



# Incarcerated women of Recife- PE: Health and quality of life

*Mulheres detentas do Recife-PE: saúde e qualidade de vida*

*Mujeres reclusas en Recife-PE: salud y calidad de vida*

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## ABSTRACT

**Objectives:** To identify the social profile, lifestyle habits, and morbidities of women prisoners; to identify their quality of life (QoL) and to associate this with the sociodemographic variables, lifestyle habits, and morbidities reported. **Method:** This cross-sectional, correlational, quantitative field study was conducted with 287 incarcerated women, from October 15 to November 16, 2018. The WHOQOL-Bref was used to assess their quality of life. **Results:** The mean score of the prisoners' Overall Quality of Life was low (46). The Physical domain presented the highest mean and the Environment the lowest. The most commonly reported morbidities were musculoskeletal pain (52.9%) and respiratory diseases (25.4%). There was an association between QoL and the assessment of poor/very poor health in all the domains and the morbidities reported in the majority of them. **Conclusions and implications for the practice:** The morbidities reported the negative assessment of health, some lifestyle habits, and the prison structure interfered with the prisoners' perception of QoL. Identifying the social and health profile of the women and the situations experienced in prison can contribute to the planning of interventions that can minimize health problems and the impact on their quality of life.

**Keywords:** Women's health; Prisons; Quality of life; Morbidity.

## RESUMO

**Objetivos:** Identificar o perfil social, hábitos de vida e morbidades referidas, de mulheres detentas; identificar a Qualidade de Vida-QV dessas mulheres e associá-la às variáveis perfil social, hábitos de vida e morbidades referidas. **Método:** Pesquisa transversal, correlacional, de campo, com abordagem quantitativa, realizada com 287 detentas, no período de 15 de outubro a 16 de novembro de 2018. Utilizou-se para avaliar a qualidade de vida o WHOQOL-Bref. **Resultados:** A média dos escores da Qualidade de Vida Geral das detentas foi baixa (46), o domínio com maior média foi o Físico e o menor o Meio Ambiente. As morbidades mais referidas foram dor musculoesquelética (52,9%) e doenças respiratórias (25,4%). Houve associação entre a QV e a avaliação ruim / péssima da saúde, em todos os domínios e das morbidades referidas na maioria deles. **Conclusões e Implicações para a prática:** As morbidades referidas, a avaliação negativa da saúde, alguns hábitos de vida e a estrutura da prisão interferiram na percepção da QV das detentas. Conhecer o perfil social e de saúde das mulheres e as situações vivenciadas no cárcere, pode contribuir para o planejamento de intervenções que possam minimizar os agravos à saúde e o impacto na qualidade de vida dessas mulheres.

**Palavras-chave:** Saúde da mulher; Prisões; Qualidade de Vida; Morbidade.

## RESUMEM

**Objetivos:** Identificar el perfil social, los hábitos de vida y las morbilidades referidas de las mujeres reclusas; identificar la Calidad de Vida (QV) de estas mujeres y asociarla con variables sociodemográficas, hábitos de vida y morbilidades referidas. **Método:** Investigación transversal, correlacional, de campo, con un enfoque cuantitativo, realizada con 287 reclusas, en el periodo del 15 de octubre al 16 de noviembre de 2018. El WHOQOL-Bref se utilizó para evaluar la calidad de vida. **Resultados:** Los escores promedios de la calidad general de vida de las reclusas fue baja (46), el dominio con la media más alta fue el Físico y el más bajo el Medio Ambiente. Las morbilidades más referidas fueron dolor musculoesquelético (52,9%) y enfermedades respiratorias (25,4%). Hubo asociación entre la QV y la evaluación mala/pésima de la salud en todos los dominios y morbilidades referidas en la mayoría de ellos. **Conclusiones e implicaciones para la práctica:** Las morbilidades referidas, la evaluación negativa de la salud, algunos hábitos de vida y la estructura de la prisión interfirieron en la percepción de QV de las reclusas. Conocer el perfil social y de salud de las mujeres y las situaciones experimentadas en prisión puede contribuir a la planificación de intervenciones que puedan minimizar los problemas de salud y el impacto en la calidad de vida de estas mujeres.

**Palabras clave:** Salud de las mujeres; Prisiones; Calidad de Vida; Morbilidad.

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## INTRODUCTION

In the international context regarding the number of women in prison, Brazil ranks fourth in the world, behind the United States, China and Russia. The rate of female imprisonment in Brazil has increased according to figures published by the National Prison Information Survey (INFOPEN), with records of an increase of 656% between the years 2000 and 2016.<sup>1,2</sup>

In 2009, the World Health Organization (WHO) highlighted the growth in the number of women offenders worldwide, as well as drawing attention to the specificity of their health needs and their neglect.<sup>3</sup>

The prison situation interferes with the health conditions of incarcerated people, especially women.<sup>3</sup> Compared with other populations, people that have lost their freedom are disadvantaged regarding physical, mental and social health, becoming more vulnerable. Many inmates in these custody facilities have a history of inadequate access to preventive care and primary care health services, leading to the evolution of acute or chronic morbidities.<sup>4-7</sup>

In addition, physical and psychological violence is linked to the daily lives of incarcerated women, almost irreversibly compromising their health. Research conducted with women incarcerated in Recife, Pernambuco, found that 87% had suffered some type of physical or sexual violence that influenced the development of depression and drug use.<sup>8</sup>

Another aspect that can contribute to the appearance of health problems for the prison population is the length of confinement. The exposure and vulnerability to which these women are subject contribute to them becoming ill.<sup>9</sup>

The majority of women offenders come from very large family groups, with a troubled history of abuse and mistreatment during childhood and adolescence or even in intimate-affective relationships with partners who already belong to the world of crime, which brings them into contact with situations that can lead them to prison.<sup>10,11</sup> In addition, because they belong to socially disadvantaged groups, these women have less access to health services, even prior to prison, which can worsen their conditions after incarceration.

The importance of investigating the socio-demographic and health profile of this population and verifying the impact on their quality of life (QoL) is necessary to produce determinant elements for the prevention of problems and the promotion of health.

Low QoL rates can lead to illness and, most likely, being in prison can be a factor that interferes in the QoL of inmates, which would enhance the appearance of diseases, since multiple factors, including those related to the environment, can influence the QoL of a group.<sup>12,13</sup>

From this perspective, considering the importance of promoting effective actions aimed at preventing problems and promoting the health of female prisoners, the present study aimed to: identify the social profile, lifestyle habits and reported morbidities of female detainees; to identify the Quality of Life of these women and to associate it with the social profile, lifestyle habits and reported morbidities variables.

## METHOD

This was a cross-sectional, correlational, quantitative, field study, carried out at the Women's Penal Institution of Recife, located in the city of Recife, Pernambuco, Brazil. The prison has a capacity of 150 detainees, however, at the time of data collection it housed approximately 680 women.

The data were collected by the main researcher, from October 15 to November 16, 2018. Due to internal reasons of the prison, the collection was carried out in a concentrated time, with the help of a person trained for this activity. To calculate the sample size, the program STATA 2.0® was used; considering a total of 680 inmates registered at the institution, a maximum acceptable percentage of error of 5% and a 95% confidence level; the minimum representative sample of the total number of women was estimated to be 245.

Simple random sampling was performed and the sample was drawn using the randomized.com® program. For inclusion in the sample, inmates had to fulfill the following criteria: to be present at the prison on the day of data collection and to not have a disciplinary or health problem that would prevent them from attending the interview. Pregnant and puerperal women were excluded.

Two instruments were used. One containing sociodemographic and prison data, such as: age, marital status, education, ethnicity, religion, length of incarceration, recidivism, social and intimate visits and number of people per cell; as well as the reported morbidities and lifestyle habits. In order to measure the QoL, a version of the abbreviated World Health Organization (WHO) Quality of Life instrument,<sup>14</sup> the WHOQOL-BREF, validated for Portuguese<sup>15</sup> was used. The WHOQOL-BREF instrument consists of 26 questions and assesses four domains: Physical, Psychological, Social Relationships and Environment, as well as the Overall Quality of Life (OQoL).

The responses to the WHOQOL-BREF questions are given on a Likert-type scale, which ranges from 1 to 5. The response scale is inverted for questions 3 and 4 in the physical domain and question 26 in the psychological domain. The domains scores are obtained from the mean of the item scores of each domain. The result is then multiplied by 4, being represented on a scale from 4 to 20. The domains scores are converted to a scale from 0 to 100, with higher scores indicating better QoL.<sup>15</sup>

In the statistical analysis, Student's t-test with equal variances, the Student's t-test with unequal variances or the Mann-Whitney test were used for the comparison between numerical variables, while in the case of three categories, the F-test (ANOVA) or Kruskal-Wallis test was used.

The choice of the Student's t-test and F-test (ANOVA) occurred with the verification of the normality of the data; and the option for the Mann-Whitney and Kruskal-Wallis tests was due to the rejection of normality in at least one of the categories or variable. The verification of the normality of the data was performed through the Shapiro-Wilk test and the equality of variances through Levene's F-test. The significance level adopted for the statistical tests was 5%.

The study was approved by the Research Ethics Committee (CEP) of the Maurício de Nassau University Center (UNINASSAU), number 2.804.594/2018, and authorized by the Pernambuco State Department for Resocialization (SERES), with all of the women signing the consent form.

## RESULTS

A total of 287 inmates participated in the study. The sample's socio-demographic profile can be outlined as follows: mean age of 31.94 years ( $\pm 10.28$ ), ranging from 19 to 64 years, the majority mixed race (58.5%), single (69.0%), heterosexual (56.1%), with no paid activity in the prison (66.6%), with complete or incomplete elementary education (66.2%). The most mentioned religions were Catholic and Evangelical (49.1% and 39.4%, respectively).

Prison data showed that the mean number of prisoners per cell was  $23.1 \pm 16.4$ , however, there were cells with up to 62 women; 40.0% had been sentenced to between 1 and 6 years and 41.1% had been in this situation for less than a year. The majority (60.0%) of the women were not repeat offenders and had received a social visit (63.7%). Of those that had received a social visit, 51.0% were visited weekly. The majority (86.4%) had not received an intimate visit.

Regarding lifestyle and health care, all the women (100.0%) denied consuming alcohol, the majority (62.3%) were smokers and consumed more than one pack of cigarettes per day (72.3%). The use of illicit drugs was reported by 39.7% of them, with marijuana being the most mentioned (70.2%), consumed daily by 54.4% of them. Regarding immunizations, 62.0% reported having been immunized in the previous five years, mainly against influenza.

The majority (65.5%) rated their health as fair or poor, reported some health problem (61.6%), however, had not received treatment (85.0%), did not sleep well (69.3%) due to overcrowding of the cell, excessive noise and heat, as well as having to sleep on the floor. The majority (80.1%) reported not drinking filtered water, not doing physical activity (81.8%), having no problem urinating (81.1%) and evacuating daily (85.0%).

In relation to examinations for early detection of gynecological cancer, 65.5% of the women had carried out oncotic smear tests and 75.0% of those that were in the age group to undergo mammography had not performed the examination.

The morbidities mentioned by women were: musculoskeletal pain (53.0%), respiratory diseases (25.4%), depression (20.6%), arterial hypertension (19.2%), vaginal discharge (8.4%), diabetes (4.5%) and sexually transmitted infections (4.9%), which included syphilis, HIV/AIDS and hepatitis.

Table 1, shows that the mean of the Overall Quality of Life (OQoL) was 46.0 (Standard deviation [ $SD$ ]=16.32), with the highest means identified in the Physical (51.87;  $SD$ =15.84) and Social (51.10;  $SD$ =26.80) domains, and the lowest in the Environment (35.0;  $SD$ =18.59) and Psychological (45.92;  $SD$ =21.77) domains.

Table 2 shows that there was a statistically significant association between the level of education and the Psychological domain ( $p=.011$ ) and between paid activity and the Physical domain ( $p<.001$ ), that is, women who performed some type of paid activity in prison had a better quality of life.

Table 3 shows that there was a statistically significant difference in the association between the physiological need to evacuate and the Psychological domain ( $p=.002$ ), with those that evacuated every day presenting a higher mean in this domain (49.76;  $SD$ =21.36). Those that had a problem urinating presented worse QoL in the Physical ( $p=.011$ ), Psychological ( $p=.014$ ) and Social Relationships ( $p=0.043$ ) domains and in the OQoL ( $p=.014$ ).

The QoL of those that practiced physical activity was better in the Physical ( $p=.009$ ) and Environment ( $p=.016$ ) domains and in the OQoL ( $p=.024$ ). Sleep quality interfered in all the WHOQOL-BREF domains, with those that reported problems with sleep presenting worse scores in the Physical ( $p<.001$ ), Psychological ( $p<.001$ ), Social Relationships ( $p=.001$ ), and Environment ( $p=.004$ ) domains and in the OQoL ( $p<.001$ ) (Table 3).

Inmates that rated their health as poor/very poor had worse QoL scores in all domains and in their OQoL. There was a statistically significant difference in the Physical ( $p<.001$ ), Psychological ( $p<.001$ ), Social ( $p=.007$ ) and Environment ( $p<.001$ ) domains and in the OQoL ( $p<.001$ ) (Table 3).

Table 4 shows that having a health problem impacted on the women's QoL in the Psychological ( $p=.011$ ) and Environment ( $p=.05$ ) domains and on the OQoL ( $p=.013$ ). For those receiving treatment, the mean scores were higher and there was a statistically significant difference in the Physical ( $p=.032$ ) and Environment ( $p=.002$ ) domains and in the OQoL ( $p=.018$ ). There was a significant difference for those that reported pain and respiratory problems in the Environment domain ( $p=.006$ ) and for those with depression in the Psychological domain ( $p=.002$ ). Chronic morbidities such as hypertension and diabetes did not affect the QoL.

In the association between QoL and the prison data, there was a statistically significant difference in the Physical domain ( $p=.021$ ) considering the number of inmates per cell. The women who had received a social visit presented better QoL, with a significant difference in the Social Relationships domain ( $p=.007$ ) (Table 5). The other prison data, such as: length of sentence, recidivism and not receiving an intimate visit, were not associated with the women's QoL (Table 5).

**Table 1.** Descriptive statistics of the Overall Quality of Life scores and the WHOQOL-BREF domains. Recife-PE, 2018. ( $N=287$ )

WHOQOL-BREF domains	Mean $\pm$ SDa	Median	Minimum	Maximum
Physical	51.87 $\pm$ 15.84	53.57	10.71	89.29
Psychological	45.92 $\pm$ 21.77	45.83	0.00	100.00
Social	51.10 $\pm$ 26.80	50.00	0.00	100.00
Environment	35.09 $\pm$ 18.59	34.38	0.00	84.38
Overall quality of life	46.00 $\pm$ 16.32	46.28	4.46	84.52

Source: Prepared by the authors, 2018. <sup>a</sup> Standard deviation

**Table 2.** Association between the sociodemographic profile and the WHOQOL-BREF domains. Recife-PE, 2018. (N=287)

Variables	n	WHOQOL-BREF									
		Physical		Psychological		Social relationships		Environment		Overall QoL	
		Mean ± SD (Median)	Mean ± SD (Median)	Mean ± SD (Median)	Mean ± SD (Median)	Mean ± SD (Median)	Mean ± SD (Median)	Mean ± SD (Median)	Mean ± SD (Median)	Mean ± SD (Median)	Mean ± SD (Median)
<b>Age group</b>											
19 to 24	91	52.67 ± 14.76 (53.57)	44.73 ± 20.97 (45.83)	50.09 ± 26.07 (50.00)	32.11 ± 15.31 (31.25)	44.90 ± 15.06 (44.87)					
25 to 29	54	51.32 ± 15.56 (51.79)	45.45 ± 22.32 (45.83)	48.77 ± 28.24 (50.00)	32.18 ± 19.79 (28.13)	44.43 ± 16.24 (44.59)					
30 to 39	82	50.22 ± 15.78 (53.57)	48.42 ± 23.90 (50.00)	51.83 ± 28.63 (54.17)	37.77 ± 20.24 (37.50)	47.06 ± 18.61 (46.63)					
40 to 49	43	54.57 ± 18.42 (53.57)	46.32 ± 18.82 (45.83)	52.91 ± 23.28 (50.00)	37.86 ± 18.73 (37.50)	47.91 ± 14.43 (49.00)					
50 to 64	17	50.42 ± 16.26 (53.57)	40.69 ± 21.32 (33.33)	55.88 ± 27.13 (58.33)	40.44 ± 20.08 (37.50)	46.86 ± 16.69 (48.03)					
<b>P value</b>		<b>p(1) = .633</b>	<b>p(1) = .669</b>	<b>p(2) = .867</b>	<b>p(2) = .051</b>	<b>p(1) = .757</b>					
<b>Sexual orientation</b>											
Heterosexual	161	52.54 ± 17.57 (53.57)	47.81 ± 23.18 (50.00)	53.85 ± 28.71 (58.33)	35.16 ± 18.73 (31.25)	47.34 ± 17.79 (47.17)					
Homosexual	80	52.53 ± 15.23 (53.57)	45.96 ± 22.07 (45.83)	50.67 ± 26.35 (50.00)	36.57 ± 19.49 (34.38)	46.43 ± 16.12 (46.28)					
Bisexual/Transsexual	46	48.37 ± 14.57 (50.00)	42.48 ± 17.82 (43.75)	47.83 ± 24.93 (50.00)	29.82 ± 13.94 (28.13)	42.13 ± 13.91 (44.87)					
<b>P value</b>		<b>p(2) = .216</b>	<b>p(1) = .418</b>	<b>p(2) = .469</b>	<b>p(2) = .090</b>	<b>p(1) = .197</b>					
<b>Race</b>											
White	79	49.91 ± 15.66 (50.00)	47.15 ± 19.55 (50.00)	51.37 ± 25.44 (50.00)	36.75 ± 18.48 (34.38)	46.30 ± 14.86 (46.28)					
Black	30	46.55 ± 15.51 (44.64)	45.00 ± 22.06 (37.50)	46.39 ± 24.63 (54.17)	34.38 ± 20.09 (29.69)	43.08 ± 15.17 (39.81)					
Mixed	168	53.61 ± 16.09 (53.57)	45.83 ± 22.25 (45.83)	51.24 ± 27.58 (50.00)	34.30 ± 18.29 (34.38)	46.25 ± 16.96 (47.43)					
Other	10	53.93 ± 8.82 (53.57)	40.42 ± 30.62 (35.42)	60.83 ± 30.94 (58.33)	37.50 ± 21.85 (32.81)	48.17 ± 20.75 (45.03)					
<b>P value</b>		<b>p(1) = .078</b>	<b>p(2) = .753</b>	<b>p(2) = .593</b>	<b>p(2) = .741</b>	<b>p(2) = .554</b>					
<b>Marital status</b>											
Single	198	52.53 ± 15.23 (53.57)	46.53 ± 20.91 (45.83)	50.63 ± 26.63 (50.00)	34.82 ± 18.61 (34.38)	46.13 ± 16.09 (46.35)					
Married/Stable union	89	50.40 ± 17.11 (50.00)	44.57 ± 23.62 (45.83)	52.15 ± 27.28 (58.33)	35.71 ± 18.65 (31.25)	45.71 ± 16.91 (44.87)					
<b>P value</b>		<b>p(4) = .294</b>	<b>p(3) = .478</b>	<b>p(3) = .492</b>	<b>p(3) = .729</b>	<b>p(4) = .842</b>					
<b>Level of schooling</b>											
Up to elementary I	33	56.17 ± 17.02 (53.57)	52.15 ± 23.41 (54.17) (AB)	55.56 ± 31.50 (58.33)	42.14 ± 20.22 (46.88)	51.50 ± 19.22 (51.45)					
Incomplete elementary II	96	50.37 ± 15.61 (50.00)	41.02 ± 20.65 (41.67) (A)	46.79 ± 26.22 (50.00)	35.45 ± 16.70 (32.81)	43.41 ± 15.13 (44.18)					
Complete elementary II	94	52.62 ± 15.84 (57.14)	49.87 ± 19.89 (50.00) (B)	54.79 ± 25.15 (58.33)	33.64 ± 17.92 (34.38)	47.73 ± 14.81 (48.79)					
Higher school/Higher	64	50.78 ± 15.45 (53.57)	44.27 ± 23.73 (45.83) (AB)	49.87 ± 26.91 (50.00)	33.06 ± 20.83 (28.13)	44.49 ± 17.85 (44.68)					
<b>P value</b>		<b>p(2) = .261</b>	<b>p(5) = .011*</b>	<b>p(2) = .107</b>	<b>p(2) = .077</b>	<b>p(1) = .050</b>					

(\* ) Significant difference at the level of 5.0%; (1) F-test (ANOVA); (2) Kruskal-Wallis test; (3) F (ANOVA) with Tukey's paired comparisons; (4) Mann-Whitney test; (5) Student's t-test with equal variances.

Table 2. Continued...

Variables	n	WHOQOL-BREF				
		Physical	Psychological	Social relationships	Environment	Overall QoL
		Mean ± SD (Median)	Mean ± SD (Median)	Mean ± SD (Median)	Mean ± SD (Median)	Mean ± SD (Median)
<b>Religion</b>						
Catholic	141	51.44 ± 15.64 (53.57)	45.48 ± 21.46 (45.83)	51.12 ± 28.02 (50.00)	34.57 ± 17.32 (31.25)	45.65 ± 15.68 (44.75)
Evangelical	113	52.56 ± 16.08 (53.57)	45.35 ± 22.27 (45.83)	48.97 ± 25.23 (50.00)	34.82 ± 20.42 (31.25)	45.42 ± 17.08 (46.28)
Other	33	51.30 ± 16.22 (53.57)	49.75 ± 21.62 (45.83)	58.33 ± 26.19 (58.33)	38.26 ± 17.50 (37.50)	49.41 ± 16.40 (48.36)
<b>P value</b>		<b>p(1) = .836</b>	<b>p(2) = .743</b>	<b>p(2) = .244</b>	<b>p(2) = .515</b>	<b>p(1) = .441</b>
<b>Number of children</b>						
None	76	53.38 ± 17.43 (53.57)	47.42 ± 23.05 (43.75)	51.32 ± 28.45 (58.33)	34.13 ± 16.89 (31.25)	46.56 ± 16.71 (47.21)
One	57	52.51 ± 14.22 (53.57)	48.98 ± 19.92 (54.17)	54.24 ± 25.69 (58.33)	34.43 ± 19.69 (31.25)	47.54 ± 15.52 (49.18)
Two	69	48.96 ± 15.30 (50.00)	40.10 ± 20.71 (41.67)	46.26 ± 28.71 (41.67)	31.79 ± 18.47 (28.13)	41.78 ± 17.04 (41.82)
Three	50	52.64 ± 16.56 (57.14)	49.42 ± 22.90 (54.17)	53.00 ± 26.98 (50.00)	39.13 ± 20.60 (37.50)	48.55 ± 16.86 (46.04)
4 or more	35	52.14 ± 14.81 (50.00)	44.17 ± 20.86 (41.67)	52.38 ± 19.96 (50.00)	39.02 ± 16.78 (37.50)	46.93 ± 13.63 (46.73)
<b>P value</b>		<b>p(1) = .521</b>	<b>p(1) = .093</b>	<b>p(2) = .228</b>	<b>p(2) = .107</b>	<b>p(1) = .161</b>
<b>Paid activity</b>						
Yes	96	57.18 ± 15.79 (57.14)	48.74 ± 21.65 (50.00)	52.78 ± 25.38 (50.00)	35.48 ± 18.91 (34.38)	48.55 ± 16.21 (48.79)
No	191	49.20 ± 15.21 (50.00)	44.50 ± 21.75 (45.83)	50.26 ± 27.50 (50.00)	34.90 ± 18.48 (34.38)	44.71 ± 16.26 (44.87)
<b>P value</b>		<b>p(4) &lt; .001*</b>	<b>p(3) = .097</b>	<b>p(3) = .677</b>	<b>p(3) = .999</b>	<b>p(4) = .060</b>

(\* Significant difference at the level of 5.0%; (1) F-test (ANOVA); (2) Kruskal-Wallis test; (3) F (ANOVA) with Tukey's paired comparisons; (4) Mann-Whitney test; (5) Student's t-test with equal variances.

**Table 3.** Association between the Lifestyle Habits and Health Assessment variables and the WHOQOL-BREF domains. Recife-PE, 2018 (N=287)

Variables	n	WHOQOL-BREF					Overall QoL
		Physical	Psychological	Social	Environment		
		Mean ± SD (Median)	Mean ± SD (Median)	Mean ± SD (Median)	Mean ± SD (Median)	Mean ± SD (Median)	Mean ± SD (Median)
<b>Evacuation</b>							
Daily	176	52.52 ± 15.60 (53.57)	49.76 ± 21.36 (50.00) (A)	52.27 ± 24.45 (50.00)	36.49 ± 18.05 (34.38)	47.76 ± 15.11 (47.21)	
Once a week	53	48.65 ± 15.84 (50.00)	39.23 ± 20.52 (41.67) (B)	44.97 ± 29.07 (50.00)	30.84 ± 18.20 (28.13)	40.92 ± 16.89 (41.26)	
Twice a week	23	49.53 ± 16.93 (53.57)	42.93 ± 20.62 (50.00) (AB)	55.07 ± 31.46 (58.33)	34.65 ± 16.77 (31.25)	45.55 ± 18.36 (45.72)	
3 times a week	35	55.00 ± 16.00 (53.57)	38.69 ± 22.63 (33.33) (B)	51.90 ± 30.86 (50.00)	34.82 ± 22.46 (34.38)	45.10 ± 18.78 (44.87)	
<b>P value</b>		<b>p(1) = .227</b>	<b>p(2) = .002*</b>	<b>p(3) = .393</b>	<b>p(3) = .264</b>	<b>p(1) = .062</b>	
<b>Problem urinating</b>							
Yes	54	47.22 ± 15.41 (46.43)	38.89 ± 22.12 (43.75)	45.22 ± 26.92 (45.83)	33.10 ± 19.14 (31.25)	41.11 ± 16.08 (41.18)	
No	233	52.94 ± 15.77 (53.57)	47.55 ± 21.40 (45.83)	52.47 ± 26.64 (58.33)	35.56 ± 18.47 (34.38)	47.13 ± 16.20 (47.21)	
<b>P value</b>		<b>p(4) = .011*</b>	<b>p(4) = .014*</b>	<b>p(4) = .043*</b>	<b>p(4) = .432</b>	<b>p(5) = .014*</b>	
<b>Practice physical activity</b>							
Yes	52	57.07 ± 14.52 (57.14)	49.28 ± 19.35 (54.17)	55.93 ± 24.10 (58.33)	40.20 ± 16.70 (37.50)	50.62 ± 13.96 (51.30)	
No	235	50.71 ± 15.91 (50.00)	45.18 ± 22.24 (45.83)	50.04 ± 27.29 (50.00)	33.96 ± 18.83 (31.25)	44.97 ± 16.65 (44.94)	
<b>P value</b>		<b>p(5) = .009*</b>	<b>p(4) = .165</b>	<b>p(4) = .122</b>	<b>p(4) = .016*</b>	<b>p(5) = .024*</b>	
<b>Drink filtered water</b>							
Yes	57	53.45 ± 16.66 (57.14)	46.05 ± 23.54 (45.83)	51.90 ± 27.46 (50.00)	36.73 ± 15.77 (37.50)	47.03 ± 16.05 (47.17)	
No	230	51.48 ± 15.64 (53.57)	45.89 ± 21.36 (45.83)	50.91 ± 26.69 (50.00)	34.69 ± 19.24 (31.25)	45.74 ± 16.41 (46.28)	
<b>P value</b>		<b>p(5) = .401</b>	<b>p(4) = .752</b>	<b>p(4) = .930</b>	<b>p(4) = .287</b>	<b>p(5) = .593</b>	
<b>Sleep well</b>							
Yes	88	58.00 ± 14.43 (60.71)	54.21 ± 20.98 (54.17)	59.09 ± 26.85 (58.33)	40.02 ± 17.76 (37.50)	52.83 ± 15.51 (52.51)	
No	199	49.16 ± 15.71 (50.00)	42.25 ± 21.14 (41.67)	47.57 ± 26.07 (50.00)	32.91 ± 18.58 (31.25)	42.97 ± 15.78 (42.56)	
<b>P value</b>		<b>p(5) &lt; .001*</b>	<b>p(4) &lt; .001*</b>	<b>p(4) = .001*</b>	<b>p(4) = .004*</b>	<b>p(5) &lt; .001*</b>	
<b>Smoking</b>							
Yes	179	51.92 ± 15.38 (53.57)	45.60 ± 21.70 (45.83)	52.09 ± 27.44 (50.00)	34.74 ± 17.93 (31.25)	46.09 ± 16.13 (46.28)	
No	99	51.55 ± 17.05 (53.57)	47.10 ± 22.53 (45.83)	50.17 ± 25.92 (50.00)	36.55 ± 20.10 (37.50)	46.34 ± 17.21 (46.73)	
Ex-smoker	9	54.37 ± 11.54 (50.00)	39.35 ± 13.19 (41.67)	41.67 ± 23.57 (41.67)	26.04 ± 11.48 (28.13)	40.36 ± 7.96 (41.93)	
<b>P value</b>		<b>p(1) = .877</b>	<b>p(3) = .492</b>	<b>p(3) = .409</b>	<b>p(3) = .263</b>	<b>p(1) = .571</b>	

(\*) Significant difference at the level of 5.0%; (1) F-test (ANOVA); (2) Kruskal-Wallis test; (3) F (ANOVA) with Tukey's paired comparisons; (4) Mann-Whitney test; (5) Student's t-test with equal variances.

Table 3. Continued...

Variables	n	WHOQOL-BREF					Overall QoL
		Physical	Psychological	Social	Environment		
		Mean ± SD (Median)	Mean ± SD (Median)	Mean ± SD (Median)	Mean ± SD (Median)	Mean ± SD (Median)	
<b>Use of illicit drugs</b>							
Yes	114	50.97 ± 15.64 (50.00)	44.48 ± 20.27 (45.83)	47.81 ± 27.02 (50.00)	33.42 ± 17.48 (31.25)	44.17 ± 15.76 (44.94)	
No	173	52.46 ± 15.98 (53.57)	46.87 ± 22.71 (45.83)	53.28 ± 26.50 (58.33)	36.20 ± 19.26 (34.38)	47.20 ± 16.61 (46.73)	
<b>P value</b>		<b>p(4) = .292</b>	<b>p(5) = .364</b>	<b>p(4) = .056</b>	<b>p(4) = .243</b>	<b>p(5) = .124</b>	
<b>Vaccination</b>							
Yes	179	52.97 ± 16.06 (53.57)	47.35 ± 21.93 (45.83)	50.79 ± 27.38 (50.00)	34.99 ± 18.10 (A) (34.38)	46.52 ± 16.31 (47.14)	
No	76	49.25 ± 16.27 (50.00)	42.32 ± 23.27 (43.75)	51.54 ± 27.98 (50.00)	37.83 ± 20.11 (A) (37.50)	45.23 ± 17.96 (44.66)	
Do not know	32	51.90 ± 12.99 (53.57)	46.48 ± 15.98 (47.92)	51.82 ± 20.60 (54.17)	29.20 ± 16.62 (B) (26.56)	44.85 ± 12.00 (45.48)	
<b>P value</b>		<b>p(1) = .229</b>	<b>p(3) = .296</b>	<b>p(3) = .948</b>	<b>p(3) = .046*</b>	<b>p(1) = .776</b>	
<b>Smear test</b>							
Yes	101	51.98 ± 16.25 (53.57)	46.37 ± 22.66 (41.67)	51.16 ± 27.36 (50.00)	32.12 ± 16.18 (31.25)	45.41 ± 16.37 (45.83)	
No	186	51.80 ± 15.65 (50.00)	45.68 ± 21.33 (45.83)	51.08 ± 26.56 (50.00)	36.71 ± 19.63 (34.38)	46.32 ± 16.32 (46.35)	
<b>P value</b>		<b>p(4) = .578</b>	<b>p(4) = .872</b>	<b>p(4) = .904</b>	<b>p(4) = .054</b>	<b>p(5) = .652</b>	
<b>Mammography exam</b>							
Yes	44	50.00 ± 15.11 (51.79)	45.08 ± 24.37 (47.92)	51.14 ± 23.06 (50.00)	34.87 ± 18.71 (35.94)	45.27 ± 16.03 (42.69)	
No	243	52.20 ± 15.97 (53.57)	46.07 ± 21.32 (45.83)	51.10 ± 27.46 (50.00)	35.13 ± 18.61 (31.25)	46.13 ± 16.40 (46.54)	
<b>P value</b>		<b>p(5) = .396</b>	<b>p(4) = .816</b>	<b>p(4) = .777</b>	<b>p(4) = .994</b>	<b>p(5) = .749</b>	
<b>Self-assessment of health</b>							
Excellent/Good	99	56.13 ± 15.08 (57.14) (A)	52.15 ± 20.17 (54.17) (A)	56.99 ± 26.10 (58.33) (A)	41.64 ± 17.30 (40.63) (A)	51.73 ± 15.23 (52.08) (A)	
Regular	94	54.64 ± 15.58 (53.57) (A)	48.18 ± 19.70 (50.00) (A)	52.66 ± 23.89 (58.33) (A)	34.77 ± 18.18 (29.69) (B)	47.56 ± 13.83 (47.82) (A)	
Poor/Very poor	94	44.60 ± 14.44 (42.86) (B)	37.10 ± 22.70 (33.33) (B)	43.35 ± 28.62 (50.00) (B)	28.52 ± 18.11 (28.13) (B)	38.40 ± 16.95 (39.30) (B)	
<b>P value</b>		<b>p(2) &lt; .001*</b>	<b>p(3) &lt; .001*</b>	<b>p(3) = .007*</b>	<b>p(3) &lt; .001*</b>	<b>p(2) &lt; .001*</b>	

(\* ) Significant difference at the level of 5.0%; (1) F-test (ANOVA); (2) Kruskal-Wallis test; (3) F (ANOVA) with Tukey's paired comparisons; (4) Mann-Whitney test; (5) Student's t-test with equal variances.

**Table 4.** Association between the morbidities reported and the WHOQOL-BREF domains. Recife-PE, 2018 (N=287)

Variable	n	WHOQOL-BREF				Overall QoL
		Physical	Psychological	Social	Environment	
		Mean ± SD (Median)	Mean ± SD (Median)	Mean ± SD (Median)	Mean ± SD (Median)	Mean ± SD (Median)
<b>Health complaints or problems</b>						
Yes	177	50.52 ± 15.56 (50.00)	43.34 ± 22.73 (41.67)	49.81 ± 27.65 (50.00)	32.79 ± 19.38 (31.25)	44.12 ± 16.73 (45.13)
No	110	54.03 ± 16.11 (53.57)	50.08 ± 19.51 (50.00)	53.18 ± 25.34 (50.00)	38.81 ± 16.67 (37.50)	49.02 ± 15.22 (48.12)
<b>P value</b>		<b>p(1) = .069</b>	<b>p(2) = .011*</b>	<b>p(2) = .541</b>	<b>p(2) = .005*</b>	<b>p(1) = .013*</b>
<b>Received treatment</b>						
Yes	43	56.64 ± 15.36 (57.14)	49.90 ± 25.58 (50.00)	56.20 ± 25.59 (58.33)	42.88 ± 18.79 (40.63)	51.41 ± 16.53 (51.26)
No	244	51.02 ± 15.80 (50.00)	45.22 ± 21.01 (45.83)	50.20 ± 26.95 (50.00)	33.72 ± 18.26 (31.25)	45.04 ± 16.12 (45.29)
<b>P value</b>		<b>p(1) = .032*</b>	<b>p(2) = .274</b>	<b>p(2) = .215</b>	<b>p(2) = .002*</b>	<b>p(1) = .018*</b>
<b>Morbidity Reported</b>						
<b>Musculoskeletal pain</b>						
Yes	152	51.32 ± 16.77 (53.57)	44.85 ± 22.25 (45.83)	52.25 ± 27.48 (58.33)	32.77 ± 18.72 (31.25)	45.30 ± 16.99 (46.58)
No	135	52.49 ± 14.76 (53.57)	47.13 ± 21.22 (50.00)	49.81 ± 26.05 (50.00)	37.71 ± 18.17 (37.50)	46.78 ± 15.54 (44.75)
<b>P value</b>		<b>p(2) = .807</b>	<b>p(2) = .367</b>	<b>p(2) = .246</b>	<b>p(2) = .033*</b>	<b>p(1) = .441</b>
<b>Respiratory problem</b>						
Yes	73	50.39 ± 17.15 (53.57)	43.72 ± 22.71 (41.67)	50.91 ± 27.66 (50.00)	29.75 ± 17.85 (28.13)	43.69 ± 17.24 (44.75)
No	214	52.37 ± 15.37 (53.57)	46.67 ± 21.44 (45.83)	51.17 ± 26.56 (50.00)	36.92 ± 18.53 (34.38)	46.78 ± 15.95 (46.52)
<b>P value</b>		<b>p(1) = .358</b>	<b>p(2) = .365</b>	<b>p(2) = .873</b>	<b>p(2) = .006*</b>	<b>p(1) = .163</b>
<b>Depression</b>						
Yes	59	50.00 ± 17.38 (53.57)	37.99 ± 22.53 (33.33)	50.14 ± 28.09 (50.00)	35.38 ± 23.15 (34.38)	43.38 ± 18.57 (42.41)
No	228	52.35 ± 15.42 (53.57)	47.97 ± 21.14 (45.83)	51.35 ± 26.51 (50.00)	35.02 ± 17.28 (32.81)	46.67 ± 15.65 (46.52)
<b>P value</b>		<b>p(1) = .311</b>	<b>p(2) = .002*</b>	<b>p(2) = .767</b>	<b>p(2) = .985</b>	<b>p(1) = .167</b>
<b>Hypertension</b>						
Yes	55	50.32 ± 18.47 (53.57)	47.95 ± 24.45 (45.83)	55.15 ± 27.85 (58.33)	37.05 ± 20.09 (34.38)	47.62 ± 18.23 (47.66)
No	232	52.23 ± 15.17 (53.57)	45.44 ± 21.11 (45.83)	50.14 ± 26.51 (50.00)	34.63 ± 18.23 (32.81)	45.61 ± 15.85 (45.81)
<b>P value</b>		<b>p(3) = .479</b>	<b>p(2) = .531</b>	<b>p(2) = .149</b>	<b>p(2) = .458</b>	<b>p(1) = .413</b>
<b>Vaginal discharge</b>						
Yes	24	50.30 ± 18.87 (51.79)	38.72 ± 22.74 (37.50)	42.71 ± 31.50 (45.83)	28.52 ± 17.49 (26.56)	40.06 ± 18.42 (44.18)
No	263	52.01 ± 15.57 (53.57)	46.58 ± 21.60 (45.83)	51.87 ± 26.26 (50.00)	35.69 ± 18.61 (34.38)	46.54 ± 16.04 (46.54)
<b>P value</b>		<b>p(2) = .780</b>	<b>p(2) = .094</b>	<b>p(2) = .163</b>	<b>p(2) = .057</b>	<b>p(1) = .062</b>
<b>Diabetes mellitus</b>						
Yes	13	49.18 ± 12.81 (53.57)	56.73 ± 28.34 (58.33)	62.18 ± 28.99 (66.67)	38.70 ± 13.29 (37.50)	51.70 ± 17.50 (50.07)
No	274	51.99 ± 15.97 (53.57)	45.41 ± 21.34 (45.83)	50.58 ± 26.63 (50.00)	34.92 ± 18.81 (31.25)	45.73 ± 16.24 (46.28)
<b>P value</b>		<b>p(2) = .477</b>	<b>p(2) = .180</b>	<b>p(2) = .136</b>	<b>p(2) = .246</b>	<b>p(1) = .198</b>

(\*) Significant difference at the level of 5.0%; (1) F-test (ANOVA); (2) Kruskal-Wallis test; (3) F (ANOVA) with Tukey's paired comparisons; (4) Mann-Whitney test; (5) Student's t-test with equal variances.



**Table 5.** Association between the prison variables and the WHOQOL-BREF domains. Recife-PE, 2018 (N=287)

Variable	n	WHOQOL-BREF					Overall QoL
		Physical	Psychological	Social relationships	Environment		
		Mean ± SD (Median)	Mean ± SD (Median)	Mean ± SD (Median)	Mean ± SD (Median)	Mean ± SD (Median)	Mean ± SD (Median)
<b>Length of sentence</b>							
3 months to 1 year	45	51.90 ± 13.22 (53.57)	41.94 ± 18.68 (41.67)	52.96 ± 24.82 (50.00)	37.22 ± 18.12 (34.38)	46.01 ± 14.08 (44.75)	
1 to 3	65	52.03 ± 17.71 (53.57)	44.94 ± 24.91 (41.67)	53.21 ± 27.74 (58.33)	33.32 ± 19.19 (28.13)	45.87 ± 18.24 (45.16)	
3 to 6	50	54.07 ± 15.71 (55.36)	47.75 ± 20.35 (52.08)	51.17 ± 28.02 (50.00)	41.38 ± 20.27 (37.50)	48.59 ± 15.94 (51.73)	
6 to 10	41	48.52 ± 16.69 (42.86)	49.39 ± 22.83 (50.00)	53.86 ± 29.05 (58.33)	35.06 ± 19.67 (34.38)	46.71 ± 18.18 (46.28)	
10 to 20	46	53.42 ± 15.32 (53.57)	47.83 ± 20.71 (45.83)	49.46 ± 25.18 (50.00)	33.02 ± 16.39 (32.81)	45.93 ± 15.13 (46.73)	
> 20	40	50.45 ± 15.41 (50.00)	43.96 ± 21.64 (45.83)	44.58 ± 25.64 (50.00)	30.16 ± 15.71 (31.25)	42.29 ± 15.38 (45.46)	
<b>P value</b>		<b>p(1) = .616</b>	<b>p(1) = .596</b>	<b>p(2) = .625</b>	<b>p(2) = .103</b>	<b>p(2) = .612</b>	
<b>Number of inmates per cell</b>							
1 to 9	33	49.24 ± 16.09 (53.57) (AB)	47.22 ± 23.45 (45.83)	51.26 ± 24.84 (50.00)	29.83 ± 17.75 (28.13)	44.39 ± 16.33 (42.63)	
10 to 15	85	50.13 ± 14.84 (50.00) (A)	43.28 ± 20.14 (45.83)	54.02 ± 25.35 (58.33)	33.57 ± 17.39 (31.25)	45.25 ± 15.07 (45.13)	
16 to 20	70	49.54 ± 15.48 (50.00) (A)	45.54 ± 19.26 (45.83)	49.29 ± 24.44 (50.00)	36.34 ± 17.47 (37.50)	45.18 ± 14.86 (45.44)	
21 to 30	35	53.16 ± 15.66 (53.57) (AB)	47.98 ± 21.94 (50.00)	55.00 ± 27.95 (58.33)	40.71 ± 22.89 (40.63)	49.21 ± 17.48 (52.08)	
> 30	64	57.37 ± 16.53 (57.14) (B)	48.05 ± 25.45 (52.08)	47.01 ± 31.19 (50.00)	35.40 ± 18.76 (34.38)	46.95 ± 18.81 (48.49)	
<b>P value</b>		<b>p(3) = .021*</b>	<b>p(2) = .508</b>	<b>p(2) = .467</b>	<b>p(1) = .149</b>	<b>p(1) = .691</b>	
<b>Repeat offender</b>							
Yes	115	51.52 ± 16.18 (50.00)	48.37 ± 21.45 (50.00)	51.38 ± 26.76 (50.00)	36.03 ± 19.19 (34.38)	46.83 ± 16.68 (46.84)	
No	172	52.10 ± 15.65 (53.57)	44.28 ± 21.89 (45.83)	50.92 ± 26.89 (50.00)	34.47 ± 18.21 (31.25)	45.44 ± 16.09 (45.15)	
<b>P value</b>		<b>p(4) = .581</b>	<b>p(4) = .100</b>	<b>p(4) = .886</b>	<b>p(4) = .537</b>	<b>p(5) = .482</b>	
<b>Social visit</b>							
Yes	183	52.77 ± 15.29 (53.57)	46.49 ± 21.46 (45.83)	54.28 ± 25.94 (58.33)	35.72 ± 17.89 (34.38)	47.32 ± 15.28 (47.66)	
No	104	50.27 ± 16.72 (53.57)	44.91 ± 22.37 (45.83)	45.51 ± 27.48 (50.00)	33.98 ± 19.81 (31.25)	43.67 ± 17.84 (43.28)	
<b>P value</b>		<b>p(5) = .200</b>	<b>p(5) = .555</b>	<b>p(4) = .007*</b>	<b>p(5) = .423</b>	<b>p(5) = .069</b>	
<b>Intimate visit</b>							
Yes	39	55.22 ± 14.93 (53.57)	46.90 ± 20.07 (45.83)	56.41 ± 26.25 (58.33)	38.22 ± 17.39 (37.50)	49.19 ± 14.64 (46.73)	
No	248	51.34 ± 15.94 (53.57)	45.77 ± 22.06 (45.83)	50.27 ± 26.84 (50.00)	34.60 ± 18.76 (31.25)	45.49 ± 16.54 (46.06)	
<b>P value</b>		<b>p(4) = .266</b>	<b>p(4) = .787</b>	<b>p(4) = .223</b>	<b>p(4) = .203</b>	<b>p(5) = .189</b>	

(\*) Significant difference at the level of 5.0%; (1) F-test (ANOVA); (2) Kruskal-Wallis test; (3) F (ANOVA) with Tukey's paired comparisons; (4) Mann-Whitney test; (5) Student's t-test with equal variances.

## DISCUSSION

The sociodemographic profile of the inmates that composed the study sample was similar to that observed in studies conducted with inmates in other Brazilian states, including: São Paulo,<sup>4</sup> Mato Grosso,<sup>11</sup> Ceará<sup>16</sup> and Rio de Janeiro,<sup>17</sup> and coincides with the data on women prisoners in Brazil, released by INFOPEN, in 2017, in which the inmates were predominantly young, mixed race, single mothers, with a low level of education.<sup>1</sup>

An American study that analyzed the condition of women in prisons, found that the sociodemographic profile of women detained around the world is similar, with predominance of black women and those from lower socioeconomic groups.<sup>5,10,11</sup>

The prison situation of the women identified in this study is similar to the data presented by other studies, which show a precarious prison structure, with overcrowding and an unhealthy environment, in which women do not receive intimate visits and have an average sentence length of around five years.<sup>4,11,17</sup>

Among the inmates' lifestyle habits, smoking, the use of illicit drugs and the lack of physical activity stand out, data similar to those of national and international studies.<sup>4-6,17</sup> Smoking, lack of activity, unhealthy eating and the use of sugar-sweetened beverages are associated with the development of respiratory and cardiovascular diseases, and are risk factors for the emergence of several diseases, including cancer and diabetes, not only among inmates but, in all the strata of the population.<sup>4-6,18-20</sup>

The female prisoners evaluated their health negatively and the majority reported some problem related to this aspect. Most of these women came from family nuclei with unfavorable living conditions and often entered the prison with pre-existing health problems that were aggravated by the prison situation.

Studies highlight prison as a factor in the development or worsening of physical and mental morbidities.<sup>5,11,17,18</sup> Among the factors that contribute to the illness of women, in addition to those already mentioned, are: the lack of adequate prison structure to house inmates, including overcrowding, poor hygiene, low quality food and lack of access to clean water, as well as scarcity of space in the cells, leading to agitation, fear and violence and making sleep difficult. These aspects were highlighted in another study carried out with female prisoners<sup>21</sup> and, in general, configure the prison reality in Brazil.<sup>22</sup>

Poor quality sleep was associated with worse QoL scores in all the WHOQOL-BREF domains. A population-based study identified the relationship between poor quality of sleep and increased health problems, less satisfaction with life and feelings of unhappiness.<sup>23</sup> Inadequate quality of sleep can contribute to aggravate the already precarious health conditions of women in the situation of confinement.

The most reported morbidities in this study were musculoskeletal pain, respiratory diseases, depression and hypertension. These data differ from those presented in other publications,<sup>11,17,22</sup> including INFOPEN,<sup>1</sup> which highlights HIV/AIDS, syphilis, hepatitis and tuberculosis as the most prevalent morbidities in the female prison population. Some studies with women inmates have

found differing frequency of these morbidities, however, they were similar in others.<sup>4,5</sup>

Depression was the third most mentioned disease and it is important to highlight it as a risk factor for the development of mental illnesses in detainees.<sup>5,11,17</sup> In general, physical diseases are more studied and reported, with those related to mental health, since they are less evident, possibly going unnoticed or neglected.

Women's health care has particularities that must be respected, as does the health of inmates. The cytological smear examination had been performed by only 35.0% of the sample and the majority were unable to report the result of the examination. Studies emphasize the importance of cervical cancer screening and the identification of colonization in prisons, as they detected the presence of bacilli suggestive of *Gardnerella/Mobiluncus*, *Trichomonas vaginalis* and *Candida* sp.<sup>16,24</sup>

A small percentage of the women in the present study reported vaginal discharge, which was possibly related to genital infections. These results can be underestimated, since women are not always comfortable reporting more intimate health problems to people that are not close to them. Conversely, a study conducted with women prisoners in Ceará showed different results, since the majority of the women had undergone preventive exams within the previous year.<sup>16</sup>

The QoL scores of the detainees, overall and in the different domains, were lower than those identified in other studies<sup>25-29</sup> that used the same instrument. When comparing the results of the present study with those of studies carried out with healthy women, or even with women affected by serious illnesses, the inmates' QoL mean scores were significantly lower, demonstrating the negative impact of the prison situation on the women's lives.

The mean of the overall QoL of the inmates was 46, while the mean was not lower than 55.2 in any other study, with the same trend for the domain scores.<sup>25-29</sup>

Prison influenced the women's perception of their QoL, with significantly negative results for those that reported health problems and that lacked or had impaired sleep.

The self-assessed health in all the domains and in the OQoL was lower in women who considered their health to be poor/very poor. One study identified that this perception that individuals point out about QoL reflects the way their needs are being fulfilled or that they are being denied opportunities to achieve happiness and self-realization. The living conditions of the inmates, poor health care, poor facilities at the unit, difficulties cohabiting with other inmates and overcrowding, combined with unrecommended living habits and the onset of disease, directly impacted on the perception of QoL and the prisoners' assessment of their health.

Conversely, performing paid activity, exercising and receiving social visits contributed to improving their perception of QoL. Studies show the benefits of regular physical activity,<sup>26,30,31</sup> and others relate the practice of physical activity to an increase in the quality of sleep.<sup>27,31-33</sup> Visits are essential to maintain the prisoner's bond with their families and make them closer.<sup>5</sup> Current research has shown that social visits have positively influenced women's

QoL. Those who were abandoned by their families or who for some reason did not receive a social visit presented worse QoL.

A study showed that the prisoners do not forget their families and want to have them close by. "What restores the prisoner is that he feels respected, that he has dignity. It is the family that restores him. Sometimes they think that the prisoner does not care about his family: he does, he calls his children, his wife, his mother".<sup>34</sup>

In general, these women were to be imprisoned for an average of five years, which would provide sufficient time for them to be educated, to learn a trade and to improve their living conditions. Prisons are more punitive than corrective, this view needs to be changed, as these women will one day return to their communities and the time spent in prison could be valuable for their professional qualification and for promotion of their health. In theory, this should happen, however, the reality found does not reflect this commitment by the authorities.

The neglect and the deplorable situation to which these women are subjected are not admissible.<sup>16,17</sup> It should be remembered that they are there to recognize their mistakes and return to society resocialized.

Public health promotion policies should seek additional tools that contribute to changing the status quo of prisons and the sad reality of women deprived of their freedom.<sup>11,16,34</sup>

Some limitations of the study should be highlighted, one of which is the regionalization, since it was developed in a single prison in one Brazilian state, which makes it difficult to generalize the results. Another aspect was the limited time for data collection, a restriction imposed by the prison institution and the lack of time for there to be greater identification between the researcher and the inmates, which may have limited the responses given to the questions.

However, the study contributes to a reflection on the dehumanization to which these women are subjected and permits us to envisage the possibility of actions that minimize the anguish and deprivation in prison. The managers and authorities need to take responsibility for making these people better, thus favoring them to return to their families and not return to crime.

## CONCLUSION

The data allow us to conclude that the QoL of female detainees is low, overall and in all domains, and the prison situation influences the perception of women regarding their QoL. The assessment of poor/very poor health, was associated with a low perception of QoL in all domains. Having musculoskeletal pain, breathing problems, depression, poor quality sleep and problems with urination were associated with low QoL. Conversely, performing paid activity, practicing physical activity and receiving social visits had a positive impact on the inmates' QoL. The length of incarceration and being a repeat offender did not impact on the QoL of these women. Identifying the social and health profile of the women and the situations experienced in prison can contribute to the planning of interventions that could minimize health problems and the impact on their quality of life.

## AUTHOR'S CONTRIBUTIONS

Study design. Data acquisition and analysis and interpretation of results. Writing and critical review of the manuscript. Approval of the final version of the article. Responsibility for all aspects of the content and the integrity of the published article. Marcia Cibele Andrade dos Santos Ferreira. Rosa Aurea Quintella Fernandes.

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