

## ORIGINAL ARTICLE

## Part time female sex workers in a suburban community in Kenya: a vulnerable hidden population

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**Background:** In sub-Saharan Africa, female sex workers (FSWs) are a vulnerable high risk group for the acquisition and transmission of sexually transmitted infections (STI) and HIV.

**Objectives:** To study parameters of sexual behaviour and knowledge of STI and HIV, to describe health seeking behaviour related to STI, and to measure the prevalence of gonorrhoea, chlamydia, syphilis, and HIV-1, to provide baseline data for targeted STI and HIV prevention interventions.

**Methods:** In a cross sectional survey with snowballing recruitment, between February and March 2000, 503 self identified FSWs in a suburb in Mombasa, Kenya, were interviewed with a structured questionnaire and screened for gonorrhoea, chlamydia, syphilis, and HIV-1.

**Results:** The mean number of sexual partners in the previous week was 2.8 (SD 1.6). The mean number of non-regular clients and regular clients in the previous week was 1.5 (1.0) and 1.0 (0.9) respectively. The median weekly income from sex work was \$US15. A total of 337 (67%) women had an alternative income in the informal sector. 146 (29%) and 145 (45%) never used a condom with a client and non-paying partner respectively. The prevalence of gonorrhoea, chlamydia, and syphilis was 1.8%, 4.2%, and 2.0% respectively. The overall HIV-1 seroprevalence was 30.6%.

**Conclusions:** There is a large need for intensive STI and HIV prevention interventions in part time FSW.

In sub-Saharan Africa, female sex workers (FSWs) are a vulnerable high risk group for the acquisition of sexually transmitted infections (STIs) and HIV.<sup>1</sup> High rates of STIs and HIV seroprevalence<sup>2–3</sup> suggest they may contribute to the transmission of HIV. HIV-1 seroprevalence was reported as 56% in 1995<sup>4</sup> and 54% in 2000<sup>4</sup> in a research cohort of FSW attending an STI clinic in Mombasa, Kenya, but figures in other groups are not available. The HIV seroprevalence in pregnant women at an antenatal clinic in Mombasa was 14% in 2001.<sup>5</sup> Interventions such as education and condom promotion have proved successful in reducing the incidence of STI and HIV in FSW.<sup>6,7</sup> Hence, it is important the target population of FSW is defined and accessible.

Between February and March 2000, we carried out a cross sectional survey of self identified FSW in a suburb of Mombasa in Kenya to study parameters of sexual behaviour and knowledge of HIV and STI and to describe health seeking behaviour related to STI and to measure the prevalence of gonorrhoea, chlamydia, syphilis, and HIV-1, to provide baseline data for STI and HIV prevention interventions, targeted at FSW.

## METHODS

### Study population

The study population was self identified FSWs living in the study area. The study area is a low to middle socioeconomic class suburb in the north of Mombasa. The area is approximately 8 square kilometres in area and has a population of approximately 50 000. Housing in this area is mostly permanent with iron roofing. A FSW was defined as any woman who reported receiving money or gifts in exchange for sex over the last year and this was the only criterion for recruitment. Between February and March 2000, FSWs were identified and listed by a technique of "snowballing" (each FSW naming a colleague).<sup>8</sup> The first FSW contacted was known to one of the study nurses. Informed oral consent

was obtained. No financial reward was offered for participation. Five hundred and three self identified FSWs were interviewed by a trained female nurse using a structured questionnaire in a private, soundproof room in the community. The questionnaire asked about demographic details, clients and remuneration, risk perception, condom use, history of STI, and knowledge of STI and HIV prevention. Twenty ml of first catch specimen urine were collected at least 2 hours after the last urine passed for gonococcal and chlamydial polymerase chain reaction (PCR) and 5 ml of blood was drawn from all consenting interviewees for syphilis and HIV-1 antibodies. HIV testing was anonymous but linked by a number to the questionnaire. STI testing was also anonymous but women wanting to know their STI results were able to check their result at the local health centre using their study number. Treatment was offered for those found to have a STI. An alternative voluntary counselling and HIV testing service at the local health centre was provided free of charge for any subject wanting to know her HIV status.

### Laboratory methods

*Neisseria gonorrhoeae* and *Chlamydia trachomatis* were detected in urine by PCR (Amplicor, Roche Diagnostics, Brachburg, NJ, USA). *Treponema pallidum* antibodies were detected in serum using RPR card test (Becton Dickinson BD Microbiology systems, Sparks, MD, USA). HIV-1 antibodies were detected in serum using Detect HIV (Biochem Immunosystems Inc, Montreal, Quebec, Canada) and confirmed with Recombigen HIV-1/HIV-2 (Cambridge Diagnostics, Ireland Ltd, Galway, Ireland).

### Ethical permission

Ethical approval was obtained from the Kenyan National AIDS and STD Control Programme and the Protection of Human Subjects Committee of Family Health International, USA.

**Table 1** HIV-1 and STI prevalence by age group in part time female sex workers in Mombasa, Kenya

Age group (years)	Number	HIV-1		Chlamydia	Gonorrhoea	Syphilis
		No (%)	Number	No (%)	No (%)	No (%)
15–19	27	4 (14.8)	28	2 (7.1)	1 (3.6)	0
20–24	107	22 (20.6)	109	4 (3.7)	4 (3.7)	1 (0.9)
25–29	92	37 (40.2)	95	9 (9.5)	1 (1.1)	3 (3.2)
30–34	102	36 (35.3)	104	2 (1.9)	2 (1.9)	1 (1.0)
35–39	70	26 (37.1)	70	2 (2.9)	0	1 (1.4)
40+	95	26 (27.4)	96	2 (2.1)	1 (1.0)	4 (4.3)
Total	493	151 (30.6)	502	21 (4.2)	9 (1.8)	10 (2.0)

**Table 2** Correlates of HIV-1 positivity in part time female sex workers in Mombasa, Kenya (multiple logistic regression model)

	OR (95% CI)	p Value
Age	<b>1.04 (1.01 to 1.08)</b>	<b>0.0066</b>
Age at start of sex work	<b>0.92 (0.88 to 0.97)</b>	<b>0.0004</b>
Single	Reference	
Cohabiting	0.88 (0.08 to 2.34)	0.8809
Divorced/separated	1.30 (0.35 to 1.14)	0.2791
Widow	<b>2.07 (1.07 to 4.03)</b>	<b>0.0318</b>
No education	Reference	
Primary education	1.47 (0.85 to 2.55)	0.1673
Secondary education	1.39 (0.71 to 2.73)	0.3340
Post-secondary education	1.31 (0.31 to 5.60)	0.7136

### Statistical analysis

Data were recorded on standard forms and then stored in EPI-INFO 6.0. The data were analysed using SAS (Version 6.12) statistical package. Comparison between groups was done using  $\chi^2$  tests for proportions and *t* tests and ANOVA procedures for continuous variables. Logistic regression was used in multivariate analyses to model HIV infection. Explanatory variables included in the model were selected largely on an a priori basis but also on statistical significance at univariate analysis. A *p* value of 0.05 or less was considered statistically significant for all univariate and multivariate tests.

## RESULTS

### Study population

The mean age was 31.0 (8.8) years (median 30.0, range 15–65). Forty four per cent were single, 15% were divorced or separated, and 2% were widowed. Thirty nine per cent were cohabiting but none was married. The mean number of years of education was 6.0 (SD 3.8) (median 7.0, range 0–14). The mean number of living children was 2.8 (1.9), (median 2.0, range 0–11). The mean age at the start of sex work was 21.8 years (6.7) (median 20, range 12–62). The mean number of dependants was 2.4 (1.0) (median 4, range 0–15). Financial problems were cited as the main reason for starting sex work (86%).

### Clients and remuneration

The mean number of sexual partners in the previous week was 2.8 (1.6) (median 3, range 0–10). The mean number of non-regular clients in the previous week was 1.5 (1.0) (median 1.0, range 0–10) and the mean number of regular clients was 1.0 (0.9) (median 1.0, range 0–5). The mean number of regular non-paying partners was 0.5 (0.5) (median 0, range 0–2). Of the 503 interviewees, 240 (48%) received their clients at home, 248 (49%) found their clients in a bar or hotel, and 11 (2%) found their clients from the street. The mean weekly income from sex work was 1472 (1254) Kenyan shillings

(KSh) (about \$US20) (median 1200 KSh (about \$US17), range 70–7800 KSh (about \$US1–110)). Four hundred and forty one (88%) were paid in cash only, 54 (11%) were paid in cash and kind, and five (1%) were paid in kind only. Three hundred and thirty seven (67%) of the women had an alternative income in the informal sector, mostly small businesses, such as selling foodstuff at the side of the road. Nine (2%) of the women were in formal employment.

### Condom use

When asked about the frequency of condom use with a client generally, 145 (29%) used a condom always, 25 (5%) almost always, 187 (37%) sometimes, and 146 (29%) never used a condom with a client. Two hundred and thirty eight (47%) had used a condom with their most recent client. It was the sex worker who suggested condom use in 82% of interviewees and they provided it in 73%. The most common reason to always use a condom was prevention of STI and HIV (73%). The most common reason for not always using a condom was client refusal (50%). Two hundred and eight (41%) women said they had turned down a client because he refused to use a condom. Most condoms were obtained from a local shop in 50% of interviewees, a clinic in 20%, and a pharmacy in 10%. Only 8% of the interviewees thought that the influence of alcohol or drugs sometimes accounted for non-use. When asked about condom use with a regular non-paying partner, 66 (20%) used a condom always, 12 (4%) almost always, 102 (31%) sometimes, and 145 (45%) never. The most common reason for not using a condom with a regular non-paying partner was because of perceived trust (48%) or because the partner refused to use one (36%).

### Sexually transmitted infections

Twenty one per cent reported having had a vaginal discharge and 11% a genital ulcer in the last 12 months. Twenty five per cent admitted to having sex while they had symptoms of an STI and of those only 11% used a condom to protect their partner. Of those with a vaginal discharge or genital ulcer in the last 12 months, 45% sought first line treatment at a government clinic or hospital and 31% at a private clinic; 14% did nothing. Eighty two per cent of interviewees were able to mention two correct symptoms of STI in women and 69% in men. Forty four per cent were able to cite two correct ways of preventing STI (abstinence, reduction in partners, staying with one faithful partner, and condom use), and 51% at least one correct way to prevent STI. Thirty six per cent were able to cite three or more correct ways to prevent HIV (abstinence, reduction in sexual partners, staying with one faithful (uninfected) partner, and condom use), 40% two correct ways, and 23% only one correct way. Only three women (0.6%) were unable to cite any correct preventive methods. The prevalence of gonorrhoea, chlamydia, and syphilis was 1.8%, 4.2%, and 2.0% respectively. Thirty seven of 503 (7%) had used antibiotics in the previous week. The overall HIV-1 seroprevalence was

30.6%. Table 1 shows the prevalence of HIV-1 and measured STI stratified by age group. HIV-1 seroprevalence in the 15–19 year age group was 14.8%. HIV-1 rates increased with age up to a peak in the 20–29 year age group and then declined with increasing age. In univariate analysis, age at the start of sex work was associated with being HIV-1 seropositive ( $p=0.08$ ). In a logistic regression model, age ( $p=0.007$ ), widowed status ( $p=0.03$ ), and younger age at the start of sex work ( $p=0.0004$ ) were associated with being HIV-1 positive (table 2). Number of partners and condom use were not significant risk factors in this study.

## DISCUSSION

This survey using a snowballing technique in a set geographic area, identified a group of women best described as part time sex workers. They are described as part time sex workers because the majority are self employed in some form of small business and sell sex to supplement their small income. Small businesses often include selling foodstuffs, vegetables, and in some areas local brew. The mean number of non-regular clients is less than two per week and a proportion have a regular non-paying partner. Most of these women are single or cohabiting and most have children and other dependants. The non-random nature of the population sampling is recognised but nevertheless it provides important information on a hidden population.

The HIV seroprevalence in this group was greater than in the general population but less than in many sex worker populations described to date. We were unable to demonstrate an association between the number of partners and HIV seroprevalence but the age of starting sex work (a surrogate marker of cumulative sex partners) was associated with HIV seroprevalence. STI prevalence within the last year was high and condom use was extremely low. Despite this, the prevalence of gonorrhoea and syphilis was low. We presume that this reflects reasonable access to medical care or frequent use of antibiotics in this group.

Despite a reasonable knowledge of symptoms of STI, knowledge of STI and HIV prevention was poor. Almost one third had never used a condom with a client and yet half of them perceived their chances of becoming infected with HIV as moderate or great. The most common reason not to use a condom was client refusal. In addition, condom use was even lower with non-paying partners of these women, placing them at increased risk of acquiring HIV, as reported elsewhere.<sup>9</sup>

There are interventions of proved efficacy in decreasing STI and HIV incidence in sex workers, such as peer education and condom promotion.<sup>6,7</sup> In designing such interventions it is important to target part time sex workers, who because of the part time nature of their work, may otherwise be overlooked. The low use of condoms, incomplete knowledge of HIV and STI, the high number of reported STI, and the lower HIV-1 seroprevalence in the younger age group, emphasise a great need for intensive STI and HIV prevention programmes in this hidden population and particularly in those in the younger age group.

## Key messages

- Part time FSWs are a hidden subgroup in a larger heterogeneous group of FSWs
- Part time FSWs may be overlooked and need to be specifically targeted in any FSW intervention
- The HIV seroprevalence in this group (30.6%) was greater than in the general population confirming that they are a vulnerable group
- There is a great need for intensive STI and HIV prevention programmes in this hidden population, particularly in those in the younger age groups

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## CONTRIBUTORS

MH was the study leader; RM, and DN were involved in the logistics of the study; LN performed the data analysis; and KM, JP, and GD contributed to study design and questionnaire development.

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