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RISK FOR CARDIOVASCULAR DISEASES IN WOMEN PRISONER

Risco para doenças cardiovasculares em mulheres detentas

Riesgo de enfermedades cardiovasculares en mujeres detenidas

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ABSTRACT

Objective: To delineate the anthropometric profile and to evaluate the presence of risk factors for the development of cardiovascular and metabolic diseases in women in prison. **Methods:** This is a cross-sectional, quantitative, and analytical study, conducted in a closed prison system in one capital of northeastern Brazil, in which 64 women prisoners participated. Data were collected from a structured interview about women's profile and food consumption, and anthropometric measurements were taken: weight, height, arm circumference (AC), waist circumference (WC) and hip circumference (HC). **Results:** The women prisoners were young and single adults with low education. The most commonly reported diseases were: hypertension, coronary insufficiency, and diabetes. The frequency of overweight or obesity was 33.3% (n = 13) and 56.0% (n = 14) in the age groups up to 30 years (G1) and over 30 years (G2), respectively. Regarding risk, considering WC, 3.3% (n=6) and 40.0% (n=10) presented a very high risk of metabolic complications associated with obesity in groups G1 and G2, respectively. In the assessment of waist / hip circumference ratio, it was found that 94.9% (n = 37) (G1) and 72.0% (n = 18) (G2) did not present high risk (p = 0.022). **Conclusion:** The high age women prisoners group, aged over 30 years, presented higher values of mean waist circumference, but not at high risk (waist circumference/hip ratio), despite the high consumption of unhealthy foods.

Descriptors: Prisons; Women; Health Care (Public Health); Health Promotion.

RESUMO

Objetivo: *Traçar o perfil antropométrico e avaliar a presença de fatores de risco para o desenvolvimento de doenças cardiovasculares e metabólicas em mulheres em regime prisional fechado.* ***Métodos:*** *Estudo transversal, quantitativo e analítico, desenvolvido em um sistema prisional fechado, em uma capital do Nordeste brasileiro, do qual participaram 64 mulheres detentas. Coletaram-se os dados a partir de entrevista estruturada sobre o perfil e o consumo alimentar das mulheres, e foram aferidas medidas antropométricas: peso, estatura, circunferência do braço (CB), circunferência da cintura (CC) e circunferência do quadril (CQ).* ***Resultados:*** *As detentas eram adultas jovens, solteiras e possuíam baixa escolaridade. As doenças mais relatadas foram: hipertensão arterial, insuficiência coronariana e diabetes. A frequência de sobrepeso ou obesidade foi de 33,3% (n=13) e 56,0% (n=14) nas faixas etárias até 30 anos (G1) e acima de 30 anos (G2), respectivamente. Quanto ao risco, levando-se em consideração a CC, 3,3% (n=6) e 40,0% (n=10) apresentaram risco muito elevado de complicações metabólicas associadas à obesidade nos grupos G1 e G2, respectivamente. Na avaliação da relação circunferência da cintura/quadril, verificou-se que 94,9% (n=37) (G1) e 72,0% (n=18) (G2) não apresentaram risco elevado (p=0,022).* ***Conclusão:*** *O grupo de detentas com maior faixa etária, idade acima de 30 anos, apresentou valores maiores de média da circunferência de cintura, todavia não apresentando risco elevado (relação circunferência da cintura/quadril), apesar do alto consumo de alimentos não saudáveis.*

Descritores: *Prisões; Mulheres; Atenção à Saúde; Promoção da Saúde.*

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RESUMEN

Objetivo: *Describir el perfil antropométrico y evaluar la presencia de factores de riesgo para el desarrollo de enfermedades cardiovasculares y metabólicas de mujeres en régimen cerrado de prisión.* ***Métodos:*** *Estudio transversal, cuantitativo y analítico desarrollado en un sistema cerrado de prisión de una capital del Nordeste de Brasil en el cual participaron 64 mujeres detenidas. Se recogieron los datos a partir de entrevista estructurada sobre el perfil y el consumo alimentario de las mujeres y fueron verificadas las siguientes medidas antropométricas: el peso, la estatura, la circunferencia del brazo (CB), la circunferencia de la cintura (CC) y la circunferencia del cuadril (CC).* ***Resultados:*** *Las detenidas eran adultas jóvenes, solteras y tenían baja escolaridad. Las enfermedades más relatadas fueron la hipertensión arterial, la insuficiencia de las coronarias y la diabetes. La frecuencia de sobrepeso u obesidad fue del 33,3% (n=13) y el 56,0% (n=14) en las franjas de edad hasta los 30 años (G1) y por encima de los 30 años (G2), respectivamente. Sobre el riesgo, considerándose la CC, el 3,3% (n=6) y el 40,0% (n=10) presentaron riesgo muy elevado de complicaciones metabólicas asociadas con la obesidad en los grupos G1 y G2, respectivamente. En la evaluación de la relación circunferencia de la cintura/cuadril, se verificó que el 94,9% (n=37) (G1) y el 72,0% (n=18) (G2) no presentaron riesgo elevado (p=0,022).* ***Conclusión:*** *El grupo de detenidas de mayor franja de edad (edad por encima de los 30 años) presentó mayores valores de la media de la circunferencia de la cintura, sin embargo, no presentaron riesgo elevado (relación circunferencia de la cintura/cuadril) a pesar del elevado consumo de alimentos no saludables.*

Descriptores: *Prisiones; Mujeres; Atención a la Salud; Promoción de la Salud.*

INTRODUCTION

The world population of incarcerated has increased between 25% and 30% in the last decades[1]. In Brazil, the prison population is made up of 607,731 people, with about 300 prisoners per 100,000 inhabitants. In absolute numbers, Brazil has the fourth-largest prison population in the world, with the first place in the United States (US), China and Russia[2,3].

In Canada's female prison population, there was an increase from 5% to 6%, while the worldwide average growth of this population was 16% between 2006 and 2012[4]. In Brazil, incarceration reflects social, ethnic and racial inequalities. Although men represent the largest number of prisoners, female prison rates have been rising. There was an increase of 567,4% between 2000 and 2014[2].

The history of health care in the prison system was started by religious entities. From the 1980s, with the advent of Acquired Immunodeficiency Syndrome (AIDS), in Brazil, health professionals, facing the situation that was present in prisons, began prevention and attention actions aimed at the population with AIDS[5].

The National Health Plan for the Penitentiary System was proposed by the Ministries of Health and Justice in 2003. Given the need for the implementation of a public policy of social inclusion that aimed at the promotion of human rights for persons deprived of liberty, the National Policy for Integral Health Care for Persons Deprived of Liberty in the Penitentiary System (PNAISP) was created in 2014 to promote integral health and contribute to the control and / or reduction of the most common diseases[6].

The public health system for this population has become a challenge worldwide. Overall, epidemiological research conducted from 2007 to 2014 showed a higher prevalence of tuberculosis, dengue, AIDS, acquired syphilis, human anti-rabies care, leprosy, Chagas disease, among others. Although chronic diseases are not among the most prevalent in female prisoners, they are a health problem in Brazil, representing the leading cause of mortality and hospitalizations[7,8]. Among them, cardiovascular problems deserve greater attention in the prison population, as there is the factual aggravation of the environmental conditions in which they are inserted[9].

Women have complex needs, particularly concerning physical and mental perspective[7]. Upon entering the prison system, they may develop health problems or worsen previous situations due to prison conditions[8-10].

In this epidemiological scenario, from the group of non-communicable chronic diseases, obesity stands out because it is simultaneously a disease and a risk factor for other diseases in this group[7,8]. Some factors are fundamental for health promotion and protection, such as balanced diet and physical activity. Adequate food is a human right, and food and nutritional security, which is defined as guaranteeing citizens of quality basic food in optimal hygienic and sanitary conditions, is important[11].

Thus, a proper and balanced diet, with adequate intake of fruits, vegetables and other fiber sourced foods, and the reduction of the consumption of foods rich in fat and simple sugars, will result in bodyweight balance as well as protection factors for chronic noncommunicable diseases such as diabetes, high blood pressure, cancer, and hypercholesterolemia[12].

Thus, it is important to determine the anthropometric profile of an individual or a population to associate with various diagnoses, working as an aid for planning actions to promote health. Thus, based on the assessment of an anthropometric profile of an individual, one can intervene in the recovery or maintenance of one's health. The present study aims to trace the anthropometric profile and to evaluate the presence of risk factors for the development of cardiovascular and metabolic diseases in women in prison.

METHODS

This is a cross-sectional, observational and analytical study conducted in a mid-size female recovery penitentiary located in a northeastern Brazilian capital from July to August 2015.

Due to the scenario of the research, regarding security devices and also, based on the conditions of the prison, it was not possible to make a statistical sample. The simple selection was intentional, considering the research scenario and the established inclusion and exclusion criteria. 64 women from the closed prison system participated in this study.

Previously, meetings were held with the unit's management and local health workers to discuss the research and the inclusion criteria of the participants in the research, which included: being women prisoners of the closed prison system in the age group over 18 years; to be able to read the Informed Consent Form (ICF) and to respond to the interview. Exclusion criteria included: pregnant women; nursing mothers; lactating women; volunteers over 60 years old; women prisoners in open, semi-open or disciplinary regime; and carriers of infectious disease. The research volunteers were recruited through the prison's health team and the institution's management.

Prior to data collection, the researchers' training workshop was held. Initially, there was a discussion of the project and other documents related to data collection. The interview with five adults was applied and it was verified that there was no need for changes.

Interviews were conducted in Portuguese, individual and privately, in a room of the institution itself. Personal and variable data were collected (age, race, marital status, education, presence of diabetes, coronary insufficiency, and hypertension). In addition, lifestyle-related data (smoking, alcohol consumption, physical inactivity) were collected.

Trained examiners measured the following anthropometric measurements: weight, height, arm circumference (AC), waist circumference (WC) and hip circumference (HC).

Weight was measured using a Filizola® platform scale weighing 150 kg and 100 grams accuracy. The participants were barefoot, wearing only the prison uniform, standing in the center of the scale platform, arms outstretched and their eyes pointed towards the horizon[13]. Height was measured by portable stadiometer. Participants were in an upright position, shoulders and buttocks leaning against the wall, barefoot, feet together, upper limbs dangling over the body, eyes pointed towards the horizon and breathing apnea at the moment of measurement[13].

The anthropometric profile of the 18 / 19-year-old participants was assessed using the body mass index (BMI), calculated by comparing weight (Kg) and height (m^2), considering age, being classified as BMI percentiles: underweight (percentile <3), eutrophy (percentile ≥3 to <85), overweight (percentile ≥85 to <97) and obesity (percentile ≥97). For participants over 19 years of age, BMI was used, calculated by the relationship between weight (Kg) and height measurement (m^2). The adopted WHO classification was adopted: low weight (BMI <18.5 Kg / m^2), normal weight (BMI ≥18.5 to 24.9 Kg / m^2), overweight (BMI ≥25 to 29.9 Kg / m^2) and obesity (IMC ≥30 Kg/m^2)[14].

For the measurement of AC, WC and HC, a flexible and inextensible Sanny® measuring tape, 200cm long and one decimal place accurate, was used. The circumference of the arm with the relaxed limb along the body at the midpoint between the acromial process of the scapula and the ulna olecranon was measured. Waist circumference was measured through the midpoint between the last costal arch and the iliac crest. Finally, the hip circumference was measured with the participant in an upright position, with the tape placed in the region of greatest perimeter between the waist and the thigh[13].

Regarding WC, the values for high risk of metabolic complications associated with obesity were recommended when the value of the measurement was above or equal to 80 cm or very high, that is when it was equal to or above 88 cm[15]. To calculate waist / hip ratio (WHR), we used the formula waist perimeter/hip perimeter, in centimeters. It was also used as reference the World Health Organization (WHO) waist/hip ratio, with a cut-off point of 0.85, with equal or higher value representing high risk[14]. Waist circumference/height ratio (WHtR) was obtained by the ratio between waist circumference and height, in centimeters, using the following cutoff values (16): ≥0.56 represents a

high risk for cardiovascular disease related to the CER. To adjust arm circumference, the following reference values were considered (17): malnutrition (≤90%), eutrophy (90-100%), overweight (110-120%) and obesity (>120%).

To assess food intake, we applied the food intake frequency form of the Ministry of Health's Food and Nutrition Surveillance System. This form portrayed groups of unhealthy foods / beverages (raw salad; cooked vegetables; fruits; beans; milk or yogurt) and unhealthy groups (French fries, potato chips and salty snacks; hamburgers and sausages; crackers;sweet or stuffed cookies / crackers, candy, candies and chocolate)[18]. Data were evaluated according to the frequency of food/drink intake in the previous seven days, as reported by the prisoners, considering three response categories: not consumed, consumed 1-6 days a week, consumed every day of the week. In addition, the relative and absolute frequencies in the presentation of data were considered.

The study used the Statistical Package for the Social Sciences program (software v. 18.0, SPSS/PC+, Inc.; Chicago, IL, USA). For statistical analysis, two groups were composed considering age: up to 30 years (G1) and over 30 years (G2). To verify associations, we used the chi-square or Fisher's exact test, considered significant with $p<0.05$.

This research was approved by the Ethics Committee on Research with Human Beings of the Health Sciences Center of the Federal University of Paraíba, following Resolution No. 466/2012, under Opinion No. 577.916.

RESULTS

Women had a mean age of 29 years ± standard deviation (SD) of 9.6; they were brown (53.1%, n = 34); single (60.9%, n = 39); with up to 9 years of study (73.5%, n=44). There was a prevalence of diabetes of 1.6% (n = 1); hypertension, 6.3% (n = 2); and coronary insufficiency, 3.1% (n = 4) (Table I).

Table I - Demographic characteristics, the prevalence of hypertension, diabetes and coronary insufficiency in women prisoners in the closed prison system of a northeastern capital of Brazil. João Pessoa, 2015.

Variables	n	%
Age range		
Up to 30 years - G1	39	60.9
Over 30 - G2	25	39.1
Race		
Parda / Mulatto	34	53.1
White	17	26.6
Black	7	10.9
Yellow	4	6.3
Indigenous	2	3.1
Marital status		
Single	39	60.9
Married	15	23.4
Separate	7	10.9
Widow	3	4.3
Schooling*		
Illiterate	3	4.7
1 to 9 years	44	68.8
10-12 years old	15	23.4
Over 12 years	1	1.6
Presence of chronic diseases		
Presence of diabetes	1	1.6
Presence of coronary insufficiency	2	3.1
Presence of hypertension	4	6.3

* lost data; G1: female prisoners up to 30 years old; G2: women detained above 30 years

A higher prevalence of smoking was found in G1. Most were found to be sedentary in both groups. Regarding WC, both groups had a mean value of <88 cm (Table II).

In G1, most women prisoners (77.9%; n = 30) had no risk of obesity-associated metabolic complications, while in G2, 40.0% (n = 10) had very high risk / WC for complications metabolic. In relation to WC / HC, it was found that 94.9% (n = 37) and 72.0% (n = 18) presented values up to 0.85 in G1 and G2 (p = 0.022), respectively, not showing increased risk for complications associated with obesity (Table II).

Table II - Relationship between age and cardiovascular risk factors in women prisoners in the closed prison system of the capital of Northeast Brazil. João Pessoa, 2015.

Variables	G1		G2		p
	n	%	n	%	
Have you used a cigarette?					
Yes	32	82.0	18	72.0	0.343
No	7	18.0	7	28.0	
Currently smokes[1]					
Yes	27	84.4	12	66.7	0.172
No	5	15.6	6	33.3	
Have you used alcohol					
Yes	36	92.3	22	88.0	0.671
No	3	7.7	3	12.0	
Currently drinks[1]					
Yes	14	36.0	3	12.5	0.055
No	23	59.0	21	87.5	
Physical activities					
Active	2	5.1	2	8.0	0.640
Sedentary	37	94.9	23	92.0	
BMI Classification					
Low weight	2	5.1	0	0.0	
Eutrophy	24	61.5	11	44.0	0.044*
Overweight or obesity	13	33.3	14	56.0	
WC risk					
No risks	30	77.9	9	36.0	NC
High	3	7.7	6	24.0	
Very high	6	3.3	10	40.0	
WC / HC Risk					
No risks	37	94.9	18	72.0	0.022*
Present	2	5.1	7	28.0	
WC / Stature Risk					
No risks	35	90.0	17	68.0	0.048*
Present	4	10.0	8	32.0	
Nutritional status according to CB adequacy					
Malnutrition	7	17.0	9	36.0	0.241
Eutrophy	24	62.0	11	44.0	
Overweight or obesity	8	21.0	5	20.0	

NC: not calculated; BMI: body mass index; WC: waist circumference; WC-Q: waist/hip ratio; AC: arm circumference; 1: Consider those who have ever smoked or drunk in their lifetime; G1: female prisoners up to 30 years old; G2: women detained over 30 years. * Groups were compared by Fisher's exact test.

It was found that, in relation to WC / height and high risk for cardiovascular diseases, 90.0% (n = 35) (G1) and 68.0% (n = 17) (G2) presented values up to 0.56, which presented no risk (p=0,048). According to the classification of nutritional status, considering the adequacy of AC, 62.0% (n = 24) and 44.0% (n = 11) presented eutrophy in G1 and G2, respectively (Table II).

When evaluating the means of anthropometric measurements, as shown in Table III, it was found that G2 presented the highest values of Body Mass Index (BMI) (26.544), arm circumference (28.28), hip circumference

(99.88) and waist circumference (82.64); all above the averages obtained in the general sample and for G1. G2 was overweight considering BMI ≥ 25. Analyzing the mean waist circumference of participants from G1 (76.51) and G2 (82.64), there was a statistically significant difference between the means of the groups. G2 presented mean waist circumference values ≥80cm, representing a high risk for metabolic complications associated with obesity, being a predictor for cardiovascular disease.

Table III - Anthropometric measurements according to the age of women prisoners in the closed prison system of the capital of Northeast Brazil. João Pessoa, 2015.

Variables	G1		G2		D
	Mean	±SD	Mean	±SD	
BMI (kg /m²)	24.3	5.08	26.5	5.18	0.095
Arm Circumference (cm)	27.0	3.98	28.3	4.65	0.245
Hip Circumference (cm)	97.8	9.67	99.9	9.24	0.387
Waist Circumference (cm)	76.5	11.53	82.6	10.33	0.035*

G1: female prisoners up to 30 years old; G2: women detained above 30 years old; BMI: body mass index; SD: standard deviation

In the results on eating habits, by food groups, considering the healthy ones, according to Table IV, it was observed that, regarding the raw salad, 50% (n = 32) of the interviewees did not consume this type of food in the last 7 days and only 7.8% (n = 5) reported having consumed it daily. Regarding cooked vegetables or vegetables, 70.3% (n = 45) did not consume them in the last 7 days, while 6.3% (n = 4) consumed daily. Only 6.3% (n = 4) consumed fresh fruits daily. Daily bean intake was reported by 53.6% (n = 36) of the interviewees. Milk or yogurt was consumed daily by 29.7% (n = 19) of them.

Regarding foods considered unhealthy, 89% (n = 57) reported not having consumed, for example, French fries, potato chips and salted chips in the last 7 days, and no respondent consumed this type of food daily. As for hamburgers and sausages, 25% (n = 16) reported not having eaten in the last 7 days; already 20.3% (n = 13) did it daily. There was the high consumption of salty crackers or biscuits and 65.6%, (n = 42) of respondents consumed them daily. Regarding the group of sweet or stuffed cookies, candies, chocolates and other types of sweets, the result was similar, as 60.9% (n = 39) consumed daily. Soda consumption was 64.1% (n = 41) in the last 7 days and 3.1% (n = 2) daily (Table IV).

Table IV - Food consumption of women prisoners in the closed prison system of the capital of Northeast Brazil. João Pessoa, 2015.

	Not consumed		Consumed 1-6 days a week		Consumed every day of the week	
	n	%	n	%	n	%
Raw salad	32	50.0	27	42.2	5	7.8
Boiled Vegetables	45	70.3	15	23.4	4	6.3
Fresh Fruit or Fruit Salad	17	26.6	39	60.9	8	12.5
Bean	13	20.3	15	23.5	36	56.3
Milk or yorgurt	23	35.9	24	34.4	19	29.7
French fries, potatoes chips and fried food	57	89.0	7	11.0	0	0
Hamburger and sausages	16	25.0	35	54.7	13	20.3
Salty Crackers / Crackers	9	14.1	13	20.3	42	65.6
Sweet or stuffed cookies / crackers, candies and chocolates	8	12.5	17	26.6	39	60.9
Soda	21	32.8	41	64.1	2	3.1

DISCUSSION

The current study is a pioneer in evaluating the nutritional status and cardiovascular risk factors of prisoners in the closed regime in the state. Few studies have been reported in the literature that target women prisoners[19-23].

The results obtained are relevant when considering the specific actions advocated by the National Health Promotion Policy, which foresees the adoption of environments that favor healthy eating, through the articulation of the public and private sectors, with the focus on offering healthy meals for institutionalized populations, aiming at reducing the risk for non-communicable chronic diseases and the surveillance of these diseases[24]. Within the scope of PNAISP, the implementation of health promotion actions, especially in the area of food and physical activities, is indicated as a priority agenda[24], and it is important to conduct studies evaluating the fulfillment of such actions and goals[6].

In line with data released by the National Penitentiary Department and international surveys, the female prison population consists of mostly young women, black or brown, and poorly educated[25-27]. The prevalence of young women was higher in this study than the data presented for the female prison population in the country, with a similar trend observed in Canada's prison population[2,28].

Schooling was higher compared to the Brazilian prison population (2). Although with other cutoffs for education and income, it was observed in the United States that women with incarceration history have the following characteristics: low education (<12 years) and income (<25,000 $), black and single[29].

Physical inactivity in the current study was higher than that found in the Brazilian prison population. Among sedentary women, there was a greater representation of women who have less than nine years of schooling. What points to gaps in the fulfillment of health promotion actions focusing on stimulating the practice of physical exercises taking into consideration the context of institutionalized populations, as advocated in the National Health Promotion Policy[24].

Social inequalities, the difference in access to goods and services, the low education level and the inequality in access to information generally determine the higher prevalence of chronic diseases and the diseases resulting from the evolution of these diseases[30]. Studies show an increase in obesity and cardiovascular risk factors in prisoners, suggesting that incarceration contributes to the development of chronic noncommunicable diseases[31-34]. In addition, prisoners are more likely to develop overweight and obesity than women in the general population and men prisoners. An inadequate diet, similar to that offered to prisoners, was observed that represents excess calories for women's energy needs[35].

The prevalence of diabetes in this study was lower than that found in Brazilian women[36]. The prisoners investigated still had higher proportions of eutrophic individuals, compared to the Brazilian[36]. This fact is justified by the high prevalence of young people in the current study. However, as age increased, the proportion of eutrophic women decreased, as did overweight or obesity. For women, there is an increase in BMI from 30 years up to 69 years. And from that moment on, this index tends to fall[37].

In both groups of the research in question, most of the prisoners presented no risk of metabolic complications regarding WC. In France, a higher proportion of women at risk of metabolic complications were observed, and the proportion of overweight increased from the beginning to the end of incarceration[38]. From the waist/hip ratio, a proportional relationship can be verified between increasing age and the risk of complications associated with obesity in the current investigation.

The national policy of attention to women deprived of liberty and egresses from the prison system aimed at a diet that respects the basic nutritional criteria and the restriction of food, when necessary, from the perspective of humanizing the conditions of the punishment and rights guaranteed to health, education, food, leisure, sport and other human rights[6].

A study in Rio de Janeiro showed that, in the statements of the prisoners interviewed, obesity and overweight appeared associated with the acceptance of food, the need for specific diets not offered, uncontrolled weight and difficulties in monitoring the health and preventing diseases to avoid comorbidities[38].

An increase in the WHtR was found to be proportional to age, similar to that found in the United States[37]. It was also observed, in the present study, the increase in WHtR values in women with low education.

Among the prisoners, low consumption of vegetables and fruits was observed, which was lower than that observed in the Brazilian population in general. Other studies reported similar results[21,32]. It is noteworthy that the food source of the detained women evaluated in this study consisted of the diet offered by the prison institution and food brought by relatives during the visits.

A study in Rio de Janeiro with prisoners found that meals served in their cell are made by specialized companies and conditioned in disposable containers. However, a subject with some specific dietary needs reported not being served. The diet was poorly evaluated due to repetition, low quality, and containing many industrialized products. There were also reports of poor water supply[9].

Prisoners ' health tends to worsen during incarceration. There are problems in access to health services, as well as limitations in health care. These results should be observed by health managers, prison and convict managers, and legislators to improve the quality of services provided to this population.

With the advent of PNAISP, every prison unit enabled by SUS will be a point of the health care network, being an important reference for the prison itinerary. Additionally, as a priority agenda emerges the financial incentive to improve working conditions, with adaptation or construction of health units; the guarantee of consumable material resources; hiring health professionals and continuing education policy[5].

There is a need to adopt health promotion measures, disease prevention, actions aimed at comprehensive and resolute care. At the same time, reflections need to be made from the perspective of constituting a health service according to the demands of the target public subjects of the service, and according to the epidemiological demand associated with listening to the service users themselves[5,10]. In the context of the prison population, incentive measures can be adopted relatively simply through health promotion activities focused on health education promoted by the prison staff's health team. In addition, spaces for physical activity can be created with the support of qualified personnel[9,39].

Health promotion, such as healthy habits promotion and regular physical activity, are important coping strategies for obesity. Incentive measures are responsible for disseminating information, promoting educational practices and motivating individuals[40].

Studies show difficulties in the health system and detention facilities[9,10,22,39]. The period of custody is important for the adequacy of prisoners, in general, to health-related habits, as well as for a reflection of the subjects about their own lives[26]. The right to health is also a guarantee of human dignity for all persons deprived of liberty, and the State is responsible for determining and implementing actions aimed at the quality of life and the prevention of health problems for the female population deprived of liberty. Improving the health of prisoners is an important goal, the secondary objectives of which would be relevant to society, such as reducing healthcare costs, improving the health of the population as a whole, improving public safety and even reducing of incarceration.

The limitations of the present study are acknowledged. Data were obtained through interviews, subject to memory bias. As this was a cross-sectional study, temporality was not accounted for in the presence of chronic diseases, whether or not incarceration proceeded. Regarding the study process of the study, it is emphasized that the development of research in closed prison systems has limitations due to security issues and organizational factors of the prison institution. On the other hand, given the population studied and the difficulties and safety measures in this scenario, the study was pioneering.

Based on the representativeness of the Brazilian prison population and the need for the State to guarantee integral health care for all, it is necessary to expand health units, hire and qualify professionals, as well as to guarantee budget resources for the expansion and maintenance of the units, so that diagnostic and intervention measures in health promotion for this population are planned and executed with a view to comprehensive health care and adherence to healthy practices.

Most of the risk factors for cardiovascular diseases presented are subject to intervention, which demands the implementation of systematic health promotion and health education actions focusing on the adoption of healthy habits; all this added to a reorientation of the services provided, from an inter-professional perspective, and collaborative health practices.

CONCLUSION

The group of older prisoners, aged over 30 years, presented higher values of mean waist circumference, but not at high risk (waist/hip circumference). There was a high prevalence of habits such as smoking, alcoholism, and sedentary lifestyle; high consumption of unhealthy foods (sweet or stuffed cookies, candies, chocolates and other types of sweets) and low daily consumption of healthy foods (fruits and vegetables).

CONFLICTS OF INTEREST

There are no conflicts of interest.

CONTRIBUTIONS

All authors contributed to the elaboration and design of the study; data acquisition, analysis and interpretation; and the writing and / or revision of the manuscript.

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