

# Food evaluation in Duque de Caxias (RJ)

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**A**LONG with professor Rosely Sichieri, of the Institute of Social Medicine of the Federal University of Rio de Janeiro (UFRJ), I coordinate a project about food security in the city of Duque de Caxias, funded both by CNPq and by the National Institute for Cancer (INCa). Besides other professors from the Nutrition Institute of UFRJ, currently our partners include the National Institute for Cancer, the Brazilian Institute of Geography and Statistics (IBGE) and the National School of Statistical Sciences (Ence).

It's a broad project with three main goals: first, estimating the malnutrition and overweight rates according to age group, gender and skin color; second, establishing food intake patterns according to those same indicators; and, third, working with different indicators of the nutritional status, relating them to the food security issue.

The population base of the study is the permanent households of Campos Elíseos, second district of Duque de Caxias, in the Fluminense Lowland, and it distinguishes four age groups: children between six and thirty months old, adolescents between twelve and eighteen years old, adults and elderly people. Why was that district chosen? By the way, why Duque de Caxias?

It's about fifteen minutes away from Tom Jobim International Airport and from UFRJ. It's located in the metropolitan region and, despite the short distance to the city of Rio de Janeiro, it presents extreme poverty figures. Its population corresponds to 5.4% of the State population. Considering the municipality as a whole, the population living below the extreme poverty line is about 14%, almost twice the average in Rio de Janeiro. Within the municipality itself there are critical poverty areas, affecting as much as about 20% of its inhabitants. Campos Elíseos, the chosen district, is considered the second poorest in the region.

Next are some social indicators of Duque de Caxias: about 20% of the people are illiterate; 58% of the households present inadequate infrastructure; the formal workers are only about 25%; about 50% earn more than three minimum wages; the population is distributed into several age groups.

For that study, we defined a probabilistic sample by conglomerate in three selection strata. In the first moment, we worked with census wards of

IBGE's 2000 geographical operational base, evaluating the wards according to the criteria of income and age group, with emphasis on income. Then, within that area, we selected 75 census wards, and each ward is working with an average of fifteen permanent private households. We intend to show about 1,125 households. Keeping those two selection strata, the research will focus on approximately 435 children between six and thirty months old, about 620 adolescents and 1,400 adults and elderly people.

When the data from the last census were evaluated, it could be observed that the children age group was very small. Therefore, in order not to run the risk of working with an insufficient number of children (and be forced to make corrections in the expansion stage), first we made the screening, which was nothing more than a tracking of the 75 wards, identifying the occupied private households and, in those households, those that had children between 6 and 24 months old and adolescents. Based on that previous sample, a new random selection was made, ensuring its representativeness.

It's important to clarify that the project is ongoing, and that, therefore, that presentation reveals preliminary results. It was closed with about one-fourth of the final sample, but even so, even though the data were not definitive, it's already possible to have an idea of what we will find in Campos Elíseos. The partial sample includes 91 children, 147 adolescents and 283 adults and elderly people.

The elaborated questionnaire, both extensive and in interview form, was based on already validated questionnaires in Brazil, with some questions created by the team itself. It has been applied by health agents and graduate students.

The food intake evaluation is made by means of a 24 hour recall method – two of them for the children – and of what we call food intake frequency, for adults and adolescents. In the case of the adolescents, there are questions that they answer themselves concerning body perception, smoking, pregnancy, use of laxatives and other information. There are also questions about anthropometric measures – weight and height/length for children and weight, height and waist and hip circumference for adults, adolescents and elderly people.

In general, the questionnaire gathers socioeconomic characteristics, information about participation in feeding programs, violence, stress, food security – an aspect elaborated based on the validation study of the State University of Campinas (Unicamp) –, information about the child's health and physical activity. It was pre-tested in two stages with the researchers themselves, for an evaluation of the understanding of the questions, and later for the accomplishment of a pilot-study in the first district of Duque de Caxias (not included in this study). We also tried to give the questionnaire a somewhat drier format in order to try to reach the greatest number of households possible and to avoid refusals – we know that this is a great problem for people who make field research.

Focusing on the results (Table 1), it's worth pointing out that, although we're evaluating an area in which the public network covers 61% of the households, there is a very large presence of wells and springs. The use of water filter also stands out. About 64% of the households have a filter, while approximately 23% of the families don't own a filter and consume water without treatment. As far as food donation is concerned, the rate is about 7%, and until now the *per capita* family income is about 102.56 dollars.<sup>1</sup>

Table 1

Percentage distribution of the socioeconomic characteristics of the families living in permanent private households. Partial results – Duque de Caxias/2005

Socioeconomic variables	%	(n)
Water supply		
Public network	61.0	153
Well or spring	37.1	93
Tank-car	1.9	4
Water filter in the household		
Yes	63.6	159
No, but treats consumption water	13.6	34
No and doesn't treat consumption water	22.8	57
Food donation		
Yes	6.9	18
No	93.1	243
Monthly family income	Average±DP 734.4±544.8	

Here we will comment only on the questions that concern specifically the central theme of this article, that is, the first three, which represent the initial step in any investigation about food security.

In the first one, the survey wanted to know if, in the last three months, the person was worried about the possibility of food running out before he or she was able to buy or receive more. Approximately 53% of the families claimed that they were in fact worried. It must be pointed out that the family head answered this question about food security. About the people who were worried, its frequency was also evaluated, that is, “almost everyday”, “some days”, “only one or two days”; there was also a small refusal rate. Most people say “some days worried”, and if we combine that data with the answers “almost everyday” it can be verified that this is indeed a problem in our families.

Always considering the same period, the second question evaluated if in the last three months food has run out before there was enough money to buy

more. About 35% of the families answered that indeed they suffered from lack of food. Among those who presented the problem, its frequency was evaluated once again; the answers “almost everyday” and “some days” reached about 70%.

The third question, tried to evaluate if in the last three months the family did not have enough money to have a healthy and varied eating habit. There were 50% of positive answers (and in this question the food variety issue is also already addressed).

When the internal agreement of the questions was evaluated – and that was a very important aspect for the survey –, it was verified, for example (Figure 1), those who suffered from lack of food reach almost 60% compared to the worry about the possibility of food running out. The opposite was also expected: those who indeed didn’t suffer from lack of food were also not worried, and that difference already shows up in a significant manner.

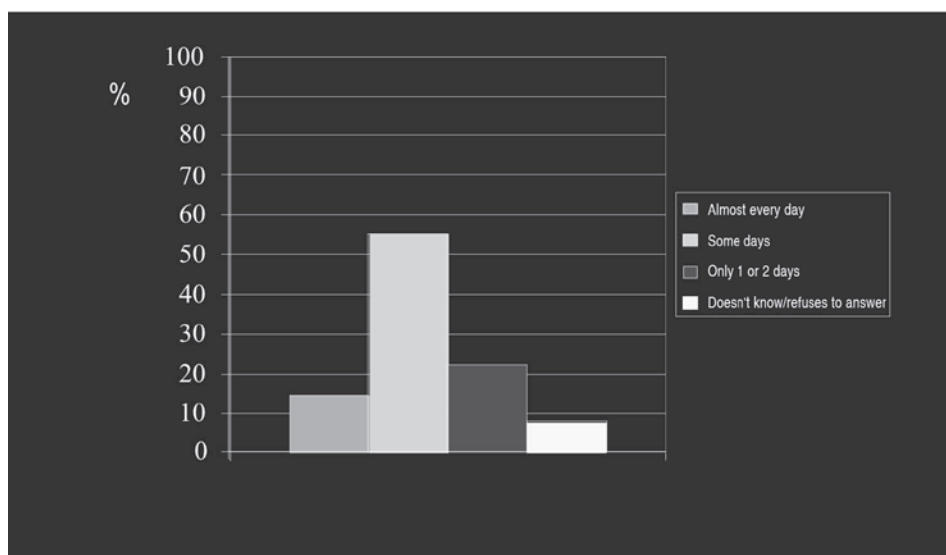


Figure 1

Frequency of days among the families that were concerned about the lack of food. Partial results – Duque de Caxias/2005.

Therefore, when we compared the three questions – that is, if there was worry about the lack of food, if food ran out or not and if money ran out or not –, it was observed that, among those who suffered from lack of food, the families that don’t have money are much more worried. Representing once again the status in which there is no lack of food in terms of worry, until then that difference is not significant. However, when the families that didn’t suffer from lack of money are evaluated, that is, those who answered “yes” in the first question and “yes” in the second, but didn’t report lack of money in the third question, what calls the attention is that the people who didn’t suffer from lack of food were also not worried about it, and they didn’t suffer from lack of

money, that difference being significant. Thus, the tendency of those answers is to present an agreement that validates the food security evaluation.

Healthy eating habits and the intake of fruits and vegetables are two other aspects that were investigated apart from one another, since the objective of the group is to work with interventions in the community. The household-based inquiry also serves as a basis for that purpose.

How would that people be from the point of view of feeding? Can it be that they consider their feeding as healthy and varied? It was verified that about 76% of the people consider their feeding as varied. As far as fruit intake is concerned, it reached just over 50%, while 53% of the people say that they eat fruits on a regular basis, understanding as “regular basis” a daily intake of at least five times a week. Vegetable intake is just over 65%.

To guide the intervention actions, it would be important to know why people don't eat certain kinds of food. For that reason we created several developments for those people who claimed not to eat fruits and vegetables: Why don't you eat them? a) Because you don't like; b) Because they're hard to find; c) Because they're difficult to eat; d) Because they're expensive; e) Because I'm not used to eating them; f) Because I have no time to eat. It was verified that, among those who don't eat fruits, the main excuse is cost, but the fact that they don't like and the lack of habit also calls the attention, the “I'm not used to consuming them”. And what does that “I'm not used to” mean? It was seen that most people that don't eat vegetables say that they don't like them, but cost is also an excuse related to the status of not having anything to eat.

As far as the distribution of households where food ran out in the last three months is concerned, the suitable analysis is very preliminary, with the evaluation of the lack of food in relation to the intake of fruits and vegetables being made: can it be that, even among the people who report a lack of food, it is possible to reach level of fruits and vegetables intake as an indicator of a healthy eating habit? Of course, for this survey, there is the questionnaire about the frequency of food intake, and that aspect will be carefully evaluated in the end. We verified that, among the families that suffered from lack of food, most of the times there was no intake of fruits, compared to the families that didn't have that problem, with that difference already being significant. And when vegetables intake was evaluated, it was verified that the families that suffered from lack of food also don't eat vegetables compared to the families in which the lack of food is not a problem.

A factor that may explain the non-consumption of fruits and vegetables is their cost in the Campos Elíseos community, and that justification may suggest a way to act in terms of prevention.

Reminding that these data still don't reflect the final status of the district, in the families evaluated until now, it was verified that, among adults and adolescents, and based only on the Body Mass Index, there was



*With not much money to buy gas vessels, dwellers of Duque de Caxias (RJ) cook in improvised firewood stoves.*

approximately 13% of people underweight, while 40% of the people were overweight.

When food distribution is evaluated compared to the Body Mass Index, some questions can be made: in the families with lack of food, are people too thin? Are they normal? Are they overweight? How is their nutritional status? A tendency to underweight was identified, but these people also suffer from overweight. And taking the worry about lack of food by itself, a tendency emerges both to underweight and to overweight, that is, the people who have a food insecurity indicator also have an inadequate eating habit. The energy proportion, both in quantitative and qualitative terms, is harming their weight gain, at the same time that there's a hint of overweight in that population of adults and adolescents. And again the worry about the lack of money shows up here, specifically, related to overweight.

Finally, we have the data about the children, even though we have not compared them to the food security issues. There's a special concern about knowing how's the population between six and thirty months old, since it's an age group in which, once a problem is identified, one can try to revert and to deal with health problems in that great low income community of Campos Elíseos. Taking the weight by age ratio, maintaining the cutting points at  $\pm$  two z scores, underweight reaches about 11%. The height damage reaches about 7%. The weight by height ratio, in terms of thinness, is about 11%, but it can already be verified 7% of overweight among the children.

According to the preliminary results, the questions used to evaluate the food security indicate the possibility of insecurity among those who live in the second district of Duque de Caxias. Cost and the lack of habit were the main reasons mentioned by the dwellers not eat fruits and vegetables daily. There are hints of stunted and underweight children. In that age group it was also verified overweight, as well as among adults and adolescents.

Finally, Duque de Caxias is a municipality very close to Rio de Janeiro, which has still not been studied enough. It's a very rich industrial area, where there are industrial plants for Petrobrás and Furnas, a high GDP, but that has that suggestive profile of food insecurity and damage to the nutritional status.

## Note

- 1 The exchange rate used in the conversion of reais into dollars (R\$1,95/dollar) refers to September 04, 2007.

*ABSTRACT* – The aim of this study was to evaluate the prevalence of food insecurity (FI) as well as the nutritional status (NS) and fruit and vegetable (FV) intake among families living in the district of Campos Elíseos, Duque de Caxias (Rio de Janeiro, Brazil). It is a cross-sectional study of population base with a probability sample of 1,085 residences. FI (The Brazilian Scale of Food Insecurity), anthropometric measures (weight and height), and FV intake were evaluated through a questionnaire. Preliminary results suggested high prevalence of FI, stunted and underweight children, and overweight adults and adolescents. The main factor determining the low intake of FV was their high cost. The prevalence of FI suggested inequalities and social exclusion that affect the nutritional status and food intake among the families in this area.

*KEYWORDS* – Food insecurity, Population study, Nutritional status, Fruit and vegetable intake.

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