

Research Article

Factors Associated with Sexually Transmitted Diseases in Sexual Workers; An Analytical Cross-Sectional Study

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Abstract

Background: Sex workers in underdeveloped nations, due to their social marginalised working conditions, have little to no control over a variety of risk factors of unprotected sexual activity.

Objectives: To measure the associated factors of sexually transmitted diseases (STD) among commercial sex workers in Lahore.

Methods: An analytical cross-sectional study included 280 commercial sex workers from June to November 2022 in different areas of Lahore. Sample was collected by snow-ball sampling technique using a structured questionnaire. SPSS version 23 was used for data analysis. To determine associations between STD status and their lifestyle preferences, chi-square test and the binary logistic test were utilized; a p value of 0.05 was considered significant.

Results: Among total 280 commercial sex workers, there were 60(21.4%) females, 123(43.9%) males and 97(34.6%) transgenders. One hundred and ninety (67.8%) were aware of STD's and 90(32.1%) were not. Out of 205 sex workers who underwent serological tests for STD's, 150(53.6%) were tested positive for HIV. Bivariate analysis of lifestyle choices and STD diagnosis roles of commercial sex workers showed significant association of STD status with cigarette smoking ($p=0.028$), alcohol abuse($p=0.038$), average price charged per sexual encounter ($p=0.020$), use of condom ($p=0.010$), awareness regarding STDs($p=0.000$), intent to get tested for STD($p=0.001$) and seeking treatment for STDs ($p=0.000$).

Conclusion: Sexually transmitted diseases were found in 73.2% of sexual workers. Cigarette smoking, Alcohol abuse, less average Price per sexual encounter were significantly higher in STD positive sexual workers. Regarding the knowledge of STDs, intent to get tested again and participate in prevention programs was higher in STD positive sexual workers of Lahore.

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Introduction

Sexually transmitted diseases, also known as STDs, are illnesses that are caused by pathogens and can

be acquired and spread by unprotected sexual contact. Bacteria, viruses, protozoa, fungi, and ectoparasites are all capable of causing sexually transmitted diseases.¹ It is estimated that 0.2% to 2.6% of the population in Asia, 0.4% to 4.3% of the population in sub-Saharan Africa, and 0.2% to 7.4% of the population in Latin America work in the commercial sex industry.² HIV, Gonorrhea, Chlamydia, Syphilis, and Trichomo-



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niasis are only some of the sexually transmitted diseases (STDs) that affect about 376 million people every year around the world.³ An Argentine study found that trans sex workers had a greater prevalence of sexually transmitted diseases (STDs) such as HIV (34.1%), HBV (40.2%), and Pallidum (50.4%), compared to their male and female counterparts.⁴ According to 2021 estimates from global epidemiological surveillance, there are around 38.4 million persons living with HIV, with sexual transmission accounting for approximately 75% of new HIV diagnoses and injectable drug use accounting for approximately 4%.⁵

Sex workers in underdeveloped nations, due to their social marginalized and criminalized working conditions, have little to no control over a variety of risk factors, including their use of alcohol, drugs, and violence.⁶ According to research done in China, the government instituted free camps, laboratory testing, and condom awareness campaigns once news of an STD pandemic among commercial sex workers spread.⁷

Only 42 percent of Karachi's 200 CSWs reported using condoms, with the reasons given for not doing so including having sex with unpaid partners, alcohol use, a lack of condom availability, a lack of affiliation with a service delivery program and a general lack of knowledge about the importance of condom use.⁸ It is important to utilize a syndromic approach for case measurement and management, according to the World Health Organization (WHO), especially in high-prevalence areas where there are few diagnostic facilities and few ways to transport patients.^{9,10} In spite of the fact that sex workers are disproportionately affected by sexually transmitted diseases (STDs), mainly due to ignorance about the dangers of unprotected sexual activity, there is a dearth of research that makes it challenging to gauge the extent of the problem. The aim of this research is to find out the associated factors of STD transmission among Lahore's commercial sex workers.

Methods

An analytical cross-sectional study was conducted on commercial sex workers in Lahore between June to September, 2022. An activist working for the rights of marginalized groups was targeted to reach the commercial sex workers of Lahore. Throughout the process of collecting, analyzing, and interpreting data, confidentiality was maintained along with acquisition of written informed consent. The sample size was calculated using the Rao soft sample size calculator with a 95% confi-

dence level and a 5% margin of error. Keeping the response rate of STDs prevalence in CSWs at 21% from a study conducted in Moscow⁹ an estimated sample size of 252 subjects was calculated. Twenty-eight more participants were recruited to generate a sufficient sample size of 280 in order to enhance the power of the study. Data were obtained from a sample of 280 people using a non-probability snow-ball sampling technique after receiving approval from the IRB of Akhtar Saeed Medical and Dental College (IRB no.# M-22/80/CM). The most advised sampling method when addressing sensitive issues and marginalized communities is the snow ball sampling technique. The activist of Sangat NGO introduced us to three sex workers who further introduced us to their community, on many occasions the sex workers themselves told us about the houses where we could collect data from. Data were hence obtained via snow ball sampling technique from the sex workers who lived in Lahore regardless of their age and gender. Participants who were hesitant to participate, denied consent, or provided incomplete information were also excluded from the study. Thirty individuals served as the pilot group for a structured questionnaire that was generated for this study. A comprehensive informed consent form outlining the goals of this study was also created in the local language of Urdu. Responses about sexually transmitted diseases were obtained via participant self-reporting and data was acquired using a one-to-one interview technique. Two hundred and five participants underwent serological tests (blood tests and test kits for Hep B, C and HIV) for free with the help of Sangat Foundation not more than a year ago as per the participants. Blood reports that showed the presence of antibodies against diseases like Syphilis, Chlamydia, Gonorrhoea, HIV, Hepatitis and Trichomoniasis were taken into account by the data collectors. The participants whose reports were positive for STD were given health education regarding their condition emphasizing on the importance of taking medicines, regular checkups, necessary precautions before intercourse and information regarding danger sign of their conditions. Seventy-five participants did not undergo any serological testing due to their personal reasons and were educated to get themselves tested. Sixty eight percent of the participants attended STD prevention programs which arose awareness amongst them leading to getting themselves checked for STD. SPSS version 23 was used for data analysis. Frequency tables were used to represent qualitative

characteristics. Age was one of the quantitative variables for which the mean and standard deviation were computed. Chi square analysis was used to determine whether there was a significant relationship between STD diagnosis and cigarette smoking, alcohol consumption, use of condoms, awareness regarding STDs, attending awareness programs and getting treatment for STDs with the p-value was considered less than and equal to 0.05. Binary logistic regression was further applied taking STD positive as 1 and STD negative as 0.

Results

A total of 280 sex workers participated in this study, out of which 123 (43.9%) were males, 60(21.4%) were females and 97(34.6%) were transgenders. Mean age

Table 1: Participants Socio-demographic Profile (n= 280).

Variables	Frequency (n)	Percentage (%)
Gender		
Male	123	43.9
Female	60	21.4
Transgender	97	34.6
Age in years		
Less than 16	1	4
16 - 20	18	6.4
21 – 25	69	24.6
26 – 30	85	30.4
31 – 35	66	23.6
More than 35	41	14.6
Educational Status		
Educated	222	79.3
Un-educated	58	20.7
Employment status apart from sex-work		
Employed	133	47.5
Unemployed	147	52.5
Monthly income (PKR)		
Less than 10,000	7	2.5
10,000 – 30,000	122	43.6
31,000 – 50,000	99	35.4
More than 50,000	52	18.6
Smoking		
Smoker	112	40
Non-smoker	168	60
Intravenous drug abuse		
Abuser	40	14.3
Non-abuser	240	85.7
Needle sharing		
Yes	28	70
No	12	30
Alcohol abuse		
Abuser	118	42.1
Non-abuser	162	57.9

of the participants was 28.6 ± 5.74 years. Majority 222 (79.3%) were educated and almost half of the participants 133(47.5%) were employed. 112(40%) of the sex workers smoked cigarettes, 118(42.1%) drank alcohol, 40 (14.3%) were IV drug abusers with 25 (9%) had needle sharing practices (Table-1).

When asked about knowledge regarding sexually transmitted diseases, it was observed that 190 (67.9%) sex

Table 2: Knowledge regarding STDs in commercial sex-workers.

Variables	Frequency (n)	Percentage (%)
Awareness Regarding STDs		
Yes	190	67.9
No	90	32.1
Symptoms experienced related to STDs		
Yes	194	69.3
No	86	30.7
Most common symptom experienced		
Discharge	18	9.3
Genital Warts	37	19.1
Inguinal Lymph Adenopathy	2	1
Itching around the genital area	19	9.8
Painful Intercourse	51	26.3
Painful Micturition	38	19.6
Swelling in groin	20	10.3
Ulcers	9	4.6
Serological test done from laboratory for STD diagnosis (as reported by participants)		
Yes	205	73.2
No	75	26.8
Attended prevention programs regarding STDs		
Attended	191	68.2
Not attended	89	31.8
Use of Condom for STD prevention		
Yes	254	90.7
No	26	9.3
Screened for Hepatitis B or Hepatitis C		
Yes	203	72.5
No	77	27.5
Ever screened for HIV		
Yes	200	71.4
No	80	28.6

workers had awareness regarding STDs. Most reported symptoms of STDs were painful intercourse (26.3%) followed by painful micturition (19.6%) and genital warts (19.1%). Majority 205(73.2%) of the sex workers were diagnosed with STDs after laboratory test confirmation and were encouraged by the data collectors to

take proper treatments whereas 75(26.8%) did not undergo through serological testing on account of their personal reasons. Most of the sex workers had awareness regarding STDs as 191(68.2%) attended STDs prevention programs whereas when reason for not attending the programs was asked all of them said that it's a waste of time, 254(90.7%) used condom with their clients whereas the remaining 9% thought it was not necessary as it reduced the pleasure, 203(72.5%) were screened for Hepatitis by using test kits and 77 (27.5%) of the sex workers thought it was useless to get tested. 200 (71.4%) got tested for HIV whereas 80 (28.6%) for HIV considered it to be useless to get tested. (Table 2).

Out of 205 sex workers who undergone a serological test for STD's, an alarming high percentage of HIV 150(73.2%) was reported 12(5.8%) were tested positive for Chlamydia, 12(5.8%) were tested positive for Gonorrhoea, 16(5.7%) were tested positive for Syphilis and 15 (5.4%) were tested positive for Trichomoniasis (Fig 1).

Out of 280 sex-workers, 82(40%) did all kinds of sex practices with their clients, 54(26.2%) only did anal sex, 36(17.6%) preferred oral practices, 33(16.1%) had vaginal sex with their clients. Bivariate analysis of lifestyle choices and STD diagnosis roles of commercial sex workers showed a substantial association of STD diagnosis with cigarette smoking ($p=0.028$), alcohol abuse ($p=0.038$), average price charged per sexual encounter ($p=0.020$), use of condom ($p=0.010$), awareness regarding STDs($p=0.000$), Intent to get tested for STD ($p=0.001$), taking part in prevention programs regarding STDs ($p=0.000$), and seeking treatment for STDs ($p=0.000$). Binary Logistic Regression was further applied on all the significant variables and they also showed significant results with cigarette smoking ($p=0.029$) those who were not smoking has reduced odds of STD positive AOR 0.53 95% Confidence interval 0.30-0.94, alcohol abuse($p=0.039$) was significant those who were not consuming alcohol has reduced odds of

Table 3: Bivariate analysis of STD positive and STD negative status impact on the lifestyle choices of commercial sex workers

Variables	STD positive (n=205)	STD negative (n=75)	p-value (chi-square)	Odds ratio	95% Confidence interval	p-value (binary logistic regression)
Cigarette smoking						
Yes	90 (43.9%)	22 (29.3%)	0.028*	Reference	0.30 - 0.94	0.029*
No	115(56.1%)	53 (70.1%)				
Alcohol abuse						
Yes	94(45.9%)	24 (32%)	0.038*	Reference	0.32 - 0.97	0.039*
No	111(54.7%)	51(68%)				
Average Price per sexual encounter						
Less than PKR 10,000	97 (47.3%)	29 (38.7%)	0.020*	0.685	0.51-0.93	0.015*
More than PKR 10,000	108(52.6%)	46 (61.3%)		Reference	Reference	
Use of condom with clients						
Yes	162 (79%)	48 (64%)	0.010*	Reference	Reference	0.011*
No	48 (21%)	27 (36%)		0.472	0.26 - 0.84	
Awareness regarding STDs						
Yes	170(82.3%)	20(26.7%)	0.000*	Reference	Reference	0.000*
No	35(17.1%)	55(73.3%)		0.05	0.04-0.14	
Intent to again get tested for STD in future						
Yes	195 (95%)	62(82.7%)	0.001*	Reference	Reference	0.002*
No	10 (5%)	13(17.3%)		0.245	0.10-0.59	
Attended prevention programs regarding STDs						
Yes	152(74.1%)	19 (25.3%)	0.000*	Reference	Reference	0.001*
No	53 (25.9%)	56 (74.7%)		0.368	0.22-0.68	
Received treatment for STDs						
Yes	110(53.7%)	18 (24%)	0.000*	1.200	0.14-10.3	0.000*
No	95 (46.3%)	57 (76%)		Reference	Reference	

STD positive AOR 0.556 95% Confidence interval 0.32 - 0.97, average price charged per sexual encounter ($p=0.015$) those charging less than Rs. 10,000 per encounter were protected against STDs AOR 0.685 95% Confidence Interval 0.51-0.93. STD negative persons had lower odds of using condoms, lower awareness, lower intend to get tested again, lower part in prevention programs and lower treatment as compared to STD positive individuals as shown in Table 3.

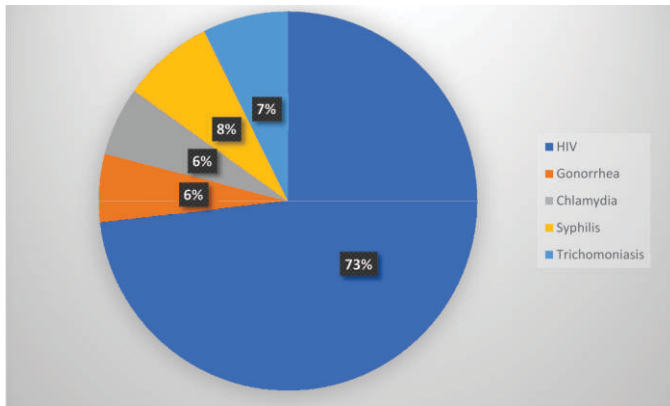


Figure 1: Types of STD's diagnosed after laboratory results

Discussion

The research was conducted on a total of 280 sexual workers in Lahore, city of Pakistan. It has been determined in this study that the mean age of commercial sex workers was 29 years \pm 5.75. Out of them 54% were in between 25-35 years. Similarly in a study conducted in China, 40% of commercial sex workers were between 26-35 years with a mean age of 32 years.¹⁰

Forty percent of the participants admitted of smoking cigarettes daily in the present study. In contrast to our analysis, in a study conducted in Ethiopia only 8.1% had smoking/khat chewing habits.¹¹ Fourteen percent of prostitutes gave an account to be involved in Intravenous drug abuse out of which 90% of them shared needles mainly due to family rejection, social discrimination and peer pressure were major reasons compelling them to wallow in drug dependence. In comparison, an observational study held in Massachusetts 40.9% of sex workers shared needles while doing IV drug abuse.¹²

Among 280 sexual workers 42.1% agreed upon drinking alcohol most of them consume alcohol occasionally but some of them also claimed to drink regularly or in social gatherings. Overall, 73.1% of the respondents

residing in Cameroon reported to be drinking alcohol in the past years which is almost 31% more than our research analysis.¹³ This may be due to the fact that access to alcohol is easier in western countries than Pakistan.

In our study, 86.8% of the CSWs used condoms and only 13.2% were those who never used condom whereas in a study conducted amongst in Nigerian sex workers where only 18% use condom.¹⁴ This difference indicates that Pakistani sex workers are practicing more preventive measures against STDs than the Nigerian sex workers.

All kind of sexual practices (anal, vaginal, oral) were traded among 40% of the participants whereas study conducted in Ethiopia reports that relatively high payment for anal sex than vaginal sex influenced them to accept clients offer for anal sex.¹⁵ In another study conducted in Pakistan 28.6% respondents practiced anal sex and 17.4% practiced oral sex with the clients.¹⁶

In our study the most common presenting complaint by sex workers was painful intercourse (51(26.3%) followed by appearance of warts and painful micturition. In a study conducted in Ethiopia, 62 (15.9%), 59 (15.2%), and 45 (11.6%) of the total respondents had experienced vaginal discharge, vaginal ulcer, and inguinal bubo syndromes, respectively.¹⁷ One of the preponderant concerns of my study was to prevent STD's. Our study has provided evidence to rule out those who have tested themselves from those who have not. From chosen sample of 280 commercial sex workers, 205(73.2%) have serological tests for STD diagnosis. A quantitative study was conducted in India with a selected sample of 416 commercial sex workers. From them, all sex workers went for screening test.¹⁸ In our study, out of 280 participants, 150 (70%) of the participants were tested positive for HIV whereas 16(5.7%) were serologically tested positive for Syphilis. Anteneh ZA stated that the global HIV prevalence among sex workers has become unacceptably high up to 10.4% and syphilis prevalence in a range from 5.8 - 10%¹⁹ This shows that the prevalence of HIV in Pakistani sex workers is 7 times more than the overall world's statistic.

In order to check prevention programs attended by the commercial sex workers in our study, 89(31%) had not attended prevention programs and 191(68.2%) among them who had attended such programs. In Ethiopia, a

controversial study was conducted to estimate influence of prevention programs for commercial sex workers to prevent STD's, 32% sex workers attended although 68% have not attended such anticipatory programs.²⁰ The awareness regarding STDs is much greater in Pakistani CSWs as compared to Ethiopian sex workers as different NGOs are actively working on this aspect in Pakistan.

Among Commercial sex workers 254(90.7%) thought that condoms can protect from STDs whereas only 26 (9.3%) sex workers are not sure that condoms are playing role in preventing STD's. In Central Africa, out of 119,468 Female sex worker who are consistent condom users only 2871(2.7%) were tested HIV positive as compared to 942(10%) female sex workers who did not use condoms.¹⁸ In our study, out of total 280 commercial sex workers, 203(72.5%) have screened for Hepatitis B or Hepatitis C whereas 77(27.5%) have not screened yet. Similarly in a Brazilian study conducted on 4245 female sex workers, 4190(98.7%) volunteered for STD screening and 52(1.3%) did not screen.²²

According to the perception of our study participants 219(78.2%) thought that HIV transmission occurs through sexual contact and by sharing syringes 34 (12.1%). In Nepal, 28(46.7%) thought that HIV is transmitted through sharing of needles and syringes, 25(41%) by multiple sex partners and 7(31.8%) responded that it is transmitted during delivery.²³

This study has a limitation as it did not test for STDs but used self-reported data on syndromes of STDs to determine the frequency of STDs and the factors that affect them.

Conclusion

Sexually transmitted diseases were found in 73.2% of sexual workers. Cigarette smoking, Alcohol abuse, less average Price per sexual encounter were significantly higher in STD positive sexual workers. Regarding the knowledge of STDs, intent to get tested again and participate in prevention programs was higher in STD positive sexual workers of Lahore.

Ethical Approval: The Institutional Review Board, Akhtar Saeed Medical & Dental College, Lahore approved the study vide IRB Approval No. M-22/80/-CM.

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Authors' Contribution:

ZHK: Conception and design, acquisition of data, analysis & interpretation of data final approval of version to be published

IM: Acquisition of data, or analysis & interpretation of data, revising it critically for important intellectual content

MI: Acquisition of data

MF: Acquisition of data

MM: Acquisition of data

MF: Acquisition of data, drafting of article

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