

Qualitative evaluation of menu preparations in an institutional food service in Leopoldina-MG, Brazil

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Abstract

This is a descriptive case study conducted in a self-managed (ou self-operated) food and nutrition unit of a private company in the city of Leopoldina, Minas Gerais state, Brazil. It aimed to assess the menu offered to their employees through the qualitative menu assessment method. There was satisfactory provision of fruits and leafy vegetables in 78.68% and 86.53% of days assessed, respectively. The menus studied presented monotony of color and the presence of foods rich in sulfur in 15.38% and 23.08% of the days analyzed, respectively. It was observed a high supply of fatty meat (28.85%) and fried foods (44.33%) and low sweets (19.24%) offer. There was low supply of sweets and fried foods in a same day (6.73%). The menu of the food service analyzed was appropriate in relation to the supply of fruit, leafy vegetables, sweet and color harmony. On the other hand, the supply of fried foods, fatty meats and foods rich in sulfur was considered inadequate.

Key words: Menu Planning; Food Services; Food Quality.

Introduction

Food and Nutrition Units (FNU) is how food services are termed in Brazil to refer to the services that provide meals to collectivities and have the purpose of managing the development of techniques for production and delivery of nutritionally balanced meals under the technical supervision of nutritionists. The meals should ensure food safety for consumption outside the home and contribute to maintain or recover the health of collectivities.^{1,2}

The FNUs serve a defined group of customers, with facilities that can be found in firms, schools, universities, hospitals, nursing homes, and orphanages, among other institutions. The meals should meet the needs of each group they are intended to serve. Great part of these units produce and serve meals to the Brazilian Worker Food Program (*Programa de Alimentação do Trabalhador – PAT*), designed to improve the nutritional status of workers and, consequently, their performances.³

With the ever-growing food service industry, consumers began to demand more from this business. The eating behavior of an individual does not simply involve the intake of foods to satisfy his/her physiological needs, but also social, psychological, cognitive, affective and cultural needs. Sensory perceptions have a direct influence on the foods tasting and liking. Consumers appreciate foods with distinct, differentiated flavors, textures, cooking methods and presentations, as well as foods that inspire trust.^{4,5}

The menu consists of the description of foods and dishes that make up the meals of the day or other given period. To meet the consumers' physiological and sensorial needs, menus should meet the diners' characteristics and nutrition laws, i.e., quantity, quality, variety and harmony, and should contain foods of all groups, with balanced textures, foods of the season and typical regional dishes. The menus should also conform to the supply market and production capacity and be hygienically and sanitarily safe, in compliance with current legislations.^{6,7}

The menus, when properly structured, can be used as a tool in nutrition education. Based on the foods offered, consumers have examples of foods that contribute to a healthy and balanced diet. For this reason, it is necessary that the nutritionist review the menus regularly to ensure that they are offering foods that are appropriate to the users' health.⁸

Aiming to assist nutritionists in the development and evaluation of suitable menus from the nutritional and sensorial point of view, the Qualitative Menu Assessment (QMA) method examines the dishes contained in the menus considering fried foods, sweets, fatty meats, fruits, leafy vegetables, sulfur-rich foods, and also their composition according to the food colors, giving a general view of the meals offered.⁶

This study aimed to assess, using the QMA method, the menus offered by a food service to the employees of a private company located in the city of Leopoldina-MG.

Materials and methods

This is a descriptive case study conducted in May 2015 in a self-managed FNU at a private company located in the city of Leopoldina, state of Minas Gerais. The director of the company authorized the work by signing the Institutional Authorization Form.

The menus of four months were examined, from September to December 2014, from Monday to Saturday, and sometimes Sundays, when there was extra work in the company, totaling 104 days. The FNU provides 230 lunch meals daily, consisting of standard staple food served in buffet system, placed on hot and cold countertops, and only the protein dish and dessert were portioned. The menus served in the unit comprise rice, bean, side dish, protein dish with option of two fried or broiled eggs, according to the each customer's choice, two salads and one dessert (sweet or fruit).

The menus were evaluated according to the QMA method proposed by Proença et al.,⁶ which analyzes the following items: offer of fried foods, consisting of foods cooked in deep frying like shoestring fries, served in separate, as a dish, or associated with sweets offered in the same day; presence of fruits and vegetables; color monotony of dishes and foods in the menu (considered monotonous when two or more foods had the same colors); presence of two or more sulfur-rich foods (except for daily beans).

A menu was considered rich in sulfur when there were two or more preparations in the same day containing this kind of mineral. For this purpose, the presence of the following sulfured foods were examined: Swiss chard, sweet potato, broccoli, cauliflower, peas, beans, guava, apple, watermelon, melon, corn, mustard, egg and cabbage.⁹ The menus were considered appropriate regarding vegetables when they offered at least two options of greens or other vegetables.

The daily and weekly menus were examined and, later on, the monthly menus. It was then considered the FNU menus of four months. Data obtained in the analysis were tabulated in percentage in relation to the total number of days of the assessed menus .

This research was approved by the Ethics and Research Committee under the protocol number 11/05/201500:13:25.

Results and discussion

The result of analysis of the menus according to the QMA are shown in Table 1.

Table 1. Evaluation of four-month menus of a food service in Leopoldina. Leopoldina-MG, 2014.

Months	Menu days	Fruits	Leafy veg.	Same color	Sulfur rich	Fatty meat	Sweet	Fries	Sweet + fries
Sept.	26	18	18	2	7	10	7	9	2
Oct.	27	26	22	3	4	7	2	9	2
Nov.	24	19	23	9	5	6	5	10	0
Dec.	27	19	27	2	8	7	6	18	3
Total no. days	104	82	90	16	24	30	20	46	7
% of occurrence	100%	78.86%	86.53%	15.38%	23.08%	28.85%	19.24%	44.23%	6.73%

The food service offered leafy vegetables in 86.53% of the days assessed, and lettuce (26.66%) and Swiss chard (24.44%) were the most common. Fruits were offered in 78.86% of the days, the most usual being apple (28.57%), orange (27.38%) and banana (22.61%), which were offered as dessert only; briefly stating, there was a frequent offer of greens and fruits. In study conducted by Said et al.¹⁰ in a university cafeteria in Belém, Pará, they observed a significant offer of fruits as desserts (100%), but a low offer of leafy vegetables (8.69%). In contrast, a study conducted at a FNU of a boarding school in Guarapuava-PR, Christmann¹¹ observed that greens were served in 100% of the days, but fruits only in 4%.

Daily consumption of fruits and vegetables is vitally important because they are low in fats and high in vitamins, minerals, dietary fibers, with significant effects on the people's health, contributing to prevent obesity and protect against diet-associated chronic diseases such as type 2 diabetes mellitus, hypercholesterolemia, cardiovascular diseases and some types of cancer.^{12,13} The supply of these foods by the FNU is vital, because the Household Budget Survey (HBS) in 2008/2009 found that the availability of fruits and vegetables in Brazilian homes was insufficient, which suggests low intake of these foods.¹⁴

According to the color evaluation, the menus indicated foods color monotony in 15.38% of the studied days, the most common colors being yellow (62.50%), green (25.00%) and orange (12.50%). Foods color monotony with prevalence of yellow and orange was also observed by José¹⁵ in a study conducted at an institutional FNU in Vitória-ES, which found these colors in 50.98% of the

meals offered. In a study carried out at an institutional FNU in Brasília, Federal District, Passos¹⁶ detected inappropriate combination of colors in 58.6% of the days of the menus examined. Colors monotony was also found in the menus examined by Veiros & Proença¹⁷ in a study conducted at an institutional FNS in Santa Catarina, in 65% of the days.

According to Ornellas,¹⁸ a suitable menu should meet two basic principles: variety and harmony. Variety consists of a varied supply of ingredients, textures, shapes, temperature, colors and flavors, making the foods attractive to consumers. Harmony consists of the association of colors, consistency and flavors, which requires aesthetic and artistic sense. Colors diversification and combination are essential because they ensure the intake of different groups of foods and, therefore, different nutrients, also attracting the diners, who feel stimulated and willing to experiment different foods, making the meal more pleasurable and healthy.¹⁶

The presence of foods rich in sulfur was found in 37.50% of the days of the study, being Swiss chard (56.41%) and cauliflower (15.38%) the most prevalent ones. Ramos et al.,⁷ in a study carried out at a company FNU in Belo Horizonte-MG found a higher prevalence, in 76.2% of the days assessed. On the other hand, Brito & Bezerra,¹⁹ in a research carried out in a hospital FNU, observed the presence of foods high in sulfur in only 9.7% days, data that contradict the findings of this study. If these foods are offered in large quantities, people may not feel well because of the gastric discomfort caused by the intake of these foods.²⁰

When assessing the amount of fatty meat present in the menus studied, it was found in 28.85% of the days. The meats that were considered high in fat were pork leg, fillets, ribs and steaks, as well as pork sausages and bacon. Regarding fried foods, the results were worrisome because this kind of food was served either as a cooking technique of the main dish or as a side dish in 44.23% of the days studied. In December there was a great supply of fried foods (66.67%), which was explained by the lack of an oven, which was out of order, making it difficult to vary the cooking methods.

According to an evaluation of the menus of an institutional FNU in Santa Catarina, Veiros and Proença¹⁷ observed the presence of fatty meats and fried foods in 15.6% and 49.5% of the days studied, respectively. On the other hand, the results found by Prado et al.²⁰ in a research conducted at an institutional FNU in Cuiabá-MT, indicated the offer of fatty meat in 25% of the menus and only 15% of fried foods. In a study conducted at an institutional FNU in Vitória-ES, José¹⁵ found higher results than those found in the present study, namely 70.58% of fatty meat and 50.98% of fried foods present in the menus.

Given the fat-related data found, it is recommended the intake of lean meats, such as fish or chicken cooked without skin and visible fat, and the replacement of deep fried foods by sautéed, baked, grilled or cooked foods. Fat meats can be replaced by lean cuts.^{3,21}

The “sweets presence” item offered exclusively as dessert was observed in 19.24% of the days, usually once a week, and in Sunday menus. Ramos et al.⁷ found much higher rates, contrary to this study, where the offer of sweets was 100%. Said et al.¹⁰ found the absence of sweets in the menus investigated, differently from the data found in the present study.

The frequency of both sweet and fried food served in the same day was investigated, and the rate of these combined foods was low (6.73%). Sweets and fried foods offered in the same day was not found in the menus studied by Prado et al.,²⁰ and in 12.5% of the menus examined by Passos.¹⁶

The low rate of sweets and fried foods served in the same meal, as observed in the present study, is considered a favorable factor in the workers’ diet, because these preparations are high in calories, and an excessive intake of these foods and others rich in fats predispose the body to gain weight and accumulate body fat, which may lead to the development of non-communicable chronic diseases.⁵ These foods are nutritionally unbalanced and have limited nutrients. In addition, a high intake of sugars and fats is harmful to the human health, and a moderate intake of both is widely recommended¹³

According to Proença,⁶ food services should be concerned with the users’ health and seek to improve their customers’ health through the menus offered. Healthy diets are associated with a reduced rate of non-communicable chronic diseases.²⁰

The workers’ performance is directly related with their nutritional status. Properly fed and well nourished employees are less likely to develop diseases and will have a better quality of life; therefore, will be more productive.²²

Conclusion

The menus offered by the FNU under study were appropriate regarding the supply of fruits, leafy vegetables, sweets and colors harmony. In contrast, the offer of deep fried foods, fatty meats and foods high in sulfur was considered inappropriate. It is suggested that the nutritionist reviews the menu planning of this food service by reducing the offer of fried foods, fatty meats and sulfur-rich foods.

The employees of this company eat at this place on a daily basis, and nutritionally appropriate menus would help them build healthy eating habits, and safe meals, under the point of view of hygiene and sanitation, create healthy eating concepts and contribute to the health of the users.

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