Evaluation of the epidemiological profile of cardiovascular diseases in quilombolas in the municipality of Itapecuru-Mirim – MA

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ABSTRACT

Cardiovascular diseases (CVDs) are conceptualized as a modification in the functioning of the cardiac system. Such diseases have been responsible for a relevant rate of morbidity and mortality, becoming a public health problem because they affect a significant population. Thus, it is worth mentioning that the black population is within the risk group for the development of CVDs, mainly due to their difficulty in accessing health services. Therefore, the objective of this study was to evaluate the prevalence of cardiovascular risk factors in quilombola communities in the municipality of Itapecuru-Mirim, in the state of Maanhão. Data collection was carried out through the application of a questionnaire, covering 110 individuals. The data were tabulated and analyzed in an Excel spreadsheet, and the qualitative variables were presented by means of absolute and relative frequencies and analyzed using the BioStata software. The results showed a predominance of females 57.27% (n=63), with a mean age of 49.39% for both sexes. Within the family history, the CVD that most commonly occurs is Arterial Hypertension 30.91% (n=34). In addition, 12.73% (n=13) reported being diabetic and 25.45% (n=27) hypertensive. Regarding blood pressure levels, the mean blood pressure in males was more altered (140x92 mmHg in systolic and 92.46 mmHg in diastolic), while blood glucose was 134.22 mg/dL among the participants. Thus, it is observed that the members of the two quilombola communities present risk behaviors that can culminate in the increase in the development of CVDs.

Keywords: Quilombolas, Cardiovascular Diseases, Risk Factors.

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INTRODUCTION

Cardiovascular disease (CVD) ranks first as a cause of death in the world, a condition that is on par with the general reality in Brazil. However, it is important to note that despite the high mortality, CVD is a preventable clinical condition (BENSENOR et al., 2019). In view of this, the relationship of risk factors for the development of CVD in the general population undergoes constant changes, which justifies the periodicity in the reassessment of these variables to outline effective prevention strategies (ROSA et al., 2021).

Thus, risk factors for cardiovascular disease are categorized into non-modifiable (age, ethnicity, and family history of cardiovascular disease) and modifiable – Diabetes Mellitus (DM), systemic arterial hypertension, dyslipidemia, and smoking (MALTA et al., 2021). In addition to the underlined, the absence of physical exercise and an unbalanced diet are well-established risk factors to predispose to chronic diseases and, in this context, are part of the chain of causal events of cardiovascular diseases (BENSENOR et al., 2019).

In Brazil, quilombola populations are conceptualized as a set of minority ethnic groups belonging to the black and Afro-descendant population, who reside in rural, semi-urban, quilombola regions and, more rarely, in urban areas. The quilombola population living in these communities share in their daily health conditions, knowledge, attitudes, beliefs, cultures, and health practices inherited from their ancestors (ROSA et al., 2021).

The characteristics already mentioned place them in a condition of evidence in the context of health research, given that they live in conditions of social vulnerability, far from health service networks, which hinders access to health diagnosis, therapy and rehabilitation services. Obstacles that corroborate the accentuation of chronic diseases, such as diabetes and systemic arterial hypertension (DO NASCIMENTO SILVA et al., 2020).

However, the risk factors associated with the development of CVD in individuals of African descent, especially those living in quilombola communities, are still poorly studied. Thus, considering the change in the lifestyle of the quilombola population, with the presence of sedentary lifestyle, obesity, alcoholism and smoking, and consequently the development of cardiovascular diseases, it is essential to carry out this study that aimed to evaluate the epidemiological profile of cardiovascular diseases in this population.

MATERIAL AND METHOD

This is a cross-sectional study, carried out in two quilombola communities in the state of Maranhão, Brazil, between October and November 2022. The sampling design was carried out through simple random selection, in which of the forty-four quilombola areas of MA (Brasil, 2019), two were selected. A simple random sampling study was carried out with 110 quilombolas from

Moreira and Santa Rosa do Barão villages, in the municipality of Itapecuru-Mirim, MA. The inclusion criteria adopted for the selection of quilombolas were: age ≥ 18 years, both genders and who agreed to participate in the research by reading, clarifying and signing the Free and Informed Consent Form (ICF). The exclusion criteria were: age under 18 years and individuals who did not sign the informed consent form. The collected data were tabulated and analyzed in an Excel spreadsheet using the statistical program BioStata. Quantitative variables were presented as absolute and relative frequencies. The research followed the following steps: 1st stage: the application of a questionnaire with the selected participants, with the collection of information on: age, sex, marital status, smoking, physical activity, eating habits. The average participant took about 4 minutes to complete this questionnaire. 2nd step: check the capillary glycemic index. Capillary blood glucose levels established by the Brazilian Society of Diabetes (2019-2020) were used as a reference. This guideline establishes the following classification: blood glucose ≤ 100 mg/dL: without DM; blood glucose > 100 and ≤ 126 mg/dL: prediabetes or high risk for developing DM and blood glucose ≥ 126mg/dL diagnosis of DM. 3rd stage: data from the Brazilian Society of Hypertension (2020) was used as a reference, the This protocol considers systolic blood pressure < 120 mmHg and diastolic blood pressure < 80 mmHg as optimal; systolic blood pressure between 120-129 mmHg or diastolic blood pressure between 80-84 mmHg is considered normal; systolic pressure between 130-139 mmHg or diastolic pressure between 85-89 mmHg as prehypertensive; systolic pressure between 140-159 mmHg or diastolic pressure between 90-99 mmHg as stage 1 hypertension; systolic pressure between 160-179 mmHg or diastolic pressure 100-109 mmHg as stage 2 hypertension and ≥ 180 mmHg for systolic or ≥ 110 mmHg. 4th stage: the weight and height of the quilombolas will be measured for anthropometric evaluation. The body mass index (BMI) is then calculated and will be analyzed by the NCHS table adapted by the CDC 2000, and incorporated by the department of primary care (2006), by the BMI/Age parameter, they are then classified by underweight (< 18.5 Kg/m2), normal (between 18.5-24.9 Kg/m2), overweight (25-29.9 Kg/m2) and obesity class I (30-34.9 Kg/m2), grade II obesity (35-39.9 kg/m2) and grade III obesity (> 40 kg/m2**).** To measure weight, a CADENCE digital scale will be used, with a capacity of up to 150 kg, and a stadiometer will be used to measure height. In addition, an inelastic tape measure with a length of 150 cm will be used to measure abdominal circumference (WC). To evaluate the abdominal circumference values, we will adopt points proposed by the Brazilian Obesity Guidelines (2016), since WC values ≥ 80 cm for women and ≥ 90 cm for men present increased cardiovascular risk.

RESULTS

According to the sociodemographic profile of the interviewees, the mean age was 49.3, with a mean of 51.0 for females and 47.0 for males. It was also found that the majority of quilombos were

female 57.27% (n=63), with incomplete primary education 22.73% (n=25) and single 34.55% (n=38), as shown in table 1.

110

Average Age		
Female	51,0952381	
Male	47,0652174	
Total	**49,3944954**	
Gender	**%**	**N**
Female	57,27%	63
Male	42,73%	47
Total	**100,00%**	**110**
Schooling	**%**	**N**
Incomplete elementary education	22,73%	25
Complete primary education	16,36%	18
Incomplete early childhood education	15,45%	17
Not educated	13,64%	15
No information	8,18%	9
Complete high school	8,18%	9
Complete higher education	7,27%	8
Incomplete high school	4,55%	5
Complete early childhood education	3,64%	4
Total	**100,00%**	**110**
Marital status	**%**	**Average Age**
Single	Female	51,0952381
Male	47,0652174	Total
49.3944954	23,64%	26
Widower	Sex	%
N	Female	57,27%
63	**Male**	**42,73%**

Source: authors (2024)

Table 2 shows that 60.91% (n=67) had a family history of cardiovascular disease in the family, 30.91% (n=34) had hypertension and 32.72% (n=36) had the disease.

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47	**Total**	**100,00%**
110	60,91%	67
Não	Schooling	%
N	**Incomplete elementary school**	**22,73%**
18	**Incomplete kindergarten**	**15,45%**
17	Unschooled	13,64%
15	No information	8,18%
9	Completed high school	8,18%
9	Completed higher education	7,27%
8	Incomplete high school	4,55%
5	Complete kindergarten education	3,64%
4	Total	100,00%
110	1,82%	2
N	**Single**	**34,55%**
38	Consensual Union	23,64%
26	Married	23,64%
26	Widower	13,64%
15	Separated/Divorced	4,55%
5	Total	100,00%
110	0,91%	1
Netos	0,91%	1

Source: authors (2024)

Regarding lifestyle habits, table 3, it was observed that 65.45% (n=72) were not smokers, 46.36% (n=51) had never drunk and 53.64% (n=59) practiced some type of physical activity.

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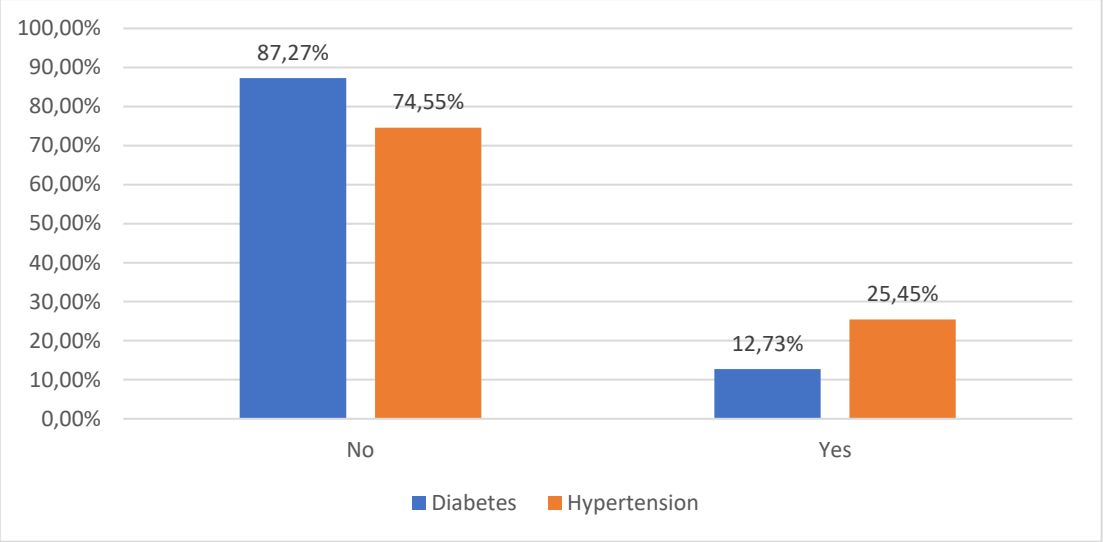
Smoking	**History of Cardiovascular Disease in the Family**	**%**
N	Yes	60,91%
67	No	39,09%
43	Total	100,00%
110	**100,00%**	**110**
N	**Hypertension**	**30,91%**
34	Acute myocardial infarction	7,27%
8	Cardiomegalia	5,45%
6	Valvular disease	4,55%
5	**Cardiovascular disease, unspecified**	**4,55%**

4	**Unknown**	**2,73%**
3	Aterosclerose	1,82%
2	45,45%	50
No information	If so, who	%
N	**Parents**	**32,73%**

Source: authors (2024)

Graph 1 shows that most of the interviewees did not have diabetes or hypertension, however, a minority (12.73% diabetes and 25.45% hypertension) self-reported having such diseases.

Graph 1 - Characterization of quilombola interviewees, according to self-reported diabetes and hypertension.



Source: authors (2024).

Regarding the anthropometric aspect, the mean BMI of females was 27.08 kg/ m2 and males 26.80 kg/^{m2}, demonstrating the presence of overweight. Regarding abdominal circumference (WC), the mean was 92.11 cm for men and 92 cm for women. Regarding the mean blood glucose, 138.52 mg/dL was observed for males and 131.07 mg/dL for females, demonstrating altered fasting glucose.

88,38181818

36	
10,00%	11
Grandparents	8,18%
9	**Guys**
Offspring	
4	Nephews
0,91%	1
Net	**0,91%**
Average Blood Glucose	
Male	138,5217391
Smoking	%

N	Never smoked
Former smoker	
21	Smoker
15,45%	17
Total	**100,00%**
Mean Diastolic BP (mmHg)	
History of alcoholism	%
N	Never drank
46,36%	**51**

Source: authors (2024)

Table 5 shows a high consumption of fried foods on a weekly basis, however, the interviewees also consume fruits and vegetables.

Source: authors (2024).

Alcoholist
30,00%
Former Alcoholicist
23,64%
Total
100,00%
110

Table 6 shows that 53.64% (n=59) consumed canned goods, 66.36% soft drinks (n=73), 55.45% (n=61) sweets, and 96.36% (n=106) did not add salt to ready meals.

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Consumption of canned goods	%	n
In the last 3 months, practice of physical activity	%	N
Yes	53,64%	59
No	**45,45%**	**50**
Total	**100,00%**	**110**
Yes	66,36%	73
No	33,64%	37
Total	**100,00%**	**110**
Sweets consumption	**Female**	**27,08398666**
Male	26,80493157	Total
26,96331419	44,55%	49
Mean Waist Circumference (cm)	**100,00%**	**Male**
Total	**92,04**	**N**
No	Average Blood Glucose	106
Male	138,5217391	Female

131,0793651	**Total**	**134,2201835**

Source: authors (2024)

DISCUSSION

Most of the interviewees were female, with a mean age of 49.3 years and single. According to the research by Santos *et al.,* (2020) in the quilombolas of Bahia, it was found that the age range between 18 and 92 years had an average of 49 years and 61.2% of those surveyed were women. These data were concomitant with the research carried out in Povoado Moreira and Santa Rosa do Barão, a fact that reinforces the thesis that women participate more in the research carried out.

Among the factors analyzed in the socioeconomic profile, it was observed in the study that the majority had a low level of education, an alarming factor, because individuals who had never studied or who had studied only the initial grades had a higher prevalence of heart and ischemic diseases when compared to those who had completed basic education. Low schooling contributes to the individual's lack of knowledge about conditions that are sensitive to the promotion, prevention, and control of cardiovascular diseases (BEZERRA *et al.,* 2017).

Regarding smoking and alcoholism, it was evidenced that the majority did not practice these behavioral habits. However, 15.45% (n=17) smoked and 30% (n=33) consumed alcoholic beverages. Factors that are admittedly increased converters to cardiovascular risks. In the research by Santos *et al*., (2019) in the state of Sergipe, it was observed that among the behavioral variables reported by the participants, the following percentages stood out: being a smoker, 37.18%; having habits of drinking alcoholic beverages, 60.77%, data that are far from those found in the quilombola community of the Moreira and Santa Rosa do Barão villages in Maranhão.

Regarding the performance of physical activity, it was found in the research in question that the majority 53.64% (n= 59) practice some sport, especially soccer and cycling. In addition to the practice of planting and harvesting, however, there was a high percentage of sedentary individuals 45.45% (n=50), this percentage of physical inactivity probably reflects the idleness in quilombola environments in part of the months, as it is not the time of harvest or planting. However, in the research by Mussi *et al.* (2015) carried out in the Tomé Nunes Community, it was identified that most of the respondents did not practice any type of physical activity (67.8% women and 58.4% men). In this context, another study showed that sociodemographic and social behaviors influence the sedentary behaviors of quilombolas, such as being exposed to screens for two or more hours a day during the week (ALMEIDA *et al*., 2018).

Regarding the anthropometric profile, it was found that most of them are overweight, concomitantly, a study conducted by Bezerra *et al.* (2017) in the Quilombola Communities of Vitória da Conquista, found that in the BMI categories, there was a prevalence for overweight individuals (PR = 1.39; 95%CI: 1.16-1.66) and obesity (PR = 1.87; 95%CI: 1.37-2.52), in relation to low

weight/normal weight. In the studies conducted by Fontelle *et al.* (2022) observed a higher prevalence of obesity and overweight among women (29.5% and 62.6%, respectively).

AH and DM characterize increased morbidity and mortality conditions among the quilombola people. In this context, the prevalence of AH 25.45% (n=28) and DM with 12.73% (n=14) self-reported by quilombolas in the study in question was high, when compared to the percentage estimates of the general population of the same state (MA) – 19.33% (AH) and 8.96% (DM), according to data from the Ministry of Health (Vigitel, 2021). This fact is also evidenced in the research by Santos *et al.* (2019) with quilombola adults from Sergipe (SE), in which it was found that the prevalence of 26% of SAH in the quilombola communities of Sergipe was high, when compared to the estimates of the general population of 20.4% in the same state, with similar age groups. The authors state that hypertension is more prevalent in black populations when compared to whites, however, the etiology of the disease and environmental factors influence the development of hypertension, depending on race.

The study found that most of the interviewees had a family history of hypertension, especially first-degree kinship (father, mother and siblings). Cordovil and Almeida (2018) in their research with quilombola women from the village of Nazaré do Bruno, in the rural area of Caxias, the results showed that 77% of the interviewees had relatives with cardiovascular diseases in their family history. The authors point out that there is a strong influence on development with family history, especially first-degree history.

Regarding BC, the study in question showed that most women were at high risk for developing CVD. Cordovil and Almeida (2018) observed that the majority of Marajoara quilombola adults had a risk of 41.4% in males and 70.4% in females, according to the CM. Adipose tissue synthesizes and secretes multiple mediators and cytokines, which participate in mechanisms that induce dyslipidemia, insulin resistance, hypertension, and atherosclerosis (PAULI *et al*., 2019).

In this study, a high intake of canned goods, sweets, soft drinks and fried foods was observed, demonstrating that access to marketed food and the abandonment of agriculture seem to be one of the most frequent factors in the nutritional transition among quilombolas. However, in the research by Corrêa e Silva (2021) in the quilombola communities of Santo Antônio (Concórdia do Pará, northeast of Pará) and São João (Salvaterra, Marajó island), it was observed that 20% of the interviewees consumed industrialized and easy-to-prepare products, drawing attention to the low frequency of these foods among this population.

CONCLUSION

Based on this survey, it should be stated that there are well-established comorbidities and community hygienic-dietetic habits, which contribute to the anticipation of the onset or worsening of

cardiovascular diseases. Systemic arterial hypertension, diabetes, family history of cardiovascular diseases, physical inactivity, smoking and alcoholism are factors that favor the onset of multivascular diseases, especially for the risk of developing cardiovascular diseases. The prevalence of arterial hypertension and smoking among the quilombolas of Povoado Moreira and Santa Rosa do Barão de Itapecuru-mirim (MA) were shown to be the main predictors for the development of cardiovascular diseases. These findings point to the need for better reach, planning and optimization of health care to communities by care networks and call for a better balance of the institutional support of the macro and micro health regions of Maranhão to this segment, which is the object of our study.

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