

## Original Article

### **Frequency of syphilis in female sex workers at red light area of Hyderabad, Pakistan**

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#### **Abstract**

**Objective:** To determine the frequency of syphilis in female sex workers (FSWs) at red light area of Hyderabad.

**Methods:** This study was conducted on female sex workers at red light area of Hyderabad, Pakistan during 2003. All female subjects who were between 17-35 years of age were evaluated and enrolled in the study. All such subjects were screened for *Treponema pallidum* infection/syphilis by *Treponema Pallidum* Haemagglutination assay (TPHA). The frequency was determined by identifying the positive *Treponema pallidum* infected patients. For getting results the data was saved and analyzed in SPSS version 10.00.

**Results:** Total fifty (50) female sex workers were studied; their mean age was  $26.22 \pm 4.47$  years. Syphilis was identified in 22 (44%) females with mean age of  $22.68 \pm 1.46$  years while remaining 28 (56%) with mean age  $29.00 \pm 4.06$  years were free from syphilis ( $p < 0.001$ ).

**Conclusion:** The female sex workers are prone and at risk to acquire sexual transmitted infections (STI), therefore for control and preventive measures, screening programmes should be initialized (JPMA 60:353; 2010).

#### **Introduction**

Syphilis has been a major cause of mortality and morbidity for around 500 years. It is caused by the bacterium *Treponema pallidum*, which is transmitted sexually. The organism enters the body via an abrasion during sexual contact, and there is an incubation period of about 3 weeks.<sup>1,2</sup> The disease classically presents in three distinct stages i.e. primary, secondary and tertiary.<sup>3</sup>

The Sexually transmitted infections (STIs) evolved from the older term Venereal diseases (VDs) are a group of infectious diseases, which are mainly transmitted through sexual intercourse and have been recognized as a major public health problem since years and it is also a common cause of illness in the world.<sup>4</sup> The sex workers are at risk to acquire different sexual transmitted infections and they act as a source of transmission of them. In past years, considerable research

has been undertaken on the role of female sex workers (FSWs) in the source and transmission of syphilis and consequently, they have been extensively targeted and counseled to prevent its spread. The female sex workers have high prevalence of sexually transmitted Infections (STIs) and it has been proved by a study conducted on female sex workers in San Francisco, which reported high rate of gonorrhoea (12.4%), chlamydia (6.8%), syphilis (1.8%) and herpes (34.3%). A study of Turkey showed that prevalence of syphilis among female sex workers varies between 8.7% and 31.6%.<sup>6</sup> Moreover the prevalence recorded in the related former local studies was syphilis (1.3%), HIV(0.1%), HSV-2 (3.4%), gonorrhoea (0.8%) and chlamydia (no cases), while the city-wise survey showed the highest prevalence to be in Karachi (8.5%), followed by Lahore (5.3%), Quetta (4.3%) Faisalabad (4.0%), Rawalpindi (2.5%) and Peshawar (2.0%) in the study by Mir et al.<sup>7</sup> However the prevalence recorded for syphilis among females sex workers in Pakistan is 3.6% (Karachi) and 16.0% in (Lahore).<sup>8</sup> Commercial sex work is illegal in Pakistan but sex workers continue their business in all major cities of the county. Due to disorganized and hidden manner of commercial sex profession, the intervention to reduce vulnerability of sexual transmitted infections in this high-risk population (FSWs) is challenging and a difficult task. Therefore by taking such a challenge, the present study is focused on detection of syphilis among female sex workers (FSWs). The diagnostic and treatment approaches in syphilis show wide variations in the management plan.<sup>9</sup> However the biochemical parameters i.e. the Rapid Plasma Reagin (RPR) and Venereal Disease Research Laboratory (VDRL), Treponema pallidum haemagglutination assay (TPHA) and Fluorescent Treponemal Antibody Absorption (FTA-ABS) are helpful in the detection of syphilis.<sup>10</sup>

Therefore, by keeping all specific debate in mind, the present study was conducted at the red light area of Hyderabad city (the second largest city of province Sindh, Pakistan) by focussing on the frequency of syphilis in female sex workers (FSWs). By diagnosing and eradicating Treponema pallidum infection the risk of transmission and progression of the disease can be reduced or inhibited.

## Material and Methods

The study was conducted on the female sex workers at Serey Ghat (the fourth largest red light area of Pakistan), Hyderabad during the month of December 2003 by Sindh AIDS control programme in collaboration with the non government organization NGO (working in the area for awareness regarding sexual transmitted Infections - STIs). All the female sex workers of age 17-35 years were evaluated and enrolled in the study. The approval for this

screening based study was taken from Provincial manager of Sindh AIDS Control Programme (SACP). An additional approval was taken from pathologist of referral laboratory SACP, programme manager of NGO, and Blood Bank of Liaquat University Hospital Hyderabad, Sindh. The purpose and rationale of the study was detailed using simple language terminology to the subjects (FSWs). Their participation was entirely voluntarily and they had the right to refuse or withdraw at any stage of the study. In case of refusal during the research, the partially collected data was immediately destroyed.

Further help was sought from six selected outreach workers (peer workers) for providing information to FSWs of that community. They were trained by medical staff/team of the NGO regarding the importance and purpose of the study. Although they were the paid staff of the NGO, they belonged to same area, community and profession. During the survey anonymity and confidentiality was maintained and only selected focal responsible persons of the NGO knew the names and addresses of the participants (FSWs). It was only kept for the purpose of any future correspondence. All the FSWs were given assurance that their identity will never be mentioned in the report of the research.

The informed consent was written in clearly understandable Urdu language. All those who could not understand Urdu, information was provided through peer workers in Punjabi language. All protocols and basic parameters of the study were also discussed in detail with the community before the screening of FSWs and complete information regarding syphilis, its transmission and complication was provided to each FSW in a pre-test counseling session. The FSWs were assured that every participant will get her own result of the tests. All the test samples were carefully coded and a number was assigned to each test sent to the laboratory for investigation.

The known cases of autoimmune diseases and subjects who refused to participate in the study were considered in the exclusion criteria. We screened 50 subjects because such population (FSWs) is mobile and changes their places due to their profession (sex worker). The Serey Ghat is a banned area and therefore FSWs went outside the area for their professional activities. Therefore during the study period many female sex workers were not present in the area (Serey Ghat). Some who were present did not meet the age criteria of the study. Some of the girls were not involved in the sex activities and were limited to dancing and singing only. Regarding ethical justification all the expenses of this study were paid by the valuable cooperation of Sindh AIDS Control Programme team.

All the data was kept under lock and key. After the completion of this screening campaign all the collected data

was entered in SPSS software version 10 for analysis. The frequency and percentage of syphilis in female sex workers was calculated. The mean and standard deviation for age was also calculated. T-test for independent samples was applied between categorical variables at 95% confidence interval and the p-value <0.05 was considered as statistically significant.

## Results

A total of fifty female sex workers (FSWs) were screened for syphilis with a mean age of  $26.2 \pm 4.4$  years.

**Table-1: Age distribution of female sex workers (FSWs).**

Age	n = 50	%
17 - 20	03	6
21 - 25	27	54
26 - 30	11	22
31 - 35	09	18

**Table-2: Frequency of syphilis in female sex workers (FSWs).**

Syphilis	n = 50	%	Mean age / (SD)	P value
Positive	22	44	$22.6818 \pm 1.4601$	< 0.001*
Negative	28	56	$29.0000 \pm 4.0643$	

\*p-value is statistically significant.

The frequency, percentage and age range of these subjects is mentioned in Table-1. The results regarding frequency of syphilis in female sex workers (FSWs) is shown in Table-2.

## Discussion

The present study revealed that female sex workers were at high risk for acquiring *Treponema pallidum* infection. However a study conducted during 2000-2001 in Bangladesh showed 19.8% prevalence of syphilis among female sex workers,<sup>11</sup> whereas in the study by Ward et al<sup>12</sup> 2.3% prevalence of syphilis was observed. In an Indian study the prevalence of syphilis was 29.4% in 124 sex workers.<sup>13</sup> The prevalence of syphilis recorded in the present study is 44% which is higher as compared to 22.7%, reported in an Indian study by Desai, et al.<sup>14</sup> A low prevalence (8%) of syphilis infection among female sex workers was documented in Colombia.<sup>15</sup> The prevalence of syphilis among FSW have been reported in other regions like Veitnam (10.7%),<sup>16</sup> China (9.5%),<sup>17</sup> and Thailand (9%).<sup>18</sup>

The possibility of an increase in syphilis and other STIs among such high risk group (sex workers) may be due to their profession (as prostitutes / sex workers) as they tend to have multiple anonymous sexual partners. They are not only difficult to locate but frequently use intravenous (IV) drugs that have high rates of infection with HIV.<sup>19,20</sup>

*Treponema pallidum* haemagglutination (TPHA) method was used as a screening tool for the detection of syphilis in the present study. This is superior in sensitivity and specificity over VDRL, and is consistent with the findings of Saluja et al.<sup>21</sup> Another study conducted by Cole et al<sup>22</sup> on evaluation of syphilis showed 100% sensitivity by TPHA. The VDRL is interpreted as false positive in many other disorders that include infectious mononucleosis, hepatitis A, HIV, lyme disease, certain types of pneumonia, malaria and systemic lupus erythematosus.

The female sex workers conceal sex-related diseases until they have serious complications. They also do not seek STIs treatment due to discrimination and unfriendly behaviour. Therefore, there is an urgent need to address the sexual and reproductive health sex workers and STIs service should be made available to the target group (FSWs) in their vicinity. Peer educators involvement in STIs clinic is expected to have appropriate, effective and positive impact on STIs services.

## Conclusion

Syphilis is the most common infection among female sex workers. A periodic screening system for STDs should be initialized for high risk subjects like female sex workers. Safe sex practices and counseling must be conveyed to each female sex workers (FSWs).

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