

Participatory food and nutrition security assessment in a community of Salvador, Brazil

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Abstract *This paper addresses a Food and Nutrition Security (FNS) participatory assessment developed together with community leaders and residents in Salvador city, Bahia, Brazil. Our reflection aims to analyze this research – including design, data generated, and its use – discussing the concept of FNS and its existing assessment methods. Secondary data were found to be difficult to access or of little utility to local activists. The household survey designed and used by the participants characterized the food and nutrition insecurity situation in vulnerable areas of the community, in a dialogue with national and socio-economic indicators, evidencing robust data. First of all, the relevance of participatory approaches stood out: while the results show how much FNS is intricately embedded into a broader social vulnerability context, they show how critical it is to consider FNS research as a political instrument and the knowledge it produces as a power-related instrument. In this sense, FNS assessment is established as an emancipatory process, indissociable from the action and social change actors.*

Key words *Food and nutrition security, Social vulnerability, Community-based participatory research*

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Introduction

The food security concept was born in the context of post-WWII shortages. It took shape at the end of the 20th century, incorporating issues related to the economic and physical access to food, nutritional aspects, and food quality and cultural aspects, and food sovereignty-related issues, among others¹. Hence, the United Nations Food and Agriculture Organization's World Food Security Committee (CFS/FAO) recommends using the concept of Food and Nutrition Security (FNS), which

[...] exists when all people have, at all times, physical, social and economic access to safe food, consumed in sufficient quantity and quality, that meets their nutritional needs and food preferences, in an environment with adequate sanitation and health services, allowing a healthy and active life².

With the commitment of countries to assess and ensure FNS to their populations, notably after 186 nations signed the Rome Declaration in 1996, the question arose as to how to analyze and understand better the picture of food and nutritional insecurity³. Several FNS assessment methods have been developed in an attempt to encompass the multiple factors that imply in the framework of food and nutritional security. According to Pérez-Escamilla and Segall-Corrêa⁴, five evaluation methods are commonly used in national surveys: 1) FAO method of calculating the daily caloric availability per capita; 2) calculation of the minimum income for food and non-food consumption; 3) calculation of food consumption - such as the quantitative records of the last 24 hours, frequency of food consumption or the quantification of family expenses with food purchases; 4) anthropometry and; 5) family access to food psychometric scales.

In his study on the existence and type of FNS assessments in the signatory countries of the Rome Declaration, Aliaga⁵ shows the use of instruments ranging from weather forecasts, agricultural production measures and market studies, to nutritional indicators, as per the realities with which they dialogue and their corresponding needs. All countries, however, share a common point in the evaluation of the FNS: few evaluation documents that count on the participation of local civil society in its preparation are available.

In Brazil, the "Food Security" supplement of the National Household Sample Survey (PNAD) adopted the Brazilian Food Security Scale (EBIA), which is defined as a family access

to food psychometric scale consisting of 14 questions measuring the perception of families concerning access to food⁶. The Household Budget Survey (POF), in turn, includes studies on food acquisition and consumption and nutritional assessment of the population⁷⁻¹⁰. Local assessments of the FNS situation are available in certain communities or a specific population group, most of them using EBIA or anthropometric assessment¹¹⁻²⁰. Others use focus groups or in-depth interviews^{21,22}, or secondary data to build municipal FNS assessment protocols²³.

However, very few studies involve members of the investigated community in the methodological design and application of the research or the analysis of its results. While the National System of Food and Nutritional Security (SISAN), created in 2006, actively invests in the social participation of Brazilian civil society to face food and nutritional insecurity²⁴, low community participation in research about their own FNS situation seems contradictory. Indeed, this little implication does not contribute to combat the Brazilian setting of low incorporation of the FNS concept and poor recognition of the Human Right to adequate Food (HRF), both identified as essential hurdles to social participation in the FNS²⁵⁻³⁰.

This paper argues that it is necessary to put the FNS knowledge tools in the hands of the populations that suffer from food and nutritional insecurity, and leaders or civil society organizations that struggle to face social vulnerability in their communities.

The first element supporting this argument is the complex issue of measuring FNS, calling for the incorporation of research processes into the local social, political, economic, and environmental dynamics for a better understanding of the situation and the vulnerability processes in which it occurs. The second element concerns the need to situate individuals as political subjects, building their knowledge to develop coping strategies and claim their rights. This approach is consistent with the principles that founded participatory research, which seek to involve actors in the research as agents, owners of their knowledge, capable of analyzing their problems, and designing their solutions³¹. Within participatory research, research-action is established as placing an instrument of investigation and action available to vulnerable social groups³², attempting to "lay the control of knowledge in the hands of groups and communities that express collective learning both in their awareness and commitment to collective action"³³.

This paper addresses one of the first actions undertaken within an FNS research-action project developed with leaders and dwellers of a region in Salvador, Bahia, Brazil. This is a household survey that aimed to assess the FNS situation in vulnerable areas of the region, based on a methodology developed by the participants in the research-action, and whose results could support their activist actions. This work aims to analyze this participatory research experience in FNS, from its design to the results generated and its use by participants, discursing with data and other forms adopted for assessing FNS.

Assessment tools: a participatory construction

Pau da Lima is the name given to an Administrative Region, a subdivision of the municipality of Salvador, with 233,274 inhabitants in 2010³⁴. The group of the research-action participants was established from a first workshop, organized in February 2014 with community leaders and residents of an existing network of associations and churches. The workshop gathered a total of 37 participants from the community and aimed to stir a reflection on the situation of food and nutritional security in the region and the very concept of FNS, which aimed to trigger the mobilization of participants and the design of the first actions of the project.

Thus, working groups were set, one of which was responsible for defining the method for assessing the FNS situation in the community and its organization. The group meetings were held weekly, between May and October 2014, with the participation of 5 people from the community, including two male residents, one female resident, and two community leaders, all aged 29 to 61 years. The following points were discussed: (1) protocol of indicators based on public domain secondary data; (2) municipal databases that break down data by neighborhood or district; (3) developed methodologies and collection instruments used in the PNAD, the different parts of the POF, and discussion about qualitative methods; and (4) discussion and debate about the FNS situation in the community, about information collection methods and challenges faced by research in the community.

Two instruments were developed to assess FNS in the community. First, a protocol for municipal FNS indicators that uses secondary data was adapted for the local level^{23,35}, with indicators or similar indicators broken down by Region,

Health District, or, if not found, neighborhoods. The data were mainly collected in the databases of the Municipal Information System of Salvador³⁴, and the "TabNet" System of the Municipal Health Secretariat of Salvador³⁶.

The first observation at this stage of the work concerns the intricate nature of multiple databases, which are not easily accessible to community members with no mastery of such tools. Moreover, several local indicators are not available on the online databases, and when they are, they apply to different geographical delimitations (administrative region, health district, neighborhoods), often with a level of aggregation that does not account for the situation found in the most vulnerable areas. Finally, some of the identified indicators' most recent values were collected in 2000.

In general, some dissonance between outdated, incomplete, and aggregated indicators was identified, and, on the other hand, a highly complex reality, within the same neighborhood or in the same region, and highly dynamic, with exponential population growth and high population mobility in recent decades. More current and complementary data, such as nutritional indicators or the number of families registered in the single registry, can, in theory, be accessible on request to the Health District or the sub-municipality. These data were requested from local authorities by leaders throughout the project, which led them to face hardships to obtain them, even though some of them work in the sub-municipality or as community health workers. This shows the difficulty of access to public, current, user-friendly and quality data for residents or community leaders, contributing, in part, to the low participation of the participants in this work stage.

Second, a household survey to assess the FNS was designed and applied, with the following objectives: (1) to assess the FNS situation in a more vulnerable area of the community, as a basis for formulating projects and claiming the guarantee of HRF by the leaderships; (2) to provide an anthropometric nutritional assessment for residents of this area; and (3) to inform about FNS and HRF, mobilize to claim HRF and invite to participate in the project.

A closed-ended questionnaire was applied to one of the guardians in all households, focusing on the respondent's perception, both concerning their access to food and their consumption. The group's choice was to focus on these two dimensions as they are the most problematic in

the community. The focus on the respondent's perception was, first of all, motivated by the understanding that it would be relevant to conduct a household survey that would not only confirm the situation of food and nutritional insecurity, but also approach the residents' understanding of the subject, and, not least, try to arouse interest in the issue of promoting FNS and claiming HRF by the surveyed residents, involving them in reflecting on the topic.

Thus, the questionnaire was complemented by open-ended questions in 10% of the households, focusing, first, on the reason for food shortage in the past and the concern about lacking food in the future and, second, on the meaning of healthy eating and the reasons that lead residents to have or not, in their opinion, healthy food at home. The questionnaires were accompanied by the nutritional assessment of the residents and a discussion about FNS and HRF in each household, with an invitation to participate in the project.

The household survey was carried out from November 2014 to January 2015, in a random sample of 450 households selected within the study cohort of the Gonçalo Muniz Research Center of the Oswaldo Cruz Foundation, Bahia (CPqGM-Fiocruz), which has been developing projects in this territory since 2001.

Descriptive statistics of socioeconomic variables, food access and consumption, and nutritional assessment were used for the analysis of quantitative data. Subsequently, the relationship between socioeconomic variables and FNS indicators was analyzed from a trend analysis and Chi-square and trend Chi-square tests. The analyses were performed using Epi-Info version 7. The answers to the open-ended questions were recorded, transcribed, and analyzed through the creation of analytical categories emerging from the residents' narratives. Field notebooks were written to record and systematize the observations of the research team.

The household survey was approved by the Ethics Committee of the research institution responsible for the survey and was funded by the National Council for Scientific and Technological Development (CNPq) with the Ministry of Social Development (MDS).

The results of the evaluation: expressions of food and nutritional insecurity

The household survey showed that 31% of household heads consulted said they were con-

cerned about food shortage in the month before to the survey, and 17% said they lacked food, including 14% of households where a quantitative food reduction was reported. By way of comparison, the state of Bahia had 15.9% of households with moderate or severe food insecurity in 2013, pointing to a substantial food reduction or food pattern disruption resulting from food shortage in the three months before the research⁶. In other words, in the community surveyed, the proportion of households reporting a significant food reduction was, in one month, close to the proportion reached in the state in three months, bearing in mind that the state showed worrying food and nutritional insecurity rates. It should also be noted that 273 (80%) of those in charge, often with emphasis, said that they were concerned about food shortage in the next generations. It is understood that the concern for the future factor plays a vital role in the daily lives of community residents, mirroring a situation of high social and economic insecurity.

Both the residents' reports and the analysis of the socioeconomic data identified low income and unemployment as the main reasons for food shortage and concern about the future lack of food. The analysis confirms a statistically significant association between these variables. Some statements indicate another point of interest: women's dependence on men. Food shortage was attributed several times by the mother of the family to the unemployment of her husband or son. The analyzed data confirmed the significant difference in access to food between households headed by women and those headed by men, with a statistically significant association between the gender of the head of the household and its report of the concern about future food shortage, or the current lack of food.

The results show that the community's food and nutritional insecurity is part of a broader context of social vulnerability, in line with the results of scholars on the topic^{6,37,38}. The food insecurity-affected groups are also those exposed to several other factors that characterize a situation or a state of vulnerability, among which are deficient socioeconomic conditions, degrading environment, low schooling, urban suburbs' residents, unemployment, among others. Thus, households that are most exposed to food insecurity are also those who live with several other social vulnerability indicators³⁹.

Consistent with the reported lack of access to adequate food, the results of anthropometric assessments show that the community suffers from

the so-called dual burden⁴⁰, living with both malnutrition and overweight. Among adults, 6.2% of the sample showed weight deficit, whereas, in urban areas in the Northeast, the prevalence found was 2.3% for men and 4.5% for women in 2008-2009⁷. In the same way, a prevalence of 20.9% of weight deficit was found among older adults in the community, while the estimated prevalence is between 2.1% and 4.4% in this age group for the whole of Brazil, in 2008-2009⁷. At the same time, while the prevalence of obesity was estimated at 11.5% for men and 15.6% for women in urban areas of the region⁷, in the researched community, the results show a prevalence of 22% of obesity, including cases of grade III obesity in adults. In the end, only 35% of the adult and elderly residents assessed had the ideal weight, showing a worrying picture of weight deficit and obesity.

The nutritional assessment results show the lack of indicators of chronic malnutrition in children under five years of age in the community. However, acute malnutrition indicators are identified, revealing a more recent or specific situation: weight-for-height data points to wasting in 7% of children, with severe wasting in 5%. The National Survey of Demography and Health of Children and Women (PNDS)⁴¹ shows that weight-for-height deficits are indicative of acute malnutrition cases when their frequency exceeds 2 to 3%. As a comparison, in 2006, the PNDS results showed a weight-for-height deficit in only 1.9% of Brazilian children under five years of age, not exceeding 3% in any stratum of the population⁴¹. In the same age group, the prevalence of 7% overweight and 1% obesity as per this same nutritional indicator stands out, for a total of 8% overweight according to the PNDS criteria, which showed a prevalence of 6.6% in Brazil in 2006⁴¹. Overall, the data show a picture of wasting and obesity of concern in community children and adolescents, with particular attention to data on acute malnutrition in children under five years of age and adolescents aged 10-18 years.

It is essential to point out that the households' survival strategies do not include resorting to the State or Institutions: even among households that reported lack of food or were concerned about future food shortage, few people resort to food donations from family, neighbors or institutions, with no mention to the Government or any other institution when addressing the issue of assuring food at home.

In the meantime, there have been several references to God, who appears as the one who decides about tomorrow and protects against food

shortage. When respondents point to someone being responsible for assuring food, that someone is themselves: *It's my fault!* (E.3, Question 1); *Only when I die! There will be no shortage as long as I have arms to work! Because I'm always going to strive to provide it!* (E.3, Question 2); *I am not retired, so I have to work, get by in order to be able to support myself* (E.12, Question 2). The spontaneous self-acceptance and self-responsibility to ensure the food at home seem to predominate as indicated in sentences such as "we manage", "we have to get by".

We also observed in the respondents some discomfort when talking about food shortage, especially in households where such a situation has already occurred, pointing to a stigma that persists insofar as food is not recognized as a right, in the residents' discourse. Thus, accountability becomes individual and penalizes the household head: food shortage would be evidencing the failure of those responsible for providing food in the household. This process, by which the subjects are to blame for their health problems, which originate or are influenced by social, cultural and financial factors, is widespread, and is described by Vasconcelos⁴² as "blaming the victim". Since food is a basic necessity for survival, its shortage is a violation of human dignity⁴³, feeding shame and guilt in the respondents' discourse, and inhibiting social mobilization where it is most needed.

By way of final considerations: rethinking the FNS assessment

The research carried out with leaders and residents of the investigated community allowed characterizing the picture of food and nutritional insecurity in vulnerable areas of the community, dialoguing with the national indicators and social determinants of FNS observed in other studies. This shows certain robustness of the data obtained. Despite using a non-standardized assessment instrument, the household survey managed to capture an event, that of food and nutritional insecurity as conceived by the participants of the project, that dialogues with the social reality in which it is embedded.

Placing food and nutritional insecurity in the broader context of social vulnerability, as suggested by the research results, allows us to understand it in its individual-collective duality, apprehending its historical, social, environmental, and political dimensions. This type of approach has two main implications when it comes to assessing the FNS situation.

The first implication concerns the phenomenon of food and nutritional insecurity, its complexity and scope, pointing to the need to rethink the methodologies for its analysis. Food and nutritional insecurity overly transcends its biological expressions, encompassing economic, social, environmental, and cultural issues that end up establishing links between the individual and community life of subjects⁴⁴. In their proposed political epistemology, Porto et al.⁴⁵ point to the need for knowledge production forms that recognize health problems and their socio-environmental determination as multidimensional and intricate, and that question vulnerabilization processes before situations of vulnerability, and socio-environmental determination before socio-environmental determinants.

In particular, in the social determination of health, the “gap between the macro-structural and collective plan, and the conditions and potentialities of the subjects in more personal and community plans linked to daily life and place” is problematic⁴⁵, because the authors believe:

*The biomedical and epidemiological perspective produced rationality for the interventions of society and the State along the lines of normal science, restricting the social dimension in determining the health-disease process to the instrumental level of attributes, and society is understood as a group of individuals with quantifiable features. Such rationality does not prioritize or articulate improvements in living and working conditions with the social structures of society [...]*⁴⁵

In the social determination of food and nutritional insecurity and of health, it is necessary to build “critical and transforming” analysis approaches, the authors said. As a basis for this reflection, we recognize the limits of FNS assessment methods that focus on the individual or household dimension, that favor quantifiable physiological or biological aspects, or that do not address food and nutritional insecurity as a process – which can last for months or years – and reveal a subject who is already ill.

In Brazil, FNS is now mainly measured through instruments and indicators that focus on the household dimension, such as EBIA and the household budget survey, and the individual dimension, such as the anthropometric assessment of individuals, and these indicators are often associated with socioeconomic variables equally individual or household-related. In this process, there is a risk of shifting the subject or assessed group from a context of relationships in which it is inserted, reinforcing the discourse

based on the subject’s accountability and issues relating only to its individual practices. Political issues are found in these relationships, including those linked to actions of the State’s responsibility regarding FNS as an object of human rights. In particular, it is crucial to note that food insecurity/security is directly related to access to services that are, to a large extent, dependent on State action (sanitation, treated water supply, appropriate sewage, health services, among others)³⁸.

We should value approaches that build beyond individual or household indicators, and create a space, both in the academia and the communities themselves, to discuss the place of FNS in the relationships between individuals and the community, and reflect on the responsibility of the State.

This household survey intervened at the onset of the research-action, when the meanings associated with FNS by the participants were still guided by the subject’s accountability, with weak recognition of food as a right, which undoubtedly influenced the choice and construction of research instruments. The early familiarization of participants with both the concept and participatory research methodologies certainly contributed to the design of the household survey, giving a place of importance to the instruments already being used in Brazil. Even so, the involvement of residents and leaders in the methodological construction and the analysis of the results provided a fertile reflection on the State’s responsibility, and on how the community’s food and nutritional insecurity fits into a broader historical, socioeconomic and political context. As a result, the household survey allowed the construction of meanings associated with FNS as an object of right and provided the argumentative basis for community actions aimed at the public sector.

In a society that still does not recognize food as a human right, it is necessary to see FNS research beyond the generation of knowledge, as a space for building FNS as an object of right, and for the establishment of political subjects who recognize themselves as carriers of social rights.

This is when the second implication of thinking about food and nutritional insecurity within the approach of social vulnerability steps in, as this approach also concerns the coping possibilities. In particular, the social vulnerability analysis model proposed by Kaztman⁴⁶ incorporates the set of resources and strategies that individuals and families can mobilize to improve their well-being situation, avoid the deterioration of their living conditions or reduce their vulnera-

bility. The confrontation of social vulnerability goes beyond the individual framework, as Porto points out when the author draws attention to “the importance of the so-called vulnerable populations to assume their role as active collective subjects to transform their condition of vulnerability”⁴⁷. Thinking about social vulnerability implies thinking about the political and institutional participation of individuals⁴⁸, just as it requires placing them as political subjects because according to Porto et al.⁴⁵, it is necessary to:

[...] think of complexity and concepts such as vulnerability under a critical and emancipatory perspective. More than attributes that define people and groups most threatened or prone to health problems, due to their inability to fend for themselves, it is crucial to analyze and intervene in the processes that make subjects vulnerable, which means overcoming the tendency to consider such populations as passive and abstract in order to situate them as political, historical, culturally situated and rights-holding subjects.

In this sense, any research that encompasses the situation of vulnerability becomes a potential instrument for the political participation of the subjects who are in the situation in question.

The study showed that public access to data of interest for assessing the situation of food and nutritional insecurity is difficult because the information is outdated and incomplete, indicators are complex and inconsistent, and data are aggregated and do not allow capturing the situation in smaller areas. Project participants, community leaders, campaign without having actual data in hand that can sustain their arguments. The incorporation of these leaders into councils, among them the district health council and the council of sub-municipality residents, did not facilitate, as one might expect, access to such data.

Participating in research in some quality other than that of an informant was not the practice of community members. The incorporation

into the research design processes, organization, analysis, and use of the results was a brand new experience to the participants, as they reported. Despite the difficulties represented by the novelty of this experience, the participants were involved in the research design and its organization, and used its results to formulate guidelines for action, including the establishment of a regional food and nutrition security council, the demand for the implementation of a Popular Restaurant in the region, and a community garden project. Thus, informants became creators and users of the research, which already is a significant step towards the control of resources to face the community's social vulnerability.

Above all, the experience showed the relevance of thinking about research in FNS as an emancipatory process, inseparable from the action and stakeholders of social change. This perspective recognizes and dialogues with the need for local and qualitative approaches that seek to understand food and nutritional insecurity in its cultural dimension, as a process embedded in the social relationships and daily lives of individuals, bringing their local specificities and the need to get closer from the subjectivity of the social groups involved. However, besides the local and qualitative, the relevance of participatory approaches stands out most in this reflection, as understanding and acting are intrinsically linked.

In the same movement in which the research results show how much the issue of FNS is embedded in the issue of social vulnerability, they show how necessary it is to think about FNS research as a political instrument and about the resulting knowledge as a power instrument. In the line of the research-action thinkers, the assessment of the FNS situation is an emancipatory process in itself, based on the need for the participation of community members in the construction of knowledge about their vulnerability in order to face it.

Collaborations

MA Aliaga was responsible for collecting and analyzing the data, and for writing the. MS Ribeiro contributed to the survey and analysis of data and writing of the article. SMC Santos contributed to the coordination of data collection and analysis processes and revised the text of the article. LAB Trad was responsible for coordinating the data collection and analysis, review and validation of the article.

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