never taken ARVs?	Other, please specify
Q581. Are you currently on ART?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q582. Why did you stop ART?	__ They made me sick
	__ They did not work
	__ The pharmacy ran out of the medicine
	__ The doctor/nurse told me to stop taking them
	__ Refuse to Answer
	__ Other (specify)
	__ I was feeling better and did not need them
	__ I missed my appointment/I ran out of the medication
	__ I could not afford them
	__ Don't Know
	__ Distance to get them is far
Q584. If on ART, where do you go for ART?	__ Traditional healer
	__ Refuse to Answer
	__ Private clinic/hospital
	__ Pharmacy
	__ Other (specify)
	__ Government hospital/clinic/health centre
	__ Don't Know
Q586. If no longer on ART, where did you go for ART?	__ Traditional healer
	__ Refuse to Answer
	__ Private clinic/hospital
	__ Pharmacy
	__ Other (specify)
	__ Not Applicable

	__ Government hospital/clinic/health centre
	__ Don't Know
Q588. If never took ART, where could you go for ART?	__ Traditional healer
	__ Refuse to Answer
	__ Private clinic/hospital
	__ Pharmacy
	__ Other (specify)
	__ Government hospital/clinic/health centre
	__ Don't Know
Q590. Have you ever changed the type of ART you are taking?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q591. Thinking about ARVs you take: How many pills are you supposed to take each day?	99 Not Applicable
	98 Refuse to Answer
	97 Don't Know
Q592. Please think back at the last WEEK. Please tell me how many pills have you missed?	99 Not Applicable
	98 Refuse to Answer
	97 Don't Know
Q593. How about in the last MONTH since [PAST30D]. How many pills have you missed since then? [Interviewer, please make sure the patient is thinking about the last month. You may have to help the participant with the timeframe]	99 Not Applicable
	98 Refuse to Answer
	97 Don't Know
Q594. Please point to the spot on the line that best represents the proportion of pills you took last month.	999 Not Applicable
	998 Refuse to Answer
	997 Don't Know
Q595. Since you first started taking your HIV medication, how many times have you gone for at least 2 days without taking them?	99 Not Applicable
	98 Refuse to Answer
	97 Don't Know
Q596. When was the last time that this happened?	2099 Not Applicable (Year)
	2098 Refuse to Answer (Year)
	2097 Don't Know (Year)
	__ __ / __ __ __ __ mm / yyyy
Q597. At that time, how many days did you go without taking your HIV medication?	99 Not Applicable
	98 Refuse to Answer
	97 Don't Know

Q598. What is the longest time you have ever gone without taking your HIV medication in DAYS?	99 Not Applicable
	98 Refuse to Answer
	97 Don't Know
Q599. How many times have you gone at least 2 days without taking HIV medication in the last 3 months?	99 Not Applicable
	98 Refuse to Answer
	97 Don't Know
Q600. in the past 12 months, have you been refused healthcare because someone believed you [SUBPOP]	8 Don't Know
	7 Refuse to Answer
	2 No
	1 Yes
Q601. In the past 12 months, have you been refused employment because someone believed you [SUBPOP]	8 Don't Know
	7 Refuse to Answer
	2 No
	1 Yes
Q602. In the past 12 months, have you been refused church/religious service because someone believed you [SUBPOP]	8 Don't Know
	7 Refuse to Answer
	2 No
	1 Yes
Q603. In the past 12 months, have you been refused restaurant/bar service because someone believed you [SUBPOP]	8 Don't Know
	7 Refuse to Answer
	2 No
	1 Yes
Q604. In the past 12 months, have you been refused housing because someone believed you [SUBPOP]	8 Don't Know
	7 Refuse to Answer
	2 No
	1 Yes
Q605. In the past 12 months, have you been refused police assistance because someone believed you [SUBPOP]	8 Don't Know
	7 Refuse to Answer
	2 No
	1 Yes
Q606. In the past 12 months, have the police confisicated condoms or lubricant from you because they believed you [SUBPOP]?	8 Don't Know
	7 Refuse to Answer
	2 No
	1 Yes
Q607. Do you agree/disagree with the statement: "Most health care providers (e.g., nurses, doctors) would discriminate against MSM in providing health services"? (Choose one)	8 Refuse to Answer
	7 Don't Know
	3 Strongly disagree
	2 Disagree
	1 Agree

	0 Strongly agree
Q608. Do you agree/disagree with the statement: "Most employers would discriminate against MSM in hiring"? Strongly agree, agree, disagree, strongly disagree (Choose one)	8 Refuse to Answer
	7 Don't Know
	3 Strongly disagree
	2 Disagree
	1 Agree
	0 Strongly agree
Q609. Do you agree/disagree with the statement: "Most churches would discriminate against MSM in providing services"? Strongly agree, agree, disagree, strongly disagree (Choose one)	8 Refuse to Answer
	7 Don't Know
	3 Strongly disagree
	2 Disagree
	1 Agree
	0 Strongly agree
Q610. Do you agree/disagree with the statement: "Most landlords would discriminate against MSM in renting or selling a house"? Strongly agree, agree, disagree, strongly disagree (Choose one)	8 Refuse to Answer
	7 Don't Know
	3 Strongly disagree
	2 Disagree
	1 Agree
	0 Strongly agree
Q611. Do you agree/disagree with the statement: "Most police would discriminate against MSM in providing assistance"? Strongly agree, agree, disagree, strongly disagree (Choose one)	8 Refuse to Answer
	7 Don't Know
	3 Strongly disagree
	2 Disagree
	1 Agree
	0 Strongly agree
Q612. Do you agree/disagree with the statement: "Most health care providers (e.g., nurses, doctors) would discriminate against FSW in providing health services"? (Choose one)	8 Refuse to Answer
	7 Don't Know
	3 Strongly disagree
	2 Disagree
	1 Agree
	0 Strongly agree
Q613. Do you agree/disagree with the statement: "Most employers would discriminate against FSW in hiring"? Strongly agree, agree, disagree, strongly disagree (Choose one)	8 Refuse to Answer
	7 Don't Know
	3 Strongly disagree
	2 Disagree
	1 Agree
	0 Strongly agree
Q614. Do you agree/disagree with the statement: "Most churches would discriminate against FSW in	8 Refuse to Answer
	7 Don't Know

providing services"? Strongly agree, agree, disagree, strongly disagree (Choose one)	3 Strongly disagree
	2 Disagree
	1 Agree
	0 Strongly agree
Q615. Do you agree/disagree with the statement: "Most landlords would discriminate against FSW in renting or selling a house"? Strongly agree, agree, disagree, strongly disagree (Choose one)	8 Refuse to Answer
	7 Don't Know
	3 Strongly disagree
	2 Disagree
	1 Agree
	0 Strongly agree
Q616. Do you agree/disagree with the statement: "Most police would discriminate against FSW in providing assistance"? Strongly agree, agree, disagree, strongly disagree (Choose one)	8 Refuse to Answer
	7 Don't Know
	3 Strongly disagree
	2 Disagree
	1 Agree
	0 Strongly agree
Q617. Do you agree/disagree with the statement: "Most health care providers (e.g., nurses, doctors) would discriminate against persons of transgender experience in providing health services"? (Choose one)	8 Refuse to Answer
	7 Don't Know
	3 Strongly disagree
	2 Disagree
	1 Agree
	0 Strongly agree
Q618. Do you agree/disagree with the statement: "Most employers would discriminate against persons of transgender experience in hiring"? Strongly agree, agree, disagree, strongly disagree (Choose one)	8 Refuse to Answer
	7 Don't Know
	3 Strongly disagree
	2 Disagree
	1 Agree
	0 Strongly agree
Q619. Do you agree/disagree with the statement: "Most churches would discriminate against persons of transgender experience in providing services"? Strongly agree, agree, disagree, strongly disagree (Choose one)	8 Refuse to Answer
	7 Don't Know
	3 Strongly disagree
	2 Disagree
	1 Agree
	0 Strongly agree
Q620. Do you agree/disagree with the statement: "Most landlords would discriminate against persons of transgender experience in renting or selling a house"? Strongly agree, agree, disagree, strongly disagree (Choose one)	8 Refuse to Answer
	7 Don't Know
	3 Strongly disagree
	2 Disagree
	1 Agree

	0 Strongly agree
Q621. Do you agree/disagree with the statement: "Most police would discriminate against persons of transgender experience in providing assistance"? Strongly agree, agree, disagree, strongly disagree (Choose one)	8 Refuse to Answer
	7 Don't Know
	3 Strongly disagree
	2 Disagree
	1 Agree
	0 Strongly agree
Q622. In the past 12 months, have you had verbal insults directed at you because someone believed you [SUBPOP]	8 Don't Know
	7 Refuse to Answer
	2 No
	1 Yes
Q623. Who was the person who last directed a verbal insult at you?	8 Don't Know
	7 Refuse to Answer
	5 Other (specify)
	4 Client
	3 Police
	2 Family/relative
	1 Social acquaintance
	0 Do not know the person
Q625. In the past 12 months, how many times have you been hit, kicked, or beaten because someone thought you [SUBPOP]?	98 Don't Know
	97 Refuse to Answer
	__ __ number of times
Q626. Who was the person who last hit, kicked, or beat you? (Check all that apply)	__ Social acquaintance
	__ Sexual partner
	__ Refuse to Answer
	__ Other
	__ Friend
	__ Family/relative
	__ Don't Know
	__ Do not know the person
	__ Client
Q628. In the past 12 months, how many times did anyone force you to have sex with them by sexually assaulting or raping you?	98 Don't Know
	97 Refuse to Answer
	__ __ number of times
Q629. Who was the person who last forced you to have sex with them? (Check all that apply)	__ Social acquaintance
	__ Sexual partner
	__ Refuse to Answer
	__ Other
	__ Friend

	__ Family/relative
	__ Don't Know
	__ Do not know the person
	__ Client
Q631. Did you seek medical treatment after this happened?	9 Not Applicable
	8 Don't Know
	7 Refuse to Answer
	2 No
	1 Yes
Q632. Did you report this incident to the police?	8 Don't Know
	7 Refuse to Answer
	2 No
	1 Yes
Q633. During the last twelve months have you sought medical care for any reason?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q634. In the past 12 months, have you visited a health center in or around [Response to Q2] that provides health information for [SUBPOP]?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q636. On what month and year did you attend this clinic or health center?	2098 Refuse to Answer (Year)
	2097 Don't Know (Year)
	__ __ / __ __ __ __ mm / yyyy
Q637. In the past 12 months, have you had difficulty getting medical care when you sought it?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q638. What difficulty did you have?	__ Too far away
	__ Too expensive
	__ Refuse to Answer
	__ Other (specify)
	__ Long waiting times
	__ Don't Know
	__ Could not take time from work
Q640. In the past 12 months, were you prescribed a medicine but were unable to get it?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No

Q641. Why were you unable to get it?	__ Were not available
	__ Too far away
	__ Too expensive
	__ Refuse to Answer
	__ Other (specify)
	__ Long waiting times
	__ Don't Know
	__ Could not take time from work
Q642. Why were you unable to get it?	Other (specify)
Q643. Where do you normally go for healthcare? (Choose one)	8 Refuse to Answer
	7 Don't Know
	5 Other (specify)
	4 Traditional healer
	3 Private clinic/hospital
	2 Pharmacy
	1 Government hospital/clinic/health center
Q644. Where do you normally go for healthcare?	Other, please specify
Q645. Are you pregnant now?	8 Don't Know
	7 Refuse to Answer
	2 No
	1 Yes
Q646. Have you ever been pregnant? If so, how many times were you pregnant?	98 Don't Know
	97 Refuse to Answer
	__ __ number of times
Q647. Have you ever given birth? If so, how many times have you ever given birth?	98 Don't Know
	97 Refuse to Answer
	__ __ number of times
Q648. The last time you got pregnant, did you want to get pregnant at that time?	8 Don't Know
	7 Refuse to Answer
	2 No
	1 Yes
Q649. Have you ever had a pregnancy that miscarried or was aborted in the last five years?	8 Don't Know
	7 Refuse to Answer
	2 No
	1 Yes
Q650. Did you visit an antenatal clinic (ANC) for your prenatal care during your most recent pregnancy?	8 Don't Know
	7 Refuse to Answer
	2 No

	1 Yes
Q651. Were you offered an HIV test?	8 Don't Know
	7 Refuse to Answer
	2 No
	1 Yes
Q652. What was your HIV status during your most recent pregnancy? (Choose one)	8 Refuse to Answer
	7 Don't Know
	2 Indeterminate
	1 HIV positive
	0 HIV negative
Q653. Did you receive a course of treatment that can prevent your baby from infection?	8 Don't Know
	7 Refuse to Answer
	2 No
	1 Yes
Q654. Did your baby receive a dose/course of treatment to prevent infection?	8 Don't Know
	7 Refuse to Answer
	2 No
	1 Yes
Q655. Are you currently doing something or using any method to prevent pregancy?	8 Don't Know
	7 Refuse to Answer
	2 No
	1 Yes
Q656. Which method are you using? (Check all that apply)	__ Withdrawal
	__ Rhythm method
	__ Refuse to Answer
	__ Pill
	__ Other traditional method
	__ Other modern method
	__ Male sterilization
	__ Lactational Amenorrhea Method
	__ IUD (Loop)
	__ Injectables
	__ Implants
	__ Foam/jelly
	__ Female sterilization
	__ Female condom
	__ Don't Know
	__ Diaphragm
	__ Condom

Q657. How long have you been using this method without interruption?	9998 Don't Know (Months)
	9997 Refuse to Answer (Months)
	__ __ __ __ YEARS
	__ __ __ __ MONTHS
Q658. Where did you obtain this method last time? (Check all that apply)	__ Traditional Doctor/Healer
	__ Religious Pastor/Healer
	__ Refuse to Answer
	__ Public Hospital/Clinic
	__ Private Clinics
	__ Pharmacy
	__ Other
	__ Don't Know
Q660. Have you been circumcised?	8 Refuse to Answer
	7 Don't Know
	0 No
	1 Yes
Q661. If you were circumcised as an adult, why were you circumcised? (Choose one)	8 Refuse to Answer
	7 Don't Know
	4 Other (specify)
	3 Other medical reason(s)
	2 To reduce risk of HIV and STI's
	1 Cultural or religious reasons
	0 Circumcised as a child
Q662. If you were circumcised as an adult, why were you circumcised?	Other, please specify
Q663. Why have you not been circumcised? (Choose one)	8 Refuse to Answer
	7 Don't Know
	6 Other (specify)
	5 Religious reasons
	4 Don't know where to go
	3 Costs too much
	2 Too painful
	1 Never considered it
Q664. Why have you not been circumcised?	Other, please specify
Q665. Before today, have you previously heard about taking pills used to treat HIV for 28 days after an exposure in order to prevent HIV infection?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q666. Have you ever used PEP?	8 Refuse to Answer

	7 Don't Know
	1 Yes
	0 No
Q667. Why did you use PEP? (Choose one)	8 Refuse to Answer
	7 Don't Know
	3 Some other reason (specify)
	2 Because of a work related expsoure
	1 Because of a high-risk sexual exposure
Q668. Why did you use PEP?	Other, please specify
Q669. Before today, have you heard about taking a pill every day to prevent HIV infection?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q670. Have you ever started using PrEP; a pill every day to prevent HIV infection?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q671. In the last 6 months have you taken PrEP?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q672. What is the main reason you have never taken PrEP? (Choose one)	98 Refuse to Answer
	97 Don't Know
	07 Other (specify)
	06 Don't want others to know/worried what others will think
	05 Afraid of side effects
	04 I don't want it
	03 I don't know where to get it
	02 PrEP is not available where I live
	01 Don't feel I am at risk for HIV
	00 Embarrassed to ask my doctor/health care provider
Q673. What is the main reason you have never taken PrEP?	Other specify
Q674. PrEP has similar side effects to other drugs used to treat HIV. Would you take PrEP to help prevent HIV?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No

Q675. What is the main reason you stopped taking PrEP? (Choose one)	8 Refuse to Answer
	7 Don't Know
	5 Other(Specify)
	4 Tested HIV-positive
	3 Don't want others to know
	2 Has side effects
	1 I can't get PrEP anymore
	0 I trust my partners
Q677. From where do you usually get PrEP? (Check all that apply)	__ Strangers
	__ Refuse to Answer
	__ Pharmacy
	__ Other (specify)
	__ Government clinic
	__ Friends
	__ Don't Know
	__ Community-based NGO (specify)
Q679. From where do you usually get PrEP?	Other specify
Q680. Do you take PrEP daily as prescribed or non-daily as prescribed? (Choose one)	8 Refuse to Answer
	7 Don't Know
	2 No
	1 Yes, non-daily
	0 Yes, daily
Q681. When was the last time you took PrEP? (Choose one)	8 Refuse to Answer
	7 Don't Know
	4 Over 2 weeks ago
	3 1-2 weeks ago
	2 4-7 days ago
	1 2-3 days ago
	0 Yesterday or today
Q682. Are you aware of any civil society or religious organization(s) that deliver non-medical assistance or advice to [SUBPOP]	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q683. During the last 6 months, have you attended any meetings or programs to discuss HIV and/or AIDS?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q684. Which organization(s) sponsored this meeting?	__ Wings to Transcend

	__ Walvis Bay Corridor Group
	__ Society for Family Health
	__ Rights not Rescue
	__ Refuse to Answer
	__ Postiive Vibe Trust Namibia
	__ Outright Namibia
	__ Other
	__ Not Applicable
	__ Namibia Planned Parenthood Association
	__ MPower
	__ Lifeline/Childline
	__ Kings Daughers
	__ Don't Know
	__ Caprivi Hope for Life
	__ African Sex Workers Alliance
Q686. In the last 6 months, did you receive any of these items for free?	__ Refuse to Answer
	__ Pamphlets
	__ Other (specify)
	__ None
	__ Lubricants
	__ HIV-Self Test Kits
	__ Don't Know
	__ Condoms
Q688. Which organization(s) gave these items?	__ Wings to Transcend
	__ Walvis Bay Corridor Group
	__ Rights not Rescue
	__ Refuse to Answer
	__ Postiive Vibe Trust Namibia
	__ Outright Namibia
	__ Other
	__ Not Applicable
	__ Namibia Planned Parenthood Association
	__ MPower
	__ Lifeline/Childline
	__ Kings Daughers
	__ Don't Know
	__ Caprivi Hope for Life

	__ African Sex Workers Alliance
Q690. Have you been in contact with a health peer educator in the community in the last 6 months?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q691. Which organization(s) or instituiton(s) were sponsoring these peer educators?	__ Wings to Transcend
	__ Walvis Bay Corridor Group
	__ Society for Family Health
	__ Rights not Rescue
	__ Refuse to Answer
	__ Postiive Vibe Trust Namibia
	__ Outright Namibia
	__ Other
	__ Not Applicable
	__ Namibia Planned Parenthood Association
	__ MPower
	__ Lifeline/Childline
	__ Kings Daughers
	__ Don't Know
	__ Caprivi Hope for Life
	__ African Sex Workers Alliance
Q693. How many times have you been in contact with the peer educator in the last 6 months?	999 Not Applicable
	998 Refuse to Answer
	997 Don't Know
Q694. What services or information did you receive from the peer educator?	__ Refuse to Answer
	__ Referral for VCT
	__ Referral for TB testing/treatment
	__ Other (specify)
	__ General HIV/STI prevention/transmission information
	__ Don't Know
	__ Condoms
Q696. Did the peer educator refer you for medical care at a health center?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
	8 Refuse to Answer

Q697. Did you go to the referred site to receive medical care or treatment?	7 Don't Know
	1 Yes
	0 No
Q698. How often have you had alcohol in the past 6 months? (Choose one)	8 Don't Know
	7 Refuse to Answer
	5 4+ times per week
	4 2-3 times per week
	3 2-4 times a month
	2 Once a month or less
	1 Did not drink
Q699. How many drinks containing alcohol do you have on a typical day when drinking?	98 Don't Know
	97 Refuse to Answer
Q700. How often do you have six or more drinks on one occassion? (Choose one)	8 Don't Know
	7 Refuse to Answer
	5 4 or more times per week
	4 2-3 times per week
	3 2-4 times a month
	2 Monthly or less
	1 Never
Q701. Some people have tried a range of different types of drugs. Have you ever tried any sort of non-perscription drug?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q702. Some people have tried a range of different types of drugs. How often have you used the following drugs in the past 6 months: Heroin (Choose one)	8 Refuse to Answer
	7 Don't Know
	5 Four more more times a week
	4 Two to three times a week
	3 Two to four times a month
	2 Several times a month
	1 Monthly or less
	0 Did not use this drug in the last 6 months
Q703. Some people have tried a range of different types of drugs. How often have you used the following drugs in the past 6 months: TIK (Choose one)	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	5 Four more more times a week
	4 Two to three times a week
	3 Two to four times a month
	2 Several times a month

	1 Monthly or less
	0 Did not use this drug in the last 6 months
Q704. Some people have tried a range of different types of drugs. How often have you used the following drugs in the past 6 months: Ecstasy (Choose one)	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	5 Four more more times a week
	4 Two to three times a week
	3 Two to four times a month
	2 Several times a month
	1 Monthly or less
	0 Did not use this drug in the last 6 months
Q705. Some people have tried a range of different types of drugs. How often have you used the following drugs in the past 6 months: Marijuana (Choose one)	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	5 Four more more times a week
	4 Two to three times a week
	3 Two to four times a month
	2 Several times a month
	1 Monthly or less
	0 Did not use this drug in the last 6 months
Q706. Some people have tried a range of different types of drugs. How often have you used the following drugs in the past 6 months: Cat (Choose one)	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	5 Four more more times a week
	4 Two to three times a week
	3 Two to four times a month
	2 Several times a month
	1 Monthly or less
	0 Did not use this drug in the last 6 months
Q707. Some people have tried a range of different types of drugs. How often have you used the following drugs in the past 6 months: Crystal Meth (Choose one)	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	5 Four more more times a week
	4 Two to three times a week
	3 Two to four times a month
	2 Several times a month
	1 Monthly or less
	0 Did not use this drug in the last 6 months
	9 Not Applicable

Q708. Some people have tried a range of different types of drugs. How often have you used the following drugs in the past 6 months: Cocaine (Choose one)	8 Refuse to Answer
	7 Don't Know
	5 Four more more times a week
	4 Two to three times a week
	3 Two to four times a month
	2 Several times a month
	1 Monthly or less
	0 Did not use this drug in the last 6 months
Q709. Some people have tried a range of different types of drugs. How often have you used the following drugs in the past 6 months: Nyaope (Choose one)	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	5 Four more more times a week
	4 Two to three times a week
	3 Two to four times a month
	2 Several times a month
	1 Monthly or less
	0 Did not use this drug in the last 6 months
Q710. Some people have tried a range of different types of drugs. How often have you used the following drugs in the past 6 months: Mandrax (Choose one)	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	5 Four more more times a week
	4 Two to three times a week
	3 Two to four times a month
	2 Several times a month
	1 Monthly or less
	0 Did not use this drug in the last 6 months
Q711. Some people have tried a range of different types of drugs. How often have you used the following drugs in the past 6 months: Wunga (Choose one)	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	5 Four more more times a week
	4 Two to three times a week
	3 Two to four times a month
	2 Several times a month
	1 Monthly or less
	0 Did not use this drug in the last 6 months
Q712. Some people have tried injecting drugs using a syringe or needle. Have you ever injected drugs?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes

	0 No
Q713. Have you injected drugs in the past 6 months?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q714. How frequently did you inject drugs in the past 6 months? (Choose one)	8 Refuse to Answer
	7 Don't Know
	5 Four or more times a week
	4 Two to three times a week
	3 Two to four times a month
	2 Monthly or less
	1 I did not inject in the past 6 months
Q715. What drug do you normally inject? RECORD ALL MENTIONED (Check all that apply)	__ Refuse to Answer
	__ Other (specify)
	__ Heroin
	__ Don't Know
	__ Crystal Meth/tik
	__ Cocaine
Q716. What drug do you normally inject?	Other (specify)
Q717. Have you shared a syringe or needle with anyone else when injecting drugs in the last 6 months?	9 Not Applicable
	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q718. How many men who have sex with men 18 years or older living in [Response to Q2] do you know who live in [Response to Q2]? WRITE-IN response	9999998 Refuse to Answer
	9999997 Don't Know
Q719. How many men who have sex with men 18 years or older who live in [Response to Q2], do you know AND would consider giving a recruitment coupon to? WRITE-IN response	9999998 Refuse to Answer
	9999997 Don't Know
Q720. How many female sex workers age 18 and over do you know who live in [Response to Q2]? WRITE-IN response	9999998 Refuse to Answer
	9999997 Don't Know
Q721. How many female sex workers age 18 living in [Response to Q2] do you know and would consider giving a recruitment coupon to? WRITE-IN response	9999998 Refuse to Answer
	9999997 Don't Know
	9999998 Refuse to Answer

Q722. How many transgender persons, age 18 and over do you know who live in [Response to Q2]? WRITE-IN response	9999997 Don't Know
Q723. How many transgender persons age 18 living in [Response to Q2] do you know and would consider giving a recruitment coupon to? WRITE-IN response	9999998 Refuse to Answer
	9999997 Don't Know
Q724. In the previous 6 months, did you receive an object [show unique object], like the one i am showing you now?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q725. On the 22nd of November 2018, Did you attend the "Behind the Mask" event at The Confab Rstaurant Ausspanplatz?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q726. On the 9th of November, 2018, did you attend an event "INFOR-FUN" at the UN Plaza Hall Katutura?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q727. On the 11th of September, 2018, did you attend a "Black Dress" event at the Laluna night club?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q728. On the 11th of October, 2018 did you attend a "Casual outfit" party at Laluna night club?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q729. On the 16th of November, 2018 did you attend a "Seeds sensitization" event at Mulatiwa Riverside?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q730. Between April 1st and October 1st, 2018, did you receive services at the Society for Family Health?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q731. What services did you you receive at the Society for Family Health? (Check all that apply)	__ Refuse to Answer
	__ Outreach, Windhoek
	__ Outreach, walvis bay/swakopmund
	__ Outreach, Katima
	__ HIV Testing, Windhoek

	__ HIV Testing, Walvis Bay/Swakopmund
	__ HIV Testing, Katima
	__ Don't Know
Q732. Between April 1st and October 1st, 2018, did you receive services at RnRT Outreach in Windhoek?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q733. Between April 1st and October 1st, 2018, did you receive services at Walvisbay Corridor Group: Rapid Testing Provision?	8 Refuse to Answer
	7 Don't Know
	1 Yes
	0 No
Q734. INTERVIEWER: Reenter the participants coupon code:	99999 Not Applicable
	99998 Refuse to Answer
	99997 Don't Know