

ORIGINAL RESEARCH ARTICLE

Sexually transmitted infections and sexual behaviour among commercial sex workers in a rural district of Malawi

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Summary: In Thyolo District, Malawi, a study was conducted among commercial sex workers (CSWs) attending mobile clinics in order to; determine the prevalence and pattern of sexually transmitted infections (STIs), describe sexual behaviour among those who have an STI and identify risk factors associated with 'no condom use'.

There were 1817 CSWs, of whom 448 (25%) had an STI. Of these, the commonest infections included 237 (53%) cases of abnormal vaginal discharge, 109 (24%) cases of pelvic inflammatory disease and 95 (21%) cases of genital ulcer disease (GUD). Eighty-seven per cent had sex while symptomatic, 17% without condoms. Having unprotected sex was associated with being married, being involved with commercial sex outside a known rest-house or bar, having a GUD, having fewer than two clients/day, alcohol intake and having had no prior medication for STI.

The high levels of STIs, particularly GUDs, and unprotected sex underlines the importance of developing targeted interventions for CSWs and their clients.

Keywords: Malawi, sex worker, STI, condom

Introduction

Commercial sex workers (CSWs) constitute a group often socially stigmatized and economically disadvantaged with a high rate of sexual partner change. They are a core group that are known to be highly vulnerable to sexually transmitted infections (STIs) and to infection with HIV, and consequently are at a high risk of transmitting these infections to their clients and other sexual partners¹.

Thyolo District, in rural southern Malawi, is well known for its semi-urban towns and their HIV risk arenas or lively rest-houses, nightclubs, bars and readily available and inexpensive CSWs. The district is characterized by large tea and coffee plantations, as well as thousands of migrant labourers who patronize the commercial sex industry.

From late 1999, as part of a comprehensive district HIV prevention strategy, regular STI clinic services began to be offered through a mobile team

to CSWs in three of the main semi-urban towns of Thyolo. This was on the basis that targeted interventions with CSWs could contribute to lower community STI prevalence^{2,3}. This intervention in turn might reduce the sexual transmission and incidence of HIV⁴⁻⁶ within the general population. In a country like Malawi where the national HIV prevalence is estimated at 15%⁷, and HIV rates among patients with STI range from 53–83%⁹, STI control is of major public health importance.

Information on the prevalence and patterns of STIs among CSWs as well as sexual behaviour in this group would be relevant in guiding STI control strategies. Condom use in itself is considered a critical measure in preventing the acquisition and transmission of STIs and HIV⁹. Its use in commercial sex establishments in Thailand has led to reductions of more than 80% in STI incidence and an apparent decline in HIV incidence¹⁰.

This study was conducted among CSWs in order to (a) determine the prevalence and pattern of STIs, (b) describe sexual behaviour including condom use among those who have an STI and (c) identify socio-demographic and behavioural risk factors associated with 'no condom use'.

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Material and methods

Study setting

The study was conducted between May 2000 and June 2001 in three semi-urban towns (Thyolo, Luchenza and Bvumbe) of Thyolo District, a rural region in southern Malawi. Prostitution is illegal in Malawi¹¹. However, CSWs are readily available in bars and rest-houses and are registered as food handlers, bar girls and cleaners. CSWs are not paid by these establishments but are provided with rooms at these sites and are permitted to live at the location as long as they serve drinks and meals and are readily available for commercial sex activity to clients. Their income is, therefore, dependent on sexual activity with clients at the site. For the purpose of this study this group of individuals were considered as CSWs.

All workers at public locations offering food, drink or accommodation facilities (which includes food handlers, bar girls and cleaners) are required by law to be registered at the community police station. They are also required to produce a valid medical clearance certificate that needs to be shown to the communal police on a monthly basis or on request. The mobile clinic service was conducted once a week during daylight hours at a designated rest-house facility. Peer outreach workers were involved in encouraging the CSWs to attend the clinic.

Study population and data collection

All CSWs presenting during an STI mobile clinic were examined and those with an STI were interviewed after obtaining informed consent. Interviewer-administered questionnaires, which had been pre-tested, were used to gather basic socio-demographic data, as well as information on sexual behaviour and condom use. A genital examination which included detailed screening for STIs and speculum examination was performed on all CSWs. A room was made available for all medical examinations and confidentiality of data was ensured. Examinations were carried out by a team of two trained STI clinicians, and the same team was used throughout the course of the study. A patient card which contained details of STI management was filled out for each patient and subsequently used during weekly follow-up visits. Confidentiality was ensured and all patients were diagnosed and managed using national STI guidelines adapted from the syndrome-based approach (clinical assessment of signs and symptoms) as recommended by the World Health Organization¹². All CSWs that have been screened and treated are issued with medical clearance certificates.

Statistical methods

Analysis was done using the EpiInfo software (Center for Disease Control, Atlanta), and the

LOGISTIC software¹³. The measures of risk were determined by crude odds ratio (OR) and adjusted ORs. Odds ratios were adjusted using multivariate logistic regression, and all related *P*-values were based on the likelihood ratio statistic. Reported 'no condom use' during sexual encounters in STI symptomatic period was designated as the dependent variable for identifying potential risk associations. The level of significance was set at *P*=0.05 and 95% confidence intervals (CIs) were used throughout.

Results

Characteristics of the study population

A total of 1817 new female CSWs were involved in the study, of which 448 (25%) were diagnosed with an STI. Of these, 19 were excluded; questionnaires were incomplete in six cases and 13 individuals did not want to participate in the interviews due to lack of time. Of the 429 STI patients whose data were complete, the mean age was 24 years and the mean educational level was three years in school. There were 255 (59%) individuals who were registered as beer servers, 86 (20%) as cleaners, and 60 (14%) as food handlers. Twenty-eight (7%) individuals were not registered as rest-house or bar workers in the semi-urban towns. There were 17 (4%) patients who were married while the great majority (422) were either single, divorced or widowed. Of all CSWs 92% earned less than \$7 US/week. One hundred and thirty-seven (32%) patients diagnosed with an STI had received some form of medication before presenting at the mobile STI clinic. The commonest sources for medication included the traditional healer (40%), private pharmacies (31%) and a health facility (19%).

STI prevalence and pattern

There were 448 (25%) new STI cases out of a total of 1817 CSWs. Of these, there were 237 (53%) cases of abnormal vaginal discharge with or without dysuria, 109 (24%) cases of pelvic inflammatory diseases (PID), 95 (21%) cases of genital ulcer disease (GUD) and seven (2%) cases who had combined GUD and PID.

Sexual behaviour and condom use

Of all STI patients, 374 (87%) reported having sex during the STI symptomatic period. Of these, 22 (6%) used condoms always, 290 (78%) used condoms intermittently while 62 (17%) did not use condoms. The reasons for not using condoms included client pressure (30), having sex with a regular partner (20), having no knowledge about the usefulness of condoms (seven), condoms not being available (three) and reduction of pleasure (two). Out of those using condoms intermittently,

120 (41%) did so due to client pressure not to use condoms. The median reported time with STI symptoms before being seen by the mobile STI clinic was six days (range one day to two years). The mean number of clients per day was two.

Risk factors associated with 'no condom use'

Significant risk factors associated with 'no condom use' while having sex in the symptomatic period included being married, being involved with commercial sex outside a known rest-house or bar, having an ulcerative genital disease, having fewer than two clients per day, indulgence in alcohol and having had no prior medication for STI symptoms (Table 1).

Discussion

This study shows that at least one-quarter of CSWs have an STI at any one time with just over 20% of those with an STI having GUD. The great majority of those with an STI (over 85%) engaged in sex while symptomatic. Of those, nearly 20% engaged in unprotected sex, and various risk factors were associated with this behaviour such as being

married, being involved with commercial sex outside a known rest-house or bar, having an ulcerative genital disease, having fewer than two clients per day, indulgence in alcohol and having had no prior medication for STI.

Although the prevalence of HIV among CSWs in our setting is not known, it is likely to be high⁹. The finding that GUDs constituted a considerable proportion of STIs in the study population is of particular concern as they facilitate the acquisition and transmission of HIV by acting as portals of entry⁴. Very high GUD rates of up to 49% in male STI patients presenting to the Thyolo District Hospital STI clinic have also been reported¹⁴. The additional finding that GUD was associated with unprotected sex among CSWs merits that the National AIDS Commission develops a specific focus for decreasing the incidence and prevalence of GUDs.

Prostitution is illegal in Malawi and this legal restriction confines commercial sex activity to well known rest-houses and bars where CSWs are resident and working under cover as bar girls, waiters and cleaners. In our setting this offered an important advantage in that CSWs were readily accessible for STI and HIV control activities through mobile clinics. This service was also considered

Table 1. Risk factors associated with 'no condom use' in commercial sex workers during sexually transmitted infection symptomatic period ($n=374$)

| Variables | Condom=No. (%) | OR | †Adjusted OR (0.95, CI) | P-value |
|--------------------------------|----------------|-----|-------------------------|---------|
| Age | | | | |
| <20 yrs | 15/111 (14) | 1 | 1 | |
| >20 yrs | 47/263 (18) | 1.4 | 1.4 (0.7–3.0) | 0.4 |
| Marital status | | | | |
| Single/divorced/widowed | 46/357 (13) | 1 | 1 | |
| Married | 16/17 (94) | 108 | 76 (9.0–645) | <0.001 |
| Education | | | | |
| <8 years in school | 61/372 (16) | 1 | 1 | |
| >8 years in school | 1/2 (50) | 5.1 | 2.1 (0.1–45) | 0.6 |
| Income | | | | |
| >4 US\$/week | 56/360 (16) | 1 | 1 | |
| <4 US\$/week | 6/14 (43) | 4.1 | 0.6 (0.1–5.1) | 0.5 |
| Occupation site | | | | |
| At a known rest-house/bar | 52/350 (15) | 1 | 1 | |
| Outside | 10/24 (42) | 4.1 | 5.2 (1.3–2.1) | 0.02 |
| Period of STI symptoms | | | | |
| <14 days | 52/330 (16) | 1 | 1 | |
| >14 days | 10/44 (23) | 1.6 | 0.7 (0.2–2.2) | 0.5 |
| Type of STI | | | | |
| Non-ulcerative | 49/321 (15) | 1 | 1 | |
| Ulcerative disease | 13/53 (25) | 1.8 | 2.7 (1.2–6.1) | 0.02 |
| Clients/day | | | | |
| >2 clients | 5/142 (4) | 1 | 1 | |
| <2 clients | 57/232 (25) | 8.9 | 7.0 (2.5–19.9) | <0.001 |
| Alcohol | | | | |
| No | 38/309 (12) | 1 | 1 | |
| Yes | 24/65 (37) | 4.2 | 2.6 (1.2–5.5) | 0.01 |
| Previous medication for an STI | | | | |
| Yes | 15/126 (12) | 1 | 1 | |
| No | 47/248 (19) | 1.7 | 2.5 (1.1–5.9) | 0.02 |

†Adjusted for age, marital status, education, income, occupation site, period of symptoms, type of STI, clients per day, alcohol and previous medication for an STI

'CSW friendly' as the medical team was authorized to issue medical clearance slips which avoided common harassment or unofficial fines on these workers by local police inspectors. It also saved time and money for travel and queuing up at the district hospital.

Client pressure was the most important single reason for unprotected sex by CSWs in our study. Those who had fewer than two clients per day were also at a significantly higher risk of no condom use than those who had more clients. This is most likely related to economic pressure by clients within a competitive sex industry where some men ironically still prefer to pay for sex without condoms. This situation of limited assertiveness for safe sex due to client pressure constitutes a serious obstacle to preventing CSWs (and their clients) from acquiring and transmitting STI and HIV infections.

Mass awareness campaigns that are adapted to target the clients as well as promoting the female condom which could facilitate independent and assertive behaviour on safer sex by the female CSWs are measures to be considered.

The strength of this study is that all CSWs attending the STI mobile clinic were systematically screened, 96% of all those with an STI were interviewed and everyone was managed for STIs. However, one of the limitations of the study is that the information on sexual behaviour and condom use is self-reported. We tried to minimize this limitation by ensuring that the interviews were conducted by well trained and experienced counsellors who were conversant with the approach on sexual issues within the particular population. The estimated STI prevalence rates in this study would principally reflect rates among individuals that are resident at commercial sex establishments in semi-urban towns and who attended our mobile clinics.

Our experience with mobile STI clinics in Thyolo has been encouraging in that CSWs are readily accessible at fixed sites. Their high rate of partner turnover, the high levels of STIs and unprotected sex in this group underlines the importance of developing targeted interventions for them and their clients.

CSWs in Malawi currently provide a window of opportunity for the prevention of STI and HIV transmission. If this window of opportunity closes, STI and HIV transmission will continue through CSWs and their clients, more people will get infected and will eventually die of AIDS.

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R Zachariah, M-P Spielmann and A Chantulo designed and supervised the study, coordinated the collection and analysis of data. AD Harries, W Nkhoma and V Arendt also assisted in the design of the study protocol and interpretation of the data. All authors participated in the writing of the paper.

References

- 1 Plummer FA, Nagelkerke NJ, Moses S, Ndinya-Achola JO, Bwayo J, Ngugi E. The importance of core groups in the epidemiology and control of HIV-1 infection. *AIDS* 1991;5:169-76
- 2 Ngugi EN, Wilson D, Sebstad J, *et al.* Focused peer-mediated educational programs among female sex workers to reduce sexually transmitted disease and human immunodeficiency virus transmission in Kenya and Zimbabwe. *J Infect Dis* 1996;174:240-7
- 3 Steen S, Vuylsteke B, Decoito T, *et al.* Evidence of declining STI prevalence in a south African mining community following a core-group intervention. *Sex Transm Dis* 2000;4:1-8
- 4 Clottey C, Dalabetta G. Sexually transmitted diseases and human immunodeficiency virus, epidemiologic synergy? *Infect Dis Clin North Am* 1993;7:95-102
- 5 Cameron DW, Simonsen JN, D'Costa LJ, *et al.* Female to male transmission of human immunodeficiency virus type 1: Risk factors for seroconversion in men. *Lancet* 1989;2:403-7
- 6 Grosskurth H, Mosha F, Todd J, *et al.* Impact of improved treatment of sexually transmitted diseases on HIV infection in rural Tanzania. Randomized controlled trial. *Lancet* 1995;346:530-6
- 7 National AIDS Control Programme of Malawi. *HIV/Syphilis seroprevalence in antenatal clinic attenders*. Sentinel Surveillance Report, 2001. NACP, PO Box 30622, Lilongwe 3
- 8 Nelson KE, Celentano DD, Eiumtrakol S, *et al.* Changes in sexual behaviour and a decline in HIV infection among young men in Thailand. *N Engl J Med* 1996;335:297-303
- 9 Kristensen JK. The prevalence of symptomatic sexually transmitted diseases and human immunodeficiency virus infection in outpatients in Lilongwe, Malawi. *Genitourin Med* 1990;66:244-6
- 10 Mastro TD, Limpakarnjanarat K. Condom use in Thailand: how much is it slowing the HIV epidemic? *AIDS* 1995;9:23-5
- 11 Laws of Malawi, Prostitution Act 1969:2:153
- 12 WHO Study Group. Management of patients with sexually transmitted diseases. *WHO Technical Report Series* 1991;810
- 13 LOGISTIC: A Logistic Regression Program for the IBM PC'' Dallal GE, The American Statistician, 422,272
- 14 Zachariah R, Nkhoma W, Harries AD, *et al.* Health seeking and sexual behaviour in patients with sexually transmitted infections. The importance of traditional healers in Thyolo, Malawi. *Sex Transm Infect* 2002;78:1-3

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