

# FACTORS ASSOCIATED WITH THE PERFORMANCE OF CYTOPATHOLOGICAL EXAMINATION IN FEMALE SEX WORKERS

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## FATORES ASSOCIADOS À REALIZAÇÃO DO EXAME CITOPATOLÓGICO EM MULHERES PROFISSIONAIS DO SEXO

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## FACTORES ASOCIADOS A LA REALIZACIÓN DEL EXÁMEN CITOPATOLÓGICO EN MUJERES PROFESIONALES DEL SEXO

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**Objectives:** to estimate the self-reported prevalence for performing the cervical cytopathological examination in female sex workers and investigate the association between its performance and the socioeconomic and behavioral data. **Method:** a cross-sectional study with 416 female sex workers in a capital city of the Brazilian Northeast between January 2014 and February 2015. **Results:** the self-reported prevalence for performing the cervical cytopathological examination was 47.8%. There were associations between the performance of the test and income ( $p=0.001$ ), schooling ( $p=0.001$ ), religion ( $p=0.001$ ), service access ( $p=0.003$ ), and contraceptive use ( $p=0.003$ ). **Conclusion:** female sex workers presented a low prevalence for performing the cervical cytopathological examination, especially among the poorest women, with little education, and with difficulty accessing health services.

**Descriptors:** Pap smear test. Sex workers. Women. Prevalence. Secondary prevention. Primary health care.

*Objetivos: estimar a prevalência autorreferida da realização do exame citopatológico do colo do útero em mulheres profissionais do sexo e investigar a associação entre a realização desse teste e os dados socioeconômicos e comportamentais. Método: estudo analítico transversal, com 416 mulheres profissionais do sexo, em uma capital do nordeste brasileiro entre janeiro de 2014 e fevereiro de 2015. Resultados: a prevalência autorreferida de realização do exame citopatológico do colo do útero foi de 47,8%. Houve associações entre a realização do teste e a renda*

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( $p=0,001$ ), a escolaridade ( $p=0,001$ ), a religião ( $p=0,001$ ), a forma de acesso ao serviço ( $p=0,003$ ) e o uso de contraceptivo ( $p=0,003$ ). Conclusão: mulheres profissionais do sexo apresentaram baixa prevalência para realização do exame citopatológico do colo do útero, fato que ocorre especialmente entre as mulheres mais empobrecidas, pouco escolarizadas e com dificuldade de acesso aos serviços de saúde.

*Descritores: Teste de Papanicolaou. Profissionais do sexo. Mulheres. Prevalência. Prevenção secundária. Atenção primária à saúde.*

*Objetivos: estimar la prevalencia autorreferida de la realización del examen citopatológico del cuello uterino en mujeres profesionales del sexo e investigar la asociación entre la realización de ese test y los datos socioeconómicos y comportamentales. Método: estudio analítico transversal, con 416 mujeres profesionales del sexo, en una capital del noreste brasileño entre enero de 2014 y febrero de 2015. Resultados: la prevalencia autorreferida de la realización del examen citopatológico del cuello uterino fue del 47,8%. Hubo asociaciones entre la realización del test y la renta ( $p=0,001$ ), la escolaridad ( $p=0,001$ ), la religión ( $p=0,001$ ), la forma de acceso al servicio ( $p=0,003$ ) y el uso de anticonceptivos ( $p=0,003$ ). Conclusión: mujeres profesionales del sexo presentaron baja prevalencia para la realización del examen citopatológico del cuello uterino, hecho que ocurre especialmente entre mujeres más empobrecidas, poco escolarizadas y con dificultad de acceso a los servicios de salud.*

*Descriptorios: Test de Papanicolaou. Profesionales del sexo. Mujeres. Prevalencia. Prevención secundaria. Atención primaria a la salud.*

## Introduction

Cervical cancer is a common cause of mortality in women, with around 270,000 cases per year worldwide<sup>(1)</sup>. In Brazil, the main causes of female death have been breast and colorectal cancer, followed by cancer of the uterine cervix. A marked reduction of 33.9% in mortality was observed in the country from 1990 to 2015, specifically in Rondônia, Roraima, Alagoas, in all states of the South and Southeast regions, and in almost all states of the Midwest region<sup>(2)</sup>.

The most important risk factors for the development of cervical cancer are, among others, human papillomavirus (HPV) infection, early onset of sexual activity, a multiplicity of sexual partners, low socioeconomic status, and prolonged use of oral contraceptives<sup>(3)</sup>. Thus, female sex workers (FSW) have high-risk factors for neoplasms of the uterine cervix since they have a multiplicity of sexual partners, presenting an increased risk of HPV infection<sup>(4)</sup>.

A study carried out in China showed that being affected by HPV was more prevalent among FSW (61.90%) when compared with the rest of the population (21.00%) ( $p<0.01$ ) and that the main associated risk factors were age of first sexual intercourse (OR 0.69; 95% CI 0.49–0.99)

and postmenopausal (OR 2.92; 95% CI 1.09–7.80) ( $p<0.05$ )<sup>(5)</sup>.

In this perspective, the cervical cytopathological examination is an important tool for the diagnosis of pathological alterations<sup>(6)</sup>. A study carried out in India with 60 FSW in order to detect abnormalities in vaginal cytology showed that, from the total, 86.7% of the smears were considered abnormal. In addition, the incidence of the high-grade squamous intraepithelial lesion was 38.3%, which is considered high in the study population<sup>(6)</sup>. Thus, FSW are at higher risk for the acquisition of cervical cancer due to a high exposure to HPV<sup>(7)</sup>.

In view of the magnitude of this problem, the Brazilian Ministry of Health recommends, through the Cervical Cancer Care Line, the humanized and integral access to actions and qualified services to promote the prevention of cervical cancer, as well as the access to screening for precursor lesions, early diagnosis, and appropriate, qualified, and timely treatment<sup>(3)</sup>. It is also recommended the need for a rigorous follow-up and histological examinations to avoid unnecessary dissemination of neoplastic disease and premature death among diagnosed women<sup>(6)</sup>.

FSWs are more vulnerable to various gynecological infections, considering the difficulty of receiving contextualized orientations to their lifestyles so that they feel welcomed in their doubts about the forms of prevention and care when necessary<sup>(8)</sup>.

Therefore, this study aimed to estimate the self-reported prevalence for performing the cervical cytopathological examination in female sex workers and investigate the association between its performance and the socioeconomic and behavioral data.

## Method

This is a cross-sectional analytical study developed with FSW in Teresina, capital of the state of Piauí, Northeast of Brazil, from January 2014 to February 2015. It is a cut of a macro-project with female sex workers with funding from the Ministry of Health, call notice 01/2013 and agreement letter 130/2013.

The Respondent Drive Sampling (RDS) method was used for selecting participants. This method includes several requirements that are key to creating a representative sample. The choice of this method is because this segment is organized in a network and difficult to be accessed. This methodology is indicated for studies with complex populations, considering that the access to these groups is easier through a member of them<sup>(9)</sup>.

A prevalence of 1.8% of HIV infection was considered to estimate the sample size<sup>(10)</sup>. Thus, at least 384 participants were estimated, adding 20% due to possible losses. The final number that composed the study was 416 sex workers.

The following inclusion criteria were adopted: being 18 years old or older, working as FSW in the municipality, having had at least one sexual intercourse in exchange for money in the last four months, and presenting a valid invitation to participate in the study. On the other hand, being visibly under the influence of drugs, including alcohol, at the time of the interview was the adopted exclusion criterion.

For the data collection, the characteristics of the population were investigated according to the place of performance by using a validated structured form. The independent variables of this form were sociodemographic and economic characteristics (age group, origin, self-reported skin color, marital status, monthly individual income, schooling, and religion), access to health services, and family planning (use of the contraceptive method and use of a condom with a steady partner). The dependent variable was performing the cervical cytopathological examination (frequency).

For the determination of the prevalence for performing the preventive examination for cervical cancer, we considered the information on the performance of the test in the three years prior to the interview date<sup>(3)</sup>.

The data were double typed in an Excel spreadsheet, being exported to the software IBM<sup>R</sup> SPSS 21.0 after validation. The analysis of quantitative variables was presented as mean, minimum, and maximum and the categorical variables were presented as frequency. The chi-square test with a statistical significance of  $p < 0.005$  was used to investigate the association between variables.

This research was approved by the Research Ethics Committee of the Federal University of Piauí, under the No. 0425.0.045.000-11.

## Results

Among the 416 FSW, the highest proportion (62.3%) was within the age group from 25 to 39 years (mean of 30.48 years old, minimum age of 18 and maximum age of 59 years), self-described as white (43.0%), Catholic (79.3%), schooling higher than 8 years (52.6%), single (82.0%), monthly income between 1 and 2 minimum wages, whose unit value at study was BRL 780.00, equivalent to USD 333.00 (exchange rate of January 15, 2014) (Table 1).

**Table 1** – Sociodemographic and economic characteristics of female sex workers. Teresina, Piauí, Brazil – 2014–2015 (N=416)

Variable	n	%
<b>Age group</b>		
18–24 years	104	25.0
25–39 years	259	62.3
40–59 years	53	12.7
<b>Self-reported skin color</b>		
Black	146	35.1
Brown	87	20.9
White	179	43.0
Yellow	4	1.0
<b>Marital status</b>		
Single	341	82.0
Married	22	5.3
Separated	50	12.0
Widowed	3	0.7
<b>Individual monthly income (minimum wage)</b>		
No income	21	5.0
1 to 2	174	41.9
2 to 3	117	28.1
4 to 10	104	25.0
<b>Schooling</b>		
Illiterate	26	6.3
Incomplete elementary school	219	52.6
Complete elementary school	63	15.2
Incomplete high school	58	13.9
Complete high school	50	12.0
<b>Religion</b>		
None	59	14.2
Catholic	330	79.3
Evangelical	20	4.8
Others	7	1.7

Source: Created by the authors.

Regarding the access to health service, 58.6% of the participants reported using public services near their homes, 23.6% reported using the private service, 12% reported making contact with the community health agent (CHA), and 5.8% reported not seeking health care. Regarding the measures of contraception and protection, 69.0% reported not using any contraceptive method. Regarding condoms, among the total FSW who reported having a steady partner,

51.5% reported never using condoms with this type of partner.

Regarding the cervical cytopathological examination, 15.1% never performed it. The self-reported prevalence for performing the cervical cytopathological examination was 47.8%. Among the total number of FSW who did the test, 60.1% used public health units, 4.1% did it in buses of educational campaigns, 18.5% in private clinics, and 17.3% did not answer (Table 2).

**Table 2** – Characteristics of family planning and access to health services by female sex workers. Teresina, Piauí, Brazil – 2014–2015 (N=416)

Variable	n	%
<b>Access to health service</b>		
Service near the residence	244	58.6
Community health agent	50	12.0
Private service	98	23.6
Do not use the health service	24	5.8
<b>Contraceptive use</b>		
Yes	128	30.8
No	287	69.0
Did not answer	1	0.2
<b>Use of a condom with a steady partner (n=200)</b>		
Never	103	51.5
Sometimes	26	13.0
Always	1	0.5
Did not answer	70	35.0
<b>When the examination was performed</b>		
Never	63	15.1
Less than 1 year	68	16.3
1–3 years	131	31.5
More than 3 years	102	24.6
More than 5 years	51	12.3
Did not answer	1	0.2
<b>Place of examination</b>		
Public health unit	250	60.1
Educational campaign bus	17	4.1
Private clinic	77	18.5
Did not answer	72	17.3

Source: Created by the authors.

A statistical association was observed between the cervical cytopathological examination and the variables income ( $p=0.001$ ), schooling ( $p=0.001$ ),

religion ( $p=0.001$ ), access to services ( $p=0.003$ ), and use of contraceptive ( $p=0.003$ ) (Table 3).

**Table 3** – Measures of association between sociodemographic and economic characteristics, family planning, and access to health services of female sex workers and the performance of cervical cytopathological examination. Teresina, Piauí, Brazil – 2014–2015 (N = 416) (continued)

Variable	Performance of the examination				P*
	Yes		No		
	n	%	n	%	
<b>Age group (years)</b>					
18–24	82	19.7	22	5.3	0.131
25–39	224	53.8	35	8.5	
40–59	47	11.3	06	1.4	
<b>Self-reported skin color</b>					
Black	126	30.3	20	4.8	0.056
Brown	66	15.9	21	5.0	
White	157	37.8	22	5.3	
Yellow	04	0.9	00	0.0	
<b>Marital status</b>					
Single	289	69.5	52	12.5	0.862
Married	18	4.2	04	0.9	
Separated	43	10.4	07	1.7	
Widowed	03	0.8	00	0.0	

**Table 3** – Measures of association between sociodemographic and economic characteristics, family planning, and access to health services of female sex workers and the performance of cervical cytopathological examination. Teresina, Piauí, Brazil – 2014–2015 (N = 416) (conclusion)

Variable	Performance of the examination				P*
	Yes		No		
	n	%	n	%	
<b>Individual monthly income (minimum wage)</b>					
No income	09	2.2	12	2.9	<b>0.001</b>
1 to 2	132	31.7	42	10.1	
2 to 3	112	26.9	05	1.2	
4 to 10	100	24.0	04	1.0	
<b>Schooling</b>					
Illiterate	19	4.6	07	1.7	<b>0.001</b>
Incomplete elementary school	182	43.8	37	8.9	
Complete elementary school	58	13.9	05	1.2	
Incomplete high school	50	12.0	08	1.9	
Complete high school	44	10.6	06	1.4	
<b>Religion</b>					
None	51	12.3	08	1.9	<b>0.001</b>
Catholic	276	66.4	54	12.9	
Evangelical	19	4.6	01	0.2	
Others	07	1.7	00	0.0	
<b>Access to health service</b>					
Service near the residence	210	50.5	34	8.2	<b>0.003</b>
Community health agent	36	8.6	14	3.4	
Private service	90	21.6	08	1.9	
Do not use the health service	17	4.1	07	1.7	
<b>Contraceptive use (n=415)</b>					
Yes	119	28.7	09	2.2	<b>0.003</b>
No	234	56.3	53	12.8	
<b>Use of a condom with a steady partner (n=200)</b>					
Never	84	42.0	19	9.5	<b>0.139</b>
Sometimes	23	11.5	03	1.5	
Always	00	0.0	01	0.5	
Do not remember	55	27.5	15	7.5	

Source: Created by the authors.

\* Statistically significant difference by the chi-square test (p-value  $\leq 0.05$ ).

## Discussion

In this study, FSW presented a low prevalence for performing the cervical cytopathological examination (47.8%) when compared to those of another capital in the Northeast of Brazil (95.1%)<sup>(11)</sup>. This was also observed in the comparison with other women of the population of a municipality of Boa Vista, in the North region of Brazil, whose prevalence was 85.7% considering 517 participants<sup>(12)</sup>.

The performance of cervical cytopathological examination varies according to individual and regional characteristics. In this study, in relation to the age group, FSW from 18 to 24 years and 40 to 59 years of age performed the preventive examination with less frequency, with values of 19.7 and 11.3%, respectively. A study carried out with 250 FSW in a capital of the Northeast of Brazil showed that the majority of them (61.2%) who performed the cervical cytopathological examination had an average age of 35 years<sup>(13)</sup>.

In this study, single FSW presented a higher rate of examination. Studies have shown that both single women with a higher multiplicity of sexual partners and married women when they do not use condoms in all sexual relations are more exposed to STIs<sup>(12,14)</sup>. Failure to do so is a matter of concern, regardless of marital status.

A low schooling level ( $p=0.001$ ) and low income ( $p=0.001$ ) were identified as statistically significant for not performing the cervical cytopathological examination. A study carried out in the interior of Piauí, Northeast Brazil, with 77 FSW showed that 47 of them (61%) had incomplete elementary school and when asked about the preventive examination, 30 (38.9%) did not know its purpose<sup>(15)</sup>.

In relation to skin color, black/brown were factors related to the non-performance of the cervical cytopathological examination. Regarding the knowledge about the purpose of the test, women of non-white color presented an association for the non-performance ( $p=0.019$ )<sup>(16)</sup>. Authors suggest that the non-performance of the preventive cervical cytopathological examination can be justified by the low level of knowledge about infections and their harmful effects on health<sup>(17-18)</sup>.

A study carried out with women from the population in the North region of Brazil showed that ethnicity and religiosity were not statistically relevant for the non-performance of the examination and that churches are preferred because they provide a better reception. The study also pointed out that strategies in this sense could be developed to increase the coverage rates of examination<sup>(19)</sup>.

The majority of FSW sought access to the public health service for performing the cervical cytopathological examination, with a statistical significance. In Brazil, the Family Health Strategy (FHS) contributes to the reduction of morbidity and mortality indicators when considering a health care model guided by the principles of the Unified Health System (UHS). The CHA, a member of the team, can contribute to overcoming existing barriers to the test when he/she identifies and captures women who did not perform it<sup>(20)</sup>.

Despite most FSWs have searched the public health units more frequently, the study showed that a high percentage of participants did not comply with the World Health Organization (WHO) recommendation for the examination, which should occur every three years after two consecutive normal tests with an interval of a year<sup>(19)</sup>. A study carried out in the Southeast region of Brazil, with other women in the population, showed that having a prior history of three or more colposcopies provides a protection of 84% (OR=0.16, 95% CI: 0.07; 0.38) for uterine cervical cancer and that the public sector is the most used by women to screen for cervical cancer<sup>(21)</sup>.

A study showed that the interval between the date of the cytology result and the date of the first colposcopy among those women who had undergone an altered cervical cytopathological examination was considered long, with an average waiting time of 94.5 days. It also showed that measures should be taken to reduce the waiting time of the first examination result to perform the second colposcopy in order to improve the quality of care in the control of cervical cancer<sup>(22)</sup>. However, the low coverage of the examination is possibly associated with an insufficient active search and the difficulty of scheduling consultations in basic care, as well as access difficulties and unsatisfactory care<sup>(19)</sup>.

Although the risk of cervical cancer is high in all women, FSW is more prone to HPV infection, as demonstrated by a study conducted in Peru with 200 participants, which identified high rates of HPV transmission, highlighting the need for early and effective strategies to prevent cervical cancer in this population<sup>(23)</sup>. In addition, abnormal cytology results were also found in Thailand in 10% of FSW and 5% in other women. From this total, HPV was detected in 13% of FSW and in 9% of other women<sup>(24)</sup>.

One of the measures recommended for preventing STIs is the use of condoms. It is considered essential for interrupting the transmission chain, including for preventing neoplasms related to unprotected sexual activities, such as cervical cancer associated with HPV,

and also as a contraceptive method. A research conducted in a capital city of the Brazilian Northeast with women aged 25 to 59 years showed that the non-use of the contraceptive method was significantly associated with the non-adherence to cervical cytopathology examination. Thus, there is a double risk of infection and the early diagnosis of certain neoplasms is postponed<sup>(25)</sup>.

In this study, among the 47.8% of the women who reported having performed the test, 28.7% used some contraceptive method. This suggests that it is essential to create spaces where FSW can have adequate access to guidelines and inputs. The use of some contraceptive method may constitute a protection factor for the performance of the preventive procedure.

Regarding condom use with the steady partner, 103 (51.5%) women reported that they never used it. From this total, 19 (9.5%) admitted not having performed the cervical cytopathological examination. A research revealed that less than half of the FSW (47.7%) use condoms with any type of partner, 71.9% use it with the steady partner, and 84.2% use it with a casual partner<sup>(26)</sup>. Among the main barriers to non-use of this preventive method are the poverty, refusal to use condoms by male partners, use of alcohol before sex, and beliefs that such methods reduce sexual pleasure<sup>(27)</sup>.

The findings of this research have as limitations the question on the performance of the cervical cytopathological examination be based on memories (memory bias) and the fact that it is not possible to generalize the findings to the total population of FSW since it is a sample segment with greater social stigmas and limited access. In addition, it is a cross-sectional design, not being possible to establish cause and effect relationships. New researches should be performed with this population, focusing on cervical cancer screening and guidelines on risk reduction.

## Conclusion

In this study, female sex workers had a low self-reported adherence to the cervical cytopathological examination when compared to similar populations from other capital and also to other women in the population. The main factors associated with its performance were income, schooling, religion, as well as the ways of accessing the care service and contraceptive use.

Therefore, it is necessary to carry out integrated health actions for this population. It is recommended to improve the access of female sex workers to public health services in order to carry out health education activities, considering their individual characteristics, to increase the knowledge about measures to prevent cervical cancer. In this context, considering the highest FSW vulnerability, there is an urgent need to expand screening opportunities for cases of cervical cancer to similar populations.

## Collaborations:

1. conception, design, analysis and interpretation of data: Rosilane de Lima Brito Magalhães, Braulio Vieira de Sousa Borges, Vanessa Moura Carvalho de Oliveira, Giselle Mary Ibiapina Brito, and Ana Karysa Alves Resende;
2. writing of the article and relevant critical review of the intellectual content: Rosilane de Lima Brito Magalhães, Braulio Vieira de Sousa Borges, Vanessa Moura Carvalho de Oliveira, and Giselle Mary Ibiapina Brito;
3. final approval of the version to be published: Elucir Gir.

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