



# Access and accessibility to cancer screening for Brazilian women with spinal cord injury<sup>a</sup>

*Acesso e acessibilidade ao rastreamento de câncer em mulheres brasileiras com lesão medular*

*Acceso y accesibilidad al rastreo de cáncer en mujeres brasileñas con lesión medular*

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## ABSTRACT

**Objective:** to identify and analyze the accessibility and accessibility of Brazilian women with spinal cord injury to preventive examinations for breast and cervical cancer. **Method:** quantitative and cross-sectional study developed in a virtual platform. Descriptive statistical analysis was performed, as well as association analysis between qualitative variables using Fisher's exact test. When identified the association ( $p < 0.05$ ), logistic regression was performed. **Results:** a total of 120 Brazilian women with spinal cord injury, aged between 25 and 67 years participated in the study; 85.83% visited a gynecologist after the spinal cord injury, 79.17% underwent cytology and 52.50% underwent mammography. It was observed that women who used the supplementary health plan were more likely to have visited a gynecologist than those who used the public service. Those who had a partner and were older were more likely to have undergone the cytology exam. For mammography, those who were older and who used supplementary health care were more likely to have had mammography exams after the spinal cord injury. **Conclusion:** women with spinal cord injury seek screening tests. However, they encounter difficulties related to the physical structure, equipment, transportation, health professionals, as well as socio-demographic difficulties and difficulties regarding the health service used.

**Keyword:** Access to Health Services; Neoplasms; Persons with Disabilities; Screening Programs; Women's Health.

## RESUMO

**Objetivo:** identificar e analisar a acessibilidade e o acesso de mulheres brasileiras com lesão medular para a realização de exames preventivos do câncer de mama e colo de útero. **Método:** estudo quantitativo e transversal desenvolvido em plataforma virtual. Realizadas análises estatísticas descritivas e de associação entre as variáveis qualitativas por meio do teste exato de Fisher. Quando identificada a associação ( $p < 0,05$ ), foi realizada a regressão logística. **Resultados:** participaram 120 mulheres brasileiras com lesão medular com idades entre 25 e 67 anos; 85,83% foram ao ginecologista após a lesão medular, 79,17% realizaram a citologia e 52,50%, a mamografia. Observou-se que as mulheres que utilizavam a saúde suplementar apresentaram maior probabilidade de terem ido ao ginecologista do que as usuárias do serviço público. Aquelas com companheiro e as de maior idade apresentaram maior probabilidade de terem realizado o exame de citologia. Para a mamografia, aquelas de maior idade e que utilizavam a saúde suplementar apresentaram maiores chances de terem realizado o exame de mamografia após a lesão medular. **Conclusão:** mulheres com lesão medular buscam a realização de exames de rastreamento. Entretanto, encontram dificuldades relacionadas à estrutura física, aos equipamentos, transporte, profissionais da saúde, assim como dificuldades sociodemográficas e quanto ao serviço de saúde utilizado.

**Palavra-chave:** Acesso aos Serviços de Saúde; Neoplasias; Pessoas com Deficiência; Programas de Rastreamento; Saúde da Mulher.

## RESUMEN

**Objetivo:** este estudio tuvo como objetivo identificar y analizar la accesibilidad y el acceso de mujeres brasileñas con lesión medular para la realización de exámenes preventivos de cáncer de mama y de cuello uterino. **Método:** se desarrolló un estudio cuantitativo y transversal, realizado en un entorno virtual. Los análisis estadísticos descriptivos y la asociación entre variables cualitativas se realizaron mediante la prueba exacta de Fisher, cuando se identificó una asociación se realizó una regresión logística. **Resultados:** participaron 120 mujeres brasileñas con lesión medular, la edad de las participantes varió de 25 a 67 años. Con relación al rastreo, el 85,83% de las mujeres acudió al ginecólogo tras la LM, el 79,17% se sometió a citología y el 52,50% a mamografía. Se observó que las mujeres que utilizaban un seguro médico privado tenían más probabilidades de haber visto a un ginecólogo que las usuarias del servicio público. Las que tenían pareja y mayores tenían más probabilidades de someterse a citología oncológica. Para la mamografía, las que eran mayores y que usaban un seguro médico privado tenían más probabilidades de someterse al examen después de la LM. **Conclusión:** las mujeres con LM buscan pruebas de detección. Sin embargo, enfrentan dificultades relacionadas con la estructura física, equipamientos, transporte, profesionales de la salud, así como dificultades sociodemográficas relacionadas con el tipo de servicio de salud utilizado.

**Palabras clave:** Accesibilidad a los Servicios de Salud; Neoplasias; Personas con Discapacidad; Salud de la Mujer; Tamizaje Masivo.

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## INTRODUCTION

Actions to prevent diseases have a greater reach in Primary Health Care (PHC) because it aims at health promotion, disease prevention and rehabilitation, besides being considered the preferred entrance door to the Sistema Único de Saúde (SUS), determining the population's referrals and counter-referrals within the health system.<sup>1</sup>

One of the actions offered by PHC is the screening of diseases, including some types of cancer, in which, in women's health care, cervical, breast, and colon and rectal cancer stand out. These are the three most common cancers in Brazilian women, with an estimate, for the years 2020-2022, of 297,980 cases for this population, with breast cancer in first place, followed by colon cancer, and cervical cancer in third position.<sup>2</sup>

Screening for neoplasms should be offered equally to the entire population for greater effectiveness.<sup>3</sup> However, several studies<sup>3-6</sup> have pointed out that screening for breast and cervical cancer among women with disabilities has low adherence and basic limitations, such as transportation, when compared to women without disabilities.

Screening rates, when adjusted for age among women with and without disabilities in the national cervical cancer screening program in South Korea, showed an increase from 2006 to 2015 for both groups. However, among those with disabilities, the screening rates were lower, noting that the greater the severity of the disability, the lower the rates of preventive examinations.<sup>6</sup>

In addition to low screening rates, women with disabilities face numerous difficulties in accessing the exams, such as the inadequacy of the physical structure, financial condition, travel, low level of education, and lack of knowledge about the exams on the part of women, family members/caregivers, and health professionals<sup>7</sup> data that demonstrate a persistent problem that affects not only women with disabilities, but all people with disabilities.

When considering the wide variety of disabilities, for this study, we chose spinal cord injury (SCI), since the global prevalence of this disability ranges from 236 to 1,298 cases per million inhabitants, with a worldwide trend of increases in cases.<sup>8</sup> Brazilian data are imprecise, but bring an estimate of 130,000 individuals with SCI and an incidence of approximately ten thousand new cases per year.<sup>9-11</sup>

SCI is considered one of the most severe and devastating disabling events that can affect a person, who often presents secondary complications, multiple comorbidities and significant disabilities throughout life. The literature exposes that these people encounter barriers in accessing PHC due to inadequate examination tables, difficulty with transportation, inadequate office space to accommodate mobility devices, structural barriers such as stairs and the unavailability of elevators.<sup>12</sup> Added to this is often the lack of inclusion of preventive care, with more emphasis on acute care. People with SCI may even be referred to emergency services for routine care due to access issues.<sup>12</sup>

Access and accessibility have been addressed in Brazil since the Constitution of the Federative Republic (CF) of 1988,

which is considered the initial milestone for the recognition of the right to health of the entire Brazilian population and the State's duty to ensure it, through economic and social policies, in order to reduce the risk of disease and focus on actions to promote, protect, and recover the health of all. The CF also guaranteed the creation of the SUS, and thus legislation became necessary to clarify how to adapt the guidelines to Brazil's reality.<sup>13</sup>

In addition to the CF, the Organic Health Law n<sup>o</sup> 8.080 and n<sup>o</sup> 8.142 of 1990 are added, which regulate the SUS in the Brazilian territory, with principles and guidelines that guarantee universal, public, egalitarian, participative, decentralized and integral care.<sup>14,15</sup>

Regarding PHC in the country, the ordinance that is in force and approves the National Primary Care Policy (NPCP) is No. 2,436 of 2017, which encourages strategies to minimize inequality and "avoid social exclusion of groups that may suffer stigmatization or discrimination, in a way that impacts autonomy and health status" (Paragraph 4).<sup>16</sup>

These legislations cite access and accessibility, but they have different definitions. Therefore, in this study, the term access will be defined as a component of the organization of health systems and refers to the means by which the person enters the system and its continuity of the treatment process.<sup>17</sup>

For the term accessibility, Donabedian's (1973) definition was used, for whom accessibility is one of the aspects of the offer of services, production and resolution of the population's needs, dividing it into two classes: social-organizational (characteristics of the resources offered, which make it easier or difficult for people to get to the service) and geographical (refers to the simple observation that space creates resistance to movement and that this can be measured by distance, time and cost of travel).<sup>18</sup>

Thus, the objective of this study was to identify and analyze the accessibility and access of Brazilian women with SCI to preventive exams for breast and cervical cancer. This study is justified by the gap in knowledge<sup>7</sup> on the accessibility of cancer screening for Brazilian women with SCI, and to contribute to an equitable, effective and integral health care to these women, aiming to reduce the barriers found in the access to these exams.

## METHOD

### Type of study

A quantitative, cross-sectional study.

### Population and study site

The study was conducted in partnership with the Center for Research and Care in Neuro-psychomotor Rehabilitation (Neurorehab) at the University of São Paulo's Ribeirão Preto School of Nursing, which has a database of volunteers from all over Brazil for research on SCI.

In January 2020, there were 284 women registered in this center. Of these, 22 were excluded for being under 25 years old, and invitations were sent to 262 women. Additionally, the snowball technique was used to recruit other participants, in

addition to the dissemination of the study in social networks of specific groups for people with SCI.

### Inclusion criteria

Inclusion criteria were: being Brazilian; presenting traumatic or non-traumatic SCI; age 25 and older; and access to the internet.

According to the recommendations of the Ministry of Health,<sup>19</sup> the beginning of cervical cancer screening among women is from 25 years of age, justifying the age as inclusion criterion.

### Data collection

To assess the accessibility of cancer screening tests for women with SCI, a form was developed for this study, based on the scientific literature,<sup>20-22</sup> submitted to validation of form and content by a committee of three experts with mastery of the SCI and/or women's health in Primary Care. The invitation and the sending of the considerations were done via e-mail. The form was not pre-tested with the study population, which may have generated an information bias.

The final version of the form contained 47 quantitative and qualitative questions, including information such as personal data on the SCI, gynecological consultation, cytology, clinical breast exam, and mammography, in addition to addressing the frequency and physical structure of the sites. It was then transcribed to the online platform Survey Monkey.

Data collection occurred from January to May 2020. For this, the link with the invitation to participate in the research was sent by e-mail and/or messaging app to 262 eligible women at the Neurorehab Research Center according to the inclusion criteria. Three attempts were made to contact each woman, and those who agreed to participate completed the online form.

### Data analysis

The data was stored in an Excel spreadsheet and analyzed using SAS statistical software, performing descriptive statistics of the data.

To evaluate the association, consultations with a gynecologist, cytology and mammography after SCI were compared with the following variables: state of residence, marital status, color, education, occupation, income, daily care assistance, degree of SCI and type of health system used. The data were submitted to Fisher's exact test. When an association was identified ( $p < 0.05$ ), the quantification of this association was measured by means of logistic regression models in which the crude Odds Ratio was calculated with their respective 95% confidence intervals.

### Ethical aspects

The study was approved by the Ethics Committee of the Nursing School of Ribeirão Preto, under Opinion no. 3.502.934/2019, according to the guidelines and standards regulating research involving human beings contained in Resolution no. 466/2012 of the National Health Council. All participants, upon agreeing to answer the form, were in agreement with the Free and Informed Consent Term (FICT), which could be sent via mail when requested.

## RESULTS

One hundred and twenty women from 18 Brazilian states were included, with São Paulo being the most frequent (41.7%). Age ranged from 25 to 67 years, with a mean age of 42.30 years ( $SD = 10.11$ ), and the predominant age group was 36 to 45 years (34.2%). Regarding marital status, 56.7% had no partner; 70% considered themselves white; 26.7% reported schooling up to graduate level, and 24.2% had completed college education. Regarding occupation, 45.8% of the participants were retired/pensioners and 36.7% had an income of between one and three minimum wages (Table 1).

Of the participants, 60.8% had traumatic SCI and, of these, 34.2% had traffic accidents as the cause of the injury. Paraplegia was reported by 64.2% of women and 26.7% were quadriplegic. As for receiving help from another person to perform their daily activities, 59.2% of the women answered affirmatively, and for 31% it was their husband and for 29.6% their mother. Regarding health care, 51.7% used supplementary health care, 46.7% used the public system, and 1.7% used private health care.

After the occurrence of SCI, 85.8% of women went to the gynecologist and 63.3% reported at least once a year. As for the collection of oncotic cytology, 79.2% performed it after the SCI and 50% of these women performed it in the year before the data collection of this study (2019), (Table 2).

When asked about mammography, 52.5% performed the exam after SCI, 35% performed the last exam in 2019, and 30% performed it once a year (Table 2). After SCI, 68.3% of women had their breasts examined by a health professional, and for 53.3%, the clinical breast examination occurred at least once a year, with 46.67% reporting that the last time was in 2019.

The women cited difficulties for the two screening tests: equipment without adaptation; unprepared health professionals; lack of accessibility; transportation/locomotion; using SUS; personal problems and not being able to enter with a companion for assistance. Regarding the eases: trained health professionals; access and accessibility; family support; accessible mammography; using supplementary health care; accessible office; collection of tests at home; transportation and being married (Table 3).

Consultation with a gynecologist and performance of cytology, mammography and clinical breast examination after SCI were compared with the following variables: state of residence, marital status, color, education, occupation, income, daily care assistance, degree of SCI and type of health system used. Table 4 shows the results of the Fisher's exact test of the associations between the qualitative variables.

For the logistic regression, the same variables were used (Table 5), and the results showed that women who used supplementary health care were more likely to have consulted a gynecologist than users of SUS.

For the cytology exam, women with a partner were more likely to have had the exam compared to women without a partner, and older women were more likely to have undergone cytology, but we cannot say how much, because the confidence interval was not significant (Table 5).

**Table 1.** Distribution of women according to age, state, region of the country, marital status, color, education, occupation and income (n=120). Ribeirão Preto, São Paulo, Brazil, 2021.

Variables	Frequency	Percentage (%)
<b>Age</b>		
25 to 35 years	35	29.2
36 to 45 years	41	34.2
46 to 55 years	31	25.8
56 to 67 years	13	10.8
<b>State</b>		
São Paulo	50	41.7
Minas Gerais	15	12.5
Rio de Janeiro	11	9.2
Rio Grande do Sul	7	5.8
Santa Catarina	7	5.8
Others*	30	25
<b>Marital status</b>		
Without partner	68	56.7
With partner	52	43.3
<b>Color</b>		
White	84	70.0
Brown	25	20.8
Black	5	4.2
Yellow	4	3.3
Indigenous	2	1.7
<b>Education</b>		
Complete and incomplete elementary school	7	5.8
Incomplete High School	5	4.2
Complete High School	22	18.3
Professional Technical Education	8	6.7
Incomplete Higher Education	17	14.2
Complete Higher Education	29	24.2
Post Graduate Education	32	26.7
<b>Occupation</b>		
Retired/pensioner	55	45.8
Employed/self-employed	32	26.7
Unemployed	18	15
Student	6	5
Other**	9	7.5
<b>Income</b>		
Up to 1 minimum wage	28	23.3
More than 1 to 3 minimum wages	44	36.7
More than 3 to 5 minimum wages	21	17.5
More than 6 minimum wages	20	16.7
Don't know/do not want to inform	13	5.8

Source: study database.

Legend: \* Amazonas, Ceará, Goiás, Maranhão, Mato Grosso do Sul, Pará, Paraíba, Pernambuco, Piauí, Paraná, Bahia, Espírito Santo and Tocantins.

\*\*Medical leave, Continuous Cash Benefit and senator.

**Table 2.** Distribution of women according to visits to the gynecologist, cytology, last cytology collection, frequency, mammography, last year of mammography and frequency (n=120). Ribeirão Preto, São Paulo, Brazil, 2021.

Variables	Frequency	Percentage (%)
<b>Did you see a gynecologist after the SCI?</b>		
Yes	103	85.8
No	17	14.2
<b>Did you have cytology performed after the SCI?</b>		
Yes	95	79.2
No	25	20.8
<b>What was the last year you had cytology performed?</b>		
2020	10	8.3
2019	60	50
Three years ago or more	14	11.7
Doesn't remember	11	9.2
No answer	25	20.8
<b>How often do you have cytology performed after SCI?</b>		
Once a year	62	51.7
Every two years	21	17.5
Other*	12	10
No answer	25	20.8
<b>Did you have mammography after the SCI?</b>		
Yes	63	52.5
No	57	47.5
<b>What was the last year you had a mammogram?</b>		
Last year (2019)	42	35
This year (2020)	9	7.5
Three years ago or more	8	6.7
Doesn't remember	4	3.3
No answer	57	47.5
<b>How often have you been having mammograms?</b>		
Never	2	1.67
Once a year	36	30.00
Every 2 years	7	5.83
Every 3 years	2	1.67
At intervals longer than 3 years	6	5.00
More than once a year	4	3.33
No periodicity	6	5.00
No response	57	47.50

Source: study database.

Legend: \* When there is a need; No longer goes; When requested; Only went once after SCI.

**Table 3.** Difficulties and eases cited by the participants for the performance of cytology and mammography. Ribeirão Preto, São Paulo, Brazil, 2021.

Variables	Frequency	%
<b>Difficulties with cytology</b>		
Equipment without adaptation	26	<b>29.5</b>
Physical space without structure	19	<b>21.6</b>
Accessibility	12	<b>13.6</b>
Unprepared health professionals	8	<b>9.1</b>
Scheduling	7	<b>8.0</b>
Transportation	7	<b>8.0</b>
Personal problems	6	<b>6.8</b>
Using SUS	3	<b>3.4</b>
<b>Eases with Cytology</b>		
None	25	<b>46.3</b>
Accessibility	8	<b>14.8</b>
Trained health professionals	5	<b>9.3</b>
Health insurance/plan	5	<b>9.3</b>
Scheduling	3	<b>5.6</b>
Accessible doctor's office	3	<b>5.6</b>
Collection of exams at home	2	<b>3.7</b>
Transportation	1	<b>1.8</b>
Being married (husband who accompanies you during the exams)	1	<b>1.8</b>
Not being sensitive (no discomfort during the exam)	1	<b>1.8</b>
<b>Difficulties for mammography</b>		
Difficulties with the mammography device, because it is not adapted	16	<b>30.2</b>
Inadequate physical structure	6	<b>11.3</b>
Transportation	6	<b>11.3</b>
Accessibility	5	<b>9.4</b>
Unprepared health professionals	4	<b>7.5</b>
Scheduling	4	<b>7.5</b>
Not being able to enter with a companion for assistance	4	<b>7.5</b>
SUS does not offer	2	<b>3.8</b>
Appliance hurt breasts	2	<b>3.8</b>
Positioning even in accessible mammography	2	<b>3.8</b>
None	2	<b>3.8</b>
<b>Eases for mammograms</b>		
None	16	<b>51.6</b>
Trained health professionals	7	<b>22.6</b>
Access	4	<b>12.9</b>
Family	2	<b>6.5</b>
Mobile Mammogram	1	<b>3.2</b>
Affordable Mammogram	1	<b>3.2</b>

Source: study database.

**Table 4.** Presentation of the results of Fisher's exact test of the associations between qualitative variables. Ribeirão Preto, São Paulo, Brazil, 2021.

Comparisons	Value of p*
Marital status and consultation with gynecologist after SCI	0.5795
Marital status and consultation with gynecologist after SCI	0.1120
Color and consultation with gynecologist after the SCI	0.3911
Education and consultation with gynecologist after the SCI	0.2967
Occupation and consultation with gynecologist after the SCI	1.000
Income and consultation with gynecologist after the SCI	0.4926
Having help from someone and consultation with a gynecologist after the SCI	0.1821
Health system used and consultation with gynecologist after SCI	0.0092
Degree of SCI and consultation with gynecologist after SCI	0.2781
Age and consultation with gynecologist after SCI	0.1088
Status and cytology	0.8130
Marital status and perform cytology	0.0403
Color and perform cytology	0.2296
Education and perform cytology	0.4059
Occupation and cytology performance	0.5687
Have an income and perform cytology	0.1865
Having someone's help and perform cytology	0.3660
Health system used and perform cytology	0.0710
Degree of SCI and perform cytology	0.6492
Perform cytology and age	0.0167
Status and perform clinical breast exam	0.0957
Marital status and perform a clinical breast exam	0.1126
Color and perform a clinical breast exam	0.2896
Education and perform a clinical breast exam	0.0639
Occupation and perform a clinical breast exam	0.4567
Income and perform a clinical breast exam	0.0092
Have help from someone and perform a clinical breast exam	0.6900
Health system used and perform a clinical breast exam	<0.01
Degree of SCI and perform a clinical breast exam	0.9541
Age and perform a clinical breast exam	<0.01
State and perform mammography	0.2532
Marital status and undergoing mammography	0.1992
Color and to perform mammography	0.6941
Education and perform mammography	0.6724
Occupation and perform mammography	0.8170
Income and perform mammography	0.4435
Having someone's help and performing mammography	0.8533
Health system used and perform mammography	0.0276
Degree of SCI and perform mammography	0.4025
Age and perform mammography	< 0.01
Difficulties/eases to perform cytology and State	0.5090
Difficulties/eases to perform mammography and State	1.000
Difficulties/eases to perform cytology and health system used	0.0372
Difficulties/eases to perform mammography and health system used	0.0657
Difficulties/eases to perform cytology and degree of SCI	0.6136
Difficulties/eases to perform mammography and degree of SCI	0.2251

Source: study database.

Legend: \*Fisher's exact test\*.



**Table 5.** Presentation of the results of logistic regressions. Ribeirão Preto, São Paulo, Brazil, 2021.

Associations	Fisher's exact test (p)	Odds Ratio	Intervalo de Confiança 95%	
<b>Health system x visits to gynecologist</b>	<b>0.0092</b>			
Supplementary health care versus SUS		4.534	1.383	14.858
<b>Marital status x undergoing cytology</b>	<b>0.0403</b>			
With partner versus without partner		2.973	1.091	8.098
<b>Age x undergoing cytology</b>	<b>0.0167</b>			
39 to 67 years old versus 25 to 38 years old		2.391	0.977	5.855
<b>Income x undergoing clinical breast exam</b>	<b>0.0111</b>			
Up to 3 minimum wages versus did not inform		1.112	0.232	5.341
More than 3 minimum wages versus did not inform		4.375	0.776	24.661
<b>Health system x performing clinical breast exam</b>	<b>&lt;0.01</b>			
Supplementary health care versus SUS		4.486	1.947	10.334
<b>Age vs. undergoing clinical breast exam</b>	<b>&lt;0.01</b>			
39 to 67 years old versus 25 to 38 years old		4.398	1.944	9.949
<b>Health system x undergoing mammography</b>	<b>0.0276</b>			
Supplementary health care versus SUS		2.391	1.147	4.985
<b>Age x undergoing mammography</b>	<b>&lt;0.01</b>			
39 to 67 years old versus 25 to 38 years old		24.344	8.774	67.544
<b>Difficulties/ease for cytology vs. health system</b>	<b>0.0372</b>			
Supplementary health care versus SUS		2.542	1.062	6.083

Source: study database.

Regarding clinical breast examination, older women were four times more likely to have their breasts examined than younger women. Those with higher income were more likely to have their breasts examined, but with the confidence interval values being statistically non-significant, it is not possible to state how much income interferes in the performance of this procedure. As for mammography, older women were 24 times more likely than younger women to have had mammography after SCI (Table 5).

Regarding the type of health service, women who used the supplementary health system were four times more likely to undergo clinical breast examination than SUS users, and were twice as likely to undergo mammography after SCI, than those who used the SUS. As for cytology, supplementary health care users were twice as likely to undergo the test as those using the public health system (Table 5).

## DISCUSSION

With the results of this study, it was observed that 52.5% of women underwent mammography and 79.2%, cytology after SCI. However, despite seeking cancer screening tests, they encountered difficulties in access and accessibility, being considered a factor

for ineffective and inadequate health care, which corroborates the literature review, which identifies the same gap for women with different disabilities.<sup>7</sup>

It is noteworthy that an American study exploring the association between cancer and the presence of disability found that people with disabilities had higher rates of cancer when compared to those without disabilities, and were generally diagnosed with the disease at more advanced stages.<sup>23</sup> In another American study, which analyzed data from programs in that country that provide health care services, it was identified that women with SCI are statistically less likely to adhere to screening recommendations for breast and cervical cancer when compared to women without SCI,<sup>24</sup> this reinforces the importance of cancer screening among these people.

Among the numerous barriers encountered by women with SCI to access cancer screening tests are social determinants. These determinants contribute significantly to the health status of the population and include education, income, access to health care, transportation, among others, and are relevant for people with disabilities.<sup>25,26</sup>

The financial status of women with disabilities interferes with the performance of screening tests, such as clinical breast

examination, mammography and cytology, and those with higher incomes were more likely to perform the tests.<sup>27-29</sup>

Although in Brazil, access to health care is free and SUS offers screening tests, women with SCI who use supplementary health care have greater opportunities to undergo screening. In England, where routine screening tests for cancer are also free, the participation of women with disabilities is reduced and the type of disability also interferes in the performance,<sup>30</sup> this is supported by studies that found that women with disabilities and without health insurance were less likely to undergo cytology<sup>4,31</sup> and the mammogram.<sup>4,31,32</sup>

As for education, the results of this study do not confirm any association, but show that the rate of exams increases according to the educational level, corroborating other studies.<sup>4,27-29</sup> In addition, women with disabilities, who cannot read and write, have significantly lower chances of having a cytology test.<sup>33</sup>

Many studies<sup>4,27,31,34</sup> corroborated the results found that women with disabilities and without a partner are less likely to undergo cytology and/or mammography when compared to those with a partner. The presence of a companion and/or family member/caregiver indicates a social support network that can encourage and accompany women in the performance of screening tests.

In addition to social determinants, transportation was cited as a hindrance to health service access, a fact also highlighted in international studies.<sup>30,35,36</sup> Associated with this, problems with the structure of health services and the lack of equipment adapted for people with disabilities were also reported.<sup>36-38</sup>

The infrastructure of public health services in the country is the responsibility of the three Brazilian government spheres.<sup>1</sup> However, the physical structure of Basic Health Units (BHU) in Brazil is not adequate, as demonstrated by a study that analyzed the access and accessibility of 30,346 BHU in different regions of the country. It was found that 21.7% of these BHU did not have the structure determined by the Ministry of Health, pointing out the lack of handrails (19.6%) and tactile floor (24.1%). Nonetheless 87.1% have signs for user access, 77.3% have the external structure adapted for wheelchairs.<sup>39</sup>

The health professionals' lack of knowledge about the importance of screening, techniques, and approach to move people with disabilities was another barrier pointed out in this and other studies.<sup>35,36</sup> This is associated with the lack of communication between the professional and the person with disability, which favors the condition of helplessness and submission,<sup>35,36</sup> going against the comprehensive care, which is one of the premises of SUS. One must seek to ensure a good environment, integration with the local population, appropriate facilities, and qualified professionals, aiming to ensure accessibility to the greatest number of people possible, regardless of their characteristics and limitations.<sup>39</sup>

Personal barriers were also pointed out by the participants for not doing the screening, and many justified not doing the exams because of embarrassment, anxiety, lack of information, or for not considering them necessary, since they had no symptoms or history of cancer in the family. In a Turkish study,<sup>36</sup> the results

showed this gap in knowledge about screening programs; however, when they had access to the information, the women expressed a desire to undergo the tests.

In summary, to decrease the differences in care and screening rates for people with disabilities, the availability of more medical equipment accessible to these people will be the resource that will help in improving care and access to health services, along with the continued dedication to provide equality and quality of health care to people with disabilities.<sup>40</sup>

Limitations that can be considered for this research are: no pre-test of the form was carried out; only women who had internet access were able to participate in the study; the sample size, because, although the data collection was carried out on a platform with women with SCI from several Brazilian states, along with the snowball technique, the adhesion of those invited was low. Also, since data from women without disabilities were not collected, it was not possible to compare who participated more in the screening programs, either women with or without disabilities.

## CONCLUSION

Given the results found in this research, we conclude that women with SCI seek screening tests for neoplasms. However, it should be noted that SUS users have more difficulty in performing cytology and mammography, in addition to the clinical examination of the breasts.

Another highlight was the barriers of access and accessibility encountered by women, regardless of the health service used. These barriers range from the caregiver, transportation, physical structure, to the lack of training of health professionals in the care of this public.

Finally, the findings can direct health professionals to the comprehensive health care of these women, observing them beyond the SCI. In particular, the area of nursing, in the activities performed in PHC, can act in the development and implementation of care plans and health education about the prevention and screening of cervical cancer and breast cancer through nursing consultations, conducting thematic groups with the community and working together with community health workers.

## AUTHOR'S CONTRIBUTIONS

Study design: Renata Boer; Thais de Oliveira Gozzo.

Data collection or production: Renata Boer.

Data analysis: Renata Boer; Thais de Oliveira Gozzo.

Interpretation of results: Renata Boer; Fabiana Faleiros Santana Castro; Thais de Oliveira Gozzo.

Writing and critical revision of the manuscript: Renata Boer; Fabiana Faleiros Santana Castro; Thais de Oliveira Gozzo.

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