DEMETRA
Alimentação, Nutrição & Saúde

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Food insecurity and socioeconomic profile of households accompanied by Family Health Teams

Insegurança alimentar e perfil socioeconômico de domicílios acompanhados por Equipes de Saúde da Família

Abstract

Introduction: Food Insecurity (FI) encompasses psychological aspects and physical manifestations that impairs and places the health of individuals at risk. *Objective:* The research aimed to characterize the determining factors of FI in households of Lagarto, Sergipe. *Method:* A cross-sectional study carried out between August 2018 and July 2019 with 94 households, accompanied by the Family Health Teams of three Primary Healthcare Units. For this purpose, the Brazilian Food Insecurity Scale (*Escala Brasileira de Insegurança Alimentar - EBIA)* was used, and a structured socio-economic questionnaire, the results of which were analyzed using the SPSS 20.0, through descriptive measures and central trend, as well as the Shapiro-Wilk test for normality and the Spearman coefficient of correlation. *Results:* It was verified that 27.60% of the households had food security (FS), 51.10% with light food insecurity (FI), 12.80% average FI, and 8.50% severe FS. There was a significant association between gender, schooling level of the head of the family, total earnings stratified by minimum-wage with the demographical characteristics and the occupation of the head of the family with the FI situation. *Conclusion:* The prevalence of food insecurity (FI) in the domiciles under analysis was demonstrated to be higher than the national average, and family income being the major determinant of the FI experienced by the families, as well as the characteristics of the heads of the families, such as gender and schooling levels and of low economic classes.

Keywords: Primary Healthcare. Social Health Determinants. Cross-sectional studies. Socio-economic factors. Food and Nutritional Security..

Resumo

Introdução: A insegurança alimentar (IA) envolve dimensões psicológicas e manifestações físicas que comprometem e colocam a saúde das pessoas em risco. *Objetivo:* A pesquisa objetivou caracterizar os fatores determinantes da IA em domicílios de Lagarto, Sergipe. *Método:* Trata-se de estudo do tipo transversal conduzido entre agosto de 2018 e julho de 2019 com 94 domicílios acompanhados pelas Equipes de Saúde da Família de três Unidades Básicas de Saúde. Para isso, foram aplicados a Escala Brasileira de Insegurança Alimentar e um questionário socioeconômico estruturado, que foram analisados por meio do SPSS 20.0 através de medidas descritivas e de tendência central, além do teste de normalidade de Shapiro-Wilk e do coeficiente de correlação de Spearman. *Resultado:* Verificou-se que 27,60% dos domicílios estavam em segurança alimentar (SA), 51,10% em insegurança alimentar (IA) leve, 12,80% em IA média, e 8,50% em IA grave. Houve associação significativa do sexo, escolaridade do chefe da família, ganhos totais estratificados por

salário-mínimo com as características demográficas e de trabalho do chefe de família com a situação de SA. *Conclusão:* A prevalência de insegurança alimentar (IA) nos domicílios analisados se mostrou maior que a média nacional, e a renda familiar confirmou ser o maior determinante das experiências de IA vivenciadas pelas famílias, além das características dos chefes da família, como sexo e escolaridade e das baixas classes econômicas.

Palavras-chave: Atenção Primária à Saúde. Determinantes Sociais da Saúde. Estudos Transversais. Fatores Socioeconômicos. Segurança Alimentar e Nutricional.

INTRODUCTION

In Brazil the enactment of the Brazilian National Food and Nutritional Security Act – 11346/2006 (*Lei Orgânica de Segurança Alimentar e Nutricional)* represented a milestone for establishing adequate food as a legal right. Food Security (FS) refers, therefore, to the availability and regular access to food in adequate quantity and quality and within a context of sustainability, whether environmental or economic and social.[1] There are four pillars to FS: availability of food, access to food, utilization of food and nutrients and stability, which is a transversal pillar to the other three. Access, both physical and economical, involves the means for obtaining food and the prices, of the food as well as of other needs that compete with food.[2]

Food Insecurity (FI), on the other hand, entails psychological aspects (concern for the lack of food on a regular basis), and even physical manifestations, such as malnutrition and obesity, which impair and place the health of the individuals at risk.[2,3] The most severe manifestation of FI is hunger. Moreover, FI interacts with other socio-economic determinants, such as skin color, age, gender, civil status, schooling and income, being a conditioning factor of the physical, mental and social well-being of individuals.[2]

Social Determinants of Health (SDH) correspond to "social, economic, cultural, ethnical/race, psychological and behavioral factors that influence the occurrence of health issues and its risk factors to the population".[4] According to the model by Dahlgren & Whitehead, the SDHs are grouped including individual factors – such as age, gender and hereditary factors – as well as the macro-determinants of the health of the population, such as the surrounding socio-economic, cultural and environmental conditions. This also includes behaviors and lifestyles, availability of food and access to essential services and environments.[4]

According to Whitehead,[5] the SDHs are, therefore, responsible for producing unnecessary, avoidable and unfair differences, where people have little or no choices on their living and labor conditions. This definition characterizes health inequities, compromising, moreover, access to health services.

For FI, determinant factors can be found at all the previously mentioned levels. This means that this problem in the households has characteristics of economic, psychosocial, ethical, political and cultural natures,[6] that depend on household factors, which are influenced by the community and which, in turn, are inserted in a national and global context.[2,7]

According to Brazilian Household Survey Data (*Pesquisa Nacional por Amostra de Domicílios - PNAD*) of 2004, 2009 and 2013,[8] the Northeastern Region had a positive reduction of households with FI – 53.6%, 46.1% and 38.1%, respectively. Nevertheless, it is still the region with the highest prevalence. Also, according to the PNAD 2013, moderate or severe FI prevailed in households of low monthly income *per capita*, located in the rural zone, with the presence of at least one resident of less than 18 years, with low-schooling individuals and self-referred skin color as non-white.[8-10] Populations under social inequalities demonstrate higher chances of moderate to severe FI,[6] with income *per capita* and, accordingly, inequality of income, being the major determinant.[10] FI is also negatively correlated to inadequate housing and basic sanitation conditions.[9]

Most recently, the Brazilian Family Budget Survey (*Pesquisa de Orçamentos Familiares - POF*),[11] performed in 2017 and 2018, demonstrated that in the Northeastern Region, less than half (49.7%) of the homes had regular and permanent access to food. Compared with the latest data from PNAD,[8] this region did not maintain a continued reduction in the number of households with FI, as verified since 2004 and 2009.

The PNAD methodology, however, only entails data on a state level, not including information of the individual municipalities on the occurrence of this issue. Municipal data is necessary towards public management, due to interstate differences and the specificities of each municipality.[12] According to an

estimate made by Gubert et al.,[12] in 2004, approximately 70% of the municipalities of the Northeastern Region of Brazil presented moderate and severe FI. Conversely, Sergipe had municipalities with low prevalence of severe FI, but a higher prevalence of average and low FI (96.0%). This information indicates a problem in the state which should be explored also at a municipal level.

For this reason, it is justifiable to explore the factors that determine the occurrence of FI at the households and the characteristics of the families at a local level. Based on this, the research had the objective of characterizing the determining factors of FI in households of Lagarto, Sergipe.

METHODS

A descriptive cross-sectional study, of an exploratory nature, with qualitative analysis of the data, conducted between August 2018 and July 2019, through data collection directly in the participant households. There were 94 registered households participating in the study and accompanied by the Family Health Teams (*Equipes de Saúde da Família - ESF*) and three Primary Health Units (*Unidades Básicas de Saúde - UBS*) of Lagarto, a large municipality in the interior of the state of Sergipe. A pilot study was also developed with 14 households, assigned on of the UBS, but not taking part in the research.

The selection of households was performed through drawing lots,[13] based on the families registered by the ESF, performed by the respective community health agent (*Agente Comunitário de Saúde - ACS*) of the micro-area in 2018. Should the individual drawn refuse to take part, the next family on the register was chosen. Visits to the households were made with the ACS responsible for the family, an essential professional for data collection, responsible for identifying the household in accordance with the number drawn, pointing out the address and establishing the first contact of the team with the family members. The interviews were performed with the heads of the households.

For assessing the perception of FI in the households the Brazilian Food Insecurity Scale (*Escala Brasileira de Insegurança Alimentar - EBIA*) was used, a psychometric scale used to measure the dimension of access to food. It stemmed from a scale developed by the U.S. Department of Agriculture, and its validation in Brazil occurred through a study carried out in 2003 and 2004.[7] The scale classifies the families as: FS (when there is no positive answer) and, according to the sum of the score obtained, as Light FI – LFI (when there is uncertainly in relation to the capacity of obtaining food), Moderate FI – MFI (when there are changes that affect mainly the quality of the food, with some reductions in the quantity of food), and Severe FI – SFI (in other words, eating less food or suffering hunger). The scores differ among the households with or without minors of less than 18 years, where the presence of minors increases the risk of FI. However, the EBIA can be subject to "prestige bias", once the interviewed parties could manipulate the answers believing that they could, thus, receive assistance or social benefits.[14]

Socio-economic data, in turn, were obtained through a questionnaire with the following variables: gender, age, self-referred skin color, schooling level, civil status and occupation of the head of the household; and number of people living in the household, presence of at least one dweller under the age of 18, total earnings, total earnings stratified by the minimum-wage, housing, government benefits to the family and production of food for own-consumption – the latter with the possibility of multiple choice. Minimum-wage corresponded to the prevailing amount at the time of the research (R$954.00).

Also included in the questionnaire was the Brazilian Criteria for Economic Classification (*Critério de Classificação Econômica Brasil - CCEB*), which estimates the families' purchasing power.[15] In the classification the quantity of items such as vehicles, computers, refrigerators, washing-machines, among other, as well as

the schooling level of the head of the family and access to running water and paved streets. The sum of the score obtained for each item categorizes the families into economic classes: A, B1, B2, C1, C2, D-E.

Data were analyzed using the SPSS 20.0, through obtaining descriptive measures (absolute and relative frequencies) and central tendency measures (median). With the Shapiro-Wilk test for normality, which demonstrated a statistical significance of $p < 0.05$, it was verified that the data did not follow a normal distribution. Accordingly, the Spearman correlation coefficient, with a p value of < 0.05, was used for the bivariate analysis of the social, economic and demographical characteristics, with: a) light, moderate and severe food insecurity; and b) economic classification.

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RESULTADOS

Out of the 94 assessed households, 87.20% of the heads of families were of the female gender, 41.50% of ages equal to or under 39 years and average age of 44 years, 69.10% brown skin color and 27.70% married. Illiteracy or incomplete elementary education was the most recurrent schooling level (45.7%), and 75.50% of these heads of households were unemployed at the time of the data collection (table 1).

Table 1. Characterization of families in relation to social, economic and demographic conditions, Lagarto-SE, 2019.

	N	%	MD
Gender			
Male	12	12.80	
Female	82	87.20	
Age – Age group			44
≤ 39 years	39	41.50	
40-50 years	19	20.20	
> 50 years	36	38.30	
Skin color			
White	17	18.10	
Brown	65	69.10	
Black	11	11.70	
Yellow	0	0	
Indigenous	1	1.10	
Civil status			
Single	32	34	
Married	26	27.70	
Widow	4	4.0	
Common-law marriage	14	14.90	
Divorced/Separated	6	6.40	
Out-of-court separation	1	1.10	
Informal marriage	11	11.70	

Table 1. Characterization of families in relation to social, economic and demographic conditions, Lagarto-SE, 2019. (Continues)

	N	%	MD
Schooling level of heads of family			
Illiterate/Incomplete Elementary 1	43	45.70	
Complete Elementary 1/Incomplete Elementary 2	15	16.00	
Complete Elementary 2/Incomplete Secondary	17	18.10	
Complete Secondary/Incomplete Higher Education	17	18.10	
Complete Higher Education	2	2.10	
Does the head of the family work?			
Yes	23	24.50	
No	71	75.50	
Total Earnings (R$)			950.00
Total family earnings stratified by minimum wage			
Up to ½ minimum wage	24	25.50	
From ½ to 2 minimum wages	63	67	
From 2 to 4 minimum wages	6	6.40	
From 4 to 6 minimum wages	1	1.10	
Does the family receive any Government benefit?			
Yes	67	71.30	
No	27	28.70	
Property			
Own	66	70.20	
Financed	2	2.10	
Rented	16	17.00	
Yielded	9	9.60	
Other	1	1.10	
Number of residents in the household			
1 to 2	32	34	
3 to 4	46	48.90	
5 to 6	12	12.80	
7 to 8	2	2.10	
> 8	2	2.10	
Residents <18 years of age			
Yes	54	57.40	
No	40	42.60	
Does the family produce for own consumption?			
No	71	75.50	
Vegetables and greens	15	65.20	
Milk and dairy products	1	4.35	
Meat and eggs	4	17.40	
Legumes	3	13.04	
Cereals	5	21.73	
Economic class			
B2	6	6.10	
C1	9	9.20	
C2	22	22.40	
D-E	57	58.20	

MD: Median.

In relation to the families, 48.90% had between 3-4 residents in the house, with 57.40% having at least one resident of under 18 years of age. Total family income was of an average of 950 Brazilian Reais. When stratified by minimum wage, 67% received between ½ and 2 minimum wages, and 71.30% stated that they received some kind of government benefit. Out of the families under analysis, 70.20% owned their homes and 58.20% were classified by the CCEB as belonging to economic class D-E. When questioned on the production of food for their own consumption, 75.50% stated that they did not produce any food (table 1).

According to the EBIA, 27.60% of the households were in FS, while 72.40% presented some degree of FI. Of these, 51.10% were in LFI, 12.80% in MFI, and 8.50% in SFI (table 2).

Table 2. Characterization of the families in relation to food security situation, Lagarto-SE, 2019.

	N	%
Food Security	26	27.60
Food Insecurity	68	72.40
Light Food Insecurity	48	51.10
Moderate Food Insecurity	12	12.80
Severe Food Insecurity	8	8.50

Correlating the demographical characteristics and of the work of the head of the family with FS situations, a positive and significant association was observed of the variables gender (p 0.044), schooling level of the head of the family (p 0,029) and total income stratified by minimum wage (p 0.003). The prevalence of households with FI was distributed among those with up to ½ to 2 minimum wages, while households in FS had total earnings distributed between up to ½, ½-2 and 2-4 minimum wages (table 3).

Table 3. Food insecurity situation of families, according to social, economic and demographical characteristics, Lagarto-SE, 2019.

	SA		IAL		IAM		IAG		Total		p*
	N	%	N	%	N	%	N	%	N	%	
Gender											0.044
Male	6	23.10	4	8.30	0	0	2	25	12	12.80	
Female	20	76.90	44	91.70	12	100	6	75	82	87.20	
Total	26	100	48	100	12	100	8	100	94	100	
Age group											0.188
≤ 39 years	10	38.50	20	41.70	6	50	3	37.50	39	41.50	
40-50 years	5	19.20	10	20.80	3	25	1	12.50	19	20.20	
> 50 years	11	42.30	18	19.10	3	25	4	50	36	38.30	
Total	26	100	48	100	12	100	8	100	94	100	
Skin color											0.122
White	3	11.50	11	22.90	3	25	0	0	17	18.10	
Brown	18	69.20	32	66.70	8	66.70	7	87.50	65	69.10	
Black	5	19.20	4	8.30	1	8.30	1	12.50	11	11.70	
Indigenous	0	0	1	2.10	0	0	0	0	1	1.10	
Total	26	100	48	100	12	100	8	100	94	100	
Civil status											0.407
Single	7	26.90	14	29.20	8	66.70	3	37.50	32	34	
Married	9	34.60	12	25	3	25	2	25	26	27.70	
Widow	2	7.70	1	2.10	0	0	1	12.50	4	4.30	
Common-law marriage	1	3.80	11	22.90	1	8.30	1	12.50	14	14.90	
Divorced/Separated	1	3.80	5	10.40	0	0	0	0	6	6.40	
Out-of-court separation	0	0	1	2.10	0	0	0	0	1	1.10	
Informal marriage	6	23.10	4	8.30	0	0	1	12.50	11	11.70	
Total	26	100	48	100	12	100	8	100	94	100	
Schooling level of heads of family											0.029
Illiterate/Incomplete Elementary 1	12	46.20	22	45.80	5	41.70	4	50	43	45.70	
Complete Elementary 1/Incomplete Elementary 2	2	7.70	8	16.70	3	25	2	25	15	16	
Complete Elementary 2/Incomplete Secondary	3	11.50	11	22.90	2	16.70	1	12.50	17	18.10	
Complete Secondary/Incomplete Higher Education	7	26.90	7	14.60	2	16.70	1	12.50	17	18.10	
Complete Higher Education	2	7.70	0	0	0	0	0	0	2	2.10	
Total	26	100	48	100	12	100	8	100	94	100	

Table 3. Food insecurity situation of families, according to social, economic and demographical characteristics, Lagarto-SE, 2019. (Continues)

	SA		IAL		IAM		IAG		Total		p*
	N	%	N	%	N	%	N	%	N	%	
Does the head of the family work?											0.060
Yes	9	34.60	9	18.80	2	16.70	3	37.50	23	24.50	
No	17	65.40	39	81.20	10	83.30	5	62.50	71	75.50	
Total	26	100	48	100	12	100	8	100	94	100	
Total Earnings (R$)											0.075
Total family earnings stratified by minimum wage											0.003
Up to ½ minimum wage	3	11.50	12	25	5	41.70	4	50	24	25.50	
From ½ to 2 minimum wages	17	65.40	35	72.90	7	58.30	4	50	63	67	
From 2 to 4 minimum wages	6	23.10	0	0	0	0	0	0	6	6.40	
From 4 to 6 minimum wages	0	0	1	2.10	0	0	0	0	1	1.10	
Total	26	100	48	100	12	100	2	100	94	100	
Does the family receive any Government benefit?											0.226
Yes	15	57.70	35	72.90	9	75	8	100	67	71.30	
No	11	42.30	13	27.10	3	25	0	0	27	28.70	
Total	26	100	48	100	12	100	8	100	94	100	
Property											0.351
Own	18	69.20	33	68.80	11	91.70	4	50	66	70.20	
Financed	2	7.70	0	0	0	0	0	0	2	2.10	
Rented	3	11.50	8	16.70	1	8.30	4	50	16	17	
Yielded	2	7.70	7	14.60	0	0	0	0	9	9.60	
Other	1	3.80	0	0	0	0	0	0	1	1.10	
Total	8	100	31	100	3	100	2	100	94	100	
Number of residents in the household											0.055
1-2	10	38.50	17	35.40	1	1.10	4	50	32	34	
3-4	14	53.80	20	41.70	9	75	3	37.50	46	48.90	
5-6	2	7.70	8	16.70	2	16.70	0	0	12	12.80	
7-8	0	0	2	4.20	0	0	0	0	2	2.10	
> 8	0	0	1	2.10	0	0	1	12.50	2	2.10	
Total	26	100	48	100	12	100	8	100	94	100	

Table 3. Food insecurity situation of families, according to social, economic and demographical characteristics, Lagarto-SE, 2019. (Continues)

	SA		IAL		IAM		IAG		Total		p*
	N	%	N	%	N	%	N	%	N	%	
Residents < 18 years of age?											0.668
Yes	13	50	28	58.30	9	75	4	50	54	57.40	
No	13	50	20	41.70	3	25	4	50	40	42.60	
Total	26	100	48	100	12	100	8	100	94	100	
Does the family produce for own consumption?											0.401
Noo	19	73.10	37	77.10	10	83.30	5	62.50	71	75.50	
Vegetables and greens	4	15.40	7	16.60	2	16.70	2	25	15	16	
Milk and dairy products	1	3.80	0	0	0	0	0	0	1	1.10	
Meat and eggs	0	0	2	4.20	0	0	2	25	4	4.30	
Legumes	0	0	2	4.20	0	0	1	12.50	3	3.30	
Cereals	2	7.70	3	5.30	0	0	0	0	5	5.40	
Total	26	100	48	100	12	100	8	100	94	100	
											0.257
Economic Clas											
B2	3	11.50	3	6.20	0	0	0	0	6	6.40	
C1	4	15.40	5	10.40	0	0	0	0	9	9.60	
C2	7	26.90	9	18.80	5	41.70	1	12.50	22	23.40	
D-E	12	46.20	31	64.60	7	58.30	7	87.50	57	60.60	
Total	26	100	48	100	12	100	8	100	94	100	

The schooling level variables of the head of the family (p 0.000), total family earnings (p 0.001), total family earnings stratified by minimum wage (p 0.037), government benefits (p 0.000) and property (0.011) demonstrated positive and significant correlation with the economic class (table 4).

Table 4. Economic classification of the families in accordance with social, economic and demographical characteristics, Lagarto-SE, 2019.

	B2		C1		C2		D-E		Total		p*
	N	%	N	%	N	%	N	%	N	%	
Gender											0.472
Male	2	33.30	0	0	4	18.20	6	10.50	12	12.80	
Female	4	66.70	9	100	18	81.80	51	89.50	82	87.20	
Total	6	100	9	100	22	100	57	100	94	100	
Age group											0.076
≤ 39 years	3	50	5	55.60	8	36.40	23	40.40	39	41.50	
40-50 years	1	16.70	2	22.20	4	18.20	12	21.10	19	20.20	
> 50 years	2	33.30	2	22.20	10	45.50	22	38.60	36	38.30	
Total	6	100	9	100	22	100	57	100	94	100	
Skin color											0.213
White	3	50	1	11.10	6	27.30	7	12.30	17	18.10	
Brown	3	50	8	88.90	14	63.60	40	70.20	65	69.10	
Black	0	0	0	0	2	9.10	9	15.80	11	11.70	
Indigenous	0	0	0	0	0	0	1	1.80	1	1.10	
Total		100		100		100		100	94	100	
Civil Status											0.149
Single	2	33.30	3	33.30	5	22.70	22	38.60	32	34	
Married	3	50	4	44.40	10	45.50	9	15.80	26	27.70	
Widow	0	0	0	0	1	4.50	3	5.30	4	4.30	
Common-law marriage	0	0	1	11.10	2	9.10	11	19.30	14	14.90	
Divorced/Separated	0	0	0	0	0	0	6	10.50	6	6.40	
Out-of-court separation	0	0	0	0	1	4.50	0	0	1	1.10	
Informal marriage	1	16.70	1	11.10	3	13.60	6	10.50	11	11.70	
Total	6	100	9	100	22	100	57	100	94	100	
Schooling level of heads of family											0.000
Illiterate/Incomplete Elementary 1	0	0	2	22.20	9	40.90	32	56.10	43	45.70	
Complete Elementary 1/Incomplete Elementary 2	1	16.70	1	11.10	4	18.20	9	15.80	15	16	
Complete Elementary 2/Incomplete Secondary	2	33.30	1	11.10	4	18.20	10	17.50	17	18.10	
Complete Secondary/Incomplete Higher Education	2	33.30	4	44.40	5	22.70	6	10.50	17	18.10	
Complete Higher Education	1	16.7	1	11.10	0	0	0	0	2	2.10	
Total	6	100	9	100	22	100	57	100	94	100	

Table 4. Economic classification of the families in accordance with social, economic and demographical characteristics, Lagarto-SE, 2019. (Continues)

	B2		C1		C2		D-E		Total		p*
	N	%	N	%	N	%	N	%	N	%	
Does the head of the family work?											0.195
Yes	2	33.30	3	33.30	7	31.80	11	19.30	23	24.50	
No	4	66.70	6	66.70	15	68.20	46	80.70	71	75.50	
Total	6	100	9	100	22	100	57	100	94	100	
Total Earnings (R$)											0.001
Total family earnings stratified by minimum wage											0.037
Up to ½ SM	0	0	2	22.20	1	4.50	21	36.80	24	25.50	
From ½ to 2 SM	3	50	6	66.70	21	95.50	33	57.90	63	67	
From 2 to 4 SM	2	33.30	1	11.10	0	0	3	5.30	6	6.40	
From 4 to 6 SM	1	16.70	0	0	0	0	0	0	1	1.10	
Total	6	100	9	100	22	100	57	100	94	100	
Does the family receive any Government benefit?											0.000
Yes	1	16.70	3	33.30	13	59.10	50	87.70	27	28.70	
No	5	83.30	6	66.70	9	40.90	7	12.30	67	71.30	
Total	6	100	9	100	22	100	57	100	94	100	
Property											0.011
Own	2	33.30	5	55.60	17	77.30	42	73.70	66	7.20	
Financed	2	33.30	0	0	0	0	0	0	2	2.10	
Rented	2	33.30	3	33.30	2	9.10	9	15.80	16	17	
Yielded	0	0	1	11.10	2	9.10	6	10.50	9	9.60	
Other	0	0	0	0	1	4.50	0	0	1	1.10	
Total	6	100	9	100	22	100	57	100	94	100	
Number of residents in the household											0.341
1-2	2	33.30	3	33.30	6	27.30	21	36.80	32	34	
3-4	4	66.70	4	44.40	12	54.50	26	45.60	46	48.90	
5-6	0	0	2	22.20	4	18.20	6	10.50	12	12.80	
7-8	0	0	0	0	0	0	2	3.50	2	2.10	
> 8	0	0	0	0	0	0	2	3.50	2	2.10	
Total	6	100	9	100	22	100	57	100	94	100	

Table 4. Economic classification of the families in accordance with social, economic and demographical characteristics, Lagarto-SE, 2019. (Continues)

	B2		C1		C2		D-E		Total		p*
	N	%	N	%	N	%	N	%	N	%	
Residents < 18 years of age?											0.362
Sim	2	33.30	5	55.60	11	50	36	63.20	54	57.40	
Não	4	66.70	4	44.40	11	50	21	36.80	40	42.60	
Total	6	100	9	100	22	100	57	100	94	100	
Does the family produce for own consumption?											0.631
No	6	100	8	88.90	13	59.10	44	77.20	71	75.50	
Vegetables and greens	0	0	1	11.10	7	31.80	7	12.30	15	16	
Milk and dairy products	0	0	0	0	0	0	1	1.80	1	1.10	
Meat and eggs	0	0	0	0	2	9	2	3.60	4	4.30	
Legumes	0	0	0	0	0	0	2	3.60	3	3.30	
Cereals	0	0	0	0	2	9	4	7.10	5	5.40	
Total	6	100	9	100	22	100	57	100	94	100	
Food Insecurity											
Food Security	3	50	4	44.40	7	31.80	12	21.10	26	27.70	
Light Food Insecurity	3	50	5	55.60	9	40.90	31	54.40	48	51.10	
Moderate Food Insecurity	0	0	0	0	5	22.70	7	12.30	12	12.80	
Severe Food Insecurity	0	0	0	0	1	4.50	7	12.30	8	8.50	
Total	6	100	9	100	22	100	57	100	94	100	

P*: Spearman correlation test.

In class D-E, 56.10% of the heads of families were illiterate or had incomplete elementary 1 school, while in class B2, identified as the highest class among the analyzed households, those with complete elementary 2 schooling and incomplete higher education. With reference to the earnings of the family, stratified by minimum wages, for classes C1, C2 and D-E, prevalence was for earnings of between ½-2 minimum wages, followed by up to ½ minimum wage, while in class B2 the distribution was between ½ minimum wage, followed by 2-4 and 4-6 minimum wages. For the government benefit variable, 87.70% of the class D-e families confirmed receipt, while 83.30% of classB2 did not receive the benefit (table 4).

DISCUSSION

In the analysis of the households assisted by the Primary Healthcare Units it was demonstrated that among the heads of the households, predominance was for the female gender, brown skin color, low schooling levels and unemployment. The households had, in their majority, 3-4 residents, at least one of which under the age of 18. The families were distributed among the lower economic classes, and family income was close to the prevailing minimum wage at the time of the data collection (R$954), where the values were predominantly between ½-2 minimum wages (R$477-1.908), as well as being complemented, largely, by some government benefit. Predominance was of FI, mainly LFI, situation which could be explained, in this case, by the financial earnings of the families. Furthermore, the correlation between gender and schooling levels of the head of families with FI in the households, indicates the repercussion of these individual variables in the experiences of FI among families: in the measure in which the schooling levels and total earnings of the family increases, there was an increase to the FS level of the families.

In the study, it was identified that the economic class of the families is influenced by the schooling level of the head of the family, by the earnings, by taking part in some government benefit as a complement to earnings, as well as by the ownership characteristics of the property in which they live.

In 2014, when examining FI in urban households in the Brazilian northeast, Facchini et al.[10] observed that: predominance was for heads of households of brown skin color [14] and average age of 39.3 years,[16] corroborating with the present study, as well as the occurrence of the majority of the heads of family being unemployed. However, the frequency of heads of family of the male gender (68.5%) was higher in these households of the Northeast, likewise in other studies.[16-18] This can be explained by the social differences attributed to the genders, a historical process that still determines higher wages and better positions for men,[19] resulting in the fact that in most of these situations, the one responsible for providing food and access to other services is related to a masculine figure as reference in the family.

Peixoto et al.,[14] in 2014, when researching the prevalence of FI in an area under the influence of the Family Health Support Center (*Núcleo de Apoio à Saúde da Família*) of a municipality of Goiás, identified the predominance of female gender as heads of households (85.4%). It is important to consider a transition being experienced and which includes the empowerment of women and, accordingly, with the increasing insertion of the woman in the labor market.[16] However, this usually places them in a double shift situation: they work but also have to deal with the responsibility of looking after the house, children and worry about supplying food for the household.[10]

The association between FI and gender of the head of the family, which evidences the prevalence of the female gender as heads of families experiencing some degree of FI, was also verified in other studies in different regions of Brazil,[16,20,21] reinforcing the differences between genders in the society and the need for the promotion of equality to guarantee, among other rights, access to adequate food for all.

In 2016, Souza et al.,[17] who also found associations between FI and schooling level of heads of families, emphasize the relationship between education and FI, involving the occupation, capacity for managing family income and access to information, which also interferes in the ability to choose the foodstuffs.[16]

The correlation found between the degree of schooling and the economic class indicates a proportional relation between these two variables, in such a manner that, the lessor the period of studies, i.e., the schooling level of the head of the family, the lower the economic stratum of the family tends to be – in other words, the greater the prevalence of these families in the lower classes – or, as proposed by ABEP, through the CCEB, their purchase power is lower. Conversely, in the measure in which the degree of schooling of the

heads of families increases, the purchasing power also increases and the economic classification of the families. This analysis demonstrates how education is a protecting or determining factor for poverty.

As observed in this study, according to ABEP, in Brazil families are concentrated in classes C and D-E, and in the northeast, a higher prevalence for the latter (44.70%).[15] Through the 2012 CCEB, Souza et al.[17] and Peixoto et al.[14] observed that the families were in economic class C. ABEP also states that class D-E have an average family income of R$768, that is, less than one minimum wage.[15] For Guerra et al.,[22] 69.2% of the households had a monthly income equal to or lower that once minimum wage in 2013, similar to this study. These findings indicate the need to consider income as a determinant of health iniquities, including FI. Accordingly, the income transfer programs of the government and other social inclusion strategies were essential in the search for dignified living conditions for the population.[10]

The difficulties of a family to overcome conditions of extreme poverty reinforces the importance of the income transfer programs towards deprivation and combating poverty.[23] These programs, such as the Family Allowance Program (*Programa Bolsa Família PBF*) in Brazil, contribute towards reducing FI.[24] In this example, the conditions of vulnerability of the target-population, exposing them to, among other adverse conditions, limited access to quality food and in sufficient quantity to fulfill their needs, must be faced through the transfer of an alternative source of income which, associated to other conditionalities, aims to promote FS.[25] Even then, the transfer is not a guarantee of access to qualitatively adequate food.[16]

PNAD 2013 demonstrated that, out of the 65 million Brazilian households, 22.6% faced FI.[8] For homes in the Northeast, there was a 38.1% prevalence of FI, while Facchini et al.,[10] in 2014, found 54,2% of the households in the region in the same situation. It should be considered that the FI situation in Brazil has improved when compared the PNAD 2009, and that in this same period Brazil experienced a reduction in extreme poverty.[10]

When considering the regional prevalence, these studies do not come close to the municipal and local levels. FI prevalence identified in the populations of this study, a cutout of the municipal level, surpass those presented by the populational survey and above-mentioned studies, as observed by Ferreira et al., in 2014,[16] in a study of the north of Alagoas. Thus, investigating the occurrence of this problem in the municipalities reveals that the interregional specificities determine different degrees of prevalence among the cities of a same state, and states of a same region.

Other studies corroborate the high prevalence of FI observed. In Viçosa-MG, Sperandio and Priore 72.8% prevalence of FI of was observed for beneficiaries of the Family Allowance Program (PBF).[26] In Itumbiara-GO, in 2014, prevalence was of 51.4% according to Peixoto et al.,[14] and of 63.7% in the north of Alagoas in 2010, according to Ferreira et al.[16] In a meta-analysis systematic review, Bezerra et al. confirmed that the FI fluctuated between 23.8% and 72.0% in population-based studies in Brazil.[27] This situation makes FI a marker of social and economic inequalities, reflecting negatively on the adequate and secure access of the families to food.[19]

When qualifying FI into light, moderate and severe, these studies demonstrate that the prevalence of this outcome decreases in the measure in which the perception about them becomes more serious. However, the results are still very high. The PNAD 2013 findings disclosed that 14.8% of the households faced LFI, 4.6% MFI and 3.2% SFI.[8] For households in the northeast, the LFI, MFI and SFI prevalences are, respectively, 31.3%, 13.4% and 9.5%,[8,10] evidencing that, at a regional level, this region still has more alarming indicators than the national ones. In other studies, carried out in different regions of Brazil, the LFI varies between 35.6-47.3%, MFI between 10.7-16.1% and SFI between 3.9-14.8%.[8,14,19,26] The high prevalence of LFI reveals a general concern with reference to the uncertainty of adequate food in a regular manner, once the

EBIA also assesses the perception of these families through psychological aspects. But the remaining two degrees of insecurity, although in lower prevalences, are noteworthy. In these, access of the families to food is already compromised and hunger could become a reality in the case of SFI. In this respect, the EBIA appears as an important indicator that should be associated to other indicators to guarantee the effectiveness of the diagnosis of poverty and differentiation of the public policies in combating hunger and in social development.[14]

In the same manner as in the PNAD, FI was associated to family income of up to 1 minimum wage.[8] In Saboia & Santos, family income of up to 1 minimum wage was associated to a greater occurrence of SFI in the year 2017.[19] The explanation could be related to the insufficiency of income to guarantee adequate food, resulting in FI.

The design of this study is a limitation, once it does not accompany the emergence, the development and the consequences of this problem among the families throughout time. Furthermore, the period of unemployment or the period of time in which the families received some kind of benefit, were not analyzed as variables possibly related to FI. From the limited sample and representative of only a portion of the municipality, comparison with populational-based studies, or those involving large groups, is also limited, indicating the need of further analyses, as well as a monitoring of the whole population.

On the other hand, the *in loco* analysis revealed important specificities for municipal management to tackle poverty and FI. Namely, specific characteristics of the different populational groups exposes them, in different degrees and forms, to different FI experiences, such as in the present study, where variables associated to this outcome were discussed, involving the population analyzed herein. Thus, it is a fact that, when analyzing other municipalities and other groups, other characteristics may be associated to the event.

Lastly, a reservation must be made as to the Covid-19. Despite the fact that the development of this study occurred before the pandemic, and that its objective is not directly connected to the analysis of the FI and its associated factors in relation to the participating families during the period in question, the declaration of the pandemic by the World Health Organization (WHO)[28] and the Public Health Emergency of National Importance by Brazil, through Ordinance 188, of February 3, 2020,[29] brought about direct and indirect repercussions to the guarantee of FS and adequate food as a right. Taking this into account, notes on how the Covid-19 pandemic is associated to the theme of this study will be briefly discussed.

The pandemic in itself is not single-handedly responsible for the worsening of FI in Brazil. Ribeiro-Silva et al., in 2020, when discussing the implications of Covid-19 to Food and Nutritional Security in Brazil, emphasizes the maintenance of inequalities, the advance of neoliberal policies and the dismantling of social policies as factors that impact the access to food by Brazilian families, especially those in greater situations of vulnerability. As an aggravating circumstance, the distancing measures, among others defended by the WHO and widely adopted by the states in Brazil for facing the Covid-19, have an impact on the offer of food. The negative effects in the production and commercialization of food, especially by smaller farmers, as well as physical and economic limitations of access to food, disrupting the food-chain.[30] Coupled with the sanitary crisis, the economic crisis – marked by the advance of unemployment and of informality, and by the closing-down of mainly small and medium establishments[31] – overlap the advance of the Covid-19. Despite the recognition of the general population,[32] the fulfillment of social distancing has an impact on family income, mainly those with low socio-economic conditions and limited social inclusion – priorly to the pandemic and resulting from the continued social, income, ethno-racial and gender inequalities.[30]

CONCLUSION

The prevalence of FI in the analyzed households was demonstrated to be greater than the national average. Family income was confirmed to be the greatest determinant in FI experienced by the families, as well as the characteristics of the heads of the families, such as gender and schooling levels, having been factors associated to limited access to food of quality and in sufficient quantity. This analysis contributes towards understanding the social determination of FI in Brazil, as a marker of health inequities.

The prevalent low economic classes were also demonstrated to be associated to limited family income and schooling levels of the heads of household, confirming the existing relationship between the level of education and income.

Covid-19 exposes, in this manner, how these historical inequalities exacerbate the course of the pandemic in Brazil, where the socio-economic dynamics of the families, with emphasis to the most vulnerable ones, are affected. This discussion also gives rise to the long-term post-crisis and repercussions, of the global and Brazilian socio-economic scenario, as object of investigation for coping with hunger, poverty, unemployment and other post-pandemic inequalities.

Considering information about the municipality, through analysis of the FI profile, in accordance with the local reality, when producing knowledge about this population, is also an alternative for offering specificity to the municipal management regarding policies for fighting poverty and guaranteeing access to income and food.

Considering variables such as gender, schooling levels, family income and other socio-economic characteristics for understanding FI is necessary in the quest for equality in the guarantee of access to safer, more healthy and sufficient food for the families.

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Contributors

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