Characteristics of Social Vulnerability and Food Insecurity among Urban Families in Extreme Poverty in Brazil

Daniela Sanches Frozi1,*, Rosely Sichieri2, Sandra Maria Chaves dos Santos3, Rosangela Alves Pereira1

1Department of Applied and Social Nutrition, Federal University of Rio de Janeiro, Brazil and Full Member of the National Council for Food and Nutritional Security, Brasilia, DF, Brazil
2Department of Epidemiology, State University of Rio de Janeiro, Brazil
3School of Nutrition, Federal University of Bahia, Brazil
*Corresponding author: danielaflrozi@gmail.com

Received July 02, 2015; Revised July 25, 2015; Accepted August 11, 2015

Abstract This study aimed to characterize food insecurity and strategies to cope with food scarcity in 1,085 families evaluated in a cross-sectional population-based study conducted in a low-income neighborhood of the Rio de Janeiro metropolitan area, Brazil. Data were collected in personal interviews applying a structured survey which included a food frequency questionnaire and the Brazilian Food Insecurity Scale. Families were classified as “extremely poor”, if per capita family income was under US$1.00 per day or, otherwise, as “out of extreme poverty”. “Extremely poor” families were also stratified as beneficiaries or not of cash transfer programs which were later consolidated within the Programa Bolsa Familia. Overall, the studied families lived under critical sanitary conditions. Families in extreme poverty presented worse conditions of household sanitation, food insecurity and reported poorer food quality, less frequent consumption of fruit and vegetables, and increased use of practices and strategies to alleviate food shortages than families free of extreme poverty. The prevalence of moderate or severe food insecurity among “out of extreme poverty” families was at least five times lower than that observed in families living under extreme poverty (p<0.01). Extremely poor family heads were mostly young, female, black or mixed, or low educated individuals, characteristics which regularly coincide with social vulnerability.

Keywords: cash transfer program, family head, sanitary conditions, socioeconomic conditions, extreme poverty


1. Introduction

Income inequality in Brazil has historically been considered a social, political and moral problem related to the economic development model adopted [1,2]. Additionally, income has invariably been the most important marker for qualification and quantification of poverty and a central issue in social policies confronting poverty. For example, the concept of “poverty line” and “extreme poverty line” are income limits used to assess provision of minimum basic needs and minimal food supplies respectively. These categories are frequently used to identify groups in situations of social vulnerability and individuals to be targeted by intervention initiatives [3,4,5].

However, the economist Amartya Sen developed this view suggesting that poverty surpasses income and also includes the deprivation of opportunities, accessibilities, and capabilities [4]. Similar levels of income can thus be translated into distinct dimensions of poverty, since different families might have diverse attitudes and strategies to deal with hunger and privation.

Therefore, it is important to understand how families tackle challenges imposed by poverty in designing public policies and interventions aiming to reduce social inequalities [6,7,8]. Food insecurity expresses the irregular access to adequate amounts and quality of food, and constitutes a violation of basic human rights [5,9].

To identify groups suffering or at risk of food insecurity to target aid actions and food programs a questionnaire based on the perception of food insecurity has been used in several countries, including in Brazil [6,10,12,13,11]. The Brazilian Scale of Food Insecurity (EBIA) is a tool adapted and validated to identify food insecurity in Brazil [14]. Based on 15 yes/no questions, this instrument investigates the perception of household food insecurity and allows categorisation of the degree of food insecurity (light, moderate, or severe).

It considers aspects that vary from being concerned with the possibility of food shortage to the concrete experience of food scarcity in the home [10]. The focus of this study was to characterize social and demographic conditions and strategies used to deal with the food...
insecurity of families from a low-income neighborhood associating these conditions with the level of income and receipt or not of cash transfer support of schemes later consolidated within the Brazilian family cash transfer program (Programa Bolsa Família).

2. Material and Methods

In 2005, a population-based cross-sectional study investigated households in Campos Elíseos, a district in the municipality of Duque de Caxias, state of Rio de Janeiro, Brazil. The research was approved by the Research Ethics Committee of the State University of Rio de Janeiro in August, 2004 under the number 02/2004. Participants signed a term of consent, after receiving an explanation of the procedures adopted in the survey.

**Setting:** The municipality of Duque de Caxias is about 30km from the state capital and is part of the Rio de Janeiro metropolitan area. In 2000, its resident population was 843,000 inhabitants, corresponding to 5% of the Rio de Janeiro state population [15]. Campos Elíseos, one of the municipality’s four districts, occupies an area of 98 km², and is an urban area characterized by low-incomes, high population density (about 2,500 inhabitants/km², in 2000) [15], precarious infrastructure and deficient sanitation and is subject to recurrent flooding. This area was selected as it exhibits the highest occurrence of extreme poverty although due to high inequalities, resulting from pockets of wealth, mean per capita income is similar to that of the municipality as a whole.

2.1. Sampling Design

A probability cluster sample, with three selection stages was adopted and the sample size was estimated based on an extreme poverty prevalence of 14.5% and an error rate of 5%. The neighbourhood is divided by the Brazilian Institute of Geography and Statistics into 322 census tracts [15]. In the first stage, 75 of these tracts were systematically selected using proportional probabilities based on the number of households registered in the 2000 Demographic Census. In the second stage, 15 residences were selected in each census tract, with a total sample size of 1,125 residences. The sampling process considered an implicit stratification of the sectors according to income, which enabled extension of estimates to other domains of interest and increased sample representation. The third stage used random selection of respondents in the households (one adult, one adolescent and one child; or two adults if the household did not contain children).

2.2. Data Collection

Data was collected through personal interviews in the households, between April and December 2005, by a team of trained interviewers. Information on socioeconomic variables, food insecurity and food practices were obtained applying a pre-tested, structured questionnaire. A pilot study was undertaken in the same neighborhood in a census tract excluded from the final sample. After each interview, the questionnaires were reviewed for data quality by a supervisor.

2.3. Study Variables

1) Household characteristics

1.1) Situation of poverty

The households were first stratified according to the per capita income as: (a) “extremely poor”, those that earned less than a dollar per capita/day and (b) “out of extreme poverty” (OEP), which earned more than one US dollar per capita per day. At the time of this research, this value was used as the cut-off limit for families’ enrolment in the governmental cash transfer program, therefore, “families in extreme poverty” were also stratified in (i) families receiving the support of governmental cash transfer program which were denominated as "families in extreme poverty with cash transfer support" (EPS) and (ii) families in extreme poverty that did not receive support from cash transfer program, which were denominated as "families in extreme poverty without cash transfer support" (EPW).

1.2) Food insecurity

The perception of food insecurity was assessed using The Brazilian Scale of Food Insecurity (EBIA). This scale resulted from adaptation and validation of an instrument applied in the United States [14]. The validation study took into consideration the psychometric characteristics of the scale and suggested cut-off points culturally adapted to the intensity of the phenomenon of experiencing hunger in Brazil [14]. The EBIA consists of 15 yes/no questions; each positive answer counts as one (1) point and the sum of the points allows classification into four categories: (a) absence of food insecurity (non-FI); (b) light (LFI); (c) moderate (MFI), and (d) severe food insecurity (SFI). The questions consider aspects related to the availability of food in the household in the last three months and are presented in an increasing order of severity that varies from the concern of finding themselves without food up to the experience of not having anything to eat.

1.3) Social and demographic profile of the household

The following variables were considered in this description:

A) Sex and age of the household head; age was categorized in 18 to 35; 36 to 60, and above 60 years old.
B) The skin color of the household head was classified by interviewers as black, mixed, or white. C) Schooling of the household head: the classification was based on the last educational level concluded with classification as illiterate (uneducated) or by the number of years of study: 4 or less, 5 to 8, 9 to 11, and 12 or more.
D) Number of family members: categorized as up to four members, which is less than or equal to the median number of members in the studied families, and more than four members.
E) Presence of children under 5 years old and teenagers (10-18 years old) (yes/no). This question recognises the additional social and biological vulnerability that can be created through the increased nutritional and health needs of young children and adolescents.

1.4) Sanitary conditions in the household:

A) Water supply: public water supply or other sources (for example, well or rainwater collection) B) Garbage collection: removal by public service or other destiny (for example, buried, burnt, left in the open);
C) Sanitation: nature of sewage system or alternatives (for example, rudimentary sewerage and septic tank);
D) Drinking water: treated (filtered, boiled or chemically treated) or not treated.
E) Number of toilets: without toilet, one toilet, or more than one toilet;
1.5) **Food practices in situations of food scarcity:** respondents were asked what were the usual family procedures in times of food shortage, answering yes/no to the following options: dividing food between family members; skipping meals; reducing portion size; prioritizing children before serving adults; using only one or two food types to prepare meals; and receiving food donations.
1.6) **Self-perception of food quality:** respondents were asked to rate the overall quality of food in the household as great/good, regular/bad or very bad and as healthy or unhealthy.
1.7) **Daily intake of fruit and vegetables:** respondents were asked whether fruit and vegetables respectively were consumed on a daily basis (yes/no questions).

### 2.4. Data Analysis

All statistical analyses took into account the effect of the cluster sampling design and sample weights. The proportion (%) of families in each category of the studied variables was estimated. Associations between family income and receipt of cash transfer support with sanitary, social, and demographic variables was ascertained through the Chi-square homogeneity test (statistical significance of p<0.05). When an association (p<0.05) was observed, the partitioned Chi-square test was applied to identify the categories most different from the others.

### 3. Results

We analyzed data from 1,085 households (non response rate of 3.6%). The proportion of extremely poor families was 39% with 23% of those assisted by an official cash transfer program. The per capita income of families out of extreme poverty varied between US$1.74 and US$3.86 per day. Among “families in extreme poverty without cash transfer support” (EPW) there was a higher proportion (p=0.05) of female headed households (34%) than in “families in extreme poverty with cash transfer support” (EPS) (23%) and “out of extreme poverty” (OEP) families (27%). Also, compared with EPS (49%) and OEP households (39%), there was a higher proportion (p<0.01) of younger family heads (18-35 years old) in the EPW group. The proportion of black and mixed household heads was smaller (p<0.01) among OEP households compared to that observed for EPS and EPW households (65 vs. 81 vs. 73%, respectively) (Table 1).

#### Table 1. Household demographic and social characteristics according to income level and receipt of cash transfer program assistance. Duque de Caxias-RJ, Brazil, 2005

<table>
<thead>
<tr>
<th>Household characteristics*</th>
<th>Extreme poverty(^1) with cash transfer (EPS) (n=99) (%)</th>
<th>Extreme poverty without cash transfer (EPW) (n=327) (%)</th>
<th>Out of extreme poverty(^2) (n=631) (OEP) (%)</th>
<th>P value (χ² test)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household head is female</td>
<td>23(^a)</td>
<td>34(^b)</td>
<td>27(^a)</td>
<td>0.05</td>
</tr>
<tr>
<td>Age of household head (years old)</td>
<td></td>
<td></td>
<td></td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>18-35</td>
<td>42(^a)</td>
<td>49(^b)</td>
<td>39(^a)</td>
<td></td>
</tr>
<tr>
<td>36-60</td>
<td>55(^a)</td>
<td>44(^a)</td>
<td>52(^a)</td>
<td></td>
</tr>
<tr>
<td>&gt;60</td>
<td>3(^a)</td>
<td>7(^b)</td>
<td>10(^b)</td>
<td></td>
</tr>
<tr>
<td>Household head skin color is black or mixed</td>
<td>81(^a)</td>
<td>73(^a)</td>
<td>65(^b)</td>
<td>0.01</td>
</tr>
<tr>
<td>Schooling of the household head(^3)</td>
<td></td>
<td></td>
<td></td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Illiterate</td>
<td>5(^a)</td>
<td>7(^a)</td>
<td>5(^a)</td>
<td></td>
</tr>
<tr>
<td>≤ 4 years of study</td>
<td>54(^a)</td>
<td>68(^b)</td>
<td>42(^a)</td>
<td></td>
</tr>
<tr>
<td>5-8 years of study</td>
<td>38(^a)</td>
<td>21(^a)</td>
<td>45(^a)</td>
<td></td>
</tr>
<tr>
<td>9 or more years of study</td>
<td>3(^a)</td>
<td>4(^a)</td>
<td>8(^b)</td>
<td></td>
</tr>
<tr>
<td>≥4 members in the household</td>
<td>73(^a)</td>
<td>56(^b)</td>
<td>24(^a)</td>
<td>0.03</td>
</tr>
<tr>
<td>Children or adolescent in the household</td>
<td>84(^a)</td>
<td>84(^a)</td>
<td>63(^b)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Food insecurity situation</td>
<td></td>
<td></td>
<td></td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Without food insecurity</td>
<td>16(^a)</td>
<td>10(^a)</td>
<td>47(^b)</td>
<td></td>
</tr>
<tr>
<td>Light food insecurity</td>
<td>42(^a)</td>
<td>43(^a)</td>
<td>45(^a)</td>
<td></td>
</tr>
<tr>
<td>Moderate or severe food insecurity</td>
<td>42(^a)</td>
<td>47(^a)</td>
<td>8(^a)</td>
<td></td>
</tr>
</tbody>
</table>

\(^1\) extreme poverty: family income per capita < US$1.00 per day  
\(^2\) out of extreme poverty: family income per capita ≥ US$1.00 per day  
\(^3\) n=891 due to missing answers  

*different letters indicate significant differences among the strata (p-value <0.05)

Among OEP households, the proportion of heads with at least five years of study was higher than that observed for EPS and EPW households. Conversely there was a greater proportion of household heads with four years or fewer in school among EPW households (68%) when compared to their EPS (54%) and OEP (42%) counterparts. Proportions of families with four or more members were significantly different in the three analyzed groups, being smallest for OEP (24%) and highest in the EPS group (73%). The presence of children and teenagers was more frequent (p<0.01) among EPS and EPW households (84%) than among the OEP group (63%) (Table 1). The
prevalence of moderate or severe food insecurity was at least five times lower among OEP (8%) than EPS or EPW households (42 and 47%, respectively). Similarly, the absence of food insecurity was reported by 47% of the OEP households, which was higher than the proportion estimated for families with income below the limits of extreme poverty receiving (16%) or not receiving (10%) cash transfers (Table 1).

Overall household sanitary conditions were precarious for all analyzed strata, for example, the proportion of households served by public water supply did not surpass 64% (OEP). However, families living under extreme poverty presented worse sanitary conditions when compared to those out of extreme poverty (Table 2). The absence of a toilet inside the residence was observed in 4% of EPW households; conversely, a greater proportion (19%) of residences with more than one toilet was observed among OEP households (p<0.01) (Table 2). The strategy of equally dividing food among family members was reported in half of EPS and EPW households differing significantly from the OEP group (30%). Adults missing a meal or reducing portion size was reported by 2% of OEP households which was significantly smaller than was observed in EPS (29%) or EPW (23%) groups. Adults prioritizing children was more frequent (p<0.01) in EPS or EPW households (48%) when compared to OEP (19%). The utilization of only one or two food types to prepare a meal was reported in 83% and in 80% of EPS and EPW homes respectively, differing from OEP homes (58%) (p<0.01). A higher proportion (p<0.01) of EPS received food donations compared to the other two groups (Table 3).

Table 2. Household sanitary conditions according to income level and receipt of cash transfer program assistance, Duque de Caxias-RJ, Brazil, 2005

<table>
<thead>
<tr>
<th>Household characteristics</th>
<th>Extreme poverty with cash transfer (EPS) (%)</th>
<th>Extreme poverty without cash transfer (EPW) (%)</th>
<th>Out of extreme poverty (OEP) (%)</th>
<th>P value (χ2 test)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sanitary conditions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public supply of water</td>
<td>57 a</td>
<td>59 a</td>
<td>64 b</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>Garbage collection</td>
<td>80 a</td>
<td>83 a</td>
<td>92 b</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>Sewage removed by public service</td>
<td>69 a</td>
<td>68 a</td>
<td>84 b</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>Drinking water filtered or treated</td>
<td>69 a</td>
<td>70 a</td>
<td>83 b</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>Number of toilets</td>
<td></td>
<td></td>
<td></td>
<td>p=0.03</td>
</tr>
<tr>
<td>No toilets</td>
<td>0 a</td>
<td>4 a</td>
<td>0 a</td>
<td></td>
</tr>
<tr>
<td>One toilet</td>
<td>93 a</td>
<td>90 a</td>
<td>81 b</td>
<td></td>
</tr>
<tr>
<td>More than one toilet</td>
<td>7 a</td>
<td>6 a</td>
<td>19 b</td>
<td></td>
</tr>
</tbody>
</table>

1 extreme poverty: family income per capita < US$1.00 per day
2 out of extreme poverty: family income per capita ≥ US$1.00 per day
*different letters indicate significant differences among the strata (p-value <0.05).

Table 3. Strategies related to food insecurity, self-perception of food quality, and eating habits among households of Duque de Caxias-RJ, Brazil according to the income level and receipt of cash transfer program assistance, 2005

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Extreme poverty with cash transfer (EPS) (%)</th>
<th>Extreme poverty without cash transfer (EPW) (%)</th>
<th>Out of extreme poverty (OEP) (%)</th>
<th>P value (χ2 test)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family’s strategy under food scarcity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equally dividing the food among the family members</td>
<td>51 a</td>
<td>50 a</td>
<td>30 b</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Adults skipping a meal or reducing the amount of food</td>
<td>29 a</td>
<td>23 a</td>
<td>2 b</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Adults reducing food to prioritize an infant</td>
<td>48 a</td>
<td>48 a</td>
<td>19 a</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Using one or two food items to prepare meals</td>
<td>83 a</td>
<td>80 a</td>
<td>58 b</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Receiving food donations</td>
<td>16 a</td>
<td>4 a</td>
<td>2 b</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Food quality</td>
<td></td>
<td></td>
<td></td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Great/good</td>
<td>33 a</td>
<td>30 a</td>
<td>68 b</td>
<td></td>
</tr>
<tr>
<td>Regular</td>
<td>60 a</td>
<td>61 a</td>
<td>31 b</td>
<td></td>
</tr>
<tr>
<td>Bad/very bad</td>
<td>7 a</td>
<td>9 a</td>
<td>1 b</td>
<td></td>
</tr>
<tr>
<td>Eating habits</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Healthy food</td>
<td>65 a</td>
<td>62 a</td>
<td>79 b</td>
<td>p&lt; 0.05</td>
</tr>
<tr>
<td>Daily fruits consumption</td>
<td>36 a</td>
<td>34 a</td>
<td>64 b</td>
<td>p= 0.05</td>
</tr>
<tr>
<td>Daily vegetables consumption</td>
<td>65 a</td>
<td>53 a</td>
<td>78 b</td>
<td>p= 0.05</td>
</tr>
</tbody>
</table>

1 extreme poverty: family income per capita < US$1.00 per day
2 out of extreme poverty: family income per capita ≥ US$1.00 per day
*different letters indicate significant differences among the strata (p-value <0.05).
Self-perceived great/good food quality among OEP households (68%) differed significantly from those in EPS (33%) and EPW (30%) homes. Only 1% of OEP families considered their food to be bad/very bad, differing significantly from the other groups (7% EPS and 9% EPW) (Table 3). Healthy food consumption was reported by 79% of OEP families, a proportion significantly higher than observed for EPS (65%) and EPW (62%) households. Significant differences were observed in the daily consumption of fruit and vegetables, which was more frequent in OEP households (64% and 78%, respectively) than in EPS (fruits: 36 and vegetables: 65%) and EPW (fruits: 34 and vegetables: 53%).

4. Discussion

In general, households living in extreme poverty with and without cash transfer aid (EPS and EPW respectively) were quite similar in many aspects, particularly concerning sanitary conditions and strategies for coping with food scarcity. Other common characteristics observed for these two groups were the predominance of households led by black or mixed race individuals, the presence of children and adolescents in the household, and the perception of food insecurity. The most important differences between EPS and EPW households were the greater proportions of female, young and low educated heads and smaller proportions of families with four or more members. It is possible that the level of schooling could have influenced families’ insertion in the cash transfer program due to the necessary information and documentation being accessed more easily by a more educated family head.

The violation of the right to adequate food appeared an everyday situation for a considerable proportion of participant households, since the self-perception of moderate and severe food insecurity was significantly frequent among extremely poor families. Moreover, as expected, the level of income affected the quality of food in the household as families living in extreme poverty reported lower prevalence of daily fruit and vegetable consumption than among “out of extreme poverty” (OEP) families. Conversely, the self-perception of healthy food was modestly more prevalent in OEP households. The findings concerning self-perception of food quality and fruit and vegetable consumption are comparable to those of Segall-Correa and Salles-Costa, who found elevated intake of energy-dense processed foods among families in extreme poverty that received support from the Programa Bolsa Familia (PBF) [16]. Additionally, these results are similar to studies that evaluated food insecurity and fruit and vegetable consumption, such as in extremely poor women in Canada [17,18,19], adults in Trinidad and Tobago [20], Canadians with diabetes [21], and low-income adults [22].

Furthermore, fruit and vegetables can be more expensive and less accessible than energy-dense foods. Price is considered a limiting factor of access to healthier food choices by low-income urban populations and is related to the consumption of unhealthy high-fat and high-sugar foods [5,11,23]. As observed by Drewnowski and Specter, foods prices directly influence the consumption of energy-dense foods by poor people; additionally, these authors suggest that the consumption of low-cost foods is frequently associated with low nutritional quality [24].

EPS and EPW households share the same strategies to cope with food scarcity. However, Uchimura et al. observed that portion size reduction is not a deliberately adopted strategy, since it is imposed by the constraints that low-income families face [25].

These authors carried out a qualitative study with beneficiaries of the PBF in southern Brazil and also found that using limited numbers of food types (mostly rice and beans) in one meal was recurrent among the studied group [25]. The study’s data on sanitary conditions in the area demonstrates a shortfall against expectations even though Brazil’s improvements in these indicators are modest compared to its economic growth [26]. The current Brazilian government recently launched the Growth Acceleration Program (Programa de Aceleração do Crescimento) which has prioritised improvement of infrastructure and basic sanitation across the population. However, at the current time the area studied has seen modest improvement in sanitary conditions such as access to the sewerage network, access to potable water and garbage collection. Absence of such advances presents a permanent challenge to amelioration of household conditions of health and quality of life of this extremely poor population. As an inheritance of the country’s historically exclusionary and unequal economic development, social inequalities are still present in Brazil, despite recent remarkable economic growth and progress of socioeconomic indicators [26]. However, these statistics often disguise disparities present, particularly in urban areas that concentrate extreme poverty. Such areas are often characterized by lack of access to basic goods and services, such as urban infrastructure, acceptable housing, piped treated water, regular garbage collection, and proper sanitation. The study area is a typical example of these conditions. However, even in poverty, there are variations among households that require addressing in tailoring and targeting social policies.

The data suggested that even among families who share the same low-income environment, small differences in education may provide higher income and, consequently, better access to food and basic services (such as appropriate sewerage, drinking water, and garbage collection) as was the case of OEP families evaluated in this study. Therefore, public policy design requires closer and more differentiated appraisal of potential target groups. Monitoring actions aiming to reduce poverty and food insecurity should incorporate indicators of environmental conditions and family profile, to characterize, for example, the social vulnerability of the household heads, which implies difficulties in employment, income, and social support. In 2006 Brazil established the Food and Nutritional Security Law, which gives responsibility to the government for the right to regular and permanent access to food. This is also guaranteed in the Federal Constitution 2010 [27]. Future studies should therefore include components to facilitate assessment of nutritional status when evaluating food insecurity.

5. Conclusion

This work investigated households living in a low-income area of Duque de Caxias, Rio de Janeiro, framing a context of food insecurity in a deprived urban area. By
observed in low-income urban areas in this country. Extreme poverty demonstrates the worst combination of compelling results related to factors revealing the social though in modestly lower proportions. The most families with income over the level of extreme poverty, though in very precarious conditions such as casas cedidas, the practice of being allowed to construct properties on the land of friends or relatives without purchase or rent payment, may represent another method of differentiation. This study has shown that the definition of extreme poverty in the context of inequality in Brazil may be more acutely associated with the presence of the hunger stage of food insecurity in metropolises and urban areas than in rural areas. A broader understanding of what poverty represents, specifically in relation to deprivation of food types and other basic needs, require better designed and planned public policies with the objective of increasing the capabilities, skills and opportunities of individuals within households. Furthermore, the equitable provision of access to those public goods and services guaranteed by law requires a pro-active approach to public management which has the removal of extreme poverty inside and outside the home as its goal. An urgent area of work remains the empowerment of communities in extreme poverty, placing them central to the process of expanding rights advocacy, demanding the rights enshrined in the Brazilian constitution.

Acknowledgments

This study received financial support from the Brazilian National Council for Scientific and Technological Development (Conselho Nacional de Desenvolvimento Científico e Tecnológico – CNPq, # 503139-2003-3) and the Brazilian National Cancer Institute – Ministry of Health (Instituto Nacional de Cancer – Ministério da Saúde).

Conflicts of Interest

The authors declare no conflicts of interest.

Authorship

This paper is part of D.S.F. Doctorate in Nutrition thesis; D.S.F.: data treatment and statistical analysis, results interpretation, and manuscript conception and writing. R.S.: study conception, results interpretation, and manuscript final revision. S.M.C.S.: Doctorate dissertation co-supervisor, manuscript conception, data interpretation, and manuscript final revision. R.A.P.: Doctorate dissertation supervisor, study conception, manuscript
conception, data analysis and interpretation, manuscript writing and final revision.

References


