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SALT AND FAT CONTENTS IN PREPARATIONS AT COMMERCIAL RESTAURANTS IN GOIÂNIA-GO

Teores de sal e gordura nas preparações de restaurantes comerciais da cidade de Goiânia-GO

Niveles de sal y grasa en las preparaciones de restaurantes comerciales de la ciudad de Goiânia-GO

Original Article

ABSTRACT

Objective: To evaluate the sodium and fat contents added to preparations of commercial restaurants in Goiânia-GO, Brazil. **Methods:** This was an observational, cross-sectional and descriptive study. It included 'pay-per-weight' restaurants with a medium standard menu and having as daily preparations white rice, beans with broth and grilled chicken. Among the establishments with these characteristics, three agreed to participate. The production process of the above-mentioned preparations was accompanied for three non-consecutive days in each establishment. For quantification of sodium and fat added into the preparations, oil and salt were weighed, as well as the finished preparation; the weight of the standard portion and the yield of the preparation expressed in number of portions prepared were settled. From these data, the per capita amount of salt and oil added to cook one portion of each kind of preparation was calculated by dividing the total quantity of salt and oil by the number of prepared portions. **Results:** The levels of salt (3.0, 2.7, and 4.1 g – restaurant A, B and C, respectively) and oil (17.0, 11.3, and 11.2 g – restaurant A, B and C, respectively) added in the three preparations are superior to the recommendations. **Conclusion:** The sodium and fat contents in the analyzed restaurants are higher than it is recommended by the Food Guide for the Brazilian Population. It is essential that commercial restaurants become partners of public policies on health promotion, adopting good nutritional practices, by reducing the sodium and fat contents, to offer healthy meals daily.

Descriptors: Sodium Chloride; Dietary; Sodium; Vegetable Fats; Restaurants.

RESUMO

Objetivo: Avaliar os teores de sódio e gordura adicionados em preparações de restaurantes comerciais de Goiânia-GO, Brasil. **Métodos:** Trata-se de um estudo observacional, transversal e descritivo. Foram incluídos restaurantes a quilo, com cardápio padrão médio e que tivessem como preparações fixas arroz branco, feijão de caldo e frango grelhado. Entre os estabelecimentos com essas características, três aceitaram participar. Acompanhou-se o processo produtivo das preparações acima citadas durante três dias não consecutivos em cada estabelecimento. Para a quantificação do teor de sódio e gordura adicionados nas preparações, pesou-se o óleo, o sal e a preparação pronta; definiu-se o peso da porção de referência e o rendimento da preparação pronta em número de porções. A partir desses dados, calculou-se a quantidade per capita de sal e óleo adicionados para preparar uma porção de cada preparação avaliada, dividindo-se a quantidade total de sal e óleo pelo número de porções preparadas. **Resultados:** Os teores de sal (3,0; 2,7; e 4,1g – restaurantes A, B e C, respectivamente) e óleo (17,0; 11,3; e 11,2g – restaurantes A, B e C, respectivamente) adicionados para as três preparações são superiores às recomendações. **Conclusão:** Os teores de sódio e gordura dos restaurantes avaliados estão acima do recomendado pelo “Guia Alimentar para a População Brasileira”. É fundamental que os restaurantes comerciais sejam parceiros das políticas públicas de promoção da saúde, adotando boas práticas nutricionais, através da redução dos teores de sódio e gordura, para ofertar refeições saudáveis diariamente.

Descritores: Cloreto de Sódio na Dieta; Sódio; Gorduras Vegetais; Restaurantes.

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RESUMEN

Objetivos: Evaluar los niveles de sodio y grasa añadidos en las preparaciones de restaurantes comerciales de Goiânia-GO, Brasil. **Métodos:** Se trata de un estudio observacional, transversal y descriptivo. Fueron incluidos los restaurantes con comidas por peso, con menús estándar que tuviesen como alimentos fijos el arroz blanco, alubias de caldo y pollo a la parrilla. Entre los establecimientos con estas características, tres estuvieron de acuerdo en participar. Se acompañó el proceso productivo de las preparaciones mencionadas anteriormente durante tres días no consecutivos en cada establecimiento. Para cuantificar la cantidad de sodio y grasa añadida a las preparaciones se pesó el aceite, la sal y la preparación terminada; se definió el peso de la ración de referencia y el rendimiento de la preparación terminada en número de raciones. A partir de estos datos, se calculó la cantidad per capita de sal y aceite añadidos para preparar una ración de cada preparación evaluada, dividiendo la cantidad total de sal y aceite por el número de raciones preparadas. **Resultados:** Los niveles de sal (3,0; 2,7; y 4,1g – restaurantes A, B y C, respectivamente) y aceite (17,0; 11,3; y 11,2g – restaurantes A, B y C, respectivamente) añadidos a las tres preparaciones son superiores a las recomendaciones. **Conclusión:** Los niveles de sodio y grasas en los restaurantes evaluados están por encima de los recomendados por la “Guía Alimentaria para la Población Brasileña”. Es esencial que los restaurantes comerciales sean partidarios de las políticas públicas para promover la salud, adoptando buenas prácticas de nutrición, mediante la reducción de los niveles de sodio y grasas para ofrecer comidas saludables todos los días.

Descriptores: Cloruro de Sodio Dietético; Sodio; Grasas Vegetables; Restaurantes.

INTRODUCTION

With urbanization and the growth of cities, extensive working hours, difficulty in moving between the workplace and home, and the growth of female labor, with detachment of the woman from home activities (including those associated with the preparation of meals), we have a scenario that renders it hard for people to go home to prepare and have their meals. This reality means that, increasingly, people go out for lunch, seeking convenience and relatively low cost^(1,2). The latest *Pesquisa de Orçamento Familiar - POF* (Household Budget Survey) shows the increase in the habit of having meals away from home. About 31% of the household budget is spent on those meals⁽³⁾.

Therefore, to guarantee the healthy food, it is necessary an articulation between the government, the private sector and the civil society to achieve collective social and environmental changes, creating environments with healthy food supply to the population, in order to provide and promote healthy choices and health promotion⁽⁴⁾.

The commercial restaurants are establishments producing meals that are part of the food outside the home sector and work in order to provide a diet that is pleasing to the consumer regarding the sensory aspects (taste, appearance, texture, aroma), with production costs control. Therefore, they try to satisfy the diner offering varied types of preparations in which, during the process of cooking, ingredients are used to make the food more palatable, like fats and salt, not bothering to offer something that is healthy and balanced in nutrients^(1,5).

The habit of eating out can contribute to increased energy intake, because these meals are usually larger, with higher caloric density and higher content of total fat, saturated fat, cholesterol and sodium. Repeating this dietary pattern throughout an individual's life can greatly contribute to the increased prevalence of obesity and other non-transmissible chronic diseases (NTCD). In the United States, individuals who usually eat at restaurants have higher body mass index (BMI) than those who have meals at home^(6,7).

The POF 2008-2009 reveals a rapidly increasing trend of overweight, obesity and unhealthy eating practices in the Brazilian population in the last 5 years. According to the latest POF, excess weight and obesity affect, respectively, 49% and 14.8% of the population in all regions and income classes. There is excessive consumption of foods rich in oils, fats, sugar and salt, and low consumption of fruits, vegetables and complex carbohydrates⁽³⁾.

This data reinforces the importance of healthy eating for the promotion, protection and recovery of health, and the urgency of implementing actions to promote healthy eating, envisaged in the *Política Nacional para Alimentação e Nutrição - PNAN* (National Policy for Food and Nutrition) and underpinned by the Global Strategy on Diet, Physical Activity and Health, and by the *Lei Orgânica da Segurança Alimentar e Nutricional - LOSAN* (Organic Law on Food and Nutritional Security)⁽⁸⁾.

For the practice of healthy eating, some care is necessary during the processing of food, to ensure food is actually healthy and safe, from a nutritional viewpoint. That's because the way food is produced, processed and stored in domestic or industrial levels can lead to loss of nutrients, toxic compounds formation and excessive increase in the levels of oil, fat, sugar and salt⁽⁸⁾.

Considering the current nutritional epidemiology and that the benefits of a balanced diet are clearly recognized for health promoting, if the diner finds healthy options at commercial restaurants, there shall be an important reflection on his health. Therefore, the World Health Organization (WHO) declares the necessity of building collective environments healthier. In this aspect, the commercial restaurants are preferred partners for the promotion of healthy eating⁽⁹⁻¹¹⁾.

Recently, the *Agência Nacional de Vigilância Sanitária* - ANVISA (National Health Surveillance Agency) published a document about *Boas Práticas Nutricionais* - BPN (good nutrition practices) due to the need to improve the nutritional profile of the Brazilian population. The BPN aim to guide and encourage foodservices to prepare foods with lower levels of fat, salt and sugar, contributing to the promotion of healthy eating⁽¹²⁾.

Thus, this study aims to evaluate the sodium and fat contents added in preparations offered daily by commercial restaurants in Goiânia-GO.

METHODS

This is an observational, cross-sectional and descriptive work. The object of the study were the commercial 'pay-per-weight' restaurants in the city of Goiânia-GO. The sample was defined from a list of 32 establishments registered in the *Sindicato de Hotéis, Restaurantes, Bares e Similares do Estado de Goiás* (Union of Hotels, Restaurants, Bars and Similar in the State of Goiás). From the initial list, seven were not located, leaving 25 to be consulted and stratified by the menu pattern and the sale price of a kilogram of meal.

The price of a kilogram of meal ranged from R\$ 14.00 to R\$ 34.90, and the restaurants were divided into three groups: eight establishments with popular standard menu (not including barbecue or grilled meat) and price between R\$ 14.00 and \$ 15.50; seven establishments with medium standard menu (with barbecue and/or grilled meat) and price between R\$16.00 and R\$21.00, and ten establishments with formal standard menu (with barbecue and/or grilled meat, and fish or seafood and refined meats) and price between R\$ 28.90 and R\$ 34.90.

This survey included 'pay-per-weight' restaurants that serve lunch with medium standard menu, price from R\$ 16.00 to R\$ 21.00, and have as fixed preparations on the menu: rice, beans with broth and grilled chicken. Among establishments with these characteristics, three agreed to participate. Thus, three commercial 'pay-per-weight' in the city of Goiânia-GO were studied.

Data collection occurred in July 2011, through the monitoring of all stages of the meals production process. At each restaurant, there were three moments of data collection, on nonconsecutive days, to assess daily variability of the establishment itself. The preparations studied were those that are fixed (offered every day) on the menus of most commercial restaurants: cooked white rice, beans and grilled chicken⁽¹³⁾.

To quantify the levels of sodium and fat added in the preparations, the oil and salt added during cooking were weighed up, as well as the ready preparation, in a scale (Toledo Scale, with graduation of 10g and a maximum

capacity of 15 kg); the weight of the reference portion and the yield of the prepared meal, in number of portions, were settled (the yield being the weight of the ready preparation divided by the weight of the portion). From these data, the per capita amount of salt and oil used by restaurants to prepare one portion of each studied preparation was calculated by dividing the total amount of salt and oil added by the number of servings prepared⁽¹³⁾.

The weight of the reference portion was indicated by the *Guia Alimentar para a População Brasileira* (Food Guide for the Brazilian Population): 125g for cooked white rice, 86g for beans and 100g for grilled chicken. Thus, the per capita amount of salt and oil present in the portions was evaluated⁽⁸⁾. These values were defined to be taken as a reference for a portion considered ideal for daily consumption.

The ideal per capita amount of salt/sodium (200mg sodium or 0.5g of salt per preparation) and oil (1g per preparation) to prepare meals was defined from the recommendations of the Food Guide for the Brazilian Population.

Considering that the recommended daily amount (RDA) of salt is 5g/day, which represents 2000mg of sodium per day, and that the additional salt is usually put into preparations which comprise the large meals (lunch and dinner), the recommendation would be 1000mg of sodium or 2.5 g of salt to each major meal. Since a large meal menu normally consists of five preparations (rice, beans, protein, trim and salad), it was defined that, for each preparation, the ideal amount of salt per capita would be ideal at most 200mg sodium or 0.5 g of salt⁽⁸⁾.

Regarding the oil consumption, according to the Food Guide for the Brazilian population, the recommendation is 8g a day⁽⁸⁾. Given a menu consisting of salad, protein, trim, rice, beans and dessert, where oil is used in the preparation of rice, beans, protein dish and trim, the amount of oil for lunch would be 4g. For dinner, more 4g are used, totaling the recommended amount of 8g. Thus, it was decided that the ideal per capita amount of vegetable oil for each preparation would be of 1g^(8,14).

An assessment was also performed on the industrialized products in storage in the restaurants, such as ready-made spices, with observation of the labels of such products to quantify the levels of sodium and fat, including trans-fats.

The salt and oil added by customers were evaluated by weighing before and after. The amount of salt and oil added was divided by the number of clients in the restaurant for each day, to obtain the average per capita additional salt and oil.

The mean, standard deviation and percentage were calculated for each variable. For statistical analysis, the software Instat version 2.01 was employed. For comparison

of values changes within one establishment, simple t test was used. To compare data difference between facilities, the analysis of variance was applied (ANOVA). For all statistical tests, the significance level was 5%.

Because this study assessed only food features, not involving data collection from human beings, there was no need for submission to an ethics committee on human research. However, as an ethic measure, the owners of establishments signed an informed consent and received a letter signed by researchers guaranteeing the confidentiality on the identity of the restaurants.

RESULTS

The per capita amount of salt, sodium and oil used in preparations (white rice, beans and grilled chicken),

referring to the weights of servings set by the Food Guide for the Brazilian population, lies in Tables I, II and III, respectively.

Tables I and II set out the per capita values of salt/sodium added into each portion of preparations. It is observed that the average per capita amount of salt/sodium is above the recommendation (0.5g salt per preparation or 200mg sodium) in all preparations tested. The sum of the per capita amounts of only three preparations which can be part of a meal (lunch) reaches respectively 61.4% (3.1g salt) of the RDA (5g additional salt/day) for restaurant A, 54.4% (2.7g salt) for restaurant B and 82.6% (4.1 g salt) for restaurant C.

From day to day, in the 3 restaurants, a variation in the amount of salt/sodium used in the preparation is observed, with a significant difference ($p < 0.05$) (Table I).

Table I - Per capita Salt (g) for the preparation of cooked white rice, beans with broth and grilled chicken fillet in commercial restaurants. Goiânia-GO, 2011.

Preparations ¹	Restaurant A		Restaurant B		Restaurant C	
	Mean \pm SD (g)	p*	Mean \pm SD (g)	p*	Mean \pm SD (g)	p*
Cooked white rice (125g)	1.7 \pm 0.2 ^a	0,005	1,6 \pm 0,4 ^a	0,02	1,6 \pm 0,3 ^a	0,01
Beans with broth (86g)	0,8 \pm 0,05 ^a	0,001	0,5 \pm 0,4 ^a	0,01	0,8 \pm 0,0 ^a	0,001
Grilled chicken fillet (100g)	0,6 \pm 0,1 ^a	0,01	0,6 \pm 0,3 ^{ab}	0,05	1,7 \pm 0,3 ^c	0,02
Total per capita amount for the three preparations	3,1		2,7		4,1	

¹ Weight of portions of preparations follows the recommendation of the Food Guide for the Brazilian Population.

SD Standard Deviation

* $p \leq 0.05$ for comparison of changes in value within the same establishment, simple t test.

^{abc} For comparison between facilities, the mean values followed by the same letter in the same row, do not differ by ANOVA ($p < 0.05$).

Table II - Per capita Sodium (mg) for the preparation of cooked white rice, beans with broth and grilled chicken fillet in commercial restaurants. Goiânia-GO, 2011.

Preparações ¹	Restaurant A	Restaurant B	Restaurant C
	Na (mg)	Na (mg)	Na (mg)
Cooked white rice (125g)	660,9	625,5	645,1
Beans with broth (86g)	322,6	208,5	326,5
Grilled chicken fillet (100g)	224,2	236,0	653,0
Total per capita amount for the three preparations	1207,7	1070,0	1624,6

¹ Weight of portions of preparations follows the recommendation of the Food Guide for the Brazilian Population. Na= Sodium

Table III - Per capita Oil (g) for the preparation of cooked white rice, beans with broth and grilled chicken fillet in commercial restaurants. Goiânia-GO, 2011.

Preparations ¹	Restaurant A		Restaurant B		Restaurant C	
	Média ± DP (g)	p*	Média ± DP (g)	p*	Média ± DP (g)	p*
Cooked white rice (125g)	8,3±1,4 ^a	0,01	6,4±0,5 ^a	0,002	7,0±1,0 ^a	0,003
Beans with broth (86g)	5,9±1,2 ^a	0,01	2,3±0,4 ^b	0,009	3,7±0,5 ^{bc}	0,004
Grilled chicken fillet (100g)	3,0±1,8 ^a	0,11	2,6±1,5 ^a	0,09	0,5±0,4 ^a	0,01
Total per capita amount for the three preparations	17,1		11,3		11,2	

¹ Weight of portions of preparations follows the recommendation of the Food Guide for the Brazilian Population.

SD Standard Deviation

*p ≤ 0.05 for comparison of changes in value within the same establishment, simple t test.

^{abc} For comparison between facilities, the mean values followed by the same letter in the same row, do not differ by ANOVA (p<0.05).

Table IV - Per capita salt (g) and oil (g) added into the dish by customers from commercial restaurants. Goiânia-GO, 2011.

Added condiment	Restaurant A	Restaurant B	Restaurant C
Salt (g)	0,4	0,3	0,5
Olive Oil (g)	0,7	1,9	0,4

When comparing the differences between the restaurants, there is significant difference in the amount of salt/sodium added to prepare grilled chicken. The grilled chicken prepared in restaurant C has a salt content higher than in other restaurants (Table I).

Table III presents data on per capita oil added in the preparations. The values are above recommendation (1g oil for preparation) in all three preparations, in all three restaurants. The sum of the per capita amounts in the three preparations reaches 214.2% (17.1g oil) of the RDA (8g oil addition/day) in restaurant A, 140.9% (11.3g oil) in restaurant B and 140.1% (11.2g oil) in restaurant C.

As for the olive oil added, the per capita amount used varies significantly (p<0.05) from day to day, in all three restaurants, for preparations of rice and beans. To prepare chicken, that amount is different every day only in restaurant C (Table III).

When comparing the differences between the restaurants, only regarding the beans preparation there are significant differences. The beans prepared in restaurant A have a higher oil content than the ones in the other restaurants (Table III).

In the storage room of all the restaurants, products like soy sauce, English type sauce, beef broth, chicken broth and cream of onion were always present. Along with salt and vegetable oil, these products are used as condiments in various preparations. From the information in their labels, they were classified as high in sodium.

Table IV shows the data concerning the per capita amounts of salt and oil (olive oil) added to the dish by the customer.

DISCUSSION

The present study pointed out the addition of oil and salt in larger quantities than it is recommended in trivial menu preparations at per weight commercial restaurants, as well as variation in the amount of these ingredients from day to day. Other researches^(5,6,14) also found elevated levels of sodium and oil in preparations. The amounts found by these authors exceed the recommendation, as well as those found in this study, reflecting an oversupply of these nutrients in meals served outside home.

Thus, based on the recommendations for healthy eating, it is possible to observe high contents of salt/sodium in all preparations analyzed, being important to note that in any of the three restaurants, by having only three preparations in one meal of the day, it is possible to consume more than 50% of the recommended daily intake of salt/sodium⁽⁸⁾.

Furthermore, different amounts of salt from day to day in the preparations in the same restaurant and the difference between the means of salt/sodium used in each restaurants shows that it is possible to ingest greater or lesser quantities of the nutrient by consuming the same preparation, either at the same restaurant or in different establishments.

A study of the urban population in Brazil found a daily salt consumption estimated at $12.6 \pm 5.8\text{g}$, which is quite high compared with the recommendation 5g/day ⁽⁹⁾. Regarding the additional salt, the same study reported an amount of $6.8 \pm 4.5\text{g}$ ⁽¹⁵⁾.

This exacerbated daily intake of salt/sodium may result in high blood pressure (hypertension). This is the most common cardiovascular disease, besides being the main risk factor for fairly common complications, such as cerebrovascular accident (stroke), acute myocardial infarction and terminal chronic kidney disease. Regarding the prevalence of this pathology, population studies have shown that, over the past 20 years, the prevalence of hypertension has reached 30%. In an overview, 37.8% of men and 32.1% of women have hypertension^(16,17).

As for the fat type and content in meals, it was observed that, in the three restaurants, vegetable oil is used, a fat considered beneficial, if used in the recommended amount^(8,18). However, the per capita amount of oil added to cook the three preparations was excessive, surpassing the ideal per capita. This is reflected in a consumption of oil higher than the RDA with just one serving of cereal (white rice), one serving of legumes (bean with broth) and a serving of meat (grilled chicken).

Besides being higher than ideal, the current results also indicate variance in the amount of oil in the cooking process of the preparations during the collection days in the three restaurants. This shows that the same preparation, even at the same restaurant, may contain different amounts of oil, whether larger or smaller.

It is well established by science that food should be consumed only in the amount needed for human metabolism, since the excessive caloric intake might bring various negative consequences to the human body and its functioning^(8,19). The increase of 5.5% beyond the daily energy needs may cause someone to gain, on average, 3kg per decade. Besides obesity, excessive consumption of fats can trigger dyslipidemia^(19,20).

The addition of oil beyond the recommended amount may contribute to increased fat, calorific value of the preparations, and daily calorie intake of individuals. This excessive calorie offering in preparations of commercial per weight restaurants should be considered, because many individuals have their main daily meals at these facilities, and that daily consumption may represent weight gain over time⁽²⁰⁾.

These fat and salt excess found in preparations of daily consumption may be another environmental risk factor that contributes to the increased incidence of obesity and other chronic non-communicable diseases (NCD). In the city of Goiânia, the percentage of overweight women reached 43%, and 49% among men, with a tendency to increase with age.

The percentage of obese women is 11%, and for men, 12%. Nationally, 13.9% of the adult population is classified as obese⁽²¹⁾.

Besides salt, condiments like ready-made broths and soy sauce are used in the restaurants evaluated in order to add flavor to the prepared food. However, the benefit of the flavor comes from damage to diner's health⁽¹⁶⁾. Therefore, the use of these industrial seasonings with a high sodium content becomes another important source of this mineral, in addition to the salt, which can further increase the salt/sodium content meals these locations.

Changes in per capita amount of salt and oil in the same preparations, found in the restaurants assessed in this research, on different days, reveal lack of planning and standardization of the production process.

These variations can also interfere with the main concern of most commercial restaurants: good visual aspect and nice flavor, rendering preparations without identity of taste and appearance, due to non-standardization of condiments^(9,13).

This situation is common in commercial restaurants, perhaps because they lack the professional nutritionist in their team, what would be useful to offer meals with pleasant sensory aspect, less salt and oil, and better nutritional value^(13,19).

The implementation of standardization and operational control of food production, with emphasis on reducing the levels of salt and oil added for cooking the preparations, by means of technical preparation, it would be very positive in terms of the sensory aspects and nutritional value of food, providing a good preventive measure for NTCD. In addition to better sensory and nutritional value, standardization and planning meals contribute to more effective cost controls^(9,12-14,16).

However, beyond the salt and the oil added during the food preparation, these seasoning are also added by the customer on the plate. The addition salt, offered by shakers, cruets of oil and sachets found in restaurants, can also contribute to increase the consumption of salt/sodium and fat. The presence of these condiments in cafeterias seems to be related to the Brazilian habit of adding salt to salads, for example, foods that are usually served fresh. It is interesting that strategies to reduce or replace the addition of sodium and fats are implemented, such as use of sauces and condiments prepared with lemon, herbs (parsley, basil, oregano etc.) and pepper⁽²²⁾.

Considering the increase of overweight and NCD in the population, and the increased consumption of food in commercial restaurants, it is interesting to develop further studies on the nutritional composition of meals offered by these establishments and food consumption of the customers

of these restaurants, aiming at a more complete diagnosis, which can be extrapolated to the entire population.

CONCLUSION

The average per capita amounts of salt and oil added to food during preparation in the studied establishments exceed the daily recommendation proposed by the Food Guide for the Brazilian Population. Thus, the evaluated preparations showed sodium and fat contents above recommended for a healthy diet.

Therefore, it is important that people are provided education and nutritional counseling about the dangers and consequences of excessive use of salt and fat. It is also essential that commercial restaurants become partners of public health-promoting policies, adopting, for example, good nutritional practices in the production of meals, by reducing the levels of sodium and fat, to offer healthy food and meals daily. Thus, the population would have higher chances of achieving the guidelines for healthy eating, by having access to beneficial and essential food to the Brazilian diet, such as rice and beans.

Thus, the standardization of the production process of meals and constant monitoring are key to adjust the quantities of salt/sodium and vegetable oil supplied to the nutritional recommendations.

In addition to offering healthy foods, continuous programs of information, awareness, and food and nutrition education to the population in general are needed, so that all are aware of the consequences of excessive consumption of these nutrients and the importance of healthy eating. With public awareness and offering healthy food to the consumer, there is consistency between speech and action, increasing the chances of achieving changes in eating habits.

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