

# **Sexually Transmitted Disease Prevalence in Brothel-Based Commercial Sex Workers in Chiang Mai, Thailand : Impact of the Condom Use Campaign†**

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## **Abstract**

One hundred and ninety five (195) brothel-based commercial sex workers (CSW) in Chiang Mai, Thailand, were screened for sexually transmitted diseases (STD) between October 1994 and April 1995, prior to their enrollment in a multi-center comparative trial of the effectiveness of two strategies using male and female condoms. These CSW had a mean age of 22.2 (SD 4.3) years. Forty-seven per cent were Thai and 57.4 per cent had no formal education. Median duration of prostitution was 16 months and median cost for sexual service was 50 baht (US\$ 2) per client. Ninety-four per cent of CSW reported always using condoms with clients. There were 63 (32.3%) CSW infected with at least one type of the STD screened. The prevalence of STD included chlamydial infection (16.9%), gonococcal infection (14.4%), condyloma accuminata (4.6%), molluscum contagiosum (2.6%) and trichomoniasis (1.0%). There was no statistically significant risk factor for STD found in this study. Despite an active programme for prevention of STD in CSW and the provision of free condoms, STD were diagnosed in one-third of the screened CSW in Chiang Mai. The programme needs to be strengthened by more intensive education and practice in the correct and consistent use of condoms and integrated with other STD prevention programmes.

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In 1989 the Government of Thailand inaugurated an HIV control and prevention programme to enforce condom use in the commercial sex industry in response to the epidemic spread of HIV infection through heterosexual contact with commercial sex workers (CSW), particularly those who were brothel-based<sup>(1)</sup>. The programme proposed the distribution of free condoms to the commercial sex industry, promoted screening and management of STD and a media campaign to educate men and potential clients on how to use condoms. In addition, pressure was brought on sex establishments to use condoms consistently. The programme was implemented in many provinces including Chiang Mai Province. In August 1991 the programme became part of the official policy of the National AIDS Committee<sup>(1)</sup>. The impact of this programme has been evaluated in two studies using reported condom use by CSW and HIV sero-prevalence<sup>(2,3)</sup>. One study using data compiled from the whole country, showed that although reported condom use per commercial sex act rose from 14 per cent in 1989 to 94 per cent in 1993, HIV prevalence among brothel-based CSW consistently increased from 3.5 per cent in 1991 to 27.1 per cent in 1993<sup>(2)</sup>. Another study undertaken in Chiang Mai in 1992 illustrated the same phenomenon of high HIV prevalence (40%) among brothel-based CSW despite an 81 per cent report on condom use<sup>(3)</sup>. Possible explanations for high HIV prevalence despite consistent condom use include over-reporting of condom use or HIV infection preceded condom use. Reports on the frequency of condom use in the commercial sex industry may be impossible to validate. Although a causal inference can be drawn from a prospective study of the association of frequency of condom use and HIV seroconversion, such studies are difficult to undertake owing to the mobile lives of CSW. Whether STD facilitate HIV transmission/acquisition or HIV infection modifies a natural history of STD<sup>(4)</sup>, a high prevalence of STD implies a high likelihood of unsafe sex, that is, sex without condoms. A more appropriate outcome to evaluate the impact of the condom use programme as compared with HIV prevalence is STD prevalence. Data from annual reports of the Venereal Diseases Division of the Ministry of Public Health (MOPH) show that the numbers of STD clinic visits and cases of five major STD (syphilis, gonorrhoea, non-gonococcal urethritis, lymphogranuloma inguinale, and chancroid)

declined steeply in men from 1989 when the condom use programme began<sup>(2)</sup>. Among women, most of whom were CSW, visits to government STD clinics remained high after the start of the condom use programme while STD rates fell substantially<sup>(2)</sup>.

Because a large number of new cases of STD continue to be reported under the condom use programme,<sup>(2)</sup> this study was conducted to determine the prevalence of STD in brothel-based CSW in Chiang Mai as an indication of the consistent and correct use of condoms. In addition, since STD are important co-factors in HIV transmission,<sup>(4)</sup> STD prevalence provides information on the potential spread of HIV in the population screened.

## MATERIAL AND METHOD

### Population and Sample

Twenty-one brothel owners whose CSW regularly attended the MOPH-STD clinic in Chiang Mai between October 1994 and April 1995 were contacted to participate in a comparative trial of the user-effectiveness of two strategies using male and female condoms. No brothel owners refused to participate in the trial. One hundred and ninety-five CSW were enrolled on a voluntary basis and provided the baseline data.

### Data Collection

Information on socio-demographic characteristics, history of prostitution, sexual behaviour, and AIDS/HIV awareness was obtained through interview. Urethral and cervical specimens were collected for GC culture on modified Thayer Martin chocolate agar plates. Chlamydial infection was diagnosed by chlamydial antigen detection from cervical specimens using Microtrak® EIA. Pelvic examination was performed to determine the presence of condyloma accuminata, molluscum contagiosum and genital ulcers. Trichomonas vaginalis was detected by wet mount preparation of vaginal specimens.

## RESULTS

One hundred and ninety-five participating CSW had a mean age ( $\pm$ SD) of 22.2 ( $\pm$ 4.3) years. Forty-seven per cent ( $n = 91$ ) were Thai and 57.4 per cent ( $n = 112$ ) had no formal education. The median number of clients per day on the previous day and over the past 3 months were 3 (range 1-6) and 3 (range 1-10) respectively. The median cost

**Table 1.** Sexual behaviour in the past 3 months and HIV/AIDS awareness.

Variables (No)	No (%)
Always use condoms with clients (195)	183 (93.8)
Always use condoms outside of sex work, (29)	14 (48.3)
Ever have oral sex (195)	8 (4.1)
Ever have anal sex (195)	19 (5.1)
Ever have vaginal sex during menstrual periods (195)	31 (15.9)
Vaginal cleansing with soap after sex (188)	159 (84.6)
Contraceptive practices (195)	
- oral pills	111 (56.9)
- injectable hormones	46 (23.6)
- none	23 (11.8)
Have heard of AIDS (195)	191 (97.9)
Talk about AIDS with clients (191)	154 (80.6)
Feel I could catch AIDS (191)	106 (55.5)
Know that condoms can protect against HIV/AIDS (195)	134 (68.7)

for sexual service was 50 baht (US\$ 2). One hundred and eighty six of them (95.3%) were either single or divorced. Ninety-four per cent ( $n = 183$ ) of CSW reported always using condoms with clients over the past 3 months. Of 29 (14.9%) CSW who had sex outside of sex work, 14 (48.3%) reported always using condoms. Very few of them had oral or anal sex or sex during menstrual periods. Among CSWs who had no STD, 109 (82.5%) performed vaginal cleansing with soap and water after sex. Ten (7.6%) used water and nine (7.0%) used non-detergent agents. The percentage of CSW ( $n = 50$ , 83.3%) performing vaginal cleansing with soap and water was similar in CSW with STD. However, the percentage of using water was fifteen ( $n = 90$ ) while only one CSW (1.7%) in this group used non-detergent agent.

Although most CSW were single or divorced, 80.5 per cent ( $n = 157$ ) of them were currently using oral or injectable hormones. Most were aware of HIV/AIDS but only 68.7 per cent ( $n = 134$ ) knew that condoms could protect against HIV/AIDS (Table 1).

The percentages of CSW who had an STD in the past 6 months or in the past 14 days were 16.4 per cent ( $n = 32$ ) and 20.5 per cent ( $n = 40$ ) respectively. Signs of STD were detected in only 21 (10.8%) of them (Table 2). There were 63 (32.3%) CSW infected with at least one of the STD screened. The prevalence of STD included chlamydial infection (16.9%,  $n = 32$ ), gonococcal

infection (14.4%,  $n = 28$ ) condyloma accuminata (4.6%,  $n = 9$ ) molluscum contagiosum (2.6%,  $n = 5$ ) and trichomoniasis (1.0%,  $n = 2$ ). No genital ulcers were detected (Table 2).

**Table 2.** History, symptoms, signs and prevalence of sexually transmitted diseases (STD).

Variables (No = 195)	No (%)
STD during past 6 months	32 (16.4)
STD symptoms in past 14 days	40 (20.5)
Signs of STD	21 (10.8)
Chlamydial infection	32 (16.9)
Gonococcal infection	28 (14.4)
Condyloma accuminata	9 (4.6)
Molluscum contagiosum	5 (2.6)
Trichomoniasis	2 (1.0)
At least one type of STD	63 (32.3)

Table 3 shows bivariable analysis in an attempt to determine risk factors for STD. No factor was found to be statistically significant.

## DISCUSSION

Despite an active programme for the detection of STD in CSW by providing free condoms, STD were diagnosed in one-third of brothel-based CSW in Chiang Mai. Socio-demographic characteristics of this group of CSW with regard

**Table 3. Bivariable analysis of potential risk factors for sexually transmitted diseases.**

Variables (n)	STD negative No (%)	STD positive No (%)	OR (95% CI)	P-Value
No formal education (195)	70 (53.0)	42 (66.7)	1.8 (0.9,3.3)	0.0732
Non-Thai ethnicity (195)	66 (50.0)	38 (60.3)	1.5 (0.8,2.8)	0.1780
>16 mo. in prostitution (195)	70 (53.0)	27 (42.9)	0.7 (0.4,1.2)	0.1850
Feel they could not catch AIDS (191)	53 (41.1)	32 (51.6)	1.5 (0.8,2.8)	0.1715
Knowing that condoms can protect HIV/AIDS (195)	41 (31.1)	20 (31.7)	1.0 (0.5,2.0)	0.9231
Hormonal contraception (185)	103 (84.4)	55 (87.3)	1.3 (0.5,3.1)	0.6002
Vaginal cleansing with water (178)	10 (8.4)	9 (15.3)	1.0 (0.8,1.3)	0.9821
Sexual service cost $\leq$ \$2 (195)	81 (61.4)	41 (65.1)	1.2 (0.6,2.2)	0.6162
>3 clients per day in the past 3 mo. (195)	55 (41.7)	24 (38.1)	0.9 (0.5,1.6)	0.6348

to age, ethnicity, education, duration of prostitution, number of clients per day and sexual service charges were similar to those reported in a study by Siriprasiri et al<sup>(5)</sup> in which the CSW were randomly selected in Chiang Mai. Risk factors for STD were not able to be identified in this study, although the 95 per cent confidence intervals of the odds ratio were narrow. This may be because the population studied was homogeneous so that it required a much larger sample size to detect a significant risk factor. The possible explanation for high prevalence of STD in spite of reported consistent condom use are twofold: (1) over-reporting of condom use and (2) ineffectiveness of condom use due to misuse, slippage and breakage. Unsafe sex outside of sex work is an unlikely explanation in this population because only 14.9 per cent of them had sex outside of work. Education and practice in the correct use of condoms should

be strengthened and the entire programme broadened to cover more brothels and sex establishments. Furthermore, additional means of STD prevention need to be integrated with the condom use campaign. Studies on the safety, efficacy and acceptability of female condoms and vaginal microbicides are urgently needed.

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## ความซุกของโรคติดต่อทางเพศสัมพันธ์ในหญิงขายบริการจากสถานบริการในจังหวัดเชียงใหม่ : ผลของการรณรงค์ให้ใช้ถุงยางอนามัย

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ในระหว่างเดือนตุลาคม พ.ศ.2537 ถึงเดือนเมษายน พ.ศ.2538 หญิงขายบริการในเชียงใหม่ จำนวน 195 คน ได้รับการตรวจหาโรคติดต่อทางเพศสัมพันธ์ เพื่อที่จะเข้าร่วมโครงการวิจัย การศึกษาประสิทธิผลของถุงยางอนามัยสตอร์ใน การป้องกันโรคติดต่อทางเพศสัมพันธ์ในหญิงขายบริการ หญิงขายบริการเหล่านี้มีอายุเฉลี่ย 22.2 (ค่าเบี่ยงเบนมาตรฐาน 4.3) ปี 47% เป็นคนไทย 57.4% ไม่ได้รับการศึกษาภาคบังคับ ค่ามัธยฐานของระยะเวลาที่ดำเนินอาชีพขายบริการ 16 เดือน และค่าบริการ 50 บาทต่อคน 94% ของหญิงบริการรายงานว่าใช้ถุงยางอนามัยในการให้บริการ

มหัญบริการ 63 (32.3%) คนติดเชื้อโรคติดต่อทางเพศสัมพันธ์ที่ทำการตรวจหาอย่างน้อยหนึ่งครั้ง ความซุก ของโรคติดต่อทางเพศสัมพันธ์ ได้แก่ การติดเชื้อหนองในเทียม (16.9%) หนองในแท้ (14.4%) *condyloma accuminata* (4.6%) *moluscum contagiosum* (2.6%) และ *trichomoniasis* (1.0%) ไม่พบว่ามีปัจจัยเสี่ยงของการติดเชื้อโรคติดต่อทางเพศสัมพันธ์ที่เชื่อถือได้ทางสถิติ ในกลุ่มหญิงขายบริการที่ทำการศึกษานั้นพบว่า ติดเชื้อโรคติดต่อทางเพศสัมพันธ์ถึง 1 ใน 3 ทั้ง ๆ ที่อยู่ในช่วงเวลาที่มีการดำเนินการป้องกันโรคติดต่อทางเพศสัมพันธ์โดยการแจกถุงยางฟรี

การให้การศึกษาอย่างจริงจังและการฝึกให้รู้วิธีการใช้ถุงยางอย่างถูกต้องและสม่ำเสมอ เป็นสิ่งจำเป็นที่ทำให้ แผนการป้องกันโรคติดต่อทางเพศสัมพันธ์นี้ได้ผลมากขึ้นและเป็นสิ่งที่ต้องรวมเข้าไปไว้ในแผนการป้องกันโรคติดต่อทางเพศสัมพันธ์อีก ๑ ด้วย

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