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Coronary Risk Assessment in Primary Health Care: A Descriptive Study

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Abstract

Problem: The risk of coronary disease in the Brazilian population has increased along with other chronic non-communicable diseases and accounts for more than 70% of the mortality in this population. **Aim:** Determine the health profile and risk of coronary disease among youth, adults, and elderly people in primary health care. **Method:** A descriptive study was conducted in a basic health unit in Londrina city, Brazil. We interviewed 120 individuals. Their personal, anthropometric, and biochemical data; daily habits; history of disease; and coronary risk scores were analyzed using a mobile application. **Results:** The results showed 66.5% of individuals were overweight, 36.5% were physically active, 39% had hypercholesterolemia, 21.5% were hypertensive, 29% were smokers, 25.5% consumed alcoholic drinks, and 11% had hyperglycemia. The coronary risks were 88% and 68% in men and women, respectively. **Conclusion:** The results demonstrated a substantial risk for developing coronary heart disease in this population.

Descriptors: Coronary Disease; Primary Health Care; Chronic Disease; Obesity; Public Health; Risk Factors.

INTRODUCTION

In recent decades, lifestyle changes including habits and diet have affected the health population profile of Brazil[1]. The risk of coronary disease in the Brazilian population has increased along with other chronic non-communicable diseases (NCDs)[2]. NCDs are the cause of more than 70% of mortality, and cardiovascular disease is the leading cause of death in this population[1,2].

NCDs are related to socioeconomic, cultural, political and environmental determinants as modifiable and non-modifiable risk factors including smoking, alcohol use, unhealthy diet, sedentary lifestyle, age, sex, and heredity[1,2]. These determinants can lead to intermediate risk factors such as hypertension, dyslipidemia, overweight, obesity, and glucose intolerance, with outcomes such as coronary heart disease, stroke, chronic kidney disease, diabetes, chronic respiratory diseases, cancer and psychological problems. Studies have shown a significantly increased likelihood of developing cardiovascular disease in individuals who possess these risk factors[1,3,4].

There is growing interest in the government regarding the monitoring of epidemics as well as the development of programs for control and prevention. One form of population analysis is an individual nutritional assessment based on medical histories, nutrition, medications, physical examination, biochemical data, and anthropometric data. This information enables the identification of risk factors associated with nutritional diseases such as obesity and dyslipidemia, which may contribute to coronary heart disease[5]. In Brazil, an evaluation of these risk factors should be part of primary health care (PHC). The evaluation is consolidated specifically in the basic health unit (BHU), which provides government programs such as the Family Health Strategy (ESF). The government program works in health promotion, disease prevention, diagnosis, and treatment of the most prevalent health problems and recovery for the entire population. The main professional involved in these activities is the nurse, who is responsible for the continuity of care for patients throughout life[2].

In this aspect, the current research is relevant because it analyzes nutritional and historical parameters in young, adult, and senior individuals seeking PHC. Our hypothesis is that the population of this city in southern Brazil is at risk of developing coronary heart disease. This research contributes to our knowledge regarding the risk for developing coronary heart disease in a small population and proposes a methodology to survey population health data. Moreover, this study offers health professionals knowledge about the current population so that they are better able to intervene in the health-disease process, aiming at comprehensive care for patients.

Many countries have national, state, and local assessments of coronary risk[3,4]. However, current data in Brazil are mostly derived from national-level studies on this topic[1,2,6,7], with similar populations and findings. Thus, we conducted local-level research in an area of southern Brazil in a small population to show a localized reality, where health parameters may be higher or lower than the national average; these results will provide valuable information that will be useful for public health professionals as they work to meet focused prevention targets.

In this context, our objective was to determine the health profile and risk of developing coronary heart disease in a young, adult, and elderly population in people seeking primary health care in a city in southern Brazil. Among

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the findings, we can highlight: (a) over 60% of participants were sedentary and overweight; (b) 40% of men and 38% of women presented borderline and high hypercholesterolemia; (c) 43% of men and 92% of women were classified as having high and very high risk due to abdominal fat levels, and; (d) men showed a higher risk for coronary heart disease and abnormal blood pressure.

METHODS

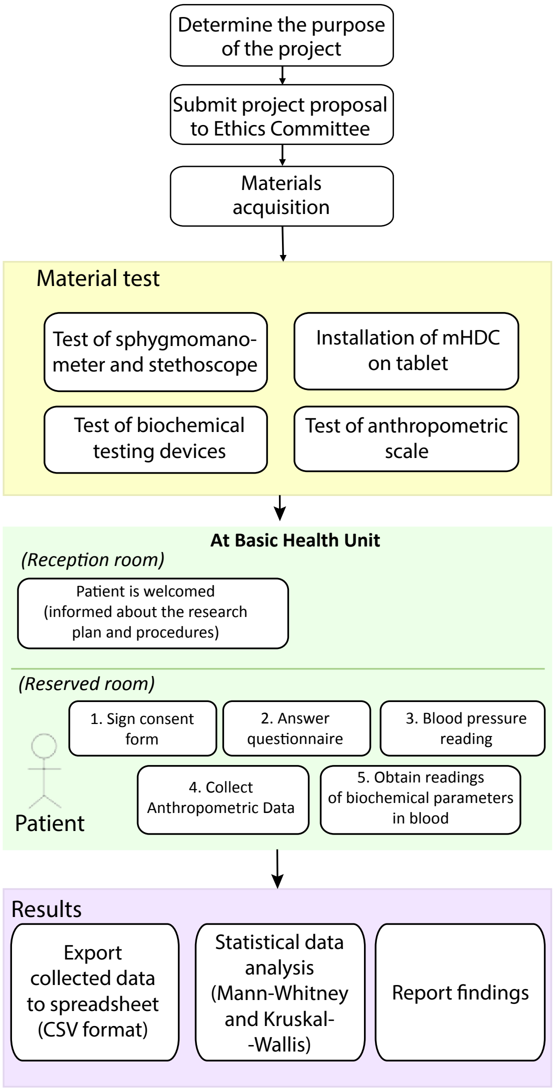
Materials

The mHealth Data Collector software (mHDC) mobile application[8] based on an Android operating system on a Samsung® tablet was used to collect data. The Accu-Chek test and Accutrend Plus Roche® handset, cotton wool Apolo®, and alcohol 70º Itajá® were used for measuring biochemical parameters. An ordinary tape, Cescorf® caliper, and Toledo® anthropometric scale were used for collecting anthropometric data, and a stethoscope and a Premium® brand sphygmomanometer were used for assessing blood pressure.

Study subjects and procedures

Our descriptive study applied quantitative analysis to a population survey conducted in a BHU within the Family Health Strategy (ESF) in Londrina city, Paraná, Brazil. This BHU had approximately 20 000 individuals registered. Based on this data, we calculated the sample size considering an error of 9% and a confidence level of 95%. We interviewed 120 individuals between February to November 2014; participants were divided in two groups of 60 men and 60 women. Each group contained 20 subjects in each age group: 18 to 39 years, 40 to 59 years, and greater than 60 years. Figure 1 shows a block diagram of the research method and survey.

Figure 1. Block diagram showing the research method.



Source: Author.

The BHU serves pregnant women, infants, children, adolescents, youth, adults, and elderly people. The unit is responsible for approximately 20.000 individuals and is open from Monday to Friday between 8 am and 6 pm. Currently, appointments are conducted by the nursing and medical staff responsible for prenatal care, vaccinations, distribution and administration of drugs, preventive examinations, urgent and emergency care, and collection of materials for exams. On Tuesdays and Thursdays, patients who had a previous medical appointment and had received an order for exams go to the BHU after fasting for 12 hours for blood testing. This was the time during which we collected the participants' biochemical parameters for this study.

Trained researchers went to the BHU reception room where fasting patients waited for blood collection, explained the research purpose and protocol (Figure 1). The sample of interested patients was thus gathered by convenience.

In addition to participants from the reception area, companions (wife, husband, parents) who wanted to participate were also enrolled. The enrollment criteria for participation included a 12-hour fast, no alcohol consumption on the previous day, no current pregnancies, an ability to understand and follow directions (individuals with severe mental illness and elderly patients with dementia were excluded from participation), and age greater than 18 years.

We used a room with a table and chair for the researcher and participant, with all the necessary equipment on hand. The participant then signed two copies of the human subjects research consent forms, which were delivered to the researcher and the participant, respectively. After accepting the terms, each patient answered a structured questionnaire using a mobile app, mHDC[8]. The questionnaire covered the following items: a) personal data, b) anthropometric data, c) biochemical data, d) daily habits, and e) previous disease/s. After patients answered the questions, their blood pressure and anthropometric and biochemical data were measured (Figure 1).

Blood pressure was measured after the patient had rested for 10 minutes. The stethoscope and sphygmomanometer were placed on the left arm supporting the patient cuff at heart level. Blood pressure[5] was measured twice, and the average of the two measurements was used for analysis. The values for systolic blood pressure were categorized as normal (<120 mmHg), borderline (130-139 mmHg), and abnormal (>140 mmHg). Similarly, the diastolic categories included normal (<80 mmHg), borderline (80-90 mmHg), and abnormal (>90 mm Hg)[9].

Patient weight and height included their clothes and shoes. Abdominal (umbilicus) and hip (femoral) regions were measured with a tape measure. Skinfold thickness was assessed in the subscapular, triceps, and abdominal (above the iliac crest) regions[5]. The body mass index (BMI), waist-hip ratio (WHR), and percentage body fat were calculated automatically by the mHDC software based on measurements obtained using an ordinary tape measure, caliper, and anthropometric scale. BMI was categorized as follows: 18.5 to 24.99, normal; 25 to 29.99, overweight; 30 to 34.99, level I obesity; 35 to 39.99, level II obesity; and>40, level III obesity[5]. WHR was classified as: low (<0.74), moderate (0.74 to 0.81), high (0.82 to 0.88), and very high (>0.88)[5]. Body fat percentage was classified as average (15 to 22%), above average (23 to 29%), or obese (≥30%)[5].

Data for biological analysis were collected using an Accutrend portable glucose and cholesterol monitor. The left index finger of each patient was first sterilized and then punctured with a sterile Roche® lancet. One drop of blood was collected on the glucose and cholesterol test strip. A second drop was also collected on the test strip, and the same apparatus was always used. The results were analyzed by the Accutrend device in seconds

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and stored in the mHDC software. Blood glucose values were classified as standard (<100 mg/dL), impaired glucose tolerance (100-126 mg/dL) and diabetes mellitus (≥126 mg/dL)[5]. Total cholesterol was classified as good (<200 mg/dL), borderline (200-239 mg/dL), and high (>240 mg/dL)[5].

The mHDC software was adapted for this study to calculate coronary risk scores. The scores for various parameters were attributed according to the table from the American Heart Association[10] as follows: a) smoking: never smoked (0), former smokers (1), less than 10 cigarettes per day (2), 10 to 20 cigarettes per day (2), 21 to 30 cigarettes per day (9), and 31 to 40 cigarettes per day (10); b) age/sex: men 20 to 30 years and women below 50 years (0), men 31 to 40 years (1), men 41 to 45 years and women above 51 years (2), men 46 to 50 years (3), men 51 to 60 years and women with brother with acute myocardial infarction (5), and men above 51 years and women with diabetes mellitus (6); c) Weight: less than 5 kg from normal weight (0), normal weight (1), 5 to 10 kg more than normal weight (2), 11 to 19 kg more than normal weight (3), 20 to 25 kg more than normal weight (7), and 26 kg or more above normal weight (8); d) physical activity: intense sports activity (0), moderate activity (1), professional sport activity (2), sedentary occupation and moderate sports activity (3), moderate professional activity and little sports activity (4), and physical inactivity (6); e) family history of disease: none (0), father or mother with more than 60 years of coronary heart disease (1), father and mother over 60 years of age with coronary heart disease (2), father or mother under 60 years of age with coronary heart disease (3), father and mother under 60 years of age with coronary heart disease (7), and father, mother, and brother with coronary heart disease (8); f) systolic blood pressure: 110 to 119 mmHg (0), 120 to 130 mmHg (1), 131 to 140 mmHg (2), 141 to 160 mmHg (6), 161 to 180 mmHg (9), and above 180 mmHg (10); g) plasma glucose levels: fasting below 80 mg/dL (0), diabetic family (1), fasting level of 100 mg/dL (2), fasting level of 120 mg/dL (3), treated diabetes mellitus (6), non-controlled diabetes (10); and h) cholesterol levels: below 180 mg/dL (0), 181 to 200 mg/dL (1), 201 to 220 mg/dL (2), 221 to 249 mg/dL (7), 250 to 280 mg/dL (9), and above 281 mg/dL (10). The scores were added, and patients were classified according to their scores: between 0 and 8 (no risk), 9-17 (potential risk), 18-40 (moderate risk), 41-59 (high risk), 60-67 (very high risk), and 68 (maximum risk).

At the end of the data collection, each patient has received a report of their normal and abnormal data, actions to improve the abnormal results and health risks if the situation remained unchanged. Patients with abnormal data were scheduled for a medical, nutritional, and physical education appointment.

Statistical analysis

For the statistical analysis, the data were divided by sex and combined into three age groups from 18 to 39 years, 40 to 59 years and equal to or greater than 60 years. The samples did not follow a normal distribution using Shapiro-Wilk test. Differences of comparison between groups of men and women of different ages (men versus women of 18 to 39, men versus women of 40 to 59 and men versus women of ≥60 years old) were analyzed using the Mann-Whitney test. Differences within only men or women in separate groups (men of 18 to 39 versus 40 to 59 versus ≥60 years old; or women of 18 to 39 versus 40 to 59 versus ≥60 years old) were analyzed using the Kruskal-Wallis test. Age-related data were presented

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as prevalence. However, statistical analysis has used the score of each participant. The investigated factors were smoking, alcoholism, physical activity, cholesterol, glycemia, WHR, percentage body fat, BMI, systolic blood pressure, diastolic blood pressure, family history of coronary disease, and coronary risk score.

We assumed two levels – yes (present) or no (absent) – for the all factors. The frequencies were computed and given in percentages. All statistical analysis was performed using Microsoft Excel 2016 and XLStat® 19.5. The statistical significance was set at $p<0.05$.

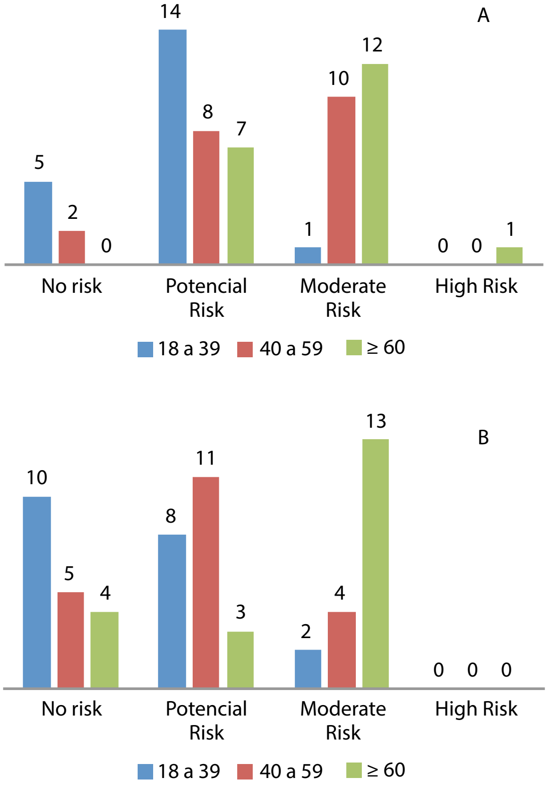
Ethics

This project was reviewed and approved by the Ethics Committee of the State University of Londrina (opinion number 494314, CAAE: 24140413.0.0000.5231); subject participation was voluntary and consisted of prior acceptance by the participants. The subjects were oriented about the research objectives and, after remedying any doubts, signed an informed consent statement. Participants were guaranteed anonymity, preserving the privacy of their information.

RESULTS

We interviewed 120 individuals, 60 men and 60 women, with ages ranging from 18 to 79 years, which included young, adult and elderly participants. To account for coronary risk, the following factors were considered: smoking, age/sex, weight, physical activity, family history of disease, systolic blood pressure, plasma glucose and cholesterol level. Among the risk scores for developing coronary heart diseases, only 12% of men were classified as being without risk. Thirty-two percent of women over the age of 18 years (young, adult, and elderly) were classified as being without risk. The other populations had some risk of disease (Figure 2).

Figure 2. Risk score classification for the development of coronary heart disease in men (A) and women (B) in primary care, according to the Table of Coronary Risk from the American Heart Association(10), Londrina, Paraná, Brazil, 2014.



Source: Author.

According to these results, young, adult, and elderly men have a higher risk for developing coronary heart disease than women ($p<0.01$), and risk increases with age in men ($p=0.003$) and women ($p<0.0001$). These results are of concern, as they indicate that a large portion of the population interviewed is at increased risk of developing coronary diseases (Frame 1 and Figure 2) as well as disorders associated with existing pathologies.

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Frame 1. Prevalence and statistical analysis of health indicators and daily habits in men and women attendees in primary care center in Londrina, Paraná, Brazil, 2014.

Health Indicators and Daily Habits	18-39					40-59					>= 60					Between groups of age		TOTAL				
	Women		Men		aP	Women		Men		aP	Women		Men		aP	Wo-men	Men	Women		Men		aP
	Yes	No	Yes	No		Yes	No	Yes	No		Yes	No	Yes	No		bP	bP	Yes	No	Yes	No	
	%					%					%							%				
Smoker	10	90	25	75	<0.0001	25	75	30	70	<0.0001	25	75	60	40	<0.0001	0.398	0.083	20	80	38	62	<0.0001
Alcoholic	10	90	55	45	<0.0001	15	85	45	55	<0.0001	-	100	30	70	<0.0001	0.223	0.281	8	92	43	57	<0.0001
Active (physical activity)	40	60	30	70	0.079	35	65	25	75	0.001	30	70	60	40	0.184	0.893	0.023	35	65	38	62	0.925
Hypercholesterole-mia	30	70	35	65	0.655	40	60	45	55	0.617	45	55	40	60	0.989	0.730	0.585	38	62	40	60	0.621
Hyperglycemia	5	95	10	90	0.199	-	100	15	85	0.797	10	90	25	75	0.113	0.509	0.297	5	95	17	83	0.115
WHR abnormal (Waist/Hip Ratio)	75	25	35	65	0.607	100	-	45	55	<0.0001	100	-	50	50	0.012	0.006	<0.0001	92	8	43	57	<0.0001
Body fat percentage high	95	5	80	20	<0.0001	100	-	100	-	<0.0001	100	-	100	-	<0.0001	0.0003	<0.0001	98	2	93	7	<0.0001
Overweight and obesity (Body Mass Index)	50	50	40	60	0.037	85	15	85	15	0.001	70	30	70	30	0.099	0.004	0.003	68	32	65	35	0.513
Hypertension (systo-lic blood pressure)	5	95	5	95	0.037	5	95	20	80	0.001	15	85	35	65	0.099	0.004	0.003	13	87	30	70	0.0004
Hypertension (dias-tolic blood pressure)	-	100	5	95	0.079	10	90	40	60	0.001	5	95	35	65	0.184	0.220	0.012	5	95	27	73	0.002
Present Family history of coronary disease	35	65	40	60	<0.0001	45	55	50	50	<0.0001	50	50	60	40	<0.0001	0.627	0.287	43	57	50	50	<0.0001
Risk of Coronary Disease Score	50	50	75	25	0.045	75	25	90	10	0.012	80	20	100	-	0.336	<0.0001	0.003	68	32	88	12	0.010

Source: Author. Test Mann-Whitney (women versus men): [a]P; Test Kruskal-Wallis (between ages in the same sex): [b]P. Values of p <0.05 were considered significant (bold.)

All the data were collected and exported from the mHDC application to a spreadsheet, as shown in Frame 2. The indicators for health and daily habits showed higher tobacco consumption in men, at 38% compared to 20% in women (Frame 2), and the prevalence of the behavior increased in older populations.

Alcohol consumption showed the opposite trend, with greater consumption among younger men than in older men. Overall, 43% of men reported drinking alcohol frequently. The prevalence among women was 8% through 59 years of age (Frame 1 and Frame 2). Older women all reported not consuming alcohol. These results indicate that men of all ages consume more alcohol than women, and a relatively higher consumption was observed in young men. Sex differences in smoking and alcohol consumption between groups were significantly different ($p<0.0001$) (Frame 1).

Analysis of physical activity revealed that 62% of men and 65% of women were sedentary (Frame 2). The difference between sexes was not statistically significant, i.e., physical inactivity rates were similar between men and women when young and elderly. In adults, men were more physically active than women ($p=0.001$) (Frame 1).

Analysis of cholesterol levels revealed that 40% of men had borderline levels of hypercholesterolemia. The results were similar in women (Frame 2). Blood glucose analysis indicated that 17% of men had hyperglycemia, and half (elderly men) had been diagnosed with diabetes mellitus. Three women (5%) were hyperglycemic, including two elderly women diagnosed with diabetes mellitus. There were no significant differences in blood glucose levels between women and men (Frame 1).

Anthropomorphic measurements including BMI, WHR, and body fat percentage were used to assess the prevalence of overweight. BMI measurements indicated that 65% of men and 68% of women were overweight and obese (Frame 2). For both men ($p=0.003$) and women ($p=0.004$), the prevalence was observed among subjects over 40 years of age, particularly from 40 to 59 years (Frame 1).

WHR was better in men than in women, with 43% of men and 92% of women classified as being at high and very high risk (Frame 2). These results indicate that women have a higher concentration of fat in the abdominal region than men ($p<0.0001$) and that there is increased abdominal fat with increasing age in both groups ($p=0.006$ and $p<0.0001$), respectively (Frame 1).

Analysis of percentage of body fat revealed that 93% of men and 98% of women were classified as above average and obese (Frame 2). Women had the highest percentage of body fat ($p<0.0001$). Moreover, the body fat percentage increased with age and stabilized after 40 years in both men ($p<0.0001$) and women ($p=0.0003$) (Frame 1).

Approximately 30% of men and 13% of women had abnormal blood pressure (Frame 2). This result shows that more men than women had blood pressure above the normal range ($p<0.05$), which increased with age in both men ($p=0.003$) and women ($p=0.004$) (Frame 1).

Analysis of family history of coronary disease indicated that 30 (50%) men and 26 (43%) women reported having a father, mother, and/or brother with any heart pathology (Frame 1). These results are of concern, as they include almost half of the interviewed population.

Among the main findings, most of the participants were sedentary and overweight, presented borderline and high hypercholesterolemia, were classified at high and very high risk due to abdominal fat levels, and men

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Frame 2. Prevalence of health indicators and daily habits* of young, adult, and elderly individuals in Londrina, Paraná, Brazil, 2014.

Health Indicators and Daily Habits	Men (age, years)				Women (age, years)			
	18-39	40-59	≥60	Total	18-39	40-59	≥60	Total
	N=20	N=20	N=20	N=60	N=20	N=20	N=20	N=60
	%	%	%	N	%	%	%	N
Smoker								
Never smoked	75	70	40	37	90	75	75	48
Ex-Smoker	5	25	45	15	5	15	15	7
Less than 10 cigarettes/day	15	-	5	4	5	-	5	2
10 to 20 cigarettes/day	-	5	10	3	-	10	-	2
21 to 30 cigarettes/day	5	-	-	1	-	-	5	1
31 to 40 cigarettes/day	-	-	-	-	-	-	-	-
Alcohol Consumption								
Yes	55	45	30	26	10	15	-	5
No	45	55	70	34	90	85	100	55
Physical activity								
None	70	75	40	37	60	65	70	39
Times: 1/week	5	10	-	3	5	-	-	1
2/week	15	10	35	12	15	15	10	8
3/week	-	-	-	-	-	-	-	-
4/week	-	-	-	-	5	10	5	4
5/week	10	5	25	8	15	10	15	8
Cholesterolemia								
<200 (best)	65	55	60	36	70	60	55	37
200-239 (borderline)	30	20	30	16	15	35	30	16
>240 (high)	5	25	10	8	15	5	15	7
Glycemia								
<100 (normal)	90	85	75	50	95	100	90	57
100-126 (impaired glucose tolerance)	5	5	25	7	-	-	10	2
>126 (Diabetes mellitus)	5	10	-	3	5	-	-	1
WHR (waist/hip ratio) *								
Low	35	15	5	11	5	-	-	1
Moderate	30	40	45	23	20	-	-	4
High	15	30	15	12	10	60	35	21
Towering	20	15	35	14	65	40	65	34
Body fat percentage								
Slim: <4% men	-	-	-	-	-	-	-	-
<8% women								
Below average: 5-8% men, 9 to 14% women	5	-	-	1	-	-	-	-
Average: 9-16% men, 15-22% women	15	-	-	3	5	-	-	1

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Above average: 17 to 24% men, 23-29% women	55	15	15	17	40	-	5	9
Obese:>25% men, >30% women	25	85	85	39	55	100	95	50
BMI								
<18.5 (underweight)	5	-	-	1	-	-	-	
18.5 – 24.9 (normal)	55	15	30	20	50	15	30	19
25 – 29.9 (overweight)	25	50	45	24	25	60	40	25
30 – 34.9 (obesity level I)	10	35	25	14	15	20	25	12
35 – 39.9 (obesity level II)	5	-	-	1	-	5	-	1
>40 (obesity level III)	-	-	-	-	10	-	5	3
Systolic blood pressure								
<120 (normal)	60	25	15	20	80	75	40	39
130-140 (borderline)	35	55	50	28	15	20	45	16
>140 (abnormal)	5	20	35	12	5	5	15	5
Diastolic blood pressure								
<80 (normal)	35	35	20	18	45	40	20	21
80-90 (borderline)	60	25	45	26	55	50	75	36
>90 (abnormal)	5	40	35	16	-	10	5	3
Family history of coronary disease								
Absent	60	50	40	30	65	55	50	34
Present	40	50	60	30	35	45	50	26

*Source: Author. *Data filtered by the mHDC application.*

showed abnormal blood pressure compared with women. All these findings are factors contributing to a higher risk for coronary heart disease.

DISCUSSION

Nationwide data of population surveys on chronic disease have been provided by agencies such as the Brazilian Institute of Geography and Statistics (IBGE), the National School Health Survey (PeNSE), and the Risk and Protective Factors Surveillance for Chronic Diseases Survey Telephone (Vigitel). The three agencies collect the data via telephone, schools, and home visits. Sampling was performed in various Brazilian states[1,2,11] and did not allow for a more specific view of health problems in different localities of the city. Furthermore, a study in Latin America did not include Brazil[3]. This is probably because Brazil is a vast territory, which causes difficulties in data collection. In this sense, the data from the current study are important because they cover a small population, showing the realities of a localized city region, and may perhaps be extrapolated to real conditions elsewhere in this region in southern Brazil.

Nationally, the rates of obesity are 17.9% and 18.2% in men and women, respectively[1]. Compared to other countries in South America, the prevalence of obesity in Brazil is less than that in cities of Chile, Paraguay, Argentina, and Uruguay (35.7%). Several studies have reported increasing obesity in Latin countries in general[3,4], attributing this increase to population growth, increased urbanization,

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changes in nutritional habits that include consumption of foods rich in sugar and fat, and sedentary lifestyles[2,12].

National data from Vigitel[1] reported a 52.5% prevalence of overweight in the population; 35.3% were physically active, 20% had dyslipidemia, 24.8% had hypertension, 10.8% were smokers, 16.5% consumed alcohol, and 8% had diabetes. Rates of alcohol consumption, smoking, and overweight were higher in men than in women.

The results of the current study were comparable or higher than the reported national averages, with 66.5% of the population overweight and obese, 36.5% physically active, 39% with hypercholesterolemia, 21.5% with hypertension, 29% smokers, 25.5% consuming alcoholic beverages, and 11% with hyperglycemia. The occurrence of hypertension, hyperglycemia, smoking, and alcohol consumption were higher in men than in women. These findings above the national average values may be due to methodological differences or selection bias.

Our study showed WHR and percentage of abdominal fat were increased in women compared with men, especially over 40 years old. A study in our region showed a prevalence of abdominal obesity of 49.7% in men and women and a higher prevalence in women (more than double that in men) that increased with increasing age[13], especially from the age of 50; this was similar to our results in that there was a noticeable increase from 40 to 59 years. Another study reported that there are greater risks of cardiovascular events with increased abdominal girth[4], indicating that individuals in our study are at risk for developing chronic diseases since they have high values in WHR, BMI and body fat percentage, followed by a high rate of obesity (see Frame 1).

In our study, 11% of patients had hyperglycemia, and 39% had hypercholesterolemia. Our findings are higher than the national average, which shows that 8% of the population has diabetes and 20% has hypercholesterolemia[1]. The different values may be due to methodological differences in the national survey, which was conducted via telephone and included patients who already diagnosed; our study, on the other hand, used rapid biochemical tests for blood cholesterol and glucose to indicate possible diabetes and dyslipidemia. Another study done in our region with men and women over 40 years, showed 11.7% of individuals who, through interviews, reported having diabetes[13], reflecting the approximate values of our findings.

Hypertension in our study was 21.5%, with a higher proportion of men (30%) than of women (13%), which differs from national data showing lower values in men (22.5%) than in women (26.8%), with a total of 24.8% in the population[1].

In our study, the use of tobacco and alcohol was higher in men than women (see Frame 2). Other studies show results similar to ours, with the highest consumption of tobacco and alcohol mostly seen in men; decreased consumption was usually associated with older age [14]. In addition, the authors showed that among the risk factors analyzed, the prevalence was higher in relation to physical inactivity and obesity; physical inactivity was the more prevalent behavior (71.3%) followed by low or moderate consumption of fruits and vegetables (63.1%), smoking (19.7%) and alcohol abuse (18.2%) and negative health behaviors were prevalent in lower economic classes and aged between 40 and 49 years[12,15], similar to our findings.

In our study, the coronary risk was higher in men (88%) than in women (68%) of all ages.

In a study of hypertensive men and women 20-79 years old in southeastern Brazil, 22%, 56%, and 22% were at low, medium, and high risk[6]; another hypertension study reported rates of 34.8%, 20.4%, and 44.8% of low, medium, and high risk, respectively[7]. These studies differ from our research because they assessed only hypertension, but the results showed the general population to be at high risk for the development of coronary heart disease.

This reinforces that individuals in our study need to be included in prevention efforts and that the health team needs to provide control measures and work on reducing risk in this population, work that usually falls to the nurses. Study results suggest that nurses should pay attention to the population with exposure to risk factors for DCNs, working to strengthen educational programs that promote healthy lifestyles and changing modifiable risk factors from childhood to old age[16,17,18].

In addition, another study that evaluated hospitalization rates for cardiovascular diseases, considering APS and ESF coverage of residents in the state of Paraná, shows that in the region of our study there was no significant reduction in admissions. This reveals stability or a small decrease in hospitalization rates[19], showing that even with greater coverage by the ESF, there has been no improvement in the indicators. A better performance is thus required of the nursing staff and other health professionals in setting goals based on the Strategic Action Plan for the Fight NCDs[2]. In addition, recent studies have identified that access and quality of service[19] are probable causes and factors affecting results.

To the best of our knowledge, this investigation contributes to showing the reality of a small part of the urban population, from 18 years on, unlike other studies that analyzed factors in sometimes more limited or general populations, such as those with hypertension[6,7], over 40 years[12,13,15] or older[16] and the general population of a state and country[1,3,4,6,7,20].

There are two limitations in this study: (a) the data were not broken down by ethnicity and social status; and (b) the sample was insufficient and relates only to a small region of Londrina. Although we consider the UBS population as healthy in part (prevention) and sick in part (in treatment), Brazil still has a culture in which most individuals seek health care when there is a complaint. Hence, it may be that our data represents a population that is more sick than healthy.

CONCLUSION

In the current study, we observed high prevalence rates of overweight, physical inactivity, hypercholesterolemia and disease history suggestive of the development of coronary heart disease in both men and women. Hypertension, hyperglycemia, smoking, and alcohol consumption were higher in men than in women.

These results show that there is a need for additional training of health professionals, especially those who make up the Family Health Strategy. Their knowledge and application of health education methodologies are essential to generate changes in daily life habits and awareness of the effects of bad habits on health and to increase self-care in young people, adults, and seniors in this population.

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