

# Quality in meals production at self-service cafeteria restaurants

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## Abstract

The economic, social and cultural transformations the world has been going through have entailed an increasing search for “eating out”. In Brazil, 35% of the meals are eaten out and the establishments patrons most attend to include “self-service cafeteria” restaurants. These rank second in the list of meal production services (MPS) with the highest occurrence of foodborne diseases (FBD). In this context, this study aimed to analyze the hygiene and health quality of self-service cafeteria restaurants in the Center-South of the city of Belo Horizonte, Minas Gerais state, Brazil. Therefore, a checklist was applied at ten MPS, elaborated in accordance with Resolutions 275/2002 and 216/2004, aimed at checking the level of “non-compliance” of the establishments. According to the results, the restaurants were classified in groups according to the criteria established in RDC 275/2002. The percentage of compliance among restaurants ranged from 29.63% to 90.91%, at an average of 68.19% ( $\pm 19.12\%$ ). Only three restaurants fit into Group I, and most were classified in Group II. In conclusion, great discrepancy was found among the restaurants assessed, which indicates the need for greater surveillance of the MPS. In addition, the presence of a technician in charge, graduated in the field of food handling and best practices, has positively influenced greater compliance to the legislation. The results also demonstrate the insufficient quality of the services that the restaurants offer and suggest the need for more surveillance.

**Key words:** Best practices. Restaurants. Self-service cafeteria. Quality. Sanitary Supervision.

## Introduction

The habit of “eating out” has increasingly grown in the world and in Brazil 35% of the meals are taken away from home.<sup>1</sup> The change in eating patterns is multifactorial, being influenced by lifestyle changes, women entering the labor market and economic changes.<sup>2</sup>

Among the establishments of the commercial segment, among of the most frequented by Brazilians are the self-service cafeteria restaurants, where patrons choose what they want to put on their plates.<sup>3</sup> They are second in the ranking of meal production services (MPS) with a higher incidence of foodborne diseases (FBD).<sup>4</sup>

The hygienic and sanitary quality is a factor in food security, but food preparation in commercial environments is not always done in proper conditions to avoid contamination.<sup>2,4</sup> The WHO/FAO<sup>5</sup> Codex Alimentarius Commission admits that diseases resulting from consumption of contaminated food are probably the biggest health problem in the contemporary world. The main problems are the consequences of inadequate reheating and refrigeration and food preparation well in advance, increasing the waiting time.<sup>2</sup>

In this sense, many procedures such as Good Manufacturing Practices and health legislation<sup>6,7</sup> should be adopted to guarantee a product that is suitable and free from pathogens agents, such as obtaining non-contaminated raw materials, appropriate handling practices and hygiene during preparation, equipment and efficient operational structures and food handlers’s training.<sup>2,8</sup>

Microbiological hazards are the main causes of food contamination; as for the handlers, they are the source of the problem and are largely responsible for microbiological contamination.<sup>9</sup> Thus, the safe production, distribution and storage of food are activities that require special care regarding the work environment, equipment and utensils, the food itself, food handlers, health facilities and pest control, among others.<sup>10</sup>

Given the importance of this issue for the health of communities, this study aimed to analyze the hygienic and sanitary quality of self-service cafeteria restaurants in the Brazilian city of Belo Horizonte, Minas Gerais.

## Materials and Methods

This study was carried out from April to May 2014, having as subject self-service cafeteria commercial restaurants located in the Center-South area of the Brazilian city of Belo Horizonte, MG, consisting of 41 neighborhoods. It is a cross-sectional, exploratory and descriptive study, whose data collection was performed by means of structured interviews, using an elaborate Check Sheet designed according to Resolutions no. 275/2002<sup>6</sup> and no. 216/2004.<sup>7</sup>

The number of samples was defined by the statistical program *Sample Size Calculate*, using a confidence level of 95% and margin of error of 30%. A sample of 11 restaurants was obtained, which were randomly selected from a list of 61 self-service cafeteria style MPS, available on the website of the Brazilian city of Belo Horizonte, MG.

A scheduled visit to 11 restaurants took place and they agreed to participate and they signed a Term of Agreement and an Informed Consent Document. The Check Sheet applied contained items related to the building and the facilities; equipment, food handling personnel, hygiene, production and transportation of food; documentation. In each item there were three possible answers: “Yes”, “No” and “Not applicable”. The evaluation was performed by a trained researcher by means of a direct observation.

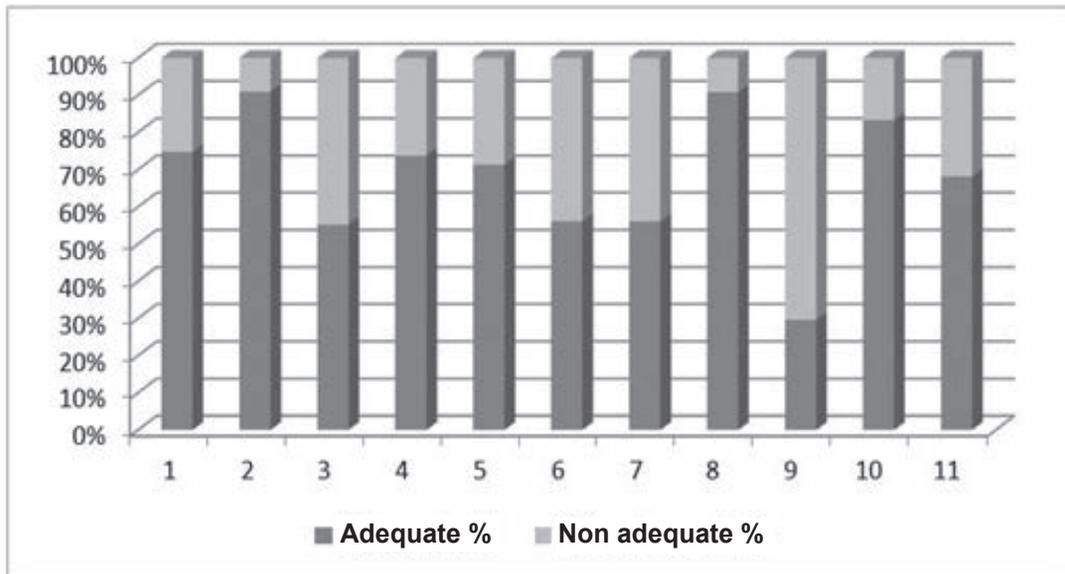
The restaurants were classified according to the scoring criteria established in RDC no. 275/2002,<sup>6</sup> being categorized as Group I (76 to 100% of compliance with the items), Group II (51 to 75% of compliance with the items) and Group III (0 to 50% of compliance with the items).

The data were analyzed in a descriptive statistics way, using the *Statistical Package for the Social Sciences* software (SPSS), with a significance level of 5% ( $p < 0.05$ ).

## Results and Discussion

Of the 11 MPS, only three (27.3%) did not have a technician in charge having attended a course or training focused on food handling and good practices. From the technicians in charge who had these characteristics, only two (18.2%) were nutritionists, one was a nutrition technician (9.0%), two other had been trained in gastronomy (18.2%), and the others (54.5%) had been trained in food handling provided, for example, by Senac (National Bureau of Trade Learning, a Brazilian network of not-for-profit secondary level professional schools).

The percentage of suitability between the restaurants ranged from 29.63% to 90.91%, with an average of 68.19% ( $\pm 19.12\%$ ), according to the evaluation criteria of Resolution RDC no. 275/2002,<sup>6</sup> as shown in Figure 1.



**Figure 1.** Percentage of compliance and non-compliance to the items in the Check Sheet by restaurant. Belo Horizonte, MG, 2014.

According to the classification of RDC 275/2002,<sup>9</sup> only three restaurants (27.3%) fit into Group I, most fit into Group II (63.6%,  $n = 7$ ), and one (9.1%) had a compliance 29.6%, fitting in Group III. These results were similar to those by Monteiro, Garcia & Cafiero<sup>11</sup> in 21 restaurants, where 71.5% of the establishments were also classified in Group II.

The result found was better than those shown in other studies. Akutsu and colleagues<sup>2</sup> have assessed commercial restaurants in the Brazilian city of Brasília and obtained a higher incidence of establishments in Group III (66.7%); the same took place with Orban, Freiberg & Silva,<sup>12</sup> when assessing the hygiene and sanitary conditions of a commercial restaurant in the city of São Paulo; Capelesso & Hautrive,<sup>13</sup> when assessing commercial restaurants in Chapecó, SC (60% classified in Group III); and Silva & Fernandes,<sup>14</sup> when analyzing the best manufacturing practices in hotel restaurants in Caruaru, PE (77% classified in Group III).

On the other hand, other studies, such as the by Ferreira et al.,<sup>15</sup> have shown better suitability percentages with respect to compliance with good practices, ranging from 72.9% to 92.6%. In all the studies analyzed, as well as in their own, the best compliance to the Check Sheet is directly linked to the presence of a technician in charge who had been trained in food handling and good practices, as they are able to provide proper guidance and supervision of the activities, employee training and management of steps involving the safe production of food.

Among the items assessed, 34.0% were in compliance in more than 80.0% of the restaurants, and 8.5% had obtained a “yes” response in all establishments. As for the items that had a “no” answer, 7% were common to more than 70% of the restaurants, especially those related to the analysis of the final product in a laboratory.

Akutsu and colleagues<sup>2</sup> have observed in their study that 83.3% of the commercial restaurants showed non-compliance to the items related to food handling, and 93.3% to those listed in the Good Practice Handbook. The items related to the buildings had a higher percentage of positive response, with more than 70% of compliance in 23.3% of the restaurants.

## Conclusion

The presence of a technician in charge that had been trained in food handling and good practices proved to be essential for the establishment to present greater compliance, which indicates its importance in the MPS.

The results show discrepancy between the restaurants assessed for compliance to the health legislation, indicating their deficient hygiene and sanitary conditions. For the possibility of occurrence of FBD to be decreased in restaurants, the implementation of more effective control techniques is suggested, with an adequate training of food handlers and an efficient supervision.

## References

1. Bezerra IN, Sichieri R. Características e gastos com alimentação fora do domicílio no Brasil. *Rev Saúde Publ.* 2010; 44(2):221-229.
2. Akutsu RC, Botelho RA, Camargo EB, Sávio KEO, Araújo WC. Adequação das boas práticas de fabricação em serviços de alimentação. *Rev Nutr* 2005; 18(3):419-427.
3. Banczek HFL, Vaz CR, Monteiro SA. Comportamento dos consumidores em self-service no município de Curitiba. *Rev. Bras. Tecn. Agroin.* 2010; 4(1):29-41.
4. Carvalho ACMS, Ricardo FO, Moraes MP. Controle de tempo e temperatura na produção de refeições de restaurantes comerciais na cidade de Goiânia-GO. *Demetra* 2012, 7(2):85-96.
5. World Health Organization. *The role of food safety in health and development.* Geneva: WHO; 1984.
6. Brasil. Resolução RDC nº 275 de 21 de outubro de 2002. Dispõe sobre o Regulamento técnico de procedimentos operacionais padronizados aplicados aos estabelecimentos produtores/industrializadores de alimentos e a lista de verificação das boas práticas de fabricação nesses estabelecimentos. *Diário Oficial da União* 23 out. 2003.
7. Brasil. Sanitária. Resolução RDC nº 216, de 15 de setembro de 2004. Aprova o Regulamento Técnico de Boas Práticas para Serviços de Alimentação. *Diário Oficial da União* 16 set. 2004.
8. Zandonadi RP, Botelho RBA, Sávio KEO, Akutsu RC, Araújo WMC. Atitudes de risco do consumidor em restaurantes de auto serviço. *Rev Nutr.* 2007; 20(1):19-26.
9. SOUZA, LHL de. A manipulação inadequada dos alimentos: fator de contaminação. *Hig. Alim.* 2006; 20(146):32-39.
10. Mesquita MO, Daniel AP, Saccol ALF, Milani LIG, Fries LLM. Qualidade microbiológica no processamento do frango assado em unidade de alimentação e nutrição. *Ciê. Tecnol. Aliment.* 2006; 26(1):198-203.
11. Monteiro MAM; Garcia MAVT; Cafiero JC. Avaliação das boas práticas de fabricação em lanchonetes de uma universidade pública. *Hig. Alim.* 2014; 28(234/235):78-82.
12. Orban YV; Freiberg CK; Silva ZM da. Avaliação das condições higienicossanitárias de um restaurante comercial do município de São Paulo. *Hig. Alim.* 2014; (28):234/235:83-87.
13. Capelesso S; Hautrive TP. Condições higienicossanitárias de restaurantes comerciais de Chapecó, SC. *Hig. Alim.* 2014; 287(234/235):88-92.

14. Silva GP da; Fernandes CE. Avaliação das Boas Práticas de Fabricação em unidades produtoras de refeições do município de Caruaru, PE. *Hig. Alim.* 2012; 26(214/215):40-44.
15. Ferreira MA et al. Avaliação das boas práticas em unidades de alimentação e nutrição. *Rev Inst Adolfo Lutz* 2011; 70(2):230-235.

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