INTEGRATED BIOLOGICAL AND BEHAVIOURAL SURVEILLANCE SURVEY AMONG MIGRANT FEMALE SEX WORKERS IN NAIROBI, KENYA

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IOM International Organization for Migration

NATIONAL AIDS CONTROL COUNCIL

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We also extend our appreciation to the National AIDS and STI Control Programme (NASCOP), National AIDS Control Council (NACC), University of Nairobi Kenya AIDS Control Project (KACP), and United Nations Population Fund (UNFPA) who provided technical, organizational, and logistical support throughout the duration of the research.

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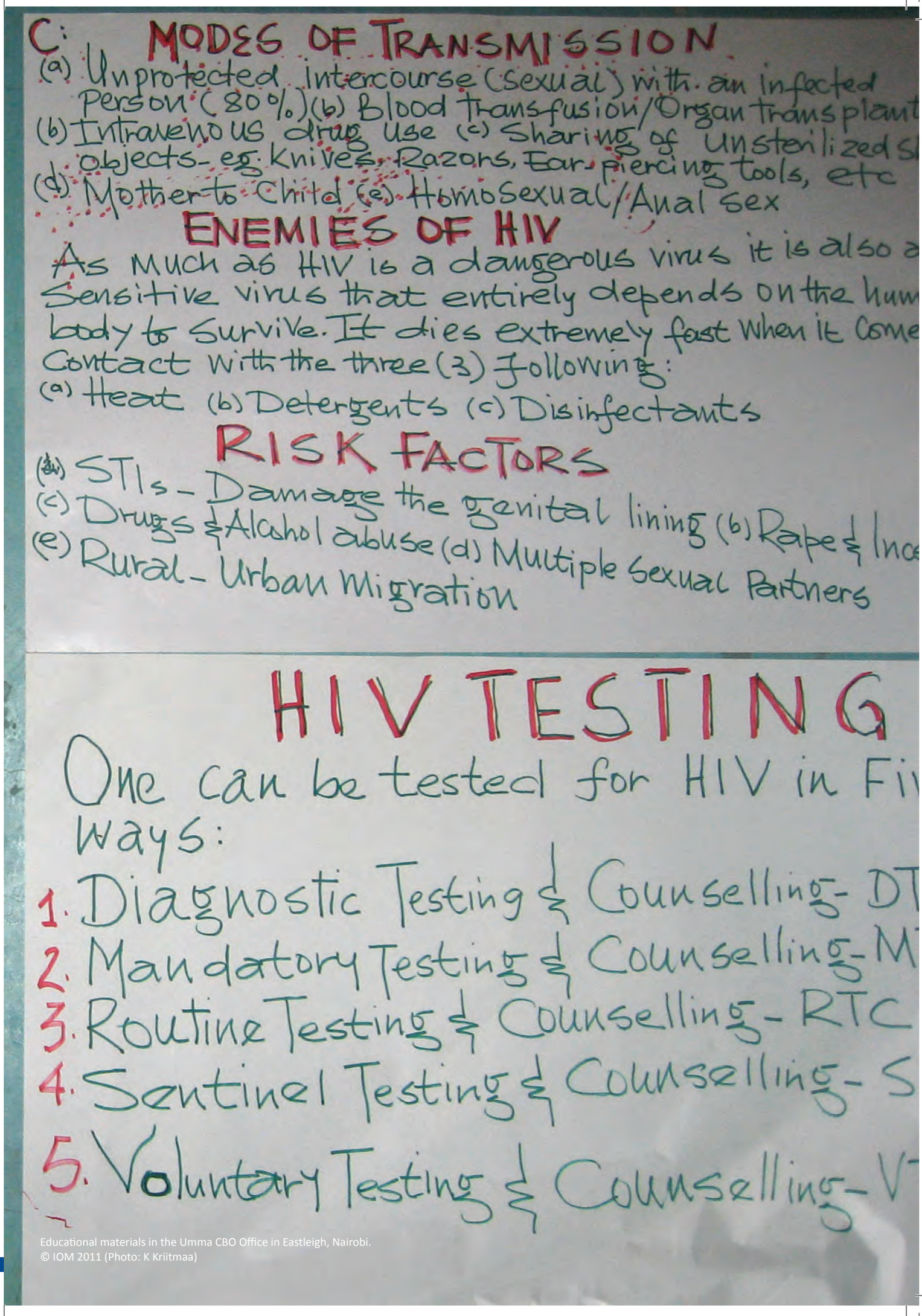
Finally, we would like to thank all of the women who participated in this study; without them this work would not have been possible, and we commend them for their courage.

CONTENTS



Educational materials in the Umma CBO Office in Eastleigh, Nairobi.

FOREWORD

Kenya is developing and progressing towards Vision 2030 – an initiative by the Kenyan Government to provide a high quality of life to all its citizens – and as a nation we must understand that our East African neighbours will inevitably be pulled towards Nairobi, as it will remain an economic hub of the region. Vast amounts of migrants now call Nairobi "home", with the community of Eastleigh comprising a large number of our urban migrants in Nairobi.

It is becoming widely accepted that migration is a fundamental determinant of health; the context in which migration takes place, together with individual factors such as gender, language, immigration status and culture, have a significant impact on social vulnerability, access to services, and health outcomes.

A significant amount of research has been conducted in Kenya among female sex workers, as this vulnerable group remains a primary driver of HIV transmission in Kenya, though no research to date has focused upon mig rant female sex workers. As the challenge was to better understand these social determinants to improve the welfare of migrants, the National AIDS Control Council (NACC) established a technical working group on sex work to map and coordinate programme scale-up. Under technical leadership from IOM and the Joint UN Team on AIDS, the consortium studied migrant female sex workers to establish prevalence and the differences in risk behaviour between this subset of female sex workers and their Kenyan counterparts.

In order to effectively respond to HIV, it is necessary to first "know your epidemic" by gathering important epidemiological data. With this in mind, NACC welcomes this important epidemiologic contribution and will continue to facilitate a collaborative environment where such important findings can be actionable at the highest level of the national response.

Prof. Alloy S. S. Orago
Director, National AIDS Control Council

IBBS Nairobi research team at the data collection site in Eastleigh, Nairobi.

FOREWORD

The 2008 Kenya Modes of Transmission Study showed that 14.1 per cent of all the new HIV infections in Kenya occur among female sex workers and their clients. Consequently, various comprehensive HIV interventions have been developed targeting this population cohort. The Kenya National AIDS and STI Control Programme (NASCOP), together with the International Organization for Migration (IOM) and other partners, conducted an Integrated Biological and Behavioral Surveillance Survey (IBBS) in Nairobi, Kenya, which detailed the HIV epidemiology among this "hidden" population. This study revealed that a sub-population comprising female sex workers and their clients from neighbouring countries is not yet effectively reached with HIV prevention interventions.

This IBBS survey, which is the first among migrant female sex workers in Kenya, provides statistics on HIV and STI prevalence and risk behavior, including comparative data between Kenyan and migrant female sex workers. The report identifies vulnerabilities faced by this marginalized population, and offers recommendations to address gaps in service delivery and access.

Based on this scientific evidence, NASCOP and other partners involved in HIV programming, will strive to implement strategic and comprehensive HIV prevention programmes that will address the identified unique vulnerabilities of migrant female sex workers residing in Kenya.

Dr. Nicholas Muraguri
Head, Kenya National AIDS and STI Control Programme

Image: Chairwoman of Umma CBO assisting the IOM field team at data collection site.

FOREWORD

Through its health programme, the International Organization for Migration (IOM) is strengthening the capacity of the Government of Kenya and implementing partners to promote the health of migrants through research, advocacy for policy change, delivering migrant-friendly services, and supporting multicountry collaboration. As a result of ongoing collaboration, the Kenya National AIDS Control Council and National AIDS and STI Control Programme invited IOM to identify and respond to HIV in marginalized high-risk groups. Migrant sex workers were one particular overlooked population, and partners indicated that a potentially large population of migrant women were engaging in transactional sex in areas of Nairobi.

Being the first of its kind, this study examined knowledge, behaviours, and prevalence of HIV and syphilis among migrant female sex workers in Nairobi. Results revealed HIV prevalence similar to other female sex workers in Kenya, but low levels of HIV competence, marginalization from services, very young sexual debut, and lack of social support. Programming is urgently required to assist this vulnerable population, and in fact, IOM and partners have already initiated pilot activities with the aim of comprehensively filling the gap.

It is our hope that stakeholders will find this data useful for informing policies and programmes, and together, will take concerted action to address the HIV epidemic amongst not only the Kenyan population, but also migrants, through evidence-based interventions.

IOM wishes to extend our most sincere appreciation to all our implementing partners engaged in this timely research. In particular, I would like to extend my sincere gratitude to our governmental counterparts who have always remained a strong and committed partner. It is through this collaborative action that we will realize the bold vision of a “society free from HIV” in Kenya.

Ashraf El Nour
Chief of Mission
Kenya Mission with Coordinating Functions for the Horn of Africa
The International Organization for Migration

EXECUTIVE SUMMARY

Background

Kenya is currently experiencing both a generalized and a concentrated HIV epidemic. It has a national HIV prevalence of 6.3 per cent and 1.3 million people between the ages of 15 to 64 across the country are living with HIV. According to the Kenya National AIDS Control Council (NACC), female sex workers (FSW) and their clients account for 14.1% of new infections. The Kenyan national response has recently started targeting research and programming efforts towards key population groups, and specifically FSW. However, migrants have not been targeted as a distinct category. The National AIDS and STI Control Programme (NASCOP), NACC, the Joint UN Team on AIDS (JUNTA), the Kenya AIDS Control Project (KACP) and the International Organization for Migration (IOM) partnered to implement the first integrated biological and behavioural surveillance (IBBS) survey among migrant FSW in Kenya.

The objective of the study was to establish information that contributes towards developing an evidence-informed response to HIV/AIDS among female sex workers.

The study aimed to:

- Establish HIV and STI prevalence among migrant female sex workers in Nairobi, Kenya.
- Determine HIV and STI knowledge, attitudes, risk behaviour, treatment seeking behaviour, and preferred sources of HIV/STI information.
- Provide baseline HIV and STI behavioural and biological prevalence estimates to measure trends over time.

The objective of this study is to offer robust HIV epidmological data on migrant female sex workers in Nairobi with the aim of intensifying prevention programmes among this key population that is currently overlooked by existing programming.

Methodology

A cross-sectional survey recruited 628 migrant FSW using respondent driven sampling (RDS). A face-to-face, structured interview using handheld assisted personal interviewing on personal digital assistants was completed and blood collected for serological testing for HIV, syphilis, gonorrhoea, and chlamydia. Data on demographic characteristics, risk behaviours, and HIV/AIDS knowledge were collected. Rapid testing was performed which meant that participants were able to receive test results immediately. A linked confidential serial testing strategy was used for HIV, following the Kenya National Guidelines. Data were analyzed in RDSAT 6.0 where weighted univariate and bivariate analyses were conducted. Data were exported with weights into STATA 10.0 for multivariate analysis.

EXECUTIVE SUMMARY

Results

Over half (52.2%) of migrant FSW were between the ages of 20 and 29, with the average age of the respondents being 31.8 years. Almost half of migrant FSW had never attended school (47.4%). The majority were single (61.1%) and of Muslim faith (58.5%). More than a third (42.7%) of the respondents were circumcized. Ethiopia (31.2%), Tanzania (27.6%) and Uganda (27.6%) were the most common countries of origin followed by Somalia (11%), Democratic Republic of the Congo (1.3%), Sudan (1%), and Rwanda (0.2%). Tanzanians predominantly identified themselves as migrants (96.2%), whereas Somalis (63.0%), Ugandans (59.9%) and Ethiopians (50.2%) predominantly self-identified themselves as refugees. Somalis were the most numerous group to identify as asylum seekers, with 28.1 per cent. The overall prevalence of HIV was 23.1 per cent and 2 per cent for syphilis. No gonorrhoea and only one case of chlamydia (0.2%) were found. Only three cases (0.7%) of co-morbid HIV and syphilis was found. The one individual who reported positive for chlamydia was also HIV infected, resulting in 0.2 per cent co-morbid HIV and chlamydia prevalence.

The overall prevalence of HIV was 23.1 per cent and 2 per cent for syphilis.

Discussion

Sex work is present in the migrant community in Nairobi, which dispels a common belief that sex work is not practiced in Muslim communities. This research shows that although HIV prevalence is similar between the non-Kenyan and Kenyan FSW populations, there are differences in knowledge, behaviour, and service access. Low levels of education and literacy among migrant female sex workers (FSW) makes it difficult for them to find work in the formal employment sector. Overall there is high reporting of condom use. However, Tanzanians and Ugandans comprised a large sample of the survey, two countries where HIV prevention programmes have been relatively stronger and condom use less stigmatized. More than three quarters of respondents indicated the reason they did not use a condom during their last sexual encounter was because the client objected. This indicates the need to include men in condom programming, including awareness raising, distribution, and demonstrations. Overall the utilization of voluntary counselling and testing (VCT) and knowledge of serostatus was low, just over half, and much lower among migrants than among Kenyan FSW. Although almost all migrant FSW had heard of HIV, knowledge around prevention and transmission is mixed, with many misconceptions still present.

Recommendations

Donor funding is needed for a long-term programme that includes a model for service provision and HIV prevention targeting migrant FSW. Interventions that specifically reach migrant FSW are required to increase knowledge and focus on consistent and correct condom use, including the use of lubrication, and improve health seeking behaviour. Services for this population could be integrated into programmes for general FSW, with special attention to regular STI screening / treatment and universal knowledge of HIV serostatus promoted; however special care must be given to language and cultural needs of the migrants. Awareness of post-exposure prophylaxis (PEP) and the importance of seeking medical treatment in case of rape or sexual violence among FSW are necessary. Non-medical aspects of care should be incorporated to ensure a comprehensive approach. These should include psychosocial support, income generating and livelihood activities, language classes, and legal support. The newly developed NASCOP Sex Worker Guidelines provide guidance on the types of services that should be offered, including non-medical programme aspects. Finally, stakeholders should lobby the Kenyan government to provide a legal framework for regulation of sex work which would allow programming for sex work activities to be taken to scale, thereby increasing access to services and providing protection for sex workers that currently does not exist.

EXECUTIVE SUMMARY

Summary of Findings for the United Nations General Assembly Special Session on HIV and AIDS (UNGASS) Indicators:

Corresponding Variable	%	95% CI	n/N
Percentage of most-at-risk populations who are HIV-infected (UNGASS 23)			
HIV Prevalence	23.1	18.4-28.2	139/572
Percentage of most-at-risk populations reached with HIV prevention programmes (UNGASS 9)			
Know where to receive a confidential HIV test?	71.5	65.1-75.4	433/577
Percentage of most-at-risk populations who both correctly identify ways of preventing the sexual transmission of HIV and who reject major misconceptions about HIV transmission (UNGASS 14)			
Answered correctly all five knowledge question	3.4	2.0 - 5.2	23/577
Percentage of female and male sex workers reporting the use of a condom with their most recent client (UNGASS 18)			
Condom used with clients in the past 7 days?	54.0	48.0-59.2	304/577
Percentage of most-at-risk populations who received an HIV test in the last 12 months and who know their results (UNGASS 8)*			
Ever had HIV Test?	55.5	48.2-59.3	314/574
Received HIV Test Results?	98.8	96.7-100.0	184/186
When was most recent HIV Test?			
Less than one month	9.2	2.3-13.1	9/186
1-3 months	13.1	8.5-19.5	29/186
3-6 months	11.3	5.0-13.3	19/186
6-12 months	17.9	11.5-29.1	34/186
More than 12 months	48.3	41.3-60.4	95/186

* The questionnaire was not structured in a way that could directly capture the MARP UNGASS indicator for testing; however questions around HIV testing were captured.

INTRODUCTION

Background

Kenya is currently experiencing both a generalized and a concentrated HIV epidemic. The national HIV prevalence is 6.3 per cent and 1.3 million people between the ages of 15 – 64 are living with HIV (Republic of Kenya, KNBS, 2010b). The epidemic has diverse characteristics and drivers, including age, geographic and sub-population dynamics. Young women aged 20 – 24 years are five and a half times more likely to become infected with HIV than men of the same age. Prevalence across provinces varies considerably with an HIV prevalence of 0.81 per cent in North Eastern province and 14.9 per cent in Nyanza province. There is an elevated HIV prevalence among sub-groups including sex workers, truck drivers, men who have sex with men, prisoners, and other groups (Republic of Kenya, NACC, 2009a). This last characteristic of the epidemic related to sub-groups, also known as most-at-risk populations (MARP), has garnered significant attention in the recent past, but is not yet adequately addressed.

HIV surveillance in Kenya has focused primarily on general population surveillance using population based surveys, such as antenatal care data, the Kenya AIDS Indicator Survey (KAIS) conducted in 2007 (Republic of Kenya, NASCOP, 2008a), and the Demographic Health Survey of 2008. Data from these surveys did not include findings specific to MARP because the methodology employed household sampling, which meant that the high-risk behaviours associated with populations such as sex workers and men who have sex with men were not adequately captured.

The Kenya National AIDS Strategic Plan 2009/10-2012/13 identifies female sex workers (FSW) as a special vulnerable group. Fonck et al. (2000a) found HIV prevalence of 27 per cent among FSW, and Malonza at al. (2000) found an HIV prevalence of 24 per cent. The Kenyan AIDS Control Project (KACP), University of Nairobi enumeration of FSW counted 7,000 in the Central Business District of Nairobi (Kimani, 2009). Additional research from the Mombasa-Kampala transport corridor (Morris and Ferguson, 2006) estimated 8,000 FSW along the corridor. The Kenya HIV Modes of Transmission Analysis estimates that 14.1 per cent of new infections in Kenya result from relations between sex workers and their clients (Republic of Kenya, NACC, 2009a).

In response to the above studies, the National AIDS Control Council (NACC), the National AIDS and STI Control Programme (NASCOP), the Government of Kenya (GoK), and their development partners have implemented various programmes targeting FSW as a distinct population with unique needs. The most notable of the programmes targeting sex workers is the Sex Worker Outreach Programme (SWOP) based in the Central Business District of Nairobi that has, to date, reached over 4,000 FSW. Additional FSW programmes have been implemented in Mombasa and Kisumu. Furthermore, stakeholders have recently drafted comprehensive Sex Worker Guidelines (Republic of Kenya, NASCOP, 2010a), and NACC published an HIV/AIDS situational analysis on

sex workers and their clients in Kenya (Republic of Kenya, NACC, 2009b). The primary findings from the sex work situational analysis found that most sex workers in Kenya are young, have low levels of education, children to support, face extensive violence and abuse from clients due to lack of protection and vulnerable situations, and have minimal means of exiting sex work.

Results of the above studies and programmes indicate the extent of female sex work in Kenya. There is evidence of thousands of women engaging in sex work throughout the country and increased prevalence amongst this population; however, to date no study has broken down sex work by nationality to reveal the number of FSW originating from other countries, such as mobile populations and undocumented migrants, and the context of migration within this population. The International Organization for Migration's (IOM) health and social protection partners indicate that a potentially large population of Somali, Sudanese, Ethiopian, and other migrant women are engaging in transactional sex in areas of Nairobi. Although they are clearly a highly marginalized at-risk population, no data is available on HIV vulnerability, risk behaviour, and prevalence among migrant FSW. There are currently no programmes offering a targeted and comprehensive response for this population.

NASCOP, NACC, Joint UN Team on AIDS (JUNTA), Kenya AIDS Control Project (KACP), and IOM partnered to implement the first integrated biological and behavioural surveillance (IBBS) survey among migrant FSW in Kenya with the aim of offering strategic information for intensifying prevention programmes among a key population that is currently overlooked in the HIV response. Data collection took place from April to June 2010 with the assistance of national partners.

Research Objectives

- Establish HIV and STI prevalence among migrant FSW in Nairobi, Kenya;
- Determine HIV and STI knowledge, attitudes, risk behaviours, treatment seeking behaviours and preferred sources of HIV/STI information;
- Provide baseline HIV and STI behavioural and biological prevalence estimates to measure trends over time.

METHODOLOGY

Migrant female sex workers are marginalized by social determinants of health such as their irregular migration status, lack of fluency in the local languages and cultural barriers.

Study Design

Sex work in Kenya is illegal; therefore, surveying the migrant female sex worker (FSW) population poses distinct challenges. Fear of stigmatization, harassment, and arrest makes these individuals difficult to access which makes identifying migrant FSW a challenge as they are more likely to be hidden than Kenyan FSW. Migrant FSW are further marginalized by social determinants of health such as their irregular migration status and language and cultural barriers. As such, a cross sectional study design utilizing respondent driven sampling (RDS) was used for the survey. Qualitative data from the formative research period undertaken from January to March 2010 has also been included; this data is from informal interviews and focus group discussions.

Respondent driven sampling (RDS) is used in situations where a sampling frame is not available, as is the case with hidden populations such as sex workers.

Respondent-Driven Sampling

Respondent driven sampling (RDS) is used in situations where a sampling frame is not available, as is the case with hidden populations such as sex workers. RDS is based on a similar principle as snowball sampling with the addition of a mathematical model to weight the data collected resulting in a representative sample (Salganik & Heckathorn, 2003). This methodology is used to successfully recruit most-at-risk populations (MARP) worldwide, including FSW in Vietnam (Johnston et al., 2006) and Papua New Guinea (Yeak, 2006); male sex workers in Pakistan (Saleem & Razaque, 2008); injecting drug users in Albania and Russia (Stormer et al., 2000), in New York (McKnight et al., 2006) and in Mexico (Frost, 2006); and men who have sex with men in Uganda (Kajubi et al., 2008), and in Bangladesh (Johnston et al., 2008). Additionally, RDS has been successfully completed in Kenya amongst FSW in Kisumu (Vandenhoudt et al., 2010). This illustrates the feasibility of this methodology in the Kenyan context. The International Organization for Migration (IOM) recently employed RDS while leading a study of FSW inside Somalia as a member of the Somalia Joint UN Team on AIDS (Kriitmaa et al., 2010).

Given the cultural, religious and legal barriers faced by migrant FSW in Nairobi, it was agreed by all stakeholders that RDS was the only means of recruiting as close to a representative sample as possible.

RDS starts with an initial set of non-randomly selected respondents – known as “seeds” – who refer their peers to participate in the study; these peers in turn refer their peers and so on. Participants are given a “primary” incentive for participating in the research and a “secondary” incentive for every peer they recruit to the study, to a maximum of three. Participants are given three coupons and asked to distribute them to peers who meet the eligibility criteria to participate. These coupons are numbered to allow the researchers to link the recruiter with their recruits, and this information is recorded in a coupon management spreadsheet.

METHODOLOGY

In this study a primary incentive of 400 KES was given for completion of the interview and provision of biological specimens, and 200 KES was given for each peer FSW recruited into the study, to a maximum of 600 KES. In total, a maximum incentive of 1000 KES was given if a respondent successfully recruited three FSW into the study.

RDS makes use of various forms to collect additional pieces of necessary information. Network size forms collect information on each participant's network size. This information is crucial as it provides the basis of the weighting that is used. Coupon rejection forms are used to record data regarding anyone who refuses a coupon from a recruiter. The coupon manager collects this information every time a participant returns to the site to collect their secondary incentive. Finally, the recruiter form is completed to collect information on the person who recruited them into the study (the peer FSW who provided them the coupon).

Study Subject Criteria

Eligibility Criteria:

1. Female
2. Aged 18 years and above
3. A migrant born outside of Kenya
4. Exchanged sexual intercourse, either vaginal and/or anal, for money, a gift or for a favour in the past three months
5. Currently residing in Nairobi.

Exclusionary Criteria:

1. Unable to provide informed consent
2. Under the influence of drugs or alcohol – where the influence of this substance may impair validity of consent – as noted by the person taking consent
3. A duplicate recruit that has already participated in the research
4. Received the coupon from a stranger and does not know the recruiter
5. Does not have a valid coupon
6. Kenyan nationals.

Site Selection

After several months of formative research that included focus group discussions with members of the target population, two areas of Nairobi, Eastleigh and Hurlingham, were selected for data collection.

Eastleigh is located east of the Nairobi Central Business District and has traditionally been a predominantly Somali neighbourhood, although in recent years it appears to have attracted additional migrant groups including Ethiopians, Sudanese, Rwandese, and other nationalities. Hurlingham is located in western Nairobi, and has a large Ethiopian population.

METHODOLOGY

Sample Size

The sample size was calculated based on an HIV prevalence estimate of 24 per cent for FSW in Nairobi (Fonck, 2000). Utilizing a 95 per cent confidence interval, a sample of n=561 respondents was required to calculate prevalence of HIV infection among migrant FSW with sufficient power and will allow subsequent surveys to detect a difference of plus or minus 10 per cent. The initial calculation, without taking into account design effects, generated a sample size of n=280, but with a design effect of two as recommended in RDS studies (Salganik et al., 2003), the sample size resulted in n=561 for the entire survey (across both sites).

Formula:

$(z)^2 P(1-P) / W^2 = N$

$(1.96)^2 0.24(1-0.24) / 0.05^2 = 280$

$280*2 = 560$

In addition to the desired sample size, recruitment continued until equilibrium was reached on certain key variables. In RDS surveys, equilibrium is the point at which the sample proportions for each variable no longer change – or change very minimally – regardless of how many more individuals are recruited. For different key variables, equilibrium will be reached at different waves. An RDS wave is each consecutive round of recruitment within the recruitment chain. For example, the seed recruits person A, who recruits person B. Person A is in Wave 1, and person B is in wave 2 of the recruitment chain. Equilibrium is balanced with a need to reach the estimated sample size so as to provide indicators and guidance on when to begin reducing the number of coupons given out and eventually close recruitment.

Behavioural Survey Questionnaire

Data were collected on socio-demographic characteristics, numbers, and types of partners, transactional sex characteristics, use of condoms and lubrication, sexually transmitted infections (STI), health seeking behaviour, HIV and AIDS knowledge and testing, substance abuse, and media and HIV intervention exposure. All five United Nations General Assembly Special Session on HIV/AIDS (UNGASS) indicators for most-at-risk populations (MARP) were used. These included composite indicators for testing, reach of prevention programmes, knowledge, condom use, and HIV prevalence (UNGASS, 2010).

The behavioural questionnaire was translated into Somali, Oromo and Amharic and then back into English for data collection. The field team comprised members who spoke all migrant languages – Kiswahili, Somali, Oromo, Amharic and Borana. The questionnaire was implemented through structured one-to-one interviews with trained interviewers and the use of hand-held assisted personal interviewing (HAPI) using personal digital assistants.

Biological Survey - HIV and STI Counselling and Testing

HIV Counselling and Testing

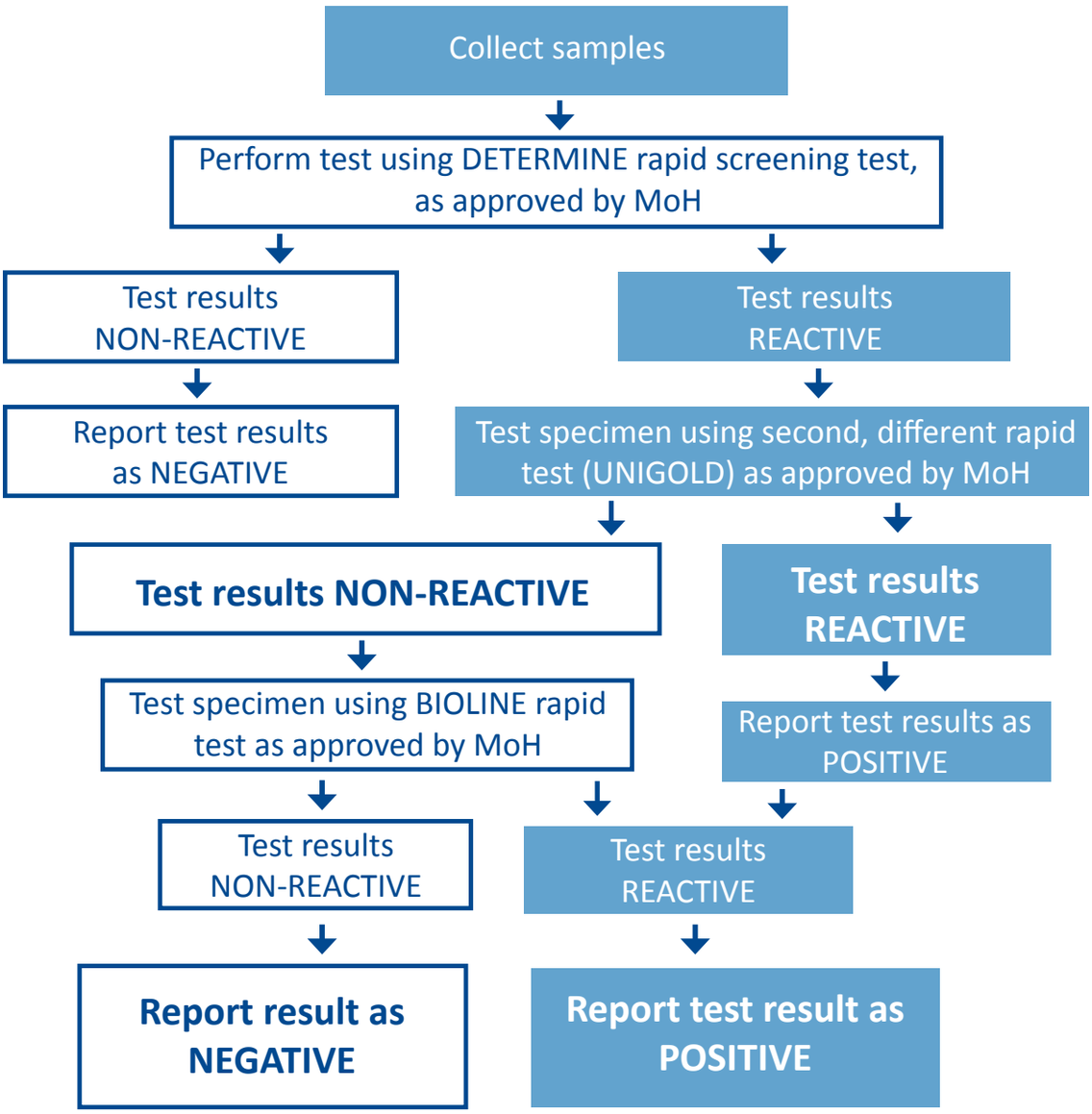
On completing the interview, respondents underwent HIV counselling and testing, following the Kenya National Guidelines for HIV Counselling and Testing (NASCOP, 2008b). Counselling included explanations of HIV infection and transmission, risks associated with sexual behaviours, prevention methods, and an explanation of STI to be tested. Respondents were offered venous blood draw as the primary sample collection option as it enables collection for HIV and syphilis testing with one draw and minimal pain. Finger prick blood draw was also offered as a secondary option if venous blood draw was declined. Only one respondent selected this option. Rapid tests were used which required minimal skill and equipment, and had the advantage of generating same day results within a short period of time. It is also the preferred method of testing according to the Kenya national guidelines (NASCOP, 2008b).

Linked anonymous testing was used because it allowed the client to know their status and be referred for services. At the same time it has minimum identifiers which reduced the possibility of breaching confidentiality. The confidentiality of the respondents was maintained, as nurses were the only person on site to know the respondents' test results.

The testing algorithm is shown in Figure 1 and described below:

1. Serial testing using first HIV antibody assay Determine HIV 1+2
2. If positive result, a second test using Unigold HIV 1+2
3. In the event of a discordant result, Bioline HIV 1+2 used as a tie-breaker
4. All respondents were given referral cards for follow-up testing and care at referral clinics.

Figure 1: HIV Testing Algorithm



Source: Republic of Kenya, Ministry of Public Health and Sanitation, 2009C

METHODOLOGY

Sexually Transmitted Infection (STI) Testing

Respondents were tested for syphilis, gonorrhoea and chlamydia using rapid testing. Determine and Bioline SD rapid test kits were utilized to test for syphilis. Two vaginal swabs were collected for gonorrhoea and chlamydia rapid testing using One Step Rapid Gonorrhoeal Test and One Step Chlamydia Test. Those who tested positive for any STI were referred to a relevant clinic.

Post-test Counselling and Referral

Post-test counselling and referral was immediately provided following the results of HIV and STI testing. Information was tailored to respondents risk profile and followed the Kenya national guidelines (Republic of Kenya, 2008b). Condoms were also provided. The research team actively facilitated the respondents to access the necessary care by providing peer educators on site every day to provide HIV and STI health talks as well as to escort the respondents to the relevant clinic, for those who desired additional assistance. Respondents were also provided transportation stipends for travel to the clinics.

Quality Control

Field staff were trained in documentation procedures and the field team leader checked all documentation on site. This was followed by another check at the IOM office. Every tenth sample was sent to the Kenya AIDS Control Project (KACP) Laboratory at the University of Nairobi for confirmatory testing for quality assurance. HIV ELISA was conducted for HIV, rapid plasma reagin for syphilis, and polymerase chain reaction for chlamydia and gonorrhoea. One hundred per cent of specimens sent for confirmatory testing matched the on-site rapid test results.

Data Management and Analysis

Low literacy rates among the respondents and unfamiliarity with computers meant that a self-completion questionnaire or self-administered computer questionnaire was not possible. Therefore an interviewer-administered questionnaire using hand-held assisted personal interviewing (HAPI) was used. HAPI eliminated data entry for the behavioural data, as data was exported directly into Microsoft Excel. Questionnaire Development Software (QDS) was used to programme the questionnaire into the hand-held devices. Data entry of a small number of paper-based forms into Microsoft Excel was necessary, including the Network Size, Recruiter, and Coupon Rejecter forms. Data was exported from the QDS warehouse into Microsoft Excel, merged with biological test results, and imported into RDSAT (6.0). The weighted data was then exported to STATA (10.0) for multivariate analysis. Population prevalence estimates are presented with 95 per cent confidence intervals. Networks were visually mapped using NetDraw software.

METHODOLOGY

Research Team

Halima T Abdi	Field Team Leader	IOM
Rahma Guyo Halake	Coupon Manager	IOM
Bilacha Golicha	VCT Nurse / Interviewer	IOM
Fardousa Mohammed	VCT Nurse / Interviewer	IOM
Leila Hassan	VCT Nurse / Interviewer	IOM
Fatuma Hassan Dubat	Interviewer	IOM
John Mukaburu Mathenge	Peer Educator	SWOP
Lul Issack	Screener (Eastleigh)	Umma CBO
Stanley Ngara	FSW Mobilizer and Screener	Liverpool VCT, Care and Treatment
Arij Assali (Coosh)	FSW Mobilizer and Screener (Hurlingham)	No organizational affiliation
Ziyad Mahfoud	Statistician	Independent Consultant

Response Rate

A total of 628 female sex workers (FSW) aged 18 years and above were recruited to participate in the study from April to June 2010 and interviewed at one of three designated respondent driven sampling (RDS) sites in Nairobi. After data cleaning the number of participants analyzed was 603. Of those, five were missing HIV test results, 27 missing syphilis test results, and 21 missing both gonorrhoea and chlamydia test results.

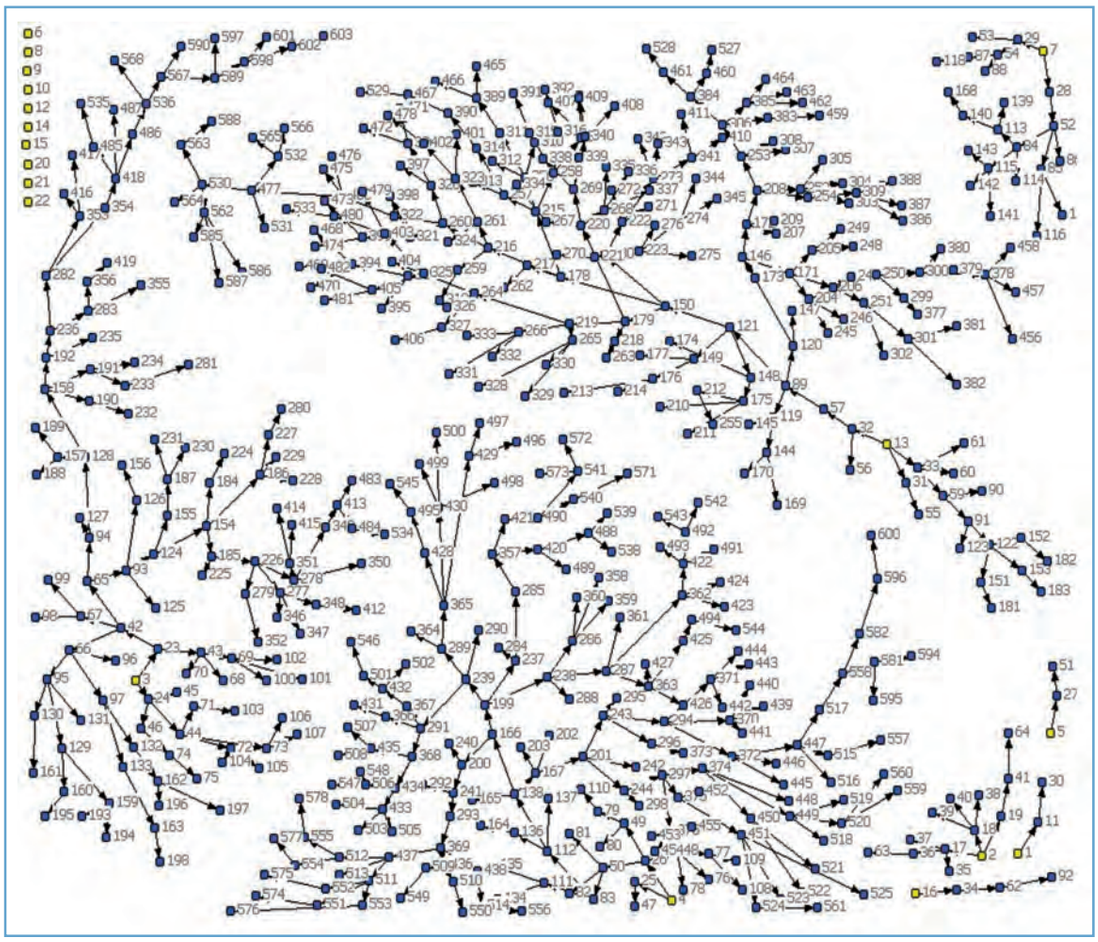
There were 46 instances of individuals refusing coupons. The reasons for the refusal were 25 (54%) for fear of testing and knowing results, 9 (16.1%) for fear of being identified as sex worker, 3 (6.5%) for perceiving oneself to be uninfected and the others were for being sick, too busy, did not want sexually transmitted infection (STI) test, and not interested. There were five refusals with no reasons given. A total of 1,642 coupons were given out. Of those, 585 (603 minus 18 seeds) were returned, resulting in a rate of 585/1642 = 35.6 per cent.

Seeds

Using NetDraw, the recruitment by seeds was mapped illustrating the waves. As shown in Figure 2, some seeds produced long referral chains and others did not produce at all. This could be for various reasons. Some participants may have understood the recruitment process and eligibility criteria better than other participants, thereby only recruiting appropriate recruits to the study and thus extending those particular recruitment chains. Some participants may not have had sufficient incentive to recruit or may have lost their coupons, thereby stopping the chain. Others may not have known any other peer female sex worker to whom they could have given the coupons.

Three seeds produced minimal results: seeds 1, 5, and 16 did not pass wave two, whereas seeds 2 and 7 reached three and five waves, respectively. Conversely, seed 4 produced one of the longer recruitment chains.

Figure 2: NetDraw Figure for all Seeds



RESULTS

Socio-Demographic Characteristics

Over half (52.2%) of the respondents were between the ages of 20 and 29, with an average age of 31.8 years. Almost half had never attended school (47.4%). The majority were single (61.1%) and of Muslim faith (58.5%). More than a third (42.7%) of them were circumcised.

Ethiopia (31.2%), Tanzania (27.6%) and Uganda (27.6%) were the most common countries of origin, followed by Somalia (11%), Democratic Republic of Congo (1.3%), Sudan (1%), and Rwanda (0.2%). Over three quarters of the respondents were from rural areas (78.7%). When asked about leaving their birthplace the most common reasons were to find work (47.3%) and to escape insecurity and war (43.7%). Other reasons cited were marriage (4.1%), environment disaster (3.2%), school (0.6%), and being forced to leave or were kidnapped (0.6%). Less than 5 per cent (3.8%) of respondents had a Kenyan ID

card. Thirty per cent (30.4%) of respondents asserted that they had a United Nations High Commission for Refugees (UNHCR) mandate, although this was not verified by documentation and this question was added to the study at a late stage, therefore the total number of respondents asked was only 32. Only four individuals (0.5%) transited in a second country before arriving in Kenya, the remainder of respondents came directly from their country of origin. Almost three quarters of the respondents (73.1%) had been in Kenya for more than two years. When asked about self-defined migration status, the majority of respondents defined themselves as migrant (52.2%), followed by refugee (41.5%) and asylum seeker (6.0%). Five percent (5.8%) of FSW had lived in a refugee camp in Kenya or elsewhere, and 1 percent (1.0%) had lived in an internally displaced persons (IDP) camp at some point. Less than a third of the respondents (17.4%) had sources of income other than sex work and almost three quarters (72.9%) supported other people financially.

Migration Patterns

Forty two per cent (42.6 %) of Somali and 3.9 per cent of Ethiopian respondents had lived in refugee camps, whereas Tanzanians and Ugandans had not (Table 2). Few respondents had lived in IDP camps, with Somalis the most numerous (5.6%). Tanzanians predominantly identified themselves as migrants (96.2%), whereas Somalis (63.0%), Ugandans (59.9%) and Ethiopians (50.2%) identified themselves predominantly as refugees. Somalis were the most numerous group to identify as asylum seekers (28.1%). However, by looking at the confidence interval, one can see the differences in self-defined migration status are not statistically significant as the intervals often overlap, which can be applied to much of the analysis in the following sections. Table two below breaks down migration status by nationality.

Table 1: Socio-Demographic Characteristics

Variable	Population estimate %	95% confidence interval	n/N
Age			
20-29	52.2	45.8—58.3	263/577
30-39	27.7	23.4—32.9	178/577
Education			
Never attended school	47.4	41.5—52.4	275/577
Did not complete primary education	14.5	11.4—19.0	87/577
Primary	31.8	26.8—36.7	172/577
Marital status			
Single	61.1	55.1—66.9	324/577
Divorced	25.1	20.2—30.1	167/577
Faith			
Christianity	40.6	33.9—47.5	239/577
Islam	58.5	51.4—65.3	337/577
Place of birth			
Somalia	11.0	5.3—17.2	64/577
Ethiopia	31.2	20.8—41.0	196/577
Uganda	27.6	20.9—36.2	142/577
Sudan	1.0	0.0—5.0	2/577
Rwanda	0.2	0.0—0.6	2/577
Tanzania	27.6	19.6—36.3	167/577
Democratic Republic of Congo	1.3	0.1—3.2	4/577
Residence at birth			
Rural	78.7	74.0—83.2	442/577
Urban	21.0	16.6—25.7	132/577
Reason to leave birthplace			
To find work	47.3	41.1—54.2	288/577
To escape insecurity/war	43.7	37.5—49.9	244/577
Have Kenya ID	3.8	2.1—6.0	23/577
Have UNHCR mandate	30.4	9.2—66.9	8/32
Transit in other countries between birth place and Kenya	0.5	0.1—1.2	4/573
Time lived in Nairobi			
7-12 months	9.1	6.4—12.2	53/577
More than 2 years	73.1	68.8—77.8	419/577
Self-defined migration status			
Migrant	52.2	46.0—58.4	303/577
Asylum Seeker	6.0	3.4—9.2	32/577
Refugee	41.5	35.8—47.1	241/577
Ever lived in refugee camp in Kenya or elsewhere	5.8	3.2—9.0	38/577
Ever lived in IDP camp	1.0	0.3—1.9	7/577
Other sources of income	17.4	13.3—21.9	102/577
Support other people financially	72.9	68.1—77.2	436/577
Circumcised	42.7	32.7—52.7	253/577

NB: percentages do not add up because of the RDS weighting, this is the case throughout the report for all data tables.

Table 2: Nationality by History in Camps and Self-defined Current Migration Status

Nationality	Ever lived in refugee camp in Kenya or else where		Ever lived in IDP camp		Self-defined migration status					
					Asylum		Refugee		Migrant	
	%	n/N	%	n/N	%	n/N	%	n/N	%	n/N
Somalia	42.6 (23.0, 56.6)	27/64	5.6 (0.7, 9.0)	3/64	8.6 (1.9, 19.6)	5/64	28.1 (13.6, 42.5)	14/64	63.0 (47.7, 77.7)	45/64
Ethiopia	3.9 (1.1, 7.5)	10/196	0.3 (0.0, 1.0)	1/196	44.8 (6.4, 55.0)	82/196	3.8 (0.9, 8.0)	10/196	50.2 (40.5, 58.7)	103/196
Uganda	0	0/142	1.5 (0.0, 3.6)	2/142	37.2 (25.6, 49.0)	54/142	7.0 (1.2, 15.6)	4/142	59.9 (48.6, 71.5)	84/142
Tanzania	0	0/167	1.0 (0.0, 2.9)	1/167	96.2 (92.8, 99.3)	159/167	1.8 (0.0, 4.6)	3/167	1.9 (0.0, 4.4)	5/167

Seroprevalence

The overall prevalence of HIV was 23.1 per cent and 2 per cent for syphilis (Table 3). Only one case of chlamydia (0.2%) and no cases of gonorrhoea were found. Only three cases (0.7%) of co-morbid HIV and syphilis were found. The one individual who reported positive for chlamydia was also HIV infected, resulting in 0.2 per cent co-morbid HIV and chlamydia prevalence.

Table 3: Seroprevalence

Variable	Population estimate %	95% confidence interval	n/N
HIV	23.1	18.4—28.2	139/572
Syphilis	2.0	0.7—3.1	9/542
Chlamydia	0.2	0.0—0.6	1/540
Gonorrhoea	0	--	0/540
HIV and Syphilis	0.7	0.0—1.5	3/542
HIV and Chlamydia	0.2	0.0—0.6	1/540

Prevalence of HIV by Demographic Variable

When examining the relationship between HIV and other variables there is a decreasing trend of HIV infection as education increases, although not statistically significant when comparing the confidence interval (Table 4). There was also a trend of HIV increasing with age, showing a statistically significant difference in prevalence between some age groups. Widows had twice the prevalence of HIV compared to single and divorced respondents, while the married and separated had the lowest prevalence. However, the sample sizes for the latter two groups are too small to be able to generalize. Christian respondents overall had a higher HIV prevalence than Muslim respondents, 30.5 per cent and 18.0 per cent respectively.

Ugandans and Tanzanians had the highest HIV prevalence with 30.6 per cent and 28.4 per cent respectively, followed by Somalis (14.4%) and Ethiopians (13.3%). Although the prevalence is extremely high for Sudanese, Rwandan and Democratic Republic of Congo respondents, the sample sizes are too small to infer from these results. There was no difference in HIV prevalence between respondents from rural and urban settings. Migrants and asylum seekers had a higher prevalence of HIV in comparison to refugees.

A slightly different pattern was seen for syphilis prevalence by nationality, with Ugandans showing the highest prevalence (4.5%), followed by Ethiopians (1.1%), Tanzanians (0.9%), and Somalis (0.3%). Sub-group analysis was not possible for chlamydia and gonorrhoea infection, as the groups were small (one case of chlamydia and no cases of gonorrhoea).

HIV prevalence among migrant female sex workers was 23.1 per cent, similar to the prevalence among their Kenyan counterparts, and over three times the prevalence in the general population.

Table 4: Prevalence of HIV by Demographic Variable

Variable	Population estimate of HIV within each group %	95% confidence interval	n/N
Age			
20-29	13.4	8.8—18.9	40/260
30-39	29.0	20.0—39.4	47/176
40-49	43.9	27.2—61.3	33/81
50-59	34.0	15.3—64.3	14/28
Education			
Never attended school	23.2	16.2—30.5	67/271
Did not complete primary education	21.6	13.0—32.9	19/85
Primary	24.0	15.7—31.7	45/171
Marital status			
Single	22.9	17.1—29.8	76/320
Divorced	22.7	14.2—30.6	39/165
Widowed	42.2	24.9—61.4	18/42
Faith			
Christianity	30.5	23.0—39.6	83/234
Islam	18.0	11.8—23.5	55/333
Place of birth			
Somalia	14.4	1.5—27.5	7/64
Ethiopia	13.3	7.6—20.0	31/194
Uganda	30.6	21.5—42.1	51/141
Tanzania	28.4	17.6—36.7	44/161
Sudan	61.8	0.0—75.0	1/2
Rwanda	61.2	0.0—100.0	1/2
Democratic Republic of Congo	99.0	50.0—100.0	3/3
Residence at birth			
Rural	22.6	17.0—28.3	104/435
Urban	23.4	14.1—33.2	33/110
Self-defined migration status			
Migrant	25.3	18.2—33.1	70/297
Asylum Seeker	29.9	8.9—54.3	9/32
Refugee	18.9	13.7—25.0	58/238

Sexual History and Transactional Sex

The vast majority of respondents (93%) first had vaginal sex when they were between the ages of 5 to 14. 61.7 per cent were between the age of 15 and 19 when they first had anal sex and 71.3 per cent in the same age bracket had given oral sex.

81 per cent of migrant female sex workers had sex with three or more clients in the past week.

The average age of first vaginal sex was 15.7, first anal sex 18.6 and first time giving oral sex was 17.4 years. Almost half of the respondents started selling sex before the age of 20 (45%). The mean age when sex was first traded was 21.6 years.

Almost all respondents had more than two sexual partners in the past week (92.6%), and 84 per cent had more than ten sexual partners in the past month. The average number of sex partners in the past week and month was 5.2 and 21.6, respectively. As for transactional sex, more than three quarters of respondents had three or more clients in the past week (81.5%), and almost 50 per cent had more than 15 clients in the past month (48.8%). The average number of clients in the past week and past month was 4.7 and 17.9, respectively.

The majority of the respondents are contacted by their clients via mobile phone (62.5%) and almost all sex with the clients happen in hotels (94.4%). More than two thirds (69.2%) of the respondents had more than one client in the last day they worked, with 64.8 per cent receiving less than 500 KES. Less than 3 per cent (2.8%) had to split the money with someone. About one in five respondents reported a businessman being the typical client (19%), however, more than three quarters (75.6%) of respondents did not know the occupation of their client.

Male Condoms

More than three quarters (77.6%) of respondents had used condoms with their last client (Table 6). Almost all had used a male condom (99.8%), and more than 80 per cent of the time, the FSW was the one who had suggested using the condom (83.5%). However, only approximately half of the FSW used condoms every time they had sex with a client in the past seven days (54%) and in the past month (53.4%). More than three quarters of respondents (81.5%) who did not use a condom at last sex indicated the reason was objection by the client.

Table 5: Sexual History and Transactional Sex

Variable	Population estimate %	95% confidence interval	n/N
Age at first vaginal sex			
5-9	23.7	19.1—28.3	144/577
10-14	69.3	64.7—74.0	393/577
15-19	5.3	3.5—7.5	33/577
Age at first anal sex			
15-19	61.7*	31.5—83.1	12/23
20-35	38.3*	16.9—68.5	11/23
Age at first oral sex			
15-19	71.3*	60.6—81.7	105/146
20-50	18.9*	11.2—25.4	30/146
Number of sexual partners in past 7 days			
3	21.5	17.3—26.2	116/577
4	23.5	19.3—27.4	134/577
5	22.7	18.7—27.3	141/577
6+	24.9	19.9—29.8	144/577
Number of sexual partners in past 30 days			
11-15	18.1	13.8—22.5	94/581
16-20	32.4	27.7—37.4	203/581
21-25	15.1	11.2—19.3	76/581
26-30	6.7	4.1—9.4	34/581
30+	11.7	8.6—15.1	77/581
Number of transactional clients in past 7 days			
3	27.1	22.5—32.3	139/577
4	16.8	12.8—20.2	97/577
5	18.2	14.5—21.9	125/577
6+	19.4	15.2—24.4	111/577
Number of transactional clients in past 30 days			
16-20	27.6	12.0—32.6	182/581
21-25	10.6	7.4—14.7	51/581
26-30	3.6	2.0—5.3	20/581
30+	7.0	4.7—10.0	48/581
Age started trading sex			
10-14	6.4	3.3—9.5	23/577
15-19	38.6	33.4—44.3	214/577
20-24	29.1	24.6—33.7	174/577
Places meet client			
Roadside	27.8	22.6—32.0	163/577
(Mobile) They call me	62.5	57.4—67.9	365/577
Places have sex with clients			
Hotel	94.4	92.2—97.2	551/577
Number of clients last day worked			
2	43.3	28.2—48.3	270/577
3	17.3	13.0—21.4	91/577
4	4.7	2.5—7.1	21/577
5	2.1	0.8—3.5	15/577
6+	1.8	0.7—3.2	12/577
Money received last time had sex with client			
20-249	40.6	36.5—47.7	247/573
250-499	24.2	20.4—29.3	127/573
500-999	20.3	16.2—25.5	116/573
1000-1999	8.5	5.0—10.5	50/573
2000+	6.5	2.6—7.5	33/573
Was forced to split the money from last paid sex with client	2.8	1.1—5.0	15/577
Typical occupation of your client			
Businessman	19.0	15.0—23.6	111/577
Do not know	75.6	70.7—80.4	435/577

*Among those who answered this question

Table 6: Condom Use and Lubrication

Variable	Population estimate %	95% confidence interval	n/N
Condom use during sexual intercourse with last client	77.6	72.8—82.1	450/577
Type of condom used with last client			
Male condom	99.8*	99.4—1.00	360/362
Female condom	0.2*	0.0—0.6	2/362
Who suggested condom use last time with client			
Myself	83.5*	78.7—87.8	301/362
How frequent was condom use with clients in the past 7 days			
Every time	54.0	48.0—59.2	304/577
Sometimes	36.9	32.0—42.8	224/577
How frequent was condom use with clients in the past 30 days			
Every time	53.4	47.3—58.6	302/577
Sometimes	37.3	32.4—43.2	226/577
Reason for no condom use at last sex with client			
Client objected	81.5*	72.4—88.6	105/127

*Among those who answered this question

Only half of the respondents used condoms every time they had sex in the past week.

Use of Condoms and Lubrication

Condom use by nationality (Table 7) indicated that Tanzanians had the highest condom usage at last sex with a client (87.9%), followed by Somalis at 84.3 per cent, Ethiopians at 75.2 per cent, and Ugandans at 70.4 per cent. Although condom usage was highest amongst Tanzanians for both condoms used at last sex with client and condom used every time with clients in the past 7 days, these results are not statically significant, with the exception of condom usage comparisons between Ugandans and Tanzanians, as the confidence intervals often overlap when comparing groups.

More than three quarters (81.5%) of respondents who did not use a condom at last sex indicated it was due to the client objecting.

Table 7: Condom Usage by Nationality

95% confidence intervals	Somalia	n/N	Ethiopia	n/N	Uganda	n/N	Tanzania	n/N
Condom used last time with a client	84.3 (64.2, 93.3)	51/64	75.2 (66.9, 83.6)	145/196	70.4 (60.1, 79.9)	100/142	87.9 (80.8, 93.2)	148/167
Used a condom with every client in past 7 days	55.0 (38.8, 67.5)	35/64	47.7 (38.5, 60.3)	89/196	48.8 (35.3, 56.9)	64/142	67.1 (58.3, 75.6)	111/167

There were no differences in HIV prevalence by condom use during the last sexual encounter with a client, or frequency of condom use over the past seven days (Table 8).

Table 8: Condom Usage by HIV Status

Variable	Population estimate of HIV within each group %	95% confidence interval	n/N
Condom used last time with client			
No	21.7	14.1—31.5	34/125
Yes	23.4	17.8—28.8	104/433
How frequent was condom use with clients in the past 7 days			
Every time	23.2	16.7—29.9	69/299
Almost every time	21.6	7.4—46.8	7/25
Sometimes	23.2	16.6—31.3	57/221
Never	16.8	2.6—36.4	5/23

Female Condoms and Lubrication

Only 9.2 per cent of the respondents had ever heard of lubrication (Table 9). Moreover, only eight women answered other questions related to lubrication. Of those, three said they had used lubrication. Of the three women who used lubrication, one said that there is a particular type of lubrication to be used with latex condoms but none of them knew what it was. Among the eight respondents, three said that water based lubrications are somewhat affordable, the other five did not know about affordability and two said that they are somewhat easy to find. The remaining six did not know about availability. On the other hand, 48.5 per cent of the participants had heard about the female condom. Of those, 10.9 per cent had ever used it and 22.1 per cent knew from where they could obtain one.

Table 9: Lubrication and Female Condoms

Variable	Population estimate %	95% confidence interval	n/N
Ever Heard of lubrication	9.2	5.1—11.7	46/577
Ever Heard of Female condom	48.5	41.6—52.2	272/577
Ever used Female Condom	10.9*	5.0—19.4	16/132
Know of a place to obtain female condom	22.1*	13.3—33.1	28/132

*Among those who answered this question

STI Treatment Seeking Behaviour

When asked about sexually transmitted infections (STI), 70.1 per cent said that they had heard of STI (Table 10). Unprobed questioning revealed that HIV (58.6%) was the most often cited followed by gonorrhoea (20.1%) and syphilis (21.6%). Almost a third (32.1%) of the FSW reported having genital discharge in the past year and 4.5 per cent reported an ulcer or sore in the same time period.

Only 9.2 per cent of respondents had ever heard of lubrication.

Of those who reported seeking treatment, the majority went to hospital (71.4%), a quarter at a private clinic (24.5%), and only a small minority at a private pharmacy (7.1%). However, none of those who had an ulcer or discharge told their partners, stopped having sex, or used a condom while having sex. Respondents indicated the most appropriate person to deliver information about STI/HIV is an older female (60.0%) followed by a female of the same age (27.6%). Moreover, the preferred place to deliver such information is hospitals (70.1%), followed by television (8.2%), and community health workers (7.5%).

None of those who had an ulcer or discharge told their partners, stopped having sex, or used a condom while having sex.

Table 10: STI Symptoms and Treatment Seeking Behaviour

Variable	Population estimate %	95% confidence interval	n/N
Ever heard of STI	70.1	64.7—74.7	404/577
Which STI have you heard of			
HIV	58.6	53.3—64.3	341/577
Gonorrhoea	20.1	16.1—24.7	110/577
Syphilis	21.6	17.3—26.1	119/577
Had genital discharge in past year	32.1	25.8—35.5	168/577
Had ulcer/sore in the past year	4.5	1.8—5.1	18/577
Last time had genital discharge or ulcer you sought care from			
Hospital	71.4*	57.6—89.8	111/162
Private clinic	24.5*	4.9—43.5	36/162
Private pharmacy	7.1*	0.5—15.0	16/162
Who should be the source of HIV/STI information			
Female same age	27.6	21.4—33.7	168/577
Female older	60.0	53.7—66.6	326/577
Where is the preferred source for HIV/STI information			
Hospitals	70.1	64.9—74.4	406/577
Community health workers	7.5	5.3—10.9	50/577
Television	8.2	6.9—11.5	49/577

*Among those who answered this question

HIV Knowledge, Testing and Risk Perception

Almost all participants had heard about HIV and 63.1 per cent knew someone who is either infected or died of HIV/AIDS (Table 11). The infected or deceased person is predominantly a friend (78.9%), and sometimes a sibling (11.7%). There were large variations in answers to specific questions relating to knowledge of HIV, for example, a quarter did not know that condom use (25.8%), and that having one faithful uninfected partner protects against HIV (26.7%). Nearly a fifth were misinformed that mosquito bites transmit the virus (18.6%). However, some questions resulted in higher levels of knowledge. For example, 70.2 per cent of respondents correctly agreed that abstinence could protect against HIV, and a high percentage (83.1%) knew that sharing needles with an infected person is a risk for HIV. Nonetheless, about three quarters of respondents (72.2%) still think that a healthy looking person cannot have HIV. As for mother to child transmission, 74.7 per cent of respondents knew that a mother can transmit HIV to her unborn child or through breast milk.

Almost three quarters (71.5%) of respondents knew where to obtain an HIV test. Over half had ever had an HIV test and almost all of those who had been tested received the results. Of the 55.5 per cent who had received an HIV test, almost half (48.3%) had the test more than 12 months previously.

Only 18.4 per cent of respondents were aware that a healthy looking person can have HIV.

25.8 per cent of respondents did not know that condom use protects against HIV infection.

Table 11: HIV Knowledge and Testing

Variable	Population estimate	95% confidence interval	n/N
Has Ever Heard of HIV/AIDS	98.1	95.8—99.3	567/577
Knows a person who is infected with HIV or who has died of AIDS related illness	63.1*	56.7—67.9	362/555
The person I know is			
Sibling	11.7*	6.4—16.4	29/247
Friend	78.9*	71.7—84.8	189/247
A person can protect themselves from HIV virus by using a condom correctly and every time they have sexual intercourse			
No	25.8	20.2—30.9	151/577
A person can get HIV from mosquito bites			
Yes	18.6	14.3—21.9	111/577
Can protect from HIV by having only one faithful uninfected partner			
No	26.7	20.0—30.9	138/577
Can protect from HIV by not having sexual intercourse			
No	26.3	20.7—30.9	126/577
Yes	70.2	64.6—75.9	432/577
Can get HIV by sharing a meal with an infected person			
Yes	28.9	22.5—31.8	156/577
Can get HIV by sharing needles with an infected person			
Yes	83.1	79.1—87.4	485/577
Can a healthy looking person have HIV			
No	72.2	69.2—78.6	421/577
Can an infected pregnant woman transmit the virus to her unborn child			
Yes	74.6	70.0—79.8	437/577
Can an infected pregnant woman transmit the virus to her child through breastfeeding			
Yes	74.7	68.7—78.4	433/577
Know where to go to receive a confidential HIV test			
Yes	71.5	65.1—75.4	433/577
Ever had HIV Test			
Yes	55.5*	48.2—59.3	314/574
Got HIV Test Results back			
Yes	98.8*	96.7—100.0	184/186
When had most recent HIV Test			
More than 12 months	48.3*	41.3—60.4	95/186

*Among those who answered this question

Of the 55.5 per cent who had received a HIV test, almost half (48.3%) had the test more than 12 months previously.

Overall there is a trend of increased prevalence of HIV among participants who know the correct answers to the knowledge questions, the exceptions being participants who know that sharing needles puts one at risk, and that a healthy looking person can have HIV (Table 12).

Table 12: HIV Knowledge by HIV Status

Variable	Population estimate of HIV within each group %	95% confidence interval	n/N
A person can protect themselves from HIV virus by using a condom correctly every time they have sexual intercourse			
No	18.1	10.7—27.1	25/150
Yes	26.5	20.5—32.8	108/392
A person can get HIV from mosquito bites			
No	25.3	19.6—30.9	108/411
Yes	17.7	10.2—30.7	23/105
Can protect from HIV by having only one faithful uninfected partner			
No	17.3	10.1—25.8	24/137
Yes	24.7	18.3—29.7	109/412
Can protect from HIV by not having sexual intercourse			
No	16.2	8.9—24.5	22/125
Yes	25.0	19.2—30.8	112/424
Can get HIV by sharing a meal with an infected person			
No	23.0	17.5—28.8	97/404
Yes	20.1	13.1—29.2	36/151
Can get HIV by sharing needles with an infected person			
No	26.0	13.2—39.4	18/76
Yes	22.0	17.1—27.3	118/478
Can a healthy looking person have HIV			
No	23.8	19.2—30.5	106/414
Yes	20.6	10.6—27.6	22/108
Can an infected pregnant woman transmit the virus to her unborn child			
No	19.7	8.9—29.0	16/103
Yes	23.2	17.9—29.4	112/428
Can an infected pregnant woman transmit the virus to her child through breastfeeding			
No	20.5	13.1—30.1	24/114
Yes	22.5	16.8—27.7	103/426

Overall, Somalis' knowledge appeared lower than other nationalities (Table 13). Nevertheless, these results are not statistically significant, with the confidence intervals overlapping when comparing groups.

Table 13: HIV Knowledge by Nationality

Variable	Somalia	n/N	Ethiopia	n/N	Uganda	n/N	Tanzania	n/N
A person can protect themselves from HIV virus by using a condom correctly every time they have sexual intercourse Yes	33.5 (15.8, 52.1)	17/64	55.6 (46.3, 67.0)	111/196	80.3 (70.3, 87.8)	118/142	87.7 (79.9, 93.3)	146/167
A person can get HIV from mosquito bites No	56.8 (33.9, 67.5)	36/64	68.9 (61.0, 78.2)	134/196	78.5 (69.9, 86.4)	114/142	76.7 (69.2, 84.0)	126/167
Can protect from HIV by having only one faithful uninfected partner Yes	44.6 (29.5, 60.6)	26/64	60.6 (50.2, 69.9)	128/196	81.6 (71.2, 90.5)	116/142	87.2 (93.2, 79.9)	145/167
Can protect from HIV by not having sexual intercourse Yes	46.6 (29.1, 60.4)	24/64	63.8 (55.7, 72.7)	137/196	81.3 (69.9, 91.2)	122/142	83.9 (74.8, 91.3)	143/167
Can get HIV by sharing a meal with an infected person No	64.2 (62.2, 85.9)	45/64	62.5 (54.5, 73.4)	127/196	72.6 (65.0, 82.3)	103/142	74.8 (66.3, 81.6)	125/167
Can get HIV by sharing needles with an infected person Yes	80.1 (76.6, 91.9)	49/64	77.6 (68.3, 84.6)	154/196	87.8 (80.8, 94.4)	127/142	87.6 (80.0, 95.0)	148/167
Can a healthy looking person have HIV Yes	37.6 (15.9, 45.0)	17/64	12.8 (8.1, 19.1)	36/196	14.4 (76.6, 19.8)	25/142	13.9 (10.0, 20.7)	29/167
Can an infected pregnant woman transmit the virus to her unborn child Yes	43.5 (25.0, 56.3)	26/64	66.7 (57.2, 73.8)	131/196	83.4 (72.8, 92.6)	125/142	89.0 (83.2, 94.2)	147/167
Can an infected pregnant woman transmit the virus to her child through breastfeeding Yes	80.4 (64.7, 88.1)	45/64	65.6 (55.9, 74.6)	131/196	79.4 (72.1, 88.4)	117/142	77.4 (69.4, 84.8)	134/167

Stigma and Discrimination

59.6 per cent of respondents would share cutlery, plates and glasses with a person who has HIV, and most attitudes towards people living with HIV were favourable; however, the vast majority (82.7%) of them said if a member of their family had HIV they would keep it a secret (Table 14).

82.7 per cent said if a member of their family had HIV they would keep it a secret.

Table 14: Stigma and Discrimination

Variable	Population estimate %	95% confidence interval	n/N
Willing to share cutlery, plates and glasses	59.6	52.7—63.5	341/577
Would care for a relative who has HIV	82.6	77.8—85.7	463/577
An HIV infected student who is not sick should be allowed to attend school	82.3	78.2—86.0	471/577
An HIV infected teacher who is not sick should be able to continue teaching	83.6	79.7—87.4	477/577
Would buy from a shopkeeper of food seller who has HIV	74.9	69.9—79.0	422/577
Would keep a secret the fact that a member of the family has HIV	82.7	77.8—86.1	473

Substance Use

Approximately a quarter of the participants chewed khat (27.3%) or drank alcohol (24.4%) every day in the past month (Table 15). Moreover, 3.5 per cent of respondents inhaled glue at least once in the past month and 3.3 per cent took pills at least once, also in the same time period. Only 2.1 per cent of the respondents injected drugs in the past year; however, all of those respondents shared needles.

Table 15: Substance Use

Variable	Population estimate %	95% confidence interval	n/N
Chewed *Khat* in the past month			
Every day	27.3	21.0—30.3	165/577
Never	53.6	50.2—60.5	314/577
Inhaled glue in the past month			
Every day	0.7	0.2—1.5	5/577
At least once a week	0.9	0.2—2.0	5/577
Less than once a week	1.9	0.8—3.3	11/577
Never	96.5	94.4—98.0	566/577
Drank alcohol in the past month			
Every day	24.4	18.9—29.0	153/577
Never	50.8	44.4—56.6	282/577
Took pills in the past month			
Every day	1.9	0.5—3.8	12/577
At least once a day	0.5	0.0—1.3	3/577
Less than once a week	0.9	0.3—1.8	7/577
Never	96.6	94.1—98.4	555/577
Injected drugs in past year			
Yes	2.1	0.4—3.7	8/577
Ever shared injecting equipment			
Yes	100.0†		8/8

*Among those who injected

Media and HIV Intervention Exposure

Approximately a third of the respondents listened to the radio (35.6%) or watched television (31.0%) every day in the past month (Table 16). Most listened to the KISS radio station (46.2%), followed by BBC (14.4%), and KBC (10.4%). The most watched television station was Citizen (44.4%) followed by KTN (30.8%). In the past year, the greatest source of information about HIV/AIDS, as reported by the respondents, were leaflets or posters (60.5%), a sex worker friend (56.6%), a friend (23.7%), Kenyan television (23.6%), Kenyan radio (21.0%), and through counselling as part of HIV testing (20.4%).

Leaflets, posters and a sex worker friend were the greatest sources of HIV information for migrant FSW.

Table 16: Media and HIV Intervention Exposure

Variable	Population estimate %	95% confidence interval	n/N
Listened to radio last month			
Everyday	35.6	29.0—39.3	194/577
Did not listen to ration in past month	53.9	50.7—61.5	326/577
Radio station you listen to most often			
BBC	14.4*	6.9—20.6	14/125
KBC	10.4*	4.4—14.0	12/125
KISS	46.2*	36.5—61.8	61/125
Watched TV last month			
Everyday	31.0	25.4—36.1	170/577
Did not watch TV in past month	59.7	55.5—67.5	366/577
Television station you watch the most often			
KTN	30.8*	19.1—43.8	33/106
Citizen	44.4*	31.3—64.1	49/106
Received information about HIV/AIDS in the past year from **			
Friend (non sex worker)	23.7	20.3—27.5	137/577
Friend (sex worker)	56.6	51.7—61.0	344/577
Leaflet/poster	60.5	55.7—64.8	369/577
TV (Kenyan)	23.6	20.0—27.8	141/577
Radio (Kenyan)	21.0	17.5—25.1	126/577
Counselling as part of HIV/AIDS testing	20.4	16.8—23.8	135/577

* Among those who answered this question

** Note that each of the below is a separate question (hence total is not 100 per cent for the population prevalence)

Violence, Networks and Support

Ninety eight per cent of respondents reported that they had been verbally insulted for selling sex in the past year (Table 17). Moreover, 28.7 per cent of female sex workers were forced to have sex in the past year. Most who answered did not know who forced them and very few reported it was their neighbour or regular client. Of those, only 10.7 per cent reported the incident to the police and 42.3 per cent sought medical treatment. Almost a quarter of the FSW are members of a female sex worker group.

Table 17: Violence, Networks and Support

Variable	Population estimate %	95% confidence interval	n/N
Received insults in the past year	98.7*	98.1—1.00	213/214
Forced sex in the past year	28.7*	22.6—33.9	144/566
Last time forced sex who did it			
Neighbour	4.3*	0.0—7.9	2/58
Do not know	86.1*	85.4—99.7	53/58
Regular client	9.6*	†	5/58
Sought medical treatment after forced sex	42.3*	28.5—61.0	24/58
Reported last incident of forced sex	10.7*	3.8—17.9	8/58
Member of female sex worker group	23.4*	16.3—25.5	126/573
What does this group do			
Leisure	83.5*	71.5—100.0	48/52
Community support	3.0*	0.0—8.7	2/52
Other	8.7*	0.0—25.5	2/52

* Among those who answered this question
† Confidence interval was not generated by RDSAT

28.7 per cent of FSW were forced to have sex in the past year. Of those, only 10.7 per cent reported the incident and 42.3 per cent sought medical treatment.

Anecdotal Information from Informal Consultations and Focus Group Discussions

Qualitative evidence from the many informal consultations and focus group discussions between January and June 2010 showed that the most commonly reported needs amongst this community are language trainings, income generating, and livelihood activities. Observations based on the respondents who turned up at the referral clinics show that many are in need of treatment for general health conditions including respiratory and gastrointestinal ailments. Many of the respondents appear to be malnourished, and also requested nutritional support. Overall, high levels of poverty are seen and this has forced many of the respondents into sex work and perpetuates this livelihood.

DISCUSSION

The HIV prevalence among migrant FSW in Nairobi is 23.1 per cent. This figure is over three times the national prevalence, and similar to the findings of other FSW study in Kenya. Sex work is indeed present in Muslim and Christian migrant communities, dispelling an often-cited myth that there is no sex work in Muslim communities. Although the study shows a similar HIV prevalence amongst migrant FSW compared with general FSW in Kenya, differences in behaviour and risk characteristics are present. A comparison of data from this study and from the *NACC HIV/AIDS Situation Analysis of Sex Workers and Clients in Kenya* (2009b) among general FSW is provided. Furthermore, where possible, the results of the two FSW studies are also compared with data from the Kenya Demographic and Health Survey (DHS) 2008-2009 (Republic of Kenya, KNBS, 2010b), and the Kenya AIDS Indicator Survey (KAIS) (Republic of Kenya, NASCOP, 2008a). Lastly, where relevant, additional data from other publications is included and compared.

Comparison of Findings with Other FSW Data in Kenya

The NACC *Situational Assessment of Sex Workers and Clients*, undertaken in 2009, was used a cross sectional study and included 2,488 respondents selected through purposive sampling. Other populations were also included in the survey, including clients of FSW; however for the purposes of this discussion the results of only FSW respondents will be included. In the NACC situational analysis, 96 per cent of respondents were residents of Kenya; the remainder were refugees and asylum seekers. The vast majority of respondents were Kenyan, and therefore for the purposes of comparison the total sample will be compared with the migrant FSW data from this study. The NACC situational analysis was also representative of the entire country whereas the survey with migrant FSW is only representative of Nairobi.

Although 92 per cent of women in the general population know where to go for an HIV test, only 72 per cent of migrant FSW know the same.

The Kenya DHS is a cross-sectional household survey of 11,909 individuals, including 8,444 women. The DHS used a two-stage cluster sampling approach, thus providing a nationally representative sample of the Kenyan population, undertaken in late 2008 to early 2009. The DHS collects a wide range of demographic and health information; however, for the purposes of this analysis a small subset will be reviewed, primarily the findings regarding HIV awareness and behaviour.

Lastly, the KAIS is similar to the DHS in that it is also a cross-sectional, population based, nationally representative sample of Kenyan households. Implemented in 2007, the primary objective of the KAIS was to collect information on HIV and AIDS, it therefore provides more specific information around HIV risk behaviours than the DHS. Furthermore, the KAIS conducted serological testing to ascertain HIV prevalence, whereas the DHS did not. A total of 17,940 individual interviews were conducted, and 15,853 blood specimens analyzed.

DISCUSSION

Socio-Demographic Characteristics

The general FSW were older and more educated than the migrant FSW, 52 per cent were 25 years or older and 41 per cent had secondary education. Data on faith and marital status were not collected in the general FSW survey. The general FSW were more likely to have other sources of income besides sex work, 90 per cent compared with migrant FSW at only 18 per cent. This finding may be due to irregular migration status of the migrant FSW, resulting in difficulty finding work in the formal employment sector. Low education and literacy levels among the migrant FSW also contribute to these difficulties. Moreover, most migrant FSW are supporting other people financially, thereby contributing to their need to stay in sex work (data not available in the general FSW survey). These results indicate the need for livelihood programmes, including income generating activities and skills building, which is relevant for all FSW regardless of immigration status. In the NACC analysis, when asked what types of services they desired, income-generating activities was mentioned by over 70 per cent of respondents. Although not asked in the migrant survey questionnaire, most migrant FSW expressed a desire for such activities during informal consultations and discussions.

Condom Usage

More migrant sex workers had used a condom during their last sexual transaction with a client (77.6%) than general FSW (66.9%); however, this question was worded differently across the two studies and therefore this finding should not be generalized. The general FSW survey asked about “non-regular” partners which is a different criterion than “paying / transactional” partners, which was the wording in the migrant FSW study. The general FSW definition could therefore include both clients and non clients (non regular), whereas the migrant indicator only includes clients (regular or non regular).

In the migrant FSW study, although there was high reported condom usage; it is important to note that Tanzanians and Ugandans comprised a large proportion. These two countries have stronger HIV prevention programmes compared with neighbouring countries such as Somalia. Nonetheless, sub-group analysis demonstrated that after Tanzanians, Somalis had the second highest condom usage, and had a higher rate than Ugandans.

Among migrant FSW more than three quarters of respondents indicated the reason they did not use a condom during their last sexual encounter with a client was because the client objected. Although a direct comparison is not available for the general FSW data, when respondents were asked why they did not use a condom at last sex (with any type of partner) the most common reason was trust in the partner (40.8%) and objection by partner (35.0%). This demonstrates the need for inclusion of men in condom programming, including awareness raising, distribution, and demonstrations on use to reduce men objecting to condom use with sex workers.

Almost half of the migrant FSW had heard of female condoms; however, less than a quarter knew where to obtain them. Informal consultations revealed that many migrant FSW wanted female condoms, and during distribution of male condoms they asked for female condoms, but female condoms were not available for distribution. This indicates a need to increase awareness and expand distribution of female condoms.

Almost 98 per cent of general FSW had heard of STI, compared with only 70 per cent of migrant FSW.

HIV Testing

According to the DHS and KAIS, 58 per cent and 40.7 per cent, respectively, of women in the general population aged 15-49 have ever had an HIV test, which compares with migrant FSW (55%), but is lower than general FSW (78%). Unfortunately further analysis between the migrant FSW and general FSW testing indicators is not possible due to differences in questionnaire design across the studies. For example, the general FSW survey asked if respondents had been tested for HIV at least twice in the past year, whereas the migrant FSW study asked when they had had their most recent test, but not how many times they had been tested in the past year. Almost 50 per cent of the migrant respondents had not been tested in the past 12 months, whereas almost 50 per cent of the general FSW had been tested at least twice in the past year. This illustrates an urgent need to increase uptake of HIV counselling and testing. Behavioural and clinical components of the programme should emphasize routine testing among FSW. Knowledge of status will facilitate access to services, and the counselling component will reinforce appropriate HIV knowledge and risk awareness.

Although 92 per cent of women in the general population know where to go for an HIV test, only 72 per cent of migrant FSW know the same (data not available for general FSW survey). This finding illustrates general HIV testing campaigns are not necessarily reaching migrant FSW as much as they are reaching the general population.

STI and STI Treatment Seeking Behaviour

Almost 98 per cent of general FSW had heard of STI, compared with only 70 per cent of migrant FSW, illustrating a clear difference in knowledge. This is also reflected in self-reported symptoms for STI (genital discharge or ulcer), with migrant FSW reporting double (over 30%) that of general FSW (15%). However, the reporting timeframe for migrant FSW was 12 months, compared with three months for general FSW resulting in difficulties in generalizing the findings. Nevertheless, of the migrant FSW who had STI symptoms in the past year, none told their partners about it, nor did they stop having sex or use condoms while having sex; whereas 38 per cent of general FSW disclosed this information to at least one of their partners. Self-report of STI symptoms is much higher amongst both FSW populations, compared with women in the general population, where less than 3 per cent of women self reported a genital ulcer or sore (Republic of Kenya, DHS, 2009). Amongst the migrant FSW respondents, disaggregation by nationality was not possible due to the

small sample size. Overall, the data states that general FSW may have more knowledge around STI prevention and treatment.

Awareness and Knowledge of HIV

Almost all FSW in both migrant and non-migrant surveys had heard of HIV, this is comparable with the general population as illustrated in the DHS where 99% of women between the ages of 15 and 49 had heard of HIV. Both the migrant and general FSW studies found variations in HIV knowledge. A significant number (72%) in both studies believe one can contract HIV from mosquito bites. However, the majority of respondents in both surveys correctly answered prevention of mother to child transmission related questions. The large discrepancy between the two studies in regards to knowledge is that less than a quarter of the migrant FSW knew that healthy looking people could have HIV, whereas more than three quarters of the non-migrant FSW knew that this was the case. Furthermore, looking at knowledge by nationality, Somalis' knowledge was lower than other nationalities; they repeatedly answered more questions incorrectly than any other nationality overall. However, the data is not statistically significant, and therefore the possibility that Somalis knowledge around HIV may be lower than other nationalities should be explored further.

Less than a quarter of the migrant FSW knew that healthy looking people could have HIV, whereas more than three quarters of the non-migrant FSW knew that this was the case.

When comparing HIV knowledge around prevention and transmission methods, between both populations of FSW and the general population, the general population consistently scored higher. In the DHS, women between the ages of 15 and 49 scored 75 per cent, 92 per cent and 88 per cent on three indicators around HIV prevention: using condoms, limiting sexual intercourse to one uninfected partner, and abstaining from sexual intercourse. This is significantly higher than the migrant FSW who scored 69 per cent, 70 per cent, and 70 per cent on the same indicators, respectively. These questions were not asked in the general FSW survey. In summary, migrant FSW seem to have less knowledge around HIV compared with general FSW and the general population.

Stigma and Discrimination

More than three quarters of migrant respondents reported they would keep it a secret if a family member were HIV positive, indicating stigma within the community (data not available for general FSW). In comparison with the general population, over 65 per cent of women aged 15-64 said they would not want this to be kept a secret, illustrating less stigma amongst the general population than amongst migrant FSW. Additional questions around attitudes towards people living with HIV showed mixed results. Amongst migrant FSW, 60 per cent would care for an HIV infected family member and also believe an HIV infected teacher should be allowed to continue teaching (84%), whereas women in the general population showed 91 per cent and 77 per cent on corresponding questions. Efforts to encourage acceptance of persons living with HIV should continue, and therefore information, education and communication targeting both the general population and higher risk groups is necessary.

DISCUSSION

Characteristics and Context of Sex Work

The number of sex partners was similar for both populations of FSW, although slightly less amongst migrant FSW, with general FSW averaging 6 different sexual partners and 5 clients in the past week, compared with 5 sex partners and 4 clients for migrant FSW in the same time period. The age of first sexual encounter among migrant FSW was exceptionally young, with 93 per cent of migrant FSW respondents indicating their first vaginal sexual encounter between the ages of 5 and 14 (data unavailable from the general FSW survey). In comparison with the general population through the DHS, only 11 per cent of women aged 15-49 had had sex before the age of 15. Overall, the data illustrates HIV awareness and prevention education must begin early, possibly as soon as the pre-teen years.

93 per cent of migrant FSW respondents indicated their first vaginal sexual encounter between the ages of five and 14.

The majority of general FSW meet their clients at lodges and hotels (65%), places of entertainment (52%), home (27%), and streets (22%), compared with migrant FSW, where the majority meet their clients through mobile phone (62%), on the roadside (27%), or at a hotel (6%). The meeting place for the actual sex acts also differed slightly; most migrant sex workers frequent hotels, while the general FSW frequented hotels, as well as their home. As hotels and lodges are a common area for both meeting clients and engaging in sex acts, distribution of condoms in hotels and lodges should be a priority through the engagement of both the public and private sector.

Just under a quarter of general FSW (24%) had experienced forced sex in their lifetime; whereas just over a quarter (29%) of migrant FSW had experienced forced sex in the past year alone. These findings are not surprising, and are supported by a recent qualitative study in Mombasa and Naivasha, which documented the pervasiveness of sexual and physical violence experienced by FSW in Kenya (Okal, 2010).

Just under a quarter of general FSW (24%) had experienced forced sex in their lifetime; whereas just over a quarter (29%) of migrant FSW had experienced forced sex in the past year alone.

Drink and drug use is present amongst both the migrant and general FSW communities, although alcohol consumption amongst general FSW in the past month was significantly higher (59%) compared with migrant FSW (24%). It is clear that alcohol consumption is higher amongst the general FSW population, and this could be attributable to religious reasons (over half of the migrant FSW population are Muslim). Furthermore, although the number of migrant FSW who had ever injected drugs was low, among those who did inject drugs, all respondents shared needles (data not available for general FSW). This finding indicates the need for comprehensive HIV prevention programming including information and awareness around non-sexual modes of transmission.

DISCUSSION

Media and Intervention Exposure

In the past year the most common sources of information on HIV and AIDS amongst general and migrant FSW were similar, with radio and television being reported as the most frequent sources of information by general FSW, followed by health workers and peers. Migrant FSW reported leaflets or posters, followed by peers (a sex worker friend or a friend), followed by television, then radio. This is somewhat comparable to the general population; in the KAIS, radio and service providers were the most common sources of information on HIV and AIDS, followed by opinion leaders and family friends. Migrant FSW may have less exposure to television and radio, however these mechanisms are relevant to both FSW populations and the general population, and therefore awareness campaigns should utilize these media. Furthermore, according to the responses of migrant FSW it appears peer education is ongoing, albeit without a formal mechanism.

Limitations of the Research

There are some inherent limitations of the study. As with any sampling of hard-to-reach populations, confirming attendance of the target population can be difficult. This is indeed the case with RDS as it is always possible that respondents misrepresent themselves in order to participate for the initial incentive of 400 KES and 200 KES for each peer FSW recruited into the study, as well as health referral, or for the mere prestige of participating. We employed members of the community as screeners in the hope of eliminating this bias by identifying those cases. Although 628 respondents participated in the research, only 603 cases could be included in the analysis due to incorrect coupon numbers. Furthermore, chlamydia and gonorrhoea tests could not be conducted on 21 respondents since they had their menses at the time they visited the study site. We attempted to screen for menstruation and make appointments for those who were; however, it was quickly established that many women lied about this in order to participate the same day without having to come back, and thereby also avoiding the vaginal swab. We asked these respondents to come back, but most did not. The sample also consists of a large number of Tanzanian and Ugandan respondents, who display higher levels of HIV awareness and knowledge. This is quite possibly due to the fact that they speak Kiswahili, thereby providing easier access to information and health services in Kenya compared with individuals from non-Kiswahili speaking countries such as Somalia and Ethiopia.

Moreover, a question inquiring about the Ethiopian respondents' ethnic, language and geographical background, for example Amharic, Oromo or Borana, was not included in the questionnaire. As a result we were unable to conduct additional sub-analyses among the Ethiopian respondents to establish any differences in risk behaviour and knowledge based on ethnic background. Finally, chlamydia and gonorrhoea testing used rapid testing, which is the first time such testing had been done in Kenya. The results showed an extremely low prevalence of chlamydia – just one case – and no gonorrhoea. As such it is possible that a systematic error in the sample collection occurred since

the expected prevalence of these sexually transmitted infections was higher, given data from other FSW populations in Kenya. In an attempt to investigate this, the research nurses were sent to the SWOP clinic where a Clinical Officer checked their technique for swab sample collection, and no problems were identified. Swabs were also sent for quality assurance at the University of Nairobi laboratory, and no discrepancies were found which eliminated testing error as well. In summary, the researchers investigated both sample collection and testing error possibilities, but did not find evidence of either. As such, the findings of zero per cent gonorrhoea and 2 per cent chlamydia in the population of migrant FSW must be explored further.

Furthermore, the questionnaire was not structured in a way that could directly capture the MARP UNGASS indicator for testing (% of population who went for test in past 12 months and received result of that test); however questions around HIV testing were captured.

A final limitation is that although respondent driven sampling (RDS) allows us to produce population estimates, and therefore generalizes the migrant FSW population, it is important to recognize that these findings are applicable to this group in Nairobi, and not necessarily to the entire migrant population in Kenya or elsewhere. Further investigation would need to be done to draw additional conclusions to the larger migrant FSW population.

Conclusions

This research shows that although HIV prevalence is similar between the non-Kenyan and Kenyan FSW populations, there are differences in knowledge, behaviour, and service access. For example, more Kenyan FSW had had an HIV test than migrant FSW. Kenyan FSW often had other sources of income besides sex work, indicating that Kenyan FSW may have more livelihood options than migrant FSW. Nevertheless, there are also similarities – misconceptions regarding HIV transmission are present in both groups, age at first transactional sex is similar, as well as number of sexual partners and clients in the past week. Furthermore, although there are differences in methods of meeting new clients, both populations of FSW frequent hotels for sex.

These findings show that HIV programming can target both migrant and Kenyan FSW within the same interventions, such as awareness raising, peer education and condom distribution; however, care must be given to the particular needs of migrants, and not simply “migrants” as a uniform category. For example, asylum seekers had higher prevalence of HIV as compared to refugees, possibly due to differences in access to services, and therefore immigration status must be taken into consideration, as it results in varying levels of vulnerability. Additionally, language options and particular attention to cultural sensitivity for the migrants should be considered when designing FSW programming, to ensure optimal access and uptake of services.

This is the first study to investigate risk behaviour and HIV and STI serostatus among the migrant FSW community in Nairobi. It is therefore important to

DISCUSSION

highlight some key strengths of the study. The study successfully implemented respondent driven sampling (RDS), a technically robust methodology only used once before in Kenya. The study , through the joint efforts of the study team and stakeholders, successfully gained the trust of the migrant FSW community through lengthy formative research that included informal consultations and focus group discussions. Without effective formative methods, RDS is oftentimes unsuccessful. Furthermore, the study managed to attain a desired sample size whilst also reaching equilibrium on key variables. The study team was able to improve the referral mechanism midway through the study, thereby increasing the uptake of follow up health services for research participants. This was done by placing peer outreach staff from the SWOP clinic at the data collection site on a daily basis so they could provide counselling, support, and physically escort the study respondents to the SWOP clinic for additional services, should the respondents want this assistance. Furthermore, transportation reimbursement was provided for travel to the referral clinic.

IOM field team conducting HIV counselling and testing with a research participant as part of the IBBS survey among migrant FSW in Nairobi.
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RECOMMENDATIONS

Programmatic

- A temporary clinic is urgently needed where as a short-term solution for the sub-population of female sex workers (FSW) whilst donor funding is sought for a longer-term programme and model for service provision and HIV prevention targeting migrant FSW.

- The respondents' feedback from the SWOP clinic was positive, although the clinic location is not ideal for this particular community. The majority of respondents were from Eastleigh, and as such a targeted programme based in Eastleigh is recommended. This will allow for improved access to health care services, including HIV and sexually transmitted infection counselling and testing, treatment and care.

- Develop behavioural interventions specifically targeting migrant FSW to increase consistent and correct condom use, health seeking behaviour, and reverse common misconceptions. This is not to say that services for this population cannot be integrated into a general programme for FSW, only that special care must be given to language and cultural needs of the migrants.

- Non-medical aspects of care including psychosocial support, income generating and livelihood activities, language classes, and legal support should be included in a comprehensive package of services.

- The newly developed National AIDS and STI Control Programme (NASCOP) Sex Worker Guidelines provide guidance on the types of services that should be offered, including non-medical programme aspects and should be used in the development of any targeted services for sex workers (Republic of Kenya, 2010a).

- Peer education should be continued and scaled up to include additional outreach activities such as moonlight voluntary counselling, testing, and treatment and community forums, and to include other migrant communities in Nairobi. Over 50 per cent of the respondents had received information on HIV from a sex worker peer, which proves an existing mechanism for information distribution. A peer education network would simply formalize this process, and ensure accuracy and consistency of information is passed along.

- Create better access to condom availability for migrant communities, engaging the private sector and non-governmental organizations, with continued support from large donors. Public awareness campaigns and sensitization must be implemented in conjunction with distribution. Engage the private sector, including pharmacies and, most importantly, hotels in offering access to information, referral, and condoms.

RECOMMENDATIONS

- Awareness raising is needed in migrant communities, particularly Eastleigh. It appears that Eastleigh has had minimal exposure to HIV awareness and other prevention activities including moonlight voluntary counselling and treatment, peer outreach, and behaviour change communication. Almost a third of respondents listen to the radio or watch TV on a daily basis, therefore campaigns utilizing these mediums would more than likely reach a large component of the target population. Engage both Muslim and Christian religious leaders in training, education, awareness and sensitization opportunities to increase awareness and decrease stigma in the community.

- Explore partnerships with the United Nations High Commission for Refugees and relevant Government departments, such as the Department of Immigration, regarding protection and policy issues among urban refugees and migrants.

- Train health care workers in sensitivity around sex work and migrant issues. This should include understanding the barriers that prevent migrants from accessing health services such as cultural sensitivity, options for those who do not speak the national languages, female genital mutilation, and options for referral for legal and protection advice.

- Men should be engaged and targeted in every aspect of HIV programming, including awareness raising, outreach activities and condom demonstrations.

Research

- Conduct a second round of surveillance among the same population in 24 to 36 months to monitor trends in behaviour, programming, and seroprevalence. Improve the questionnaire by refining the following sections:

    - Questions related to immigration status – create a mechanism to establish "true" refugee populations, according to national policies, versus migrant populations without asking for identity cards or to see United Nations High Commission for Refugees mandates.
    - Ensure all UNGASS MARP indicators are included.
    - Include additional testing questions to accurately establish the frequency with which FSW undergo testing.
    - Include questions about general health concerns and need for non-sexual health related clinical services.
    - Include questions asking if parents of family members are engaged or have been in sex work to identify if some may be children of sex workers.
    - Include questions on if respondents see themselves continuing to participate in sex work.
    - Include questions on interactions with Kenyan sex workers and non-migrant FSW.
    - Include questions on risk perception: Do you consider yourself to be at high risk, medium risk or low risk for contracting HIV?

  - Include a specific question on knowledge of post-exposure prophylaxis (PEP).
  - Include additional substance abuse questions addressing substances such as marijuana.

- A mapping exercise of internal migration within Kenya among all FSW to identify any changes in risk behaviours due to seasonal or other migration would be beneficial to ascertain links between mobility and high-risk behaviour.

- Establish feasibility of population size estimation of migrant FSW in Nairobi and other Kenyan cities and feasibility and necessity of conducting an integrated biological and behavioural surveillance survey among migrant FSW in other Kenyan cities.

- When available, compare the data obtained from recently commenced FSW respondent driven sampling survey to be completed by the Kenyan National AIDS and STI Control Programme NASCOP and Population Services International in 2011.

- Research into the availability and uptake of general health services, including maternal and child health, amongst undocumented and irregular migrants in Kenya.

Policy and Advocacy

- Advocating awareness of migration health must be a top priority as migration is slowly becoming recognized as a social determinant of health. The absence of policies and programmes in dealing with the health of migrants poses a risk not only to migrants but also to all Kenyans.

- It is widely known that migrants, especially those of irregular migration status, have difficulties in accessing health services. Equitable access for migrants and targeted behavioural interventions must be held in high importance within policy and programmatic responses.

- A more conducive participatory environment must be created for discussing the health needs of migrants, in particular those at increased risk.

- Stakeholders should lobby the Kenyan government to provide a legal framework for regulation of sex work which would allow programming for sex work activities to be taken to scale, thereby increasing access to services, providing protection for sex workers that currently does not exist, and reducing the spread of HIV.

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Image: IBBS Nairobi research team member at the data collection site in Eastleigh, Nairobi.

HEALTHY MIGRANTS IN HEALTHY COMMUNITIES

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