Salud y perfil sócio-demográfico de la clientela de restaurantes vinculados a programa social brasileño

Sociodemographic and health profile of clients of community restaurants of brazilian social programs

ABSTRACT

This cross-sectional study aimed to learn the profiles of diners of Community Restaurants in the Federal District, with the goal of future implementation of strategies that guarantee Food and Nutrition Security. Socio-economic, lifestyle and anthropometric data were gathered from 267 individuals with an average age of 38 years, most of them being males (79.5%). Most participants (52.1%) had at least secondary education, and the average family income was equal to three times the minimum wage. The prevalence of obesity and overweight was 50.2%. Age, history of tobacco smoking and a stable union were positively associated with excess weight. Body mass index (BMI) displayed a strong correlation with the remaining parameters in the assessment of nutritional status. Diagnoses of non-communicable diseases and conditions were reported by 20.6% of the interviewees, of which arterial hypertension was the most prevalent (10.1%). The deterioration of the nutritional status of the population, even among people who frequent social programs such as Community Restaurants is a concern due to the disease impact that this population may have on public health of the country. These results highlight the importance of Community Restaurants fulfilling their role in assuring Food and Nutrition Security.

Key words: Sociodemographic and health profile, food and nutrition, food and nutrition policies and security, nutritional profile, community restaurant, Brazil.

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INTRODUCTION

The fight for the right to adequate nutrition is an old one, as this right was foreseen in the Universal Declaration of Human Rights adopted by the United Nations (UN) in December 1948. Towards this goal, the International Covenant on Economic, Social and Cultural Rights, of which Brazil has been a signatory since 1992, states that it is the State's obligation to guarantee this basic right (1). In the last 12 years, Brazil has created a series of strategies and legal mechanisms to strengthen the human right to proper food (2).

To reinforce the perspective of creating a system that integrates and articulates the programs, projects, actions, conferences and councils of Food and Nutrition Security (Segurança Alimentar e Nutricional - SAN), the Organic Law for Food and Nutrition Security (Lei Orgânica para a Segurança Alimentar e Nutricional - LOSAN) was enacted in 2006 (3),

and the Constitutional Amendment n. 64/2010 of 2010 in article 6 of the Federal Constitution of 1988 added the right to food as a social right (4).

Following these ideals, the Federal District (Distrito Federal - DF) sanctioned the LOSAN in 2008 (5); in the same year, the Better Life program (Programa Vida Melhor) was implemented in the DF to unify SAN-related actions and the transference of funds to improve government management. Community Restaurants (Restaurantes Comunitários), or CRs for short, which provide the population with meals at subsidized prices, are among this program's actions. The targets of this program are socially excluded individuals or families and individuals in vulnerable situations, whose family per capita income is less than half the minimum wage (6,7). In spite of only being regularized since 2008, the first community restaurant in the DF was opened in 2001. The program currently

consists of 13 restaurants offering an average of 1,003,000 meals per month[a1].

Meals offered in these restaurants must not only guarantee access to food but also promote the health of the population they serve and prevent nutritional deficiency (8). To this end, and so that action planning and implementation contemplate dietary attention that is adequate to the client population's profile, it becomes necessary to gather information on the demographic profile, level of physical activity and nutritional and health status of the individuals. The goal of this study was to determine the sociodemographic and health profile of the clientele of CRs in the DF.

METHODOLOGY

In this exploratory cross-sectional study, the sample was determined based on the official listing of the eight restaurants attached to the program that already existed in September 2009. Of these, two restaurants were excluded due to the non-viability of gathering data, as their decentralized distribution made it impossible to have access to diners. Therefore, the sample consisted of six restaurants located in different administrative regions (ARs) of the DF.

The following parameters were chosen when calculating the number of individuals in the sample: a significance level of 5%, a test power of 80% and a size effect of 0.15 between the null hypothesis, where the means between groups are equal, and the alternative hypothesis, where the means between groups are different. These parameters were set after a pilot study conducted with two CRs to evaluate the methodology and the instruments to be employed. The data from the pilot study were incorporated into the final sample because no significant adjustment was introduced in either the methodology or the instruments that were used.

The minimum sample size obtained was 246 diners, i.e., 41 per restaurant. This sample size was increased 20% to compensate for possible losses or incomplete answers. Note that the CRs are classified as large enterprises and serve over 500 meals/day.

The team was previously trained to ensure standardization in data collection. This study was approved by the Ethics Committee for research involving human beings of the School of Health Sciences of the University of Brasília.

Individuals aged at least 18 years that had lunch at least three times a week at a CR and that agreed to participate were all considered eligible, excluding pregnant women. To avoid a selection bias, the last person standing in line was approached for interview, and should he refuse, the person in front of him was invited next. This selection method would proceed until at least 41 diners were enlisted per restaurant.

Socio-economic data were obtained by means of a questionnaire in which respondents supplied the following information: age group, education level, marital status, income, smoking habit, consumption of alcoholic beverages, comorbidity, eating habits and practice of physical activity.

Anthropometric assessment consisted of recording weight, height, waist circumference (WC) and assessment of fat percentage according to the Guedes protocol (9) and of lower limb bipolar bioimpedance. Participants were examined using the Jeliffe (10) protocol in a reserved room. To measure weight, an electronic digital scale with bioimpedance a 150 kg maximum capacity and a precision of 100 g was used (Tanita®,

model BF683W). Height was obtained with a portable stadiometer (sanny®) graduated at 0.1 cm intervals.

Nutritional status was calculated based on the Body Mass Index (BMI), and the classification criteria from the World Health Organization (11) were used. Waist circumference, in centimeters, was measured with an inelastic tape (sanny®) at the middle point between the iliac crest and the outer face of the last rib to assess visceral obesity. Waist circumference values were compared with reference values for metabolic complications connected to obesity and were thus classified as normal, increased and greatly increased, which correspond to the ranges <80 cm, 80 to 88 cm and >88 cm in women and <94 cm, 94 to 102 cm and >102 cm in men (12).

To determine the body fat percentage via bipolar bioimpedance, hypertensive individuals were excluded due to usage of diuretic medications, as were individuals who did had not fasted for 12 hours. Other than the values obtained from bioimpedance, the triceps, supra-iliac and abdominal skin folds were measured in men and the subscapular, supra-iliac and thigh folds in women using an adipometer (Lange®) with 0.5 mm precision. Body density was calculated according to the three skin folds protocol proposed by Guedes (9).

The data were entered into an Excel sheet specifically designed for this study and were analyzed using SAS (version 9.2). The X^2 test was used to analyze variables for each CR. To check for associations between variables of interest and BMI, adjusted by restaurant location, log-linear models of conditional independence and homogeneous association were also fitted to the data. The likelihood ratio test was applied between the two models to test the hypothesis that the association between the variables of interest and the BMI was not null, and adjusted chance ratios were subsequently computed (13). Pearson's correlation coefficient was used in analyzing the correlation of BMI with the other anthropometric methods used. P values below 0.05 and correlations above 0.7 were considered to be statistically significant.

RESULTS

The final sample consisted of 267 participants distributed across the six CRs. Interviewees consumed an average of four daily meals (SD=1.1), and 77.5% had lunch either five or six times a week at the CR. When asked about their reasons for eating at the restaurant, 61.1% mentioned the price, 44.9% the ease access and 31.5% said the meal quality was a fundamental point. The variety of dishes was the least mentioned factor, being considered important by only 3.4% of the diners.

The proportion of men was 79.5% (n=212), and the average age was 38.3 years (SD=12.8). More than half of the participants (56.9%; n=152) did not have a life partner. Regarding education level, 52.1% (n=139) of the participants claimed having at least a complete secondary education. The average number of persons living in each house was 3.04, and the average family income was equal to three minimum wages; 14.6% (n=39) received less than one minimum wage. The average family had a per capita income of 1.3 minimum wages. The average number of children was 1.6±1.5, and 72.3% (n=193) had at most two children (table 1).

A large portion of the interviewees had come from other states, mostly from the North/Northeast regions of the country (n=129, 48.3%). A high percentage of active individuals was observed, as 80.1% (n=214) of interviewees practiced some

type of physical activity on a regular basis, such as walking, riding bicycles or playing soccer. Among interviewees, 39.3% (n=105) consumed more than one alcoholic beverage per week. Regarding smoking, 15.7% (n=42) claimed to be smokers and 22.1% (n=59) ex-smokers (table 1).

A large prevalence of overweight and obesity was observed among the study's participants, with 50.2% (n=134) of the population over their ideal weight. The analysis of BMI in relation to socio-economic data indicated that there were no significant differences between the following variables:

gender, place of birth, education level, income, consumption of alcoholic beverages and practice of physical activity. The proportion of overweight individuals increased with age. Participants in stable relationships were more often overweight/obese; individuals with two children had a greater chance (OR: 2.4; CI 95%: 1.42-3.95) of having excess weight than participants without children, and ex-smokers had a greater prevalence of excess weight than non-smokers (OR: 2.2; CI 95%: 1.17-4.26) (table 2).

Although there was no significant difference between

TABLE 1

Frequencies and percentages of socio-economic situations and nutrition statuses of Community Restaurant users, Federal District, Brazil, 2008-2009.

Variables		TOTAL	
		N	%
Gender	Masculine	212	79.4
	Feminine	55	20.6
Age	18⊢29	76	28.5
	30⊢39	80	30.0
	40⊢49	53	19.9
	50⊢59	42	15.7
	≥ 60	16	6.0
Marital status*	WP	115	43.1
	NP	152	56.9
Education level	Up to 4th grade	47	17.6
5th ⊢8th grade	81	30.3	
High school	105	39.3	
University	34	12.7	
Income**	<1 m.w.	39	14.6
	1⊢2 m.w.	84	31.5
	2⊢3 m.w.	62	23.2
	3⊢5 m.w.	48	18.0
	≥ 5 m.w.	34	12.7
# of children	No children	87	32.6
	1 child	53	19.9
	2 children	53	19.9
	3 children	37	13.9
	≥ 4 children	37	13.9
Region of origin	Center-West	90	33.7
	South/Southeast	48	18.0
	North/Northeast	129	48.3
Smoking	Smoker	42	15.7
	Ex-smoker	59	22.1
	Non-smoker	166	62.2
Alcohol	Yes	105	39.3
	No	162	60.7
Physical Activity	Yes	214	80.1
	No	53	19.9
BMI	Eutrophic	133	49.8
	Excess weight	134	50.2

*Marital status – WP-Which partner; NP- No partner
**Income- m.w.- Minimum wage (US$ 300.00)

genders for excess weight, the prevalence of obesity was significantly larger among women (p=0.0397), with 20% (n=11) obese women as opposed to 12.3% (n=26) obese men (table 3). Women and men had average waist circumferences of 86.7±11.1 cm and 82.3±10.7 cm, respectively. Regarding the fat percentage according to the Guedes protocol8, women and men registered 18.3±6.1% and 28.22±4.9%, respectively, whereas the mean fat percentage values obtained with bipolar bioimpedance data were 21±7.1% for women and 30.1±8.1% for men. Waist circumference was increased in 31.1% (n=83) of the population, and the risk frequencies for the development of cardiovascular diseases linked to obesity were 58.2% (n=32) among women and 24% (n=51) among men (p<0.001).

Regarding the assessment of body composition according to Guedes's protocol8, 46.8% (n=125) of the population displayed an excess of body fat; according to the assessment using bioimpedance, this percentage was 38.3% (n=92) (table 3).

Positive correlations between BMI and the remaining parameters of the nutritional status evaluation were observed, and a stronger correlation was observed with waist circumference (r=0.896; p<0.0001). As observed in table 4, 97.3% (n=44) of obese individuals had waist circumferences above healthy standards. Regarding the assessment of body fat, the two forms of assessment were highly correlated (r=0.820; p<0.0001).

Regarding the prevalence of non-communicable diseases

TABLE 2

Frequencies and percentages of nutritional statuses and odds ratios according to socio-economic variables adjusted per administrative region of each Community restaurant, Federal District, Brazil, 2008-2009.

Variable		Underweight/Eutrophic N	%	Overweight N	%	OR	CI 95%	p*
Gender	Masculine	103	48.6	109	51.4	1.4	0.748 – 2.586	0.296
	Feminine	30	54.6	25	45.5	1.0		
Age	18⊦29	52	68.4	24	31.6	1.0		< 0.001
	30⊦39	42	52.5	38	47.5	2.1	1.07 – 4.20	
	40⊦49	21	39.6	32	60.4	3.5	1.61 – 7.45	
	50⊦59	14	33.3	28	66.7	4.6	2.00 – 10.73	
	≥60	4	25.0	12	75.0	7.3	2.06 – 25.79	
Region of origin	Center-West	52	57.8	38	42.2	1.0		0.208
	North/Northeast		61	47.7	67	52.3	1.6	0.90 – 2.76
	South/Southeast	20	41.7	28	58.3	1.7	0.81 – 3.57	
Level of education	Up to 4th grade	21	44.7	26	55.3	2.1	0.80 – 5.37	0.235
	5th ⊦-8th grade	35	43.2	46	56.8	2.1	0.88 – 4.86	
	High-school	57	54.3	48	45.7	1.3	0.58 – 3.09	
	University	20	58.8	14	41.2	1.0		
Marital status*	WP	44	38.3	71	61.7	1.0		< 0.001
	NP	89	58.6	63	41.5	2.4	1.42 – 3.95	
# of children	No children	60	69.0	27	31.0	1.0		< 0.001
	1 child	27	50.9	26	49.1	2.0	0.98 – 4.25	
	2 children	14	26.4	39	73.6	6.6	2.99 – 14.52	
	3 children	17	46.0	20	54.1	2.2	0.98 – 5.04	
	≥ 4 children	15	40.5	22	59.5	3.6	1.57 – 8.38	
Income**	< 1 M.W	20	51.3	19	48.7	1.0		0.780
	1 to 1.9 M.W	46	54.8	38	45.2	1.0	0.43 – 2.13	
	2 to 2.9 M.W	28	45.2	34	54.8	1.4	0.62 – 3.34	
	3 to 5 M.W	23	47.9	25	52.1	1.3	0.53 – 3.16	
	≥ 5 M.W	16	47.1	18	52.9	1.4	0.51 – 3.66	
Smoking	Non-smoker	89	53.6	77	46.4	1.0		0.016
	Smoker	25	59.5	17	40.5	0.7	0.36 – 1.51	
	Ex-smoker	19	32.2	40	67.8	2.2	1.17 – 4.26	
Alcohol	No	83	51.2	79	48.8	1.0		1.000
	Yes	50	47.6	55	52.4	1.0	0.59 – 1.70	
Physical Activity	Yes	109	51.2	104	48.8	1.0		
	No	24	45.3	29	54.7	1.3	0.69 – 2.40	

*Marital status – WP-Which partner; NP- No partner
**Income- M.W.- Minimum wage (US$ 300.00)

and conditions as reported by the participants, 20.6% (n=55) of the interviewees mentioned some disease. Of these diseases, hypertension stood out, being mentioned by 10.1% (n=27) of the diners.

DISCUSSION

The public is captive, with almost 80% of the clientele having lunch either five or six days a week at the CRs. The determining factor for over 2/3 of this study's sample having their main meal in the restaurant was its affordable price. A study by the Ministry for Social Development and the Fight Against Hunger (Ministério do Desenvolvimento Social e Combate à Fome) in partnership with the Brazilian Institute of Public Opinion and Statistics (Instituto Brasileiro de Opinião Pública e Estatística - IBOPE) (14) corroborates these results: to assess the profiles of diners in popular restaurants of the DF and four other capitals, this study enlisted a total of 600 participants distributed over 19 popular restaurants, of which 86% approved the initiative and considered the restaurants to be good or excellent, and 97% believed the work performed in these places improved the living conditions of their diners. Furthermore, 22% of the participants would have no food if they did not go to the popular restaurants. These results corroborate the findings of the present study and highlight the importance of the CR apparatus for the vulnerable population, showing that the price is a key factor for food security, the need to broaden its operation and even the need to include other meals.

Diners CRs in the DF were mostly men, a trait also noted in studies by other authors (7, 14-17). However, an increasing trend has been observed in the participation of women in this and other types of programs as a result of a shift in the Brazilian government's action strategy.

To reinforce this report, data on the profiles of seven popular restaurants in Rio de Janeiro from the 1940s show that 92% of diners were men (18). This change conforms to the change in the profile of workers and is connected to the inclusion of women in the job market, which seems to affect the population's consumption profile (19, 20). It should be noted that the demographic and anthropometric profiles connected to the geographic places of birth of these diners are the most important factors in the nutritional planning of this apparatus.

The population in this study had a high education level: more than half of the interviewees had a secondary education or more. According to the Brazilian National Household Sample Survey (Pesquisa Nacional por Amostra de Domicílios - PNAD) of 2013 (20), the average number of years spent in study by persons aged 10 years or more in the Center-West Region of Brazil is 7.5, which is above the country's average of 7.2 years. The illiteracy rate in the DF is the second lowest in the country (3.4%), behind that of Amapá, which is only (2.8%), whereas the figure for Brazil is 9.7%. Aside from the high education level, the federal capital has also the highest average monthly income. The same PNAD from 2009 (20) reveals that the real average monthly income of workers in the DF is R$ 2,239.00, more than twice the country's average of R$ 1,106.00 (20). Despite the education level found being higher than the adult Brazilian population, it is still considered insufficient (7, 21). This data can be a vulnerability indicator social public attended Education level is a proxy indicator of income and has been analyzed to determine both consumption

TABLE 3

Frequencies and nutrition statuses according to BMI, waist circumference, fat percentage according to Guedes and bipolar bioimpedance adjusted by gender for Community Restaurant users, Federal District, 2008-2009.

Variables		Total		Gender				p*
				Men		Women		
		N	%	N	%	N	%	
BMI classification (n=267)								0.0397
	Underweight	1	0.4	0	0.0	1	1.8	
	Eutrophic	132	49.4	103	48.6	29	52.7	
	Overweight	97	36.3	83	39.1	14	25.5	
	Obesity	37	13.9	26	12.3	11	20.00	
WC classification	(n=267)							0.001
	Adequate	184	68.9	161	75.9	23	41.8	
	Moderate Risk	46	17.2	31	14.6	15	27.3	
	High Risk	37	13.9	20	9.4	17	30.9	
% Fat (Guedes, 1994) (n=267)								0.001
	Low	37	13.9	36	17.0	1	1.8	
	Adequate	105	39.3	76	35.8	29	52.7	
	High	125	46.8	100	47.2	25	45.5	
%Fat (Bioimpedance) (n=240)								0.001
	Low	7	2.9	0	0.0	7	14.6	
	Adequate	141	58.8	113	58.9	28	58.3	
	High	92	38.3	79	41.1	13	27.1	

* X2, Test
BMI: Body mass index; WC: Waist circumference

patterns and epidemiological and nutritional profiles (22) and has further importance in assessing the coverage and adequacy of government programs.

In this sense, the CR's intended public includes individuals with family per capita incomes below R$ 394,00 (US$ 150.00) (5). However, only 27% of the interviewed population fits this criterion. However, analysis of data from the Household Socio-economic Survey undertaken in the DF in 2009 (23) revealed that the proportion of families within a range of per capita income that was equal to or below ½ minimum wage was larger in the administrative regions where the present study was conducted, with approximately 50% of the families fitting the criterion.

These results seem to call for a discussion about the profiles of the users of government programs and/or a concept for food and nutrition security that guarantees the population's access to healthy and safe food, be it within the scope of the Community Restaurant Program, the Worker's Food Program (Programa de Alimentação do Trabalhador - PAT) or some other government program – as long as the access is guaranteed, in accordance with the Constitution4, which grants this right to all citizens.

A large number of interviewees were born in other regions of the country, most notably the North and Northeast. The PNAD 2009 also corroborates these data: it shows that the DF is the federative unity with the largest percentage of inhabitants born in other States (51.3%), much higher than the national average of 15.8% (20). As previously noted, knowing the clientele's place of birth is fundamental in aiding in understanding the food culture of the client population and thus determining the choice of healthy regional dishes that should make up the menu.

Similarly to other studies that have also assessed the clientele's nutritional status at food and nutrition units that serve workers (7, 24, 25), the prevalence of excess weight in this study covered half of the population (50.2%). Godoy et al.(7) Sávio et al.(25), in an exploratory cross-sectional study with 1044 workers connected to the PAT in the DF, ascertained that 43% of the population was overweight. Similarly, Mariath et al. (24), in their study with 1,252 diners of a food and nutrition unit, most of which were men, also found 45% of the sample to be overweight and 9.6% to be obese. These results show how important actions are that, based on local diagnoses, provide these populations with well-balanced meals from both cultural and nutritional points of view. No Brazilian studies assessing the nutritional status of popular restaurants' diners were found.

The high prevalence rates of overweight and obesity observed in this and other previously cited studies (24, 25) reflect the current situation noted in studies conducted in Brazil. According to data from the Brazilian Household Budget Survey (POF) 2008/2009 (26), overweight afflicts 49% of Brazilians, and 14.8% are already considered obese. Assessing the secular evolution trend of overweight, one notices that the prevalence rates of overweight and obese have continuously increased over the time period covered by the four national surveys and that these numbers have increased most alarmingly among the lower-income population (22, 26, 27). This trend may lead to the discussion of the true role played by government programs for food and nutritional security. Obesity in poverty is a perverse facet of social inequality that should be fought on all possible fronts, and CRs should, as part of these programs, adopt strategies for nutritional education as an integral part of their routine activity.

In this study, excess weight was positively associated to aging and to whether the individual was a former smoker, was married or was living in stable union. These associations have also been noted in other studies conducted on the Brazilian population (22, 24, 26, 28, 29).

In POF 2008-2009 (26), the increase of overweight with age varied from 27.3% in the 20- to 24-year age group to 60.7% in the 55- to 64-year age group. Mariath et al. (24) observed that individuals over 40 years of age have a 5.5-fold greater chance of becoming overweight in comparison to indi-

TABLE 4

Relationship between Body Mass Index and Waist Circumference, body fat percentage according to Guedes and bipolar bioimpedance of Community Restaurants users, Federal District. Brazil, 2008-2009.

						BMI						
	Total		Low weight		Eutrophic		Overweight		Obesity		p*
	N	%	N	%	N	%	N	%	N	%	
Waist circumference											0,0001
Normal	184	68,9	1	100	124	93,9	58	59,8	1	2,7	
Moderate risk	46	17,2	0	0	8	6,1	31	32,0	7	18,9	
High risk	37	13,9	0	0	0	0,0	8	8,2	37	78,4	
% Fat (Guedes, 1994)											0,0001
Low	37	13,9	1	100	34	25,8	2	2,1	0	0,0	
Appropriate	105	39,3	0	0	70	53,0	34	35,1	1	2,7	
High	125	46,8	0	0	28	21,2	61	62,8	36	97,3	
% Fat (Bioimpedance)											0,0001
Low	7	2,9	1	100	6	4,8	0	0,0	0	0,0	
Appropriate	141	58,8	0	0	111	88,8	30	35,3	0	0,0	
High	92	38,3	0	0	8	6,4	55	64,7	29	100	

* X^2 Test

viduals under 20 years of age. A study conducted by Gigante et al. (29) with 1,035 individuals aged between the ages of 20 and 69 years from Pelotas (RS) noted a greater prevalence of obesity among formerly smoking women in comparison to both smoking and non-smoking women, whereas no difference was noted among men. Coelho, Assis and Moura (28), in a cross-sectional study with 769 women and 572 men from the Municipal System for Monitoring Risk Factors for non-communicable chronic diseases conducted in 2005 in Florianópolis (SC, Brazil) found that married men were 7.2 times more likely to be overweight than single men.

Moura et al. (22) analyzed the prevalence from VIGITEL's (year 2007) indicators, in a survey conducted on the adult population of 26 Brazilian state capitals and the DF, totaling 54,251 interviewees. The results indicated that men's level of education was directly associated, among other variables, with excess weight; regular and recommended consumptions of fruits, legumes and leaves; sufficient physical activity in their spare time and physical inactivity. Educational level was inversely associated with smoking habits (smoker and ex-smoker), regular consumption of sugary soda and the habit of eating meat with visible fat. For women, in turn, education level was directly associated with the regular and recommended consumption of fruits, legumes and leaves; sufficient physical activity in their spare time; and physical inactivity. Educational level was is inversely associated with smoking habits (smoker and ex-smoker), overweight and obesity.

Although the results of this study point to similar demographic and nutritional data when compared to the Brazilian population, excess weight of the regular customers cannot be assigned the dish held in the restaurant. Perhaps these people have poor eating habits at other meals, associated with reduced physical activity.

All of these findings reinforce the need to use CR spaces for effective nutritional education actions aimed at changing food habits, even going as far as using methodologies for actively seeking the overweight and obese population. Although BMI does not take into account the individual's body composition, i.e., not discriminating the excess and distribution of body fat, it is the most widely used method to assess nutritional status in epidemiological surveys due to its low cost, ease of assessment and relationship to morbidity and mortality (30).

In this study, strong correlations were observed between BMI and other body composition parameters. The use of waist circumference as an anthropometric index has been widely adopted to measure the degree of obesity in clinical practice, and many studies have highlighted its applicability as an indicator for metabolic diseases (31, 32). Rezende et al. (30), in an analytical cross-sectional epidemiological study conducted at the Federal University of Viçosa (MG, Brazil) with 98 men between 20 and 58 years of age to assess how efficient BMI was in identifying individuals with excess body fat and abdominal obesity, have also observed that waist circumference is the anthropometric measurement that most correlates with BMI (r=0.884; p<0.01) and concluded that combining BMI and waist circumference data is fundamental when assessing the nutritional status of adult men.

The prevalence of obesity and abdominal adiposity according to higher waist circumference values was observed among women in the DF. Nascente et al.(33), in their population-based cross-sectional study with 1,168 individuals in an inland city in Brazil, also reported the higher prevalence of increased waist circumference among women (65.5%) than among men (28.6%).

The high correlation between these two forms of assessing body fat percentage reported in both this and other studies is evidence that the leg-to-leg electrical bioimpedance technique is comparable to the skin fold technique for assessing adult body composition in population surveys. The advantage of using bioimpedance is that this method is faster and less invasive. The usage of bipolar bioimpedance has been validated in international studies that compare this technique to methods considered gold standards, such as dual-energy x-ray absorptiometry (DXA) (34,35).

In another study, Fett, Fett and Marchini36 also compared anthropometrics to bioimpedance. Furthermore, they investigated whether anthropometric body indexes correlated to biochemical blood markers and energy expenditure at rest in 48 women between normality and obesity aged between 18 and 64 years. Their conclusion was that anthropometric measurements are a simple and inexpensive method that correlates well with biochemical blood markers, energy expenditure at rest and bioimpedance. However, cross-validation studies on the Brazilian population are still needed.

The CR initiative is an important tool for implementing a Food and Nutrition Security policy in the DF to ensure that part of the population will have access to adequate food at low cost.

CONCLUSIONS

This study achieved its goal of identifying the sociodemographic and health profile of RC users in the DF. Data analysis has shown the need to oversee and monitor the program, as it was observed that the clientele of these restaurants belongs to the population at risk of non-communicable diseases and conditions, although that population does not fit the income profile that is the program's priority.

All taken together, the high prevalence of overweight individuals shows how important it is that CRs take on their true role of ensuring Food and Nutritional Security, providing not only dignified access to food but also offering nutritious meals that are adequate to the clientele's profile, that respect the local culture, and whose production is sustainable and integrated with other public policies.

Therefore, inter-sector programs and projects with well-defined targets and outcomes are needed for the population's adherence to a healthier lifestyle, in order to control the increase of overweight.

RESUMEN

Este estudio transversal tuvo por objetivo conocer el perfil de salud y sócio–demográficas de los clientes de la Comunidad de Restaurantes en el Distrito Federal, con el objetivo de una futura implementación de estrategias que garanticen la Seguridad Alimentaria y Nutricional. Datos antropométricos, socioeconómicos y estilo de vida fueron recogidos a partir de 267 individuos con edad media de 38 años, la mayoría de ellos varones (79,5%). Gran parte de los participantes (52,1%) había estudiado por lo menos hasta la enseñanza secundaria y sus ingresos familiares medios eran tres salarios mínimos. La prevalencia de obesidad y sobrepeso fué el 50,2%, la edad, la historia de tabaquismo y la unión estable se asociaron de modo positivo con el exceso de peso. Índice de masa corporal (IMC) mostró una fuerte correlación con los demás parámetros en la evaluación del estado nutricional. Los diagnósticos de enfermedades no transmisibles fueron relatados por 20,6% de los entrevistados y la hipertensión arterial fue la más prevalente (10,1%). El

deterioro del estado nutricional, incluso entre personas que participan de los programas sociales, como los restaurantes comunitarios, es motivo de preocupación debido al impacto que las enfermedades de esa población pueden tener en la salud pública. Estos resultados destacan la importancia que los restaurantes comunitarios cumplan su papel para garantizar la Seguridad Alimentaria Nutricional.

Palabras clave: Salud y perfil sócio-demográfico, programas de alimentación y nutrición, políticas de alimentación y nutrición, seguridad alimentaria y nutricional, perfil nutricional.

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