

Rep. of Tanzania; ²Centers for Disease Control and Prevention, Tanzania, United Rep. of Tanzania; ³Muhimbili University of Health and Allied Sciences MUHAS, Tanzania, United Rep. of Tanzania; ⁴Centres for Disease Control and Prevention, Atlanta, USA; ⁵Centres for Disease Control and Prevention, Tanzania, United Rep. of Tanzania

Background In Tanzania, adult HIV prevalence is estimated at 5.8% and 9.3% in Dar es Salaam, well above the level of a generalised epidemic. Nonetheless, HIV infection and a constellation of associated factors are disproportionately borne by marginalised groups within the country. Female sex workers (FSW) are one such group; however, little is known about them in Tanzania.

Method Respondent-driven sampling was used to recruit self-identified FSWs aged 15+ years, living in Dar es Salaam, who reported exchanging sexual intercourse for money in the past month. FSWs were interviewed about their social circumstances, STI risk behaviours and tested for HIV, Hepatitis B, C and other STIs. Point estimates and 95% CI were adjusted for social network size and recruitment patterns using RDSAT.

Results From April to August 2010, 537 FSWs were recruited. Their median age was 29 years (range 15–63). Two FSWs (0.6% 95% CI: 0% to 1.7%) were <10 years when first selling sex (median age 17 years). Condom use at last sex was 82.1% (95% CI: 77.0% to 87.0%), but consistent use varied by type of partner; always condoms use with steady partner was 29.9% (95% CI: 22.8% to 37.6%) and 65.1% (95% CI: 58.4% to 71.4%) with one time client. The major reason for FSWs not using condoms was partner objection (44.1%; 95% CI: 32.6% to 56.2%). The prevalence of STIs and viral hepatitis varied: HIV 30.2% (95% CI: 24.7% to 36.4%); Hepatitis B 5.6% (95% CI: 3.7% to 8.3%); Hepatitis C 1.4% (95% CI: 0.3% to 3.1%), syphilis 2.1% (95% CI: 0.8% to 3.4%); Gonorrhoea 10% (95% CI: 6.9% to 14.4%), and Chlamydia 6.9% (95% CI: 3.2% to 11.9%). Many (292; 51.7%, 95% CI: 46% to 58%) FSWs had experienced physical violence in the past 12 months and 34.7% (95% CI: 28.7% to 40.6%) had been forced to have sex. Few FSWs were IDU themselves (1.4%; 95% CI: 0.3% to 2.9%), but 5.1% (95% CI: 2.3% to 7.7%) suspected regular clients, and 8.9% (95% CI: 7% to 12%) suspected one-time clients were IDU. These women had significantly higher prevalence of HIV (46.8%; 95% CI: 31.5% to 63.9% compared to 23.1% (95% CI: 16.4% to 29.3%) for FSWs who did not suspect any partner.

Conclusion FSWs of Dar es Salaam have many-fold higher prevalence of HIV than the general population, with variable levels of other STIs. Their health situation calls for multifaceted services and structural interventions beyond HIV education and condom promotion. Preventive, care and treatment and personal level empowerment strategies are desperately needed among FSWs in Dar es Salaam, Tanzania.

01-S08.02 WHO ARE THE WOMEN AT RISK OF HIV INFECTION IN RURAL ZIMBABWE AND HOW MANY ARE THERE? INSIGHTS INTO THEIR CHARACTERISTICS, LOCATIONS, AND BEHAVIOURS

doi:10.1136/sextrans-2011-050109.44

¹J Elmes, ²K Nhongo, ¹T Hallett, ¹P White, ²R Mutsindiri, ¹G Garnett, ²C Nyamukapa, ¹S Gregson. ¹Imperial College London, London, UK; ²Biomedical Research and Training Institute, Zimbabwe

Background In Zimbabwe's generalised epidemic, the relative importance of different risk groups to ongoing HIV transmission is unclear. We estimated population sizes and HIV prevalence of women involved in different levels of sex work activity in two socioeconomic locations (rural areas and commercial centres) in east Zimbabwe.

Methods The baseline survey for a cohort study of 650 women at high risk of HIV infection (WR) was conducted in March 2010, using snowball and location-based methods to recruit women with

any form of sexual exchange motivated by material reward including cash-per-act and informal credit-based arrangements. We restricted our analysis to a subset of WR who report receiving money for sex, excluding non-monetary transactions. WR were assigned to high, medium or low activity levels based on, among other factors, the frequency they report receiving money for sex and numbers of partners. CIs are based on Agresti-Coull 95% estimation and p values are for χ^2 estimation unless otherwise stated.

Results WR were more common in commercial centres than in rural areas 11.1% (9.9% to 12.4%) vs 5.0% (4.3% to 5.8%). The pattern of sex work activity differed between locations (p=0.049) and mean number of sexual partners, over 2 weeks, in high, medium and low activity WR were 4.1, 1.9 and 1.3 respectively (ANOVA test for trend: p<0.001). High activity WR comprised 2.4% (1.9% to 3.1%) of women in commercial centres vs 0.55% (0.34% to 0.89%) in rural; medium level, 7.1% (6.2% to 8.2%) vs 3.9% (3.3% to 4.7%); and low level, 1.56% (1.13% to 2.13%) vs 0.50% (0.30% to 0.82%), Abstract O1-S08.02 figure 1. Overall, HIV prevalence in WR was higher in commercial centres than in rural areas: 46.5% (95% CI: 38.9% to 54.3%) vs 37.8% (28.4% to 48.1%) (p>0.1). Mean HIV prevalence among high level WR was consistent across socioeconomic strata: 50% (range: 35.8%–64.2%). Prevalence among medium level WR tended to be higher in business centres: 47.5% (38.1% to 57.2%) vs 35.2% (25.1% to 46.8%) in rural areas. In contrast, HIV prevalence in low level WR was higher in rural areas: 44.4% (18.8% to 73.4%) vs 36.4% (19.6% to 57.1%).



Abstract O1-S08.02 Figure 1 Relative size and HIV prevalence of the WR population in two socioeconomic locations in east Zimbabwe. Circle sizes are in proportion to the relative size of WR activity level; the inner ring represents low activity, the central ring high activity and the outer ring medium activity WR.

Conclusions Sex worker populations may be larger than previously measured in general population surveys in rural Zimbabwe. Given that HIV prevalence among WR is threefold higher than in the general population and the underestimated size of the sex worker population, sex work may be an increasingly important driver of HIV transmission in declining generalised rural African epidemics.

01-S08.03 CONDOM USE DURING WORK TIME AMONG FEMALE SEX WORKERS IN BENIN

doi:10.1136/sextrans-2011-050109.45

¹S Diabaté, ¹A Chamberland, ²N Geraldo, ³D M Zannou, ⁴M M Loembé, ⁵S Anagonou, ⁶A C Labbé, ⁷C Tremblay, ⁸M Alary. ¹Centre de recherche, Centre hospitalier de l'Université de Montréal, Montréal, Canada; ²Dispensaire IST, Centre de santé de Cotonou I, Cotonou, Benin; ³Centre national hospitalier universitaire de Cotonou, Cotonou, Benin; ⁴Institut de Médecine tropicale, Arvers, Belgium; ⁵Centre national hospitalier universitaire, Cotonou, Benin; ⁶Université de Montréal, Hôpital Maison-neuve-Rosemont, Montréal, Canada; ⁷Centre de recherche du Centre hospitalier de l'Université de Montréal, Montréal, Canada; ⁸URESP, Centre de recherche FRSQ du CHA universitaire de Québec, Québec, Canada

Background Condom use remains the cornerstone of HIV prevention in sub-Saharan Africa where HIV transmission is

predominantly heterosexual. The aim of this study conducted in Cotonou, Benin, was to determine factors associated with unprotected sex among female sex workers (FSW), an important core group for the transmission of HIV and sexually transmitted infections (STI).

Methods We have recruited and followed 396 FSW in a reference center for STI treatment. Condom use was assessed at enrolment and 6 months thereafter. FSW were asked how often they have used condoms with their clients during the last 7 days of work. During the study, FSW were encouraged to always use condoms with their clients. A generalised estimating equation model for binomial distribution with repeated measures was used to isolate factors independently associated with failure to use condoms during any sexual act.

Results The cohort comprised 1) 149 HIV-positive FSW, of which 52 were treated with antiretroviral therapy (ART) and 97 were not yet eligible for ART and 2) 247 HIV-negative subjects. Mean age (standard deviation; sd) and mean number of clients (sd) during the last 7 days of work were, respectively, 33.8 (9.3) years and 28.4 (26.1) clients. The majority of the FSW (55.3%) did not practice in brothels or equivalent set ups. At enrolment, 5.6% of the FSW reported that they have never used condoms during the last week of work. The proportion of FSW with full use of condoms during the last 7 days of work increased from 77.8% at enrolment to 90.6% 6 months after. First assessment of condom use (enrolment into the study) [RR 2.17; 95% CI 1.44% to 3.26%], not working in a brothel (RR 2.22; 95% CI 1.39% to 3.54%), having a relatively low monthly income (RR 1.63; 95% CI 1.04% to 2.57%) and older age (RR 1.50; 95% CI 1.03 to 2.21%) were independently associated with failure to always use condoms with the clients. Being HIV-infected or being treated with ART was not associated with the issue of interest. The reasons reported by the FSW for not using condoms during the last sexual act were dominated by the refusal of the client (46.0%).

Conclusion As suggested by our results, interventions promoting condom use during any commercial sexual act are fruitful and need to target women outside brothels, economically more vulnerable and older FSW as well as their clients.

01-S08.04 CENTRAL AMERICAN SURVEILLANCE SURVEY OF SEXUAL BEHAVIOUR AND PREVALENCE OF HIV/STIS IN VULNERABLE POPULATIONS: FEMALE SEX WORKERS, NICARAGUA, 2009

doi:10.1136/sextrans-2011-050109.46

¹S Delgado, ¹B Alvarez, ¹J Goins, ¹L M Romero, ²E J B Acevedo, ³G Paz-Bailey, ¹S Morales. ¹Universidad del Valle de Guatemala, Guatemala City, Guatemala; ²Ministerio de Salud de Nicaragua, Nicaragua; ³Tepinet, USA

Background From 2001 to 2009 the estimated number of adults and children living with HIV in Nicaragua nearly doubled from 3700 to 6900. In Central America, the HIV epidemic is primarily concentrated in a few populations, including female sex workers (FSWs), who also bear a substantial burden of other sexually transmitted infections (STIs). This study reports results from the Central American Surveillance Survey of Sexual Behaviour and Prevalence of HIV/STIs in Vulnerable Populations, which was conducted among FSWs in Nicaragua in 2009.

Methods We conducted a comprehensive sampling of FSWs in the Nicaraguan cities of Managua (N=618) and Chinandega (N=214) in 2009. Utilising a behavioural surveillance survey (BSS) approach within the framework of second generation HIV surveillance, we conducted a cross-sectional evaluation of HIV prevalence and incidence, prevalence of other STIs, and relevant behavioural and contextual factors.

Results Estimated HIV prevalence among FSWs was 1.8% (95% CI 0.9% to 3.2%) in Managua and 2.4% (95% CI: 0.8% to 5.4%) in

Chinandega. Estimated annual HIV incidence among all participating FSWs was 0.8% (95% CI: 0.0% to 2.0%). In Managua 36.5% of FSWs (95% CI: 32.7% to 40.5%) and in Chinandega 51.4% of FSWs (95% CI: 44.5% to 58.3%) had received an HIV test in the 12 months prior to the study. Substantial prevalence of infection with herpes simplex virus type 2 (HSV-2) was found among FSWs in both Managua (75.7%; 95% CI: 72.1% to 79.0%) and Chinandega (83.5%; 95% CI: 77.8% to 88.2%). All FSWs with HIV infection also had HSV-2 infection. Considerable but variable prevalence of other STIs was also present among FSWs participating in the study (Abstract O1-S08.04 table 1). Consistent condom use during the previous 30 days among FSWs varied markedly according to type of sexual partner, and was highest with clients (89.9%; 95% CI: 87.5% to 91.7%), lower with occasional partners (61.0%; 95% CI: 50.9% to 70.3%), and lowest with stable partners (12.7%; 95% CI; 9.7% to 16.3%).

Abstract O1-S08.04 Table 1 Prevalence of HIV, HSV-2, and other STIs among FSWs in Managua and Chinandega, Nicaragua, 2009

	Managua			Chinandega		
	N	n	% (95% CI)	N	n	% (95% CI)
HIV	613	11	1.8 (0.9 to 3.2)	211	5	2.4 (0.8 to 5.4)
HSV-2	613	464	75.7 (72.1 to 79.0)	212	177	83.5 (77.8 to 88.2)
Syphilis	618	43	7.0 (5.1 to 9.3)	213	1	0.5 (0.0 to 2.6)
Active syphilis	618	23	3.7 (2.4 to 5.5)	213	0	0.0 (0.0 to 1.7)
Bacterial vaginosis	570	209	36.7 (32.7 to 40.8)	182	74	40.7 (33.5 to 48.2)
Chlamydia trachomatis	605	125	20.7 (17.5 to 24.1)	188	19	10.1 (6.2 to 15.3)
Mycoplasma genitalium	605	102	16.9 (14.0 to 20.1)	188	28	14.9 (10.1 to 20.8)
Neisseria gonorrhoeae	605	27	4.5 (3.0 to 6.4)	188	7	3.7 (1.5 to 7.5)
Trichomonas vaginalis	605	182	30.1 (26.5 to 33.9)	188	91	48.4 (41.1 to 55.8)

Conclusions Our estimate of HIV prevalence among FSWs in Managua is higher than the 0% (97.5% CI: 0.0% to 1.1%) HIV prevalence reported for this population in the 2001–2002 Estudio Multicéntrico. Similarly, we report an annual HIV incidence estimate that is higher than the 0% annual HIV incidence reported in the 2001–2002 study. Compared to the Estudio Multicéntrico, we found slightly higher rates of consistent condom use with stable partners, and substantially higher rates of consistent condom use with clients.

01-S08.05 RECENT TRENDS IN STIS AND HIV AMONG FEMALE SEX WORKERS AND THEIR CLIENTS IN INDIA: RESULTS FROM REPEATED CROSS-SECTIONAL SURVEYS

doi:10.1136/sextrans-2011-050109.47

¹R Adhikary, ¹S Ramanathan, ¹A Gautam, ¹P Goswami, ¹L Ramakrishnan, ¹S Kallam, ²M M Mainkar, ³G N V Brahmam, ⁴T Subramanian, ²R S Paranjape. ¹FHI, New Delhi, India; ²National AIDS Research Institute NARI, India; ³National Institute of Nutrition NIN, India; ⁴National Institute of Epidemiology NIE, India

Background HIV transmission in India is concentrated among high-risk groups. Female sex workers (FSWs) and Clients of FSWs are the most vulnerable groups at risk for HIV. This paper presents the prevalence of sexually transmitted infections (STIs) and HIV among FSWs and their clients in the states of Andhra Pradesh (AP), Tamil Nadu (TN) and Maharashtra (MH) from repeated, cross-sectional, bio-behavioural surveys.

Methods Data from two rounds of Integrated Behavioural and Biological Assessments conducted in 2005 (R1) and 2009 (R2) among 15 632 FSWs (R1-7828, R2-7804) and 9624 clients of FSWs (R1-4821, R2-4803) were analysed to observe the changes in STI and HIV prevalence among each group. Respondents' behaviour was