

Epidemiological profile of families according to insertion in the cash transfer program residing in the coastal cities in Northeastern Brazil

Perfil epidemiológico das famílias segundo a inserção no programa de transferência de renda residentes em cidades litorâneas do Nordeste do Brasil

Perfil epidemiológico de las familias según la inserción en el programa de transferencias monetarias residentes en las ciudades costeras del Noreste de Brasil

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Abstract

Objective: Investigating the epidemiological profile of families living in the coastal cities in northeastern Brazil, considering that they are registered in the Brazilian Cash Transfer Program (CTP). **Methods:** Cross-sectional study involving a probabilistic sample of 1,444 representative families of the region. A previously tested semi-structured questionnaire was used, containing questions about socioeconomic, demographic, anthropometric and health variables, and also the situation of food and nutritional security during the home visits. The family's characteristics were simultaneously benefited and not benefited by the PSF that was compared. The results were expressed in proportions (%), with the respective prevalence ratio of 95% confidence interval as a measure of association, using Poisson regression analysis with robust adjustment of variance. **Results:** There were 729 (50.5%) families registered with the PSF. The variables that best discriminated the families benefited by the program were: homemaker's education <4 years (P = 0.010; PR: 1.16; 95% CI: 1.03-1.30); to belong to economic class D or E (P <0.001; PR: 1.30; 95% CI: 1.12-1.51); mother income (P <0.001; PR: 0.50; 95% CI: 0.42-0.61); family in a situation of food insecurity (P <0.001; PR: 1.29; 95% CI: 1.13-1.47); higher number of residents per household (P <0.001; PR: 1.48; 95% CI: 1.34-1.64). **Conclusions:** The families benefited by the CTP had the worst socioeconomic and demographic indicators and were more frequently in a situation of food insecurity (72.0%).

Keywords: Government programs; Food insecurity; Socioeconomic factors; Health promotion.

Resumo

Objetivo: Investigar o perfil epidemiológico de famílias residentes em municípios litorâneos do Nordeste brasileiro, considerando que estão cadastradas no Programa Brasileiro de Transferência de Renda (CTP). **Métodos:** Estudo transversal envolvendo amostra probabilística de 1.444 famílias representativas da região. Foi utilizado um questionário semiestruturado previamente testado, contendo questões sobre variáveis socioeconômicas, demográficas, antropométricas e de saúde, e também sobre a situação de segurança alimentar e nutricional durante as visitas domiciliares. As características da família foram simultaneamente beneficiadas e não beneficiadas pelo PSF que foi comparado. Os resultados foram expressos em proporções (%), com a respectiva razão de prevalência de intervalo de confiança de 95% como medida de associação, por meio de análise de regressão de Poisson com ajuste robusto de variância. **Resultados:** Havia 729 (50,5%) famílias cadastradas no PSF. As variáveis que melhor discriminaram as

famílias beneficiadas pelo programa foram: escolaridade da dona de casa <4 anos ($P = 0,010$; RP: 1,16; IC 95%: 1,03-1,30); pertencer à classe econômica D ou E ($P < 0,001$; RP: 1,30; IC 95%: 1,12-1,51); renda materna ($P < 0,001$; RP: 0,50; IC 95%: 0,42-0,61); família em situação de insegurança alimentar ($P < 0,001$; RP: 1,29; IC 95%: 1,13-1,47); maior número de moradores por domicílio ($P < 0,001$; RP: 1,48; IC 95%: 1,34-1,64). Conclusões: As famílias beneficiadas pelo CTP apresentavam os piores indicadores socioeconômicos e demográficos e encontravam-se com maior frequência em situação de insegurança alimentar (72,0%).

Palavras-chave: Programas de governo; Insegurança alimentar; Fatores socioeconômicos; Promoção da saúde.

Resumen

Objetivo: Investigar el perfil epidemiológico de las familias que viven en las ciudades costeras del noreste de Brasil, considerando que están registradas en el Programa Brasileño de Transferencias de Efectivo (CTP). Métodos: Estudio transversal con una muestra probabilística de 1.444 familias representativas de la región. Se utilizó un cuestionario semiestructurado previamente probado, que contiene preguntas sobre variables socioeconómicas, demográficas, antropométricas y de salud, así como la situación de seguridad alimentaria y nutricional durante las visitas domiciliarias. Las características de la familia fueron simultáneamente beneficiadas y no beneficiadas por el PSF que se comparó. Los resultados se expresaron en proporciones (%), con la razón de prevalencia respectiva del intervalo de confianza del 95% como medida de asociación, utilizando el análisis de regresión de Poisson con ajuste robusto de la varianza. Resultados: Se registraron 729 (50,5%) familias en el PSF. Las variables que mejor discriminaron a las familias beneficiadas por el programa fueron: educación del ama de casa <4 años ($P = 0,010$; RP: 1,16; IC 95%: 1,03-1,30); pertenecer a la clase económica D o E ($P < 0,001$; PR: 1,30; IC del 95%: 1,12-1,51); ingresos de la madre ($P < 0,001$; RP: 0,50; IC del 95%: 0,42-0,61); familia en situación de inseguridad alimentaria ($P < 0,001$; RP: 1,29; IC 95%: 1,13-1,47); mayor número de residentes por hogar ($P < 0,001$; PR: 1,48; IC del 95%: 1,34-1,64). Conclusiones: Las familias beneficiadas por el CTP tenían los peores indicadores socioeconómicos y demográficos y se encontraban con mayor frecuencia en situación de inseguridad alimentaria (72,0%).

Palabras clave: Programas de gobierno; Inseguridad alimentaria; Factores socioeconómicos; Promoción de la salud.

1. Introduction

Food and nutrition security is defined as a regular and permanent access to quality food, in sufficient quantity, without compromising access to other essential needs (Brasil, 2006). Among the governmental measures adopted in several countries (Siddiqi, Rajaram, & Miller, 2018), regarding the assurance of food security are the Cash Transfer Programs (CTP).

The CTP are present in several middle and low income countries (Garoma et al., 2017; Pase & Corbo Melo, 2017; Souza Cruz, Moura, & Neto, 2017) and also in high income countries (Loopstra, 2018) as a state intervention strategy in reducing hunger, stimulating the use of public services by the population, focusing in the social inclusion of vulnerable groups (Keith-Jennings, Llobrera, & Dean, 2019; Walque, Fernald, Gertler, & Hidrobo, 2017).

The Brazilian federal government implemented the Food Security and Local Development Consortia (Anjos & Caldas, 2007) as a way to assist its CTP, the Bolsa Família Program (BFP) (Brasil, 2004; Santos & Cardoso, 2009) to support local development in the fight against hunger and food insecurity.

Among the Brazilian regions, the Northeast had the worst Human Development Index (PNUD, 2016), with it being exposed to many unfavorable factors that can promote food and nutritional insecurity.

This study aims to define the epidemiological profile of families living in the coastal cities in northeastern Brazil, according to their insertion in the CTP, in order to establish a basis for future assessments of trends in the indicators adopted in the impact assessment of the actions and policies undertaken to promote the population's quality of life.

2. Methodology

Survey design

This is a cross-sectional, analytical study, having as methodological support the concepts presented by Ferreira (Ferreira, 2012). Involving the families of the twelve cities that are members of the Consortium for Food Security and Local Development in Northern Alagoas.

A probabilistic sample representative of the region's population was used. The variable of interest used to calculate the

sample size was Food Insecurity. This is due to the fact that this study is part of a larger project called “Food and nutritional security for the population of the cities in northern Alagoas”. In the absence of specific studies in the selected cities, the prevalence of 52% found for the Northeast during the 2004 National Household Sample Survey was taken as a reference. (IBGE, 2008). Assuming a 2.5% margin of error for a 95% confidence interval, about 1500 families would be required. For this study, the processed calculation demonstrated that it maintained the statistical power of 80% and the significance level of 5%. Once the sample number was established, the proportion that each city contributed to the total population was considered.

The respective proportion in relation to the total sample (1500 families) was applied, determining how many families each city would contribute. It was then defined how many census sectors would be drawn by city, considering that in each sector 20 families would be drawn. In the draw of the census tracts, the proportion of the respective urban and rural population was taken into account. Maps of the Brazilian Institute of Geography and Statistics were used for the draw of the census sectors. Each sector was sequentially numbered and the definition was made by simple random drawing.

In the urban areas, the city blocks were identified on the respective maps of the drawn census, the sectors were numbered and one of them was randomly selected (repeating the same procedure for selecting the census sector). Then, a corner was drawn from which 20 households / families that would constitute the unit of analysis of the present study were visited consecutively. In the rural areas, due to geographical characteristics, the first 20 families randomly located by the group of interviewers were investigated. Those responsible for feeding the family were interviewed in the selected households. They were almost always the housewives.

Adjusting the discrepancies between the proportion of families from urban and rural areas included in the sample released by the Brazilian Institute of Geography and Statistics, the following weighting factors were applied to the estimates found: 0.847 and 1.685, respectively.

Data collection

The data collection field team consisted of 8 interviewers and 2 anthropometrists, undergraduate or master's students in Nutrition, under the supervision of a professor, the project coordinator.

The supervisor identified the selected households and contacted the housewives to explain the procedures, the research objectives and the Free and Informed Consent Term. After all clarifications and, upon agreement, she was then asked to sign the referred Term.

After signing the Term, a semi-structured form was applied to the interviewee on socioeconomic issues (situation of residence, maternal and head of family education, number of family members and economic class), mother's health (age at menarche, number of children, history of child loss and blood pressure) and their children under 10 years old (weight, height, age and birth weight). At the end of the interview, the anthropometric measurements of all individuals in the household and the children's hemoglobin levels were measured.

The nutritional classification of children under 5 years old was based on the weight-for-age (PI), weight-for-height (PA) and height-for-age (AI) indices, expressed in Z scores in relation to the anthropometric pattern developed and published by the World Health Organization (15). Weight deficit was defined by the Z score < -2 and obesity by the Z score > 2 , both applied to the weight-for-height index. Height deficit was diagnosed by applying the cut-off point Z < -2 in relation to the height-for-age index. For such analysis, the software ANTHROPLUS, version 2007 was used.

The measurement of body mass was performed with the aid of an electronic scale Marte PP180®, with a capacity of 180 kg and subdivisions of 100g. Height was measured with the person in an orthostatic position, using a portable stadiometer equipped with a fiberglass measuring tape with 0.1 cm subdivisions. Waist circumference (WC) was measured at the anatomical waist using an inextensible measuring tape with 0.1 cm subdivisions. The height of children under 2 years of age

was measured on a pediatric (horizontal) stadiometer equipped with a measuring tape with a sensitivity of 0.1 cm. All measures were obtained according to the recommendations of the Ministry of Health (Frainer et al., 2007). The percentage of body fat was estimated by bioelectrical impedance analysis. For this, digital devices, bipolar, of the brand Onron®, model BF 300 were used.

The nutritional classification of children under 5 years old was based on the weight-for-age (WA), weight-for-height (WH) and height-for-age (HA) indices, expressed in Z scores in relation to the anthropometric pattern developed and published by the World Health Organization (WHO, 2016). Weight deficit was defined by the Z-score < -2 and obesity by the Z-score > 2 , both applied to the weight-for-height index. Height deficit by Stunting was diagnosed by applying the cut-off point $Z < -2$ in relation to the height-for-age index. For such analysis, the software ANTHROPLUS, version 2007 was used.

The nutritional status of adults (> 18 years and < 60 years) was classified by the Body Mass Index (BMI; kg / m^2) according to the WHO recommendation: low weight / thinness (< 18.5), eutrophy (18.5 to 24.9), overweight (25 to 29.9) and obesity (≥ 30.0) (Flegal, Kit, & Graubard, 2014). The abdominal obesity of women was diagnosed when the waist circumference was greater than 80 cm or waist-to-hip ratio (WHR) ≥ 0.85 .

To classify families according to the situation of food insecurity, the Brazilian Food Insecurity Scale (Escala Brasileira de Insegurança Alimentar - EBIA) was used, whose form consists of 15 closed central questions, with a yes or no answer, about their experience in the last three months of food failure in its various levels of intensity, ranging from the concern that food may be lacking to the experience of spending a whole day without eating. Each affirmative answer of the questionnaire represents 1 point, the scale classification being based on its sum, varying from 0 to 15 points; security being 0; mild insecurity 1-5 points in families under 18 or 1-3 points in families without minors; moderate 6-10 or 4-6 insecurity; and severe insecurity 11-15 or 7-8. Each central question is followed by a question about how often the affirmative event occurs. Information on food insecurity was answered by the person responsible for the family's food (Segall-Corrêa et al., 2008).

To classify the economic situation of families, the criterion of Economic Classification of Brazil (ABEP, 2008) was used, categorizing individuals, according to the score obtained, in classes A1, A2, B1, B2, C1, C2, D and E. The questionnaire it consists of a points system obtained by a sum established from the possession of consumable items (television, DVD, radio, bathroom, automobile, refrigerator and others) and the head of the family education level. In the presentation of the results, depending on the distribution found, it was dichotomized into B + C and D + E. The other indicators were obtained through the application of a form.

Data analysis

The data was entered in independent double input in a form generated in “Epi Info for Windows, version 3.5.2” (CDC, Atlanta, USA). The outliers and the divergent data were excluded due to a typo, but they were corrected afterwards. After “cleaning” the data, descriptive and inferential analyzes were performed with the aid of the Stata, version 12.0 (StataCorp LP, Texas, USA).

To check the association between the dependent variable (being a beneficiary of the CTP) and the independent variables, the chi-square test (χ^2) and the prevalence ratio (PR) were used for a 95% confidence interval (95% CI).

Subsequently, the variables that presented $P < 0.2$ in the bivariate analysis were submitted to Poisson regression analysis with robust adjustment of the variance. However, in order to eliminate the multicollinearity problem, the autocorrelated variables ($r > 0.70$ by Pearson's correlation test) were included separately in the multiple analysis model, keeping in the final model only one of them, the one that provided the best fit (increase in the pseudo-coefficient of determination and reduction in the likelihood log). In all situations, statistically significant differences were assumed when $P < 0.05$.

Ethical aspects

This project, prepared according to the guidelines of the National Health Council, Ministry of Health, is part of a larger project called “Food and Nutrition Security for the population of the cities of Northern Alagoas”, which was submitted and approved by the Research Ethics Committee of the Federal University of Alagoas on August 20, 2009 (process n.º 010025 / 2009-17).

All city managers were previously contacted to learn about the research and provide support for the study. When diseases were identified, participants were instructed to seek the nearest health service in order to receive appropriate treatment.

3. Results

The total number of families investigated was 1,444. Of these, 50.5% were registered with the CTP.

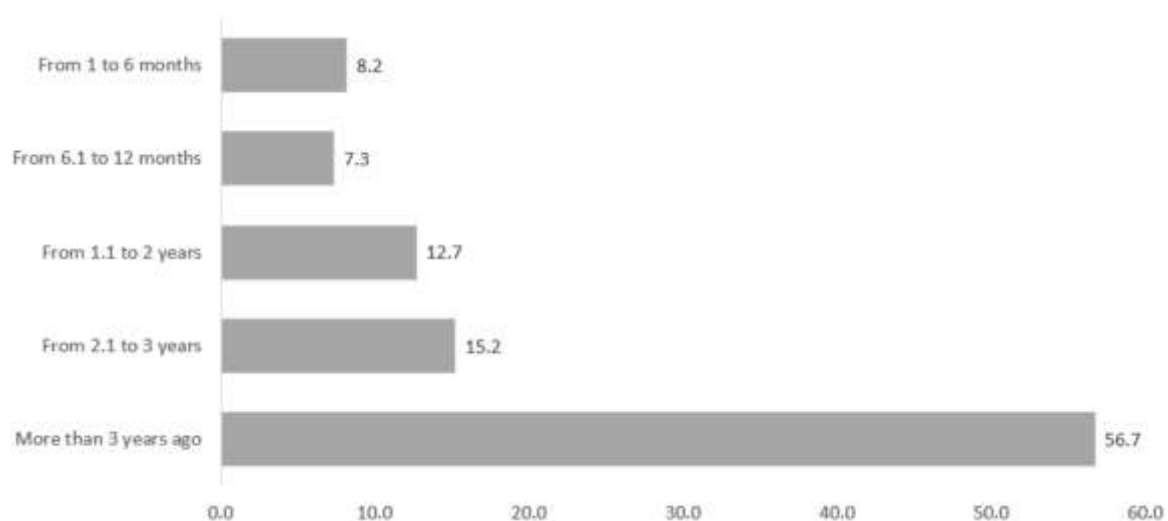
Among the main characteristics of beneficiary families, it is noted that 72.4% of the heads of families and 62.7% of the mothers were illiterate or had less than 4 years of study; 66.3% of families used water for consumption from unsafe sources, 59.4% belonged to economic class D and 72.0% were in a situation of food insecurity.

Table 1 shows the distribution of the socioeconomic, demographic and environmental variables of the families. It appears that most of the analyzed variables differed in a statistically significant way when comparing beneficiary and non-beneficiary families.

The variables: Head of household's and mother's education, less than 4 years in the school system; source of drinking water other than public water; economic class equal to D or E; is in a situation of food insecurity, smoker home owner, per capita income less than R \$ 2.22 / day, head of the family does not have any type of income and a greater number of family members occurred more frequently ($P < 0.05$) in benefited families, when compared to non-beneficiaries.

Figure 1 shows the period that the families are participating in the Program. It is observed that 28.7% has been registered with the CTP for more than 3 years. Among beneficiaries, 38.8% perceive food as a priority with regard to the application of CTP income, followed by school supplies (19.3%) and household bills (12.8%).

Figure 1 - Length of stay of families residing in the coastal cities in northeastern Brazil in the Cash Transfer Program, 2010.



Source: Authors.

Table 1 - Socioeconomic, demographic, environmental and food and nutritional security variables of families living in the coastal cities in northeastern Brazil, according to insertion in the Cash Transfer program, 2010.

Variables	Categories	CTP		RP (CI 95%)	P ¹
		Yes n (%)	No n (%)		
Maternal education	≤ 4 years	394 (62.7)	313 (50.3)	1.29	< 0.001
	> 4 years	234 (37.3)	309 (49.7)	(1.15;1.45)	
Head of household's education	≤ 4 years	458 (72.4)	365 (57.1)	1.43	< 0.001
	> 4 years	175 (27.6)	274 (42.9)	(1.25;1.63)	
Origin of drinking water	Different from public	482 (66.3)	419 (58.9)	1.17	0.004
	Public network	245 (33.7)	292 (41.1)	(1.05;1.31)	
Color / race of the head of the family	Different from white	612 (84.3)	588 (82.7)	1.06	0.456
	White	114 (15.7)	123 (17.3)	(0.92;1.22)	
Economy class ²	D; E	572 (78.7)	450 (63.2)	1.51	< 0.001
	B; C	155 (21.3)	262 (36.8)	(1.31;1.73)	
Food Insecurity Situation	Yes	523 (72.0)	393 (55.2)	1.47	< 0.001
	No	203 (28.0)	319 (44.8)	(1.30;1.66)	
Smoker housewife	Yes	109 (16.4)	67 (10.3)	1.27	0.001
	No	555 (83.6)	584 (89.7)	(1.12;1.45)	
Per capita income (R\$/Day)	≤ R\$ 2.22/day ³	56 (33.5)	20 (13.3)	1.60	< 0.001
	>R\$ 2.22/day ³	111 (66.5)	130 (86.7)	(1.32;1.94)	
Head of household's work / income	Yes	44 (6.5)	25 (3.7)	1.29	0.028
	No	634 (93.5)	647 (96.3)	(1.07;1.55)	

Continuation

Variables	Categories	CTP		RP (CI 95%)	P ¹
		Yes n (%)	No n (%)		
Gender of head of household	Female	193 (26.6)	204 (28.7)	0.95 (0.85;1.07)	0.422
	Male	532 (73.4)	508 (71.3)		
Use of diabetes medication	Yes	31 (4.7)	44 (6.8)	0.81 (0.61;1.06)	0.121
	No	635 (95.3)	604 (93.2)		
History of loss of son	Yes	289 (44.3)	287 (46.5)	0.96 (0.86;1.07)	0.467
	No	363 (55.7)	330 (53.5)		
Number of family members	> 5 members	257 (35.4)	100 (14.0)	1.66 (1.51;1.82)	< 0.001
	≤ 5 members	470 (64.6)	612 (86.0)		
Residence sector	Rural	147 (20.2)	116 (19.0)	1.04 (0.92;1.17)	0.600
	Urban	579 (79.8)	496 (81.0)		
Type of house	Different from masonry	78 (10.9)	70 (10.0)	1.05 (0.89;1.24)	0.611
	Masonry	635 (89.1)	632 (90.0)		
Number of rooms in the house	≤ 4	182 (25.0)	162 (22.8)	1.06 (0.95;1.19)	0.340
	> 4	545 (75.0)	550 (77.2)		
Private presence in the residence	No	111 (15.3)	94 (13.2)	1.09 (0.95;1.25)	0.285
	Yes	614 (84.7)	618 (86.8)		

CTP: Cash Transfer Program; PR: Prevalence ratio; 95% CI: 95% confidence interval; ¹ Chi-square test; ² Economy class according to the criteria of the Brazilian Association of Companies and Research (ABEP); ³ Corresponds to the amount of US \$ 1.25 at the time of the study (US \$ 1.00 = R \$ 1.779; US \$ 1.25 = R \$ 2.22).

Source: Authors.

Comparing to the number of young people enrolled in educational establishments, before and after the family's insertion in the Program, it appears that after the family's entry into the CTP, there was a reduction in the number of young people who did not attend school, from 6.9 % to 3.2%.

Table 2 shows the anthropometric and arterial hypertension variables of women according to their inclusion in the program. It appears that the occurrence of a percentage of fat greater than 32.0% is greater in families that do not receive the benefit, as well as the occurrence of arterial hypertension in women.

Table 2 - Anthropometric and arterial hypertension variables of women belonging to families living in the coastal cities in northeastern Brazil, according to insertion in the Cash Transfer Program, 2010.

Variables	Categories	CTP		RP (CI 95%)	p ¹
		Yes n (%)	No n (%)		
BMI (kg / m ²)	< 18.5	12 (1.8)	16 (2.5)	0.68 (0.33; 1.40)	0.292
	18.5 a ≤ 24.9	240 (36.4)	212 (33.0)	1 (-)	-
	> 24.9	407 (61.8)	414 (64.5)	0.93 (0.84; 1.04)	0.228
Waist-to-hip ratio	≥ 0.85	289 (46.5)	246 (45.5)	1.02 (0.92;1.13)	0.779
	< 0.85	333 (53.5)	295 (54.5)		
Arterial hypertension (mmHg)	Yes	215 (32.2)	251 (38.4)	0.87 (0.77;0.98)	0.020
	No	453 (67.8)	402 (61.6)		
Waist circumference (cm)	< 80	253 (40.6)	210 (38.7)	1.04 (0.93;1.16)	0.539
	≥ 80	370 (59.4)	333 (61.3)		
Body fat (%)	≥32	325 (53.5)	315 (60.3)	0.88 (0.79;0.98)	0.025
	<32	282 (46.5)	207 (39.7)		

CTP: Cash Transfer Program; PR: Prevalence ratio; 95% CI: 95% confidence interval. ¹Chi-square test.
Source: Authors.

Among the 1,444 families interviewed, 477 children under 5 years old were identified. Of those, 296 were from families registered with the CTP and 181 from non-registered families. Table 3 shows that children from families not registered in the CTP were most affected by obesity problems (24.0%). In other nutritional disorders related to anthropometric deviations, no statistically significant differences were observed.

Table 3 - Anthropometric classification of children under 5 years old from families living in the coastal cities in northeastern Brazil, according to insertion in the Cash Transfer Program, 2010.

Nutritional condition	CTP		PR	(CI 95%)
	Yes n (%)	No n (%)		
Low weight ¹	14 (4.7)	8 (4.4)	1.07	(0.46; 2.50)
Thinness by Wasting ²	15 (5.1)	6 (3.3)	1.37	(0.60; 3.87)
Obesity ³	21 (7.1)	24 (13.3)	0.54*	(0.31; 0.93)
Height deficit by Stunting ⁴	23 (7.8)	11 (6.1)	1.28	(0.64; 2.56)

CTP: Cash Transfer Program; PR: Prevalence ratio; ¹ = Weight-for-age <- 2 Z; ² = Weight-for-height <- 2 Z; ³ = Weight-for-height > 2; ⁴ = Height-for-age <- 2 Z; 95% CI: 95% confidence interval; * P <0.05, according to the Chi-square test.
Source: Authors.

Table 4 shows the variables that, after multiple analysis, were associated ($P < 0.05$) with the condition of beneficiary of the CTP. It appears that the variables that best discriminated between families benefited from non-beneficiaries were: Smoker housewife, belonging to economic class D or E, family in a situation of food insecurity and a higher number of residents per household.

Table 4 - Frequency (%), Prevalence Ratio (PR), 95% confidence interval (95% CI) and P-value obtained in a multiple regression model involving variables associated with the condition of beneficiary of the Cash Transfer Program, in the coastal cities in northeastern Brazil, 2010.

Variables ^a	CTP		PR (CI 95%)	P ¹
	Yes (%)	No (%)		
Belong to economic class D or E	56.0	44.0	1.30 (1.12;1.51)	< 0.001
Higher prevalence of food insecurity	57.1	42.9	1.29 (1.13;1.47)	< 0.001
Smoker housewife	61.9	38.1	1.19 (1.05;1.34)	0.006
Highest number of residents per household	52.9	47.1	1.48 (1.34;1.64)	<0.001

CTP: Cash Transfer Program; ¹Poisson regression with robust adjustment of variance.

^aAll variables that were associated with a $p < 0.2$ at the time of the bivariate analysis were included, except for the variables: obesity in children and per capita income, due to the respective sample number being much lower than that of the other variables.

Source: Authors.

4. Discussion

In the region, the number of young people who were not enrolled in school before the family received the benefit was reduced by half, as well as an increase in the number of enrollments. This agrees with data from Mexico and other countries in Latin America (Romano, 2016), in addition to data from other national studies (Glewwe & Kassouf, 2008; Soares, Ribas, & Osório, 2010), which show that CTP contribute to increasing the number of enrollments and reducing the dropout rate of young people.

Chávez-Juárez (Chávez-Juárez, 2018) assesses the effect of CTP on educational mobility in Latin America, suggests that benefits for families with children will increase educational mobility and have positive effects on the average level of education. In Brazil, young people have not gotten satisfactory results, since the failure rates suffered a sharp increase after the creation of the program, from 1.20% (2002) to 7.10% (2004) in the state education network (Camargo & Pazello, 2014).

As in Peru, with the Juntos program, where young people from registered families obtained lower scores than those who did not benefit (Andersen et al., 2015). It should be considered that the beneficiaries also have lower income, being in poorer areas and with worse schools, which would lead to lower gains in education (Chávez-Juárez, 2018).

According to the conditionalities required by the program, young people and children must have a minimum frequency of 85.0% (Feijó & Pires, 2015). This conditionality aims to reduce child labor, as demonstrated by the study carried out in Colombia, with the Familias en Acción program, where children from benefited families were less likely to work and where social protection programs were more effective in reducing child labor (Pinzón-Rondón, Cifuentes, Zuluaga, Botero, & Pinzon-Caicedo, 2018).

Consequently, they collaborate in the reduction of social inequalities, due to the better qualification of young people, allowing them to be trained for better jobs and, thus, contributing to the family's income (Monnerat, Senna, Schottz, Magalhães, & Burlandy, 2007; Pinzón-Rondón et al., 2018).

Regarding adult education, women and heads of families who receive the benefit have less time in school when compared to non-benefited families ($P < 0.001$). However, CTP can encourage greater educational ambition (Chávez-Juárez, 2018).

A study with the Colombian Program, *Familias en Acción*, identified a greater aspiration to higher education for both parents and children, having a greater effect for less favored families (García, Harker, & Cuartas, 2019). In Brazil, there was a reduction in illiteracy among adults (Menezes et al., 2008). Between 2006 and 2008, more than one million adults and young people over the age of 15 were literate (Rêses, Silveira, & Pereira, 2017).

The situation of food and nutritional insecurity was also more frequent among families benefited by the CTP. As evidenced in studies in other countries, where food insecurity has been associated with receiving government aid (Tarasuk, Mitchell, & Dachner, 2016; Temple, Booth, & Pollard, 2019) demonstrating that the program is being correctly targeted at families in the worst social situations (IBGE, 2008; IBGE, 2015).

Countries with an average human development index suffer from a lack of access to basic sanitation and about 1 in 8 individuals have little access to quality water (Klugman, 2011). In the studied region, the benefited families have low prevalence of access to drinking water, being susceptible to higher spreading of diseases, compromising the quality of life of the population (Anthonj, Giovannini, & Kistemann, 2019).

Arterial hypertension was less prevalent in the benefited women, contrary to the findings of other studies (Bernal et al., 2019; Mpofo et al., 2016), where women from registered families had a higher prevalence of arterial hypertension, as well as smoking, physical inactivity and overweight.

The cause of this disparity may be associated with the prevalence of a higher percentage of body fat in women who have not benefited. Park (Park et al., 2019), points out that even in individuals with low BMI, WC and WHR, hypertension was significantly associated with a high percentage of fat, with an increase in the risk of hypertension proportional to the percentage of body fat in women.

Only overweight children differed significantly between families, being associated with families not registered in the program. As identified in a study with the American program, Supplement Nutrition and Assistance Program - SNAP, where there was a tendency for overweight children in families registered in the program (Gorski Findling, Wolfson, Rimm, & Bleich, 2018). Higher income households would have a higher prevalence of overweight children, as observed in the study (Quintal & Oliveira, 2017).

Despite having lowest prevalence in the benefited families, childhood obesity was still superior to malnutrition in both cases, whether the family benefited or not, being a characteristic of the nutritional transition process in the region (Batista Filho & Rissin, 2003; Kac & Velásquez-Meléndez, 2003), resulting from the effect of changes in diet (Mola, Quispe, Valle, & Poterico, 2014).

According to data from the Brazilian Institute of Social and Economic Analysis (Menezes et al., 2008), 87.0% of families registered with the CTP use the program's income primarily for food; in the Northeast this percentage rises to 91.3% and in the coastal cities in northeastern this percentage is 38.8%.

However, the increase in purchasing power is not enough to generate health benefits, programs from different countries show that families benefiting from CTP have a higher consumption of foods rich in sugars and processed foods (Doocy et al., 2020; Grummon & Taillie, 2018; Menezes et al., 2008), thus requiring nutrition education.

The programs were designed as a means of helping the nation's poorest citizens (Romano, 2016). Families registered in the CTP are in lower economic classes than non-benefited families, in addition to having a lower per capita income. Such results are expected, considering the structure and design of the CTP (Pedraza & Gama, 2015; Romano, 2016).

We assume as a limitation of the study the year of data collection, however, we understand the need to disclose the results identified for comparisons with current studies of similar populations in conditions of social vulnerability.

5. Final Considerations

The families benefited by the program have the worst socioeconomic and demographic indicators, showing that the program selects families appropriately, prioritizing families with greater social vulnerability. It's suggested that, concomitantly with the CTP, greater investments are needed in training for work and income generation, enabling better access to food, from the resources of the residents themselves.

There is also a need for educational campaigns aimed at better qualification, especially for women, responsible for administering the benefit and making it possible not only to promote immediate poverty alleviation, but to break the intergenerational cycle of poverty and systematic dependence on provisioning actions by part of the government.

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