

Characteristics of a population of sex workers and their association with the presence of sexually transmitted diseases*

CARACTERÍSTICAS DE POPULAÇÃO DE PROFISSIONAIS DO SEXO E SUA ASSOCIAÇÃO COM PRESENÇA DE DOENÇA SEXUALMENTE TRANSMISSÍVEL

CARACTERÍSTICAS DE POBLACIÓN DE PROFESIONALES DEL SEXO Y SU ASOCIACIÓN CON PRESENCIA DE ENFERMEDADES DE TRANSMISIÓN SEXUAL

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ABSTRACT

The objectives of this study were to describe a population of sex workers considering their sociodemographic characteristics, gynecological history and behavioral factors, and to verify the association of these characteristics with the presence of sexually transmitted diseases. This epidemiological cross-sectional study was performed with 102 female sex workers. Data were collected using structured interviews and gold-standard exams for diagnosis of the diseases of interest. The women's mean age was 26.1 years. Most of them had attended school for nine years or more, were single and reported becoming sexually active before 15 years of age. Performing oral sex on partners was cited by 90.2% of women, and 99% reported the use of condoms at work; only 26.3% used condoms with permanent partners, and 42.2% used illicit drugs. No association was observed between sociodemographic factors, gynecological history or behavioral factors and sexually transmitted diseases, which may have been due to their educational status and the fact that the population had very similar characteristics, thus making it difficult to determine such associations.

DESCRIPTORS

Sex workers
Sexually transmitted diseases
Women's health
Epidemiology
Public health nursing

RESUMO

Este estudo teve como objetivo descrever a população de profissionais do sexo, considerando características sociodemográficas, antecedentes gineco-obstétricos e comportamentais, e verificar a associação com a presença de doença sexualmente transmissível. Trata-se de estudo epidemiológico e transversal, realizado com 102 mulheres profissionais do sexo. Os dados foram obtidos por meio de entrevista e exames padrão-ouro para diagnóstico das doenças de interesse. A média de idade das mulheres foi de 26,1 anos, sendo que a maioria tinha nove ou mais anos de aprovação escolar, era solteira e teve coitarca antes dos 15 anos. A prática de sexo oral nos parceiros foi citada por 90,2% das mulheres, 99% delas relataram fazer uso de preservativo no trabalho, apenas 26,3% com parceiros fixos e 42,2% usavam drogas ilícitas. Não houve associação entre fatores sociodemográficos, antecedentes gineco-obstétricos e fatores comportamentais com presença de doença sexualmente transmissível e isso pode ser decorrente da escolaridade e do fato da população estudada possuir características muito semelhantes, dificultando o aparecimento de tais associações.

DESCRIPTORIOS

Profissionais do sexo
Doenças sexualmente transmissíveis
Saúde da mulher
Epidemiologia
Enfermagem em saúde pública

RESUMEN

Se objetivó describir la población de profesionales del sexo, considerándose características sociodemográficas, antecedentes gineco-obstétricos y conductuales, verificando la asociación con la presencia de enfermedad de transmisión sexual. Estudio epidemiológico transversal realizado con 102 mujeres profesionales del sexo. Datos obtenidos mediante entrevistas y exámenes *patrón de oro* para diagnóstico de enfermedades de interés. Edad promedio de las mujeres: 26,1; la mayoría con nueve o más años de escolarización, solteras, con coitarca antes de los 15 años. El 90,2% refirió practicar sexo oral con sus clientes, 99% trabajaban con preservativos, apenas 26,3% tenía compañero fijo y 42,2% utilizaba drogas ilegales. No existió asociación entre factores sociodemográficos, antecedentes gineco-obstétricos y factores conductuales con presencia de enfermedad de transmisión sexual. Eso puede derivar de la escolarización y del hecho de que la población estudiada poseyera características muy semejantes, dificultándose la aparición de tales asociaciones.

DESCRIPTORIOS

Trabajadores sexuales
Enfermedades de transmisión sexual
Salud de la mujer
Epidemiología
Enfermería en salud pública

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INTRODUCTION

In diverse contexts of the world and, in a particularly relevant way, in developing countries, Sexually Transmitted Diseases (STD) are one of the main determinants of disease burden in populations. The evident differences observed in the prevalence, incidence and morbidity of STDs can be understood in terms of one's biological predisposition to acquire certain infections/diseases, different sexual behaviors that determine an increased or reduced risk of acquiring such infections, and the cultural and social dimensions where men and women exist⁽¹⁾.

A study conducted in Brazil to evaluate the perception of women concerning female vulnerability to acquiring STDs/Human Immunodeficiency Virus (HIV) concluded that the interviewed women recognize vulnerability factors in other women and perceived the risk of acquiring STDs/HIV in *other people*, though they did not consider themselves to be at risk⁽²⁾.

Knowledge and attitudes toward STDs are relevant for the entire population. Sex workers (SW), however, present the unique characteristic of having intercourse a large number of times per day, with an increased risk resulting from the use of chemical substances and potential vaginal micro trauma and disturbances of the vaginal ecosystem⁽³⁾. Therefore, these workers compose a population vulnerable to STDs not only because of the intense sexual practices of its members, but also because those members experience a range of health and social problems that seem to influence the adoption of risk behavior⁽⁴⁾.

A qualitative study was conducted in Brazil, with three states in the South, three in the Northeast, and another three in the Southeast, to evaluate educational intervention projects addressing STDs/AIDS, directed to female sex workers. The study reports the following dilemmas in the profession: discrimination, emotional pressure related to the need to cover up the practice of prostitution, and violence perpetrated by both clients and the police⁽⁵⁾.

This study was proposed to support the health services in the implementation of public policies directed to sex workers, a population historically cast aside by these services. The study's objectives included: to describe the population of sex workers in a medium size city in the interior of the state of São Paulo, Brazil, considering socio-demographic characteristics, gynecological-obstetric information and behavioral history, and verify the association of these characteristics with the presence of STDs.

METHOD

This epidemiological, cross-sectional and population-based surveillance study was conducted in Botucatu, a city located in the central region of the state of São Paulo, Brazil with a population of approximately 120,000 inhabitants.

The implementation of the STD/AIDS program in this city occurred in 2002. The staff is composed of a nurse coordinator and four strategic prevention agents. Specifically in relation to female sex workers, the program keeps records of the houses used as residences and workplaces, which are the settings chosen to conduct this investigation. Because this is a floating population, two criteria were adopted to define this study's group: 1- the data collection period was defined, for convenience, between August 2008 and March 2009 and 2 – at least three visits were held in each one of the six places where the women stay. The final population was composed of 102 female sex workers.

Data collection and analysis

The sex workers were informed about the study and invited to participate; no one refused. After their consent, previously trained strategic prevention agents from the STD/AIDS program interviewed the participants and collected data, ensuring them privacy and confidentiality.

An instrument, specifically developed for this study, addressed socio-demographic variables: age (years), years of schooling, and marital status (married, single, stable union, divorced/separated); obstetrical history: number of deliveries and abortions (none, one, two, three, four or more); vaccination against hepatitis B (yes, no, do not know); gynecological history: contraceptive method (do not use or name of the method used); menarche and first sexual intercourse (10 to 15 years old, 16 years old or older), STD history (yes, no), year of last pap smear, bleeding after sexual intercourse (yes, no), and behavioral factors: oral sex on partners (yes, no), anal sex (yes, no), vaginal douching (yes, no), vaginal tampon (yes, no), condom at work (yes, no), condom with fixed partner (yes, no, no fixed partner), number of partners in the last week (up to five, more than five), smoking (yes, no), number of cigarettes a day, current use of illegal drugs (yes, no), type of drug used (marijuana, cocaine, crack, others), and consumption of alcohol (yes, no).

After the interview, qualified nursing auxiliaries collected peripheral blood (10ml) for testing syphilis, hepatitis B and HIV. The material was stored in sterile Vacutainer test tubes (Beckton Dickinson, Rutherford, NJ, USA), then sent to the serology sector of the clinical laboratory at the Medical School at Botucatu for analysis.

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Afterwards, a gynecological exam was performed using a disposable Collins bivalve speculum, sterilized and free of any lubrication. Content from the vaginal fornix was collected using an Ayre spatula. The content was sown in liquid Diamonds medium to test for *trichomonas vaginalis* (TV) and kept at a temperature between 36°C and 37°C until arriving at the Laboratory of Immunopathology at the Maternal-Fetal Relationship, Department of Pathology of the Medical School at Botucatu, where it was stored in an oven at 37°C.

Cervical secretions to test for *chlamydia trachomatis* (CT), *neisseria gonorrhoeae* (NG) and Human Papilloma Virus (HPV) were collected with a cytobrush. The cervical scrapes to test for *chlamydia trachomatis* and HPV were placed in 15mL Falcon tubes with 1000 µL of Tris-HCl 50mM pH 8.5/EDTA 1mM pH 8.0 (TE) and stored at -20°C up to the time of processing. The presence of *chlamydia trachomatis* or HPV in cervical secretion was verified through the polymerase chain reaction technique. To test for *neisseria gonorrhoeae*, the cervical secretion was sown in Thayer Martin medium, while the plates were stored in an anaerobic jar until arriving at the Microbiology and Immunology Institute of Biosciences at the *Universidade Estadual Paulista* for processing.

Transportation of the all material collected was done by one of the authors at most three hours after collection. The following diagnostic criteria were adopted for the exams: hepatitis B, syphilis, and anti-HIV (reactive, non-reactive); CT, TV, NG and HPV (positive, negative).

A database was built in Excel version 12.0 to store data, which were later analyzed using the statistical software Epiinfo 3.5.1. A Master's student from the field of biostatistics entered the entirety of the data and consistency was verified through verification and comparison of distribution of frequencies in associated questions; identified errors were corrected. For the final analysis of data, a dichotomous variable was used: present or absent STD.

The frequencies of sex workers according to socioeconomic, demographic and behavioral variables are presented. Statistical analysis was performed through Chi-square test (χ^2), with level of significance fixed at $\alpha=0.05$ and the computation of Odds Ratio and confidence interval (CI 95%).

Ethical procedures

This study was approved by the local Ethics Research Committee (Protocol Of. 453/08 - CEP) and complied with all guidelines concerning research involving human beings. The women consented to participate in the study and provided written informed consent.

The results from the exams were reported to the women by one of the authors and all the sex workers diagnosed with an STD were immediately provided cared or sent for treatment according to the city's protocol.

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RESULTS

The average age of the studied population was 26.1 years old (± 6.8 years olds). In relation to education, most reported nine or more years of schooling (53.0%), while 36.3% had between five and eight years, and 10.7% had up to four years of schooling. Most were single (71.6%); 26.5% had no children, and 27.5% had a single child. A history of abortion was reported by 36.2% of women; 29.4% had not been vaccinated against hepatitis B (data not presented in tables).

With regard to the participants' gynecological history, most women experienced menarche (94.1%) and their first sexual intercourse (59.8%) before the age of 15; 94 women (92.2%) used some contraceptive method; the most frequent choice among these was the male condom (38.3%), followed by a combination of hormonal and barrier methods (30.9%), hormonal contraceptive only (23.5%), sterilization (5.3%), female condom (1.0%), and an intrauterine device (1.0%). Only 23 women (22.5%) reported a previous STD. The percentage of sex workers who had never received Pap smear testing and those reporting vaginal bleeding after sexual relations were low: 8.8% and 12.7%, respectively. Of the 93 women who had previously received a Pap smear, 63.4% had it at least three years before the data collection (data not presented in tables).

In relation to sexual and hygiene behavior, all women practiced vaginal sex, 90.2% reported the practice of oral sex on their partners, and 37.3% reported anal sex. Vaginal douching was reported by 64.7% of women and 50.0% reported the use of vaginal tampons. The use of condoms at work was reported by 99.0% of the sex workers, though only 26.3% used condoms with their fixed partners. The number of partners reported by women in the seven days preceding their inclusion in the study was up to five for 72.5% of them. A total of 68.6% were smokers, 84.3% consumed alcohol, and 42.2% used illegal drugs (Table 1).

The prevalence of STDs in the studied population of sex workers was 71.6%, while HPV was, by itself, the most frequent agent (45.1%), followed by chlamydia trachomatis (2.9%) and syphilis (1.0%). Considering mixed infections, the most frequent was chlamydia trachomatis and HPV (15.6%) followed by trichomonas vaginalis and HPV (2.0%); syphilis and HPV (2.0%); trichomonas vaginalis, chlamydia trachomatis and HPV (1.0%); syphilis, HPV and chlamydia trachomatis (1.0%), and HIV and HPV (1.0%). None of the women were diagnosed with neisseria gonorrhoeae or Hepatitis B (data not presented in tables).

Table 1 – Behavioral factors of the studied sex workers – Botucatu, SP, Brazil – 2009

Variables	N	%
Oral sex		
Yes	92	90.2
Anal sex		
Yes	38	37.3
Vaginal douching		
Yes	66	64.7
Vaginal tampon		
Yes	51	50.0
Use condom at work		
Yes	101	99.0
Fixed partner*		
Yes	80	78.4
Use (male or female) condom with fixed partner (n=80)		
Yes	21	26.3
Number of partners in the last 7 days		
None	2	2.0
Up to 5	74	72.5
More than 5	26	25.5
Smoking		
Yes	70	68.6
Cigarettes per day (n=70)		
Up to 25	50	71.4
More than 25	20	28.6
Use alcohol at work		
Yes	86	84.3
Use illegal drugs		
Yes	43	42.2
Type of illegal drug (n=43)		
Cocaine	13	30.2
Marijuana	9	20.9
Crack	3	7.0
Associations (marijuana, cocaine and crack)	18	41.9

* Sexual relationship with personal involvement and commitment not including any kind of payment. Note: (n=102)

There was no statistical significance between the presence of STD and age, and the studied gynecological and behavioral variables, as shown in Table 2.

DISCUSSION

One of the advantages of this study was the adoption of a strategy that enabled us to identify and obtain agreement from most of the sex workers who worked in an organized manner in the city. To ensure the representativeness of the studied population, we included individuals in the study who maintained

Table 2 – Presence of STDs in sex workers according to age, gynecological and behavioral variables – Botucatu, SP, Brazil 2009

Variables	Yes N	%	No N	%	p value	OR (CI 95%)
Age in years					0.3434	1.5 (0.63-3.73)
Up to 26 years old	50	74.6	17	25.4		
Above 26 years old	23	65.7	12	34.3		
First sexual intercourse up to 15 years old					0.8779	1.8 (0.44-2.56)
Yes	44	72.1	17	27.9		
No	29	70.7	12	29.3		
History of SDT					0.7770	1.2 (0.40-3.32)
Yes	17	73.9	6	26.1		
No	56	70.9	23	29.1		
Bleeding after sexual intercourse					0.2642	2.4 (0.49-11.54)
Yes	11	84.6	2	15.4		
No	62	69.7	27	30.3		
Contraceptive					0.5536	1.6 (0.34-7.04)
Yes	68	72.3	26	27.7		
No	5	62.5	3	37.5		
Pap smear					0.6654	0.7 (0.13-3.57)
Yes	66	71.0	27	29.0		
No	7	77.8	2	22.2		
Oral sex					0.9078	1.0 (0.26-4.53)
Yes	66	71.7	26	28.3		
No	7	70.0	3	30.0		
Anal sex					0.4127	1.5 (0.58-3.65)
Yes	29	76.3	9	23.7		
No	44	68.8	20	31.1		
Vaginal douching					0.2041	1.8 (0.73-4.27)
Yes	50	75.8	16	24.2		
No	23	63.9	13	36.1		
Vaginal tampon					0.2724	0.6 (0.25-1.46)
Yes	34	66.7	17	33.3		
No	39	76.5	12	32.5		
Smoking					0.6696	1.2 (0.48-3.04)
Yes	51	72.9	19	27.1		
No	22	68.8	10	31.3		
Alcohol consumption					0.7854	1.8 (0.36-3.73)
Yes	62	72.1	24	27.9		
No	11	68.8	5	31.3		
Illegal drugs					0.9201	1.0 (0.43-2.50)
Yes	31	72.1	12	27.9		
No	42	71.2	17	28.8		
Fixed partner					0.6908	1.2 (0.44-3.42)
Yes	58	72.5	22	27.5		
No	15	68.2	7	31.8		

Nota: (n=102)

bonds of trust with the potential participants⁽⁶⁾. The strategic prevention agents from the city's STD/AIDS program made all the prior contacts required to perform the interviews. Considering however, that not all sex workers in the city are included in this program, a significant number of women may have been excluded from the study; such a limitation should be addressed in future studies.

Detailed data were collected from the female sex workers in Botucatu, SP, Brazil, especially in relation to socio-demographic aspects, gynecological, obstetrical, and sexual histories, and protective and risk behavior in relation to STDs. Such information can support the development of local public policies aiming to include sex workers in the health services and the establishment of actions focused on their real needs.

Prostitution is a profession that deals directly with sexuality and, since young women in general arouse the interest of the male population, it is not difficult to find them working as sex workers, including adolescents⁽⁷⁾. However, the average age of the participants observed in this study was relatively high and similar to that described in other Brazilian⁽⁸⁻¹²⁾ and international studies⁽⁴⁾.

Most of the studied sex workers had nine or more years of schooling, more than as reported in another study conducted in Ribeirão Preto, SP, Brazil where 70% of the studied population had eight years of schooling at most⁽⁶⁾, while 10.7% had up to four years. Association with STDs was not observed in this group, which indicates that the work developed in Ribeirão Preto concerning preventive actions implemented in the field is appropriate.

More than half of the studied participants reported the first sexual intercourse before the age of 15, earlier than the age observed by a study conducted in Santos, SP, Brazil in 2007 with a group of sex workers, who more frequently reported their first sexual intercourse occurring between 15 and 16 years old⁽¹¹⁾. The relevance of early sexual activity in relation to STDs is controversial; it is both indicated as a factor of propagation and vulnerability⁽⁷⁾ and at the same time not counted as a risk factor⁽¹²⁾.

A total of 26.5% of the sex workers had no children, a frequency below the 55.0% found in Umuarama, PR, Brazil⁽¹¹⁾. In relation to previous history of STDs, the prevalence was also below that observed among sex workers in Guatemala⁽⁴⁾ and China⁽¹³⁾. We have, however, to consider a potential underestimation of STDs in Botucatu since this population faces difficult access to health services, a fact that became evident before the implementation of the STD/AIDS Program.

One quarter of the sex workers reported more than five partners in the week before data collection. The relevance of the number of partners refers to its potential association with STDs. The Brazilian Ministry of Health considers that having more than one sexual partner in a period of three months is a risk factor for acquiring an STD⁽¹⁴⁾. Observing such an association in this study was not possible, because all the studied sex workers exceeded this limit.

Studies show that vaginal douching (with water, water mixed with salt, or with commercial products, among others) is a common practice among women worldwide⁽¹⁵⁾. There is some evidence that its frequent use can increase

the vulnerability of women to sexually transmitted agents because douching alters the vaginal ecosystem. A meta-analysis reviewing 13 studies reports an association between warm douching and pelvic inflammatory disease⁽¹⁶⁾. The use of vaginal douching is a practice common among the sex workers in Botucatu, as it is among Chinese women⁽¹⁷⁾.

In relation to sexual practice, oral sex was more frequently reported than anal sex. Such a finding is similar to that reported by another Brazilian study: 82.4% and 39.8% respectively⁽¹⁸⁾. We note that the risk of acquiring an STD through anal sex is higher when compared to vaginal or oral sex because the anus and rectum are covered by mucosae rich in blood vessels and scrapes and cuts may occur during penetration⁽¹⁹⁾. Additionally, the local genital tract has immune competence to prevent breaching of the epithelial barrier and systemic immunity acts later to reinforce or replace the genital tract's response⁽²⁰⁾.

Even though almost all women reported the use of condoms with clients, many did not use them with their fixed partners: 80 (78.4%) sex workers reported a fixed partner and only 26.3% used condoms with them. Other studies also report the low frequency of condoms with fixed partners^(2,5,21). These findings confirm the conception that the main predictive factor for not using condoms in the population in general is the existence of a fixed partner⁽²²⁾. In the case of the sex workers, this behavior may be a way to differentiate an affective relationship from a commercial one, as already observed in a study conducted in Ribeirão Preto, SP, Brazil with sex workers and transvestites⁽⁵⁾.

We also note that the frequency with which condoms are used at work by the sex workers in Botucatu was higher than that found in other studies: 61.3%⁽¹¹⁾ and 62.5%⁽²¹⁾. It shows that the studied women adopt preventive measures in their work, which may be related to their high educational level or educational actions that have been implemented. However, these women should be encouraged to use condoms in all sexual relations to achieve effective protection against STDs. In fact, 22.5% of them reported at least one previous STD, a factor that varies across Brazilian studies⁽⁶⁻⁷⁾.

The consumption of alcohol observed in this study was high: 86 (84.3%) women reported alcohol consumption and 42.2% reported the use of illegal drugs. It is possible that the consumption of these substances occurs due to their potential to reduce inhibition, facilitating work, as suggested by another study⁽⁵⁾. This is, therefore, a new area for the health services to intervene: discouraging the excessive consumption of alcohol and other drugs (illegal or not) by sex workers.

Another factor that deserves attention is the high prevalence of STDs among sex workers. A study conducted in six Brazilian capitals to estimate the prevalence of these diseases included pregnant women to estimate sexually active women, as internationally recommended, and reported a prevalence of STDs in 42% of the cases⁽²³⁾.

Approximately three out of four sex workers in this study were diagnosed with an STD, indicating that despite some positive actions, such as the use of condoms at work, these women remain vulnerable to diseases, a fact that also deserves the attention of managers and workers in healthcare services.

CONCLUSION

Association among socio-demographic factors, gynecological and obstetrical history and behavioral factors and Sexually Transmitted Diseases (STDs) was not

observed in this study. This lack of association may be related to the fact that this population has very similar characteristics, hindering the observation of associations. It may also be related to the small number of participants or the absence of variables that could reveal such associations and which can be considered in future research.

Nevertheless, the prevalence of STDs and the consumption of alcohol and illegal drugs among the studied population was high and healthcare services should implement inclusive actions focused on sex workers and intervene in the situations revealed by this study.

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