

Factors associated with body image and food insecurity

Fatores associados a imagem corporal e a insegurança alimentar

Factores asociados a la imagen corporal y la inseguridad alimentaria

RESUMO

Objetivo: avaliar a autoimagem corporal, segurança alimentar e os fatores associados em residentes em um território de abrangência de uma Unidade Básica de Saúde de um município do interior da Paraíba. Métodos: estudo transversal, descritivo com amostra intencional realizado em janeiro de 2020 no município de Nova Floresta, Paraíba. Utilizou-se questionário estruturado com dados socioeconômicos, autoimagem, segurança alimentar. Resultados: foram altas a prevalência nos diferentes níveis de insegurança alimentar, bem como, a autoimagem mais negativa, principalmente entre as mulheres, com mais baixo nível de escolaridade e com excesso de peso. A associação com o ganho de peso recente e o modo de consumo na hora das refeições teve relações com a autoimagem corporal, bem como nível leve de insegurança alimentar. Conclusão: O sexo, assim como o nível de escolaridade, o estado nutricional e o nível de insegurança alimentar e nutricional tiveram relação com a imagem corporal.

DESCRIPTORIOS: Imagem corporal; Insegurança Alimentar; Atenção Primária à Saúde; Unidade Básica de Saúde.

ABSTRACT

Objective: to evaluate body self-image, food security and associated factors in residents in a territory covered by a Basic Health Unit in a municipality in the interior of Paraíba. Methods: cross-sectional, descriptive study with an intentional sample carried out in January 2020 in the municipality of Nova Floresta, Paraíba. A structured questionnaire was used with socioeconomic data, self-image, and food security. Results: there was a high prevalence of different levels of food insecurity, as well as a more negative self-image, especially among women, with a lower level of education and overweight. The association with recent weight gain and the mode of consumption at mealtimes was related to body self-image, as well as a mild level of food insecurity. Conclusion: Gender, as well as level of education, nutritional status and level of food and nutritional insecurity were related to body image.

DESCRIPTORS: Body Image; Food Insecurity; Primary Health Care; Health Centers

RESUMEN

Objetivo: evaluar la autoimagen corporal, la seguridad alimentaria y factores asociados en residentes de un territorio atendido por una Unidad Básica de Salud en un municipio del interior de Paraíba. Métodos: estudio descriptivo transversal con muestra intencional realizado en enero de 2020 en el municipio de Nova Floresta, Paraíba. Se utilizó un cuestionario estructurado con datos socioeconómicos, autoimagen y seguridad alimentaria. Resultados: hubo una alta prevalencia de diferentes niveles de inseguridad alimentaria, así como una autoimagen más negativa, especialmente entre las mujeres, con menor nivel educativo y sobrepeso. La asociación con la ganancia de peso reciente y el modo de consumo en las comidas se relacionó con la autoimagen corporal, así como con un nivel leve de inseguridad alimentaria. Conclusión: El género, así como el nivel de educación, el estado nutricional y el nivel de inseguridad alimentaria y nutricional se relacionaron con la imagen corporal.

DESCRIPTORIOS: Imagen Corporal; Inseguridad Alimentaria; Atención Primaria de Salud; Centros de Salud.

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INTRODUÇÃO

Body image is configured as the description of mental representations about the shape or self-image of the body, being a multidimensional construction linked to the feelings, thoughts, emotions and historicity of others.¹ The level of distortion of the self-image represents the subjects' body perception, while the feelings related to the body reflect body (dis)satisfaction.²

In fact, epidemiological data record the increase in overweight in the world³, currently being considered a public health problem. In Brazil, this scenario is no different in primary health care services, as in 2020, according to a survey for the surveillance of risk factors and protection for chronic non-communicable diseases⁴, 57.5% of the country's adult population was overweight and 21.5% were obese.

This context is related to several factors, such as food choices, different aspects involving food systems, structural economic inequalities and contemporary social problems - such as incomplete schooling, lack of access to information and inaccessible public health services. In this sense, discussions about the risks and impacts of excess weight on the population take advantage of the pathological

discussion bias, and, sometimes, move away from the context that the situation demands, such as its causes and conditions.^{5,6,7}

Thus, it is emphasized that it is necessary to observe the Brazilian reality in a particular way due to its proportion and diversity. For example, considering food inequality, in the general panorama of Brazil, national investigations show that, in December 2020, 55.2% of the population were in a situation of food insecurity, showing that these deprivations are not limited to isolated local factors.⁸ There is still a predominance of Food and Nutrition Insecurity (FNI) in the North and Northeast regions, an average of 41.4% and 50.1%, respectively, indicating a considerable social imbalance in relation to other regions of the country.⁹

In view of this, investigations on the relationship between FNI between families - mainly low-income families - and obesity have been evidenced. However, elements and variables of these groups in different contexts are poorly described. Thus, in view of the importance of research that analyze this scenario, the objective of this study was to evaluate the body self-image, FNI and associated factors in residents in a territory covered by a Basic Health Unit in a municipality in the interior of Paraíba.

METHOD

This is a quantitative study, with a descriptive design, cross-sectional and intentional sample, developed with the population that attends the Basic Family Health Unit III - Elda Maria, in the municipality of Nova Floresta, Paraíba, Brazil. The data of this present work are part of the database of a larger project entitled "Overweight and Obesity: Investigations on the body, food consumption and food (in)security", under the coordination of one of the authors.

The reference unit was randomly selected among the five units linked to the Health Department of the municipality in question. The sample was selected considering the report from the e-SUS database, which in January 2020 had a population of 2,331 people enrolled in the territory of the Basic Family Health Unit III - Elda Maria. The spatial composition of this Health Unit was also considered, in which there were six micro-areas, two with rural characteristics (distance between houses, >10km from the urban area of the city).

Thus, n= 278 individuals participated in the study who met the inclusion criteria: being an adult (aged over 18 and 65 years of age or older), residing in the ter-

ritory that the unit is a reference and that the Community Health Agent (CHA) identified as being overweight and obese. The exclusion parameters applied were: being pregnant; adults aged 65 or over; twins; members of the same family residing in the same household; under eighteen and those who had some physical or mental limitation or malformation that made it impossible to measure their nutritional status with equipment and/or standardized instruments for research.

Of the total number of subjects who participated in the research at the time of data collection, n=147 residents responded to the Brazilian Silhouette Scale. ¹⁰ Thus, only these include the final sample of the results of this article. The characterization of the territory and the health unit studied are described, as part of the database analysis, in a book chapter publication. ¹¹ The study followed the measures and guidelines of Resolution MH/CNS (Conselho Nacional de Saúde) n. 510/16 for research with human subjects. It was approved by the Ethics and Research Committee of the Federal University of Campina Grande (CAAE: 17820619.7.0000.518) and all participants received a copy of the Informed Consent Term (ICF). There was no financial or material support from third parties for the development of this work. The authors financed and organized the research.

Data collection was carried out by interviewers and collaborators who were duly selected and trained to apply the instruments of this present study. The interviews took place between January and February 2020, on a daily basis, during the service's opening hours, through home visits made by the collection team with the Community Health Agents (CHA) of the micro area. Individuals who sought the health service were also invited to participate in the research - offering the alternative of scheduling a home visit to better adapt to the schedule of the possible interviewee.

The collection sequence followed the order of the questionnaire used, which

was divided into five modules. Initially, the questionnaire addressed questions about the sociodemographic data of the participants: sex, age, race, education, family income and receipt of social benefits.

In module II, the topics covered involve the general health of the population, such as weight gain and/or weight loss;

[...] discussions about the risks and impacts of excess weight on the population take advantage of the pathological discussion bias, and, sometimes, move away from the context that the situation demands, such as its causes and conditions

module III covers questions about food, such as: dimension of pleasure and/or displeasure in relation to food and place of eating; module IV was designated for the Brazilian Food Insecurity Scale (EBIA - Escala Brasileira de Insegurança Alimentar) which allows for a quick diagnosis of the family food security situation, in addition to being validated

for the Brazilian population and having high predictive value. ¹² The EBIA questions are closed with binary answers (yes/no) and allows classifying this variable in terms of Food and Nutrition Security (FNS) and the levels of Food Insecurity (FI) - mild, moderate or severe.

The last module focused on nutritional assessment, based on the measurement of weight and height used, later, to calculate the Body Mass Index - BMI ¹³, and body image through the Brazilian Silhouette Scale for adults. ¹⁰ The scale consists of a set of 15 silhouette figures for each gender, arranged separately on cards. Each figure has a numerical value that increases according to the Body Mass Index (BMI) of the image represented on the card, ranging from 12.5 to 47.5 kg/m². The figures are arranged in ascending order and are presented with questions in the following order: 1. "Which figure best represents your current body?" and 2. "Which figure best represents the body you would like to have?". Thus, the degree of dissatisfaction or body distortion was evaluated by the discrepancy of the numbers between the chosen figures. Positive values indicate a desire to increase body size and/or body overestimation, negative results indicate a desire to decrease body size and/or body underestimation, results equal to zero indicate satisfaction and/or no body distortion.

Weight was measured using a Multilaser® digital scale with a capacity of 180 kg and height was measured with the aid of an inelastic measuring tape. ¹⁶ BMI was calculated using the Quetelet equation ($BMI = \text{Weight}/\text{Height}^2$) and the nutritional diagnosis was based on the recommended cut-off points. ^{13,14}

The collected data were tabulated in the Microsoft Office package for Windows® and were analyzed using the SPSS software (Statistical Analysis Software) with a significance level of $p < 0.005$. Descriptive data analysis and association between demographic variables, nutritional status, dietary conditions, FNS and FNI, according to dissatisfaction and body perception, were performed using

Pearson's chi-square test. Data related to the Brazilian Silhouette Scale were analyzed according to the instrument's manual.¹⁰ Anthropometric data were calculated and evaluated using the cutoff points recommended by the World Health Organization as a parameter.^{13,14}

RESULTS

The present study analyzed 147 individuals, most of which 89.8% (n=132) were female, with a mean age of 41.3 years (CI: 39.3-43.3), all residents in areas covered by a Basic Family Health Unit in the municipality of Nova Floresta, Paraíba. More than half of the participating subjects, 62.6% (n=92) were classified as beneficiaries of the Bolsa Família Program (60.1%), 57.2% self-declared brown (n=84), single 38.0% (n=56) and with a monthly income lower 21.0% (n=41) or equal to 29.9% (n=44) to a minimum wage.

Regarding nutritional status, the prevalence of overweight was 53.7% (n=79) and obesity 39.45% (n=58). The assessment of body image showed that the frequency of dissatisfaction (78.9%) and distortion (100.0%) of self-image was high among the participants.

According to Table 1, it can be seen that dissatisfaction with excess weight was 74.8% (n=110), with 91.8% higher among women; could read easily (66.9%); were overweight (47.3%) and reported recent weight gain (60.0%); who thought eating was a pleasure (72.7%); had their meals with other people sitting at the table (62.7%) and felt satisfied at the end of the meals (62.7%). There was a statistical difference regarding recent weight gain (p=0.002) - Table 1.

Overestimation of body size prevailed in research participants 89.1% (n=131); it was higher in women (92.4%); who could read easily (64.9%); were overweight (53.4%) and reported recent weight gain (54.2%); who thought eating was a pleasure (75.5%); who had their meals with other people sitting at the table (62.5%) and felt satisfied at the end of

Table 1: Sociodemographic variables, nutritional status and eating conditions according to the level of body dissatisfaction of users of the Basic Health Unit III – Elda Maria, in Nova Floresta, Paraíba, 2020. (N=147)

Variables	Dissatisfaction with being overweight (n=110)		Dissatisfaction with thinness (n=6)		Body Satisfaction (n=31)		p
	n	%	n	%	n	%	
Sex							0,377
Female	101	91,8	5	83,3	26	83,9	
Male	9	8,2	1	16,7	5	16,1	
Can read and write							0,460
Easily	73	66,9	2	33,3	16	51,6	
Hardly	23	21,2	2	33,3	10	32,3	
Illiterate	13	11,9	2	33,3	5	16,1	
Recently gained weight							0,002
Yes	66	60,0	2	33,3	9	29,0	
No	44	40,0	4	66,7	22	71,0	
Nutritional status							0,227
Eutrophic	7	6,4	1	16,7	2	6,4	
Overweight	52	47,3	4	66,7	23	74,2	
Obesity I	41	37,3	1	16,7	6	19,4	
Obesity II	7	6,4	0	0,0	0	0,0	
Obesity III	3	2,7	0	0,0	0	0,0	
Feeling while eating							0,013
Pleasure	80	72,7	5	83,3	30	96,8	
Displeasure	4	3,6	1	16,7	0	0,0	
Both	26	23,6	0	0,0	1	3,2	
How do they consume their meals							0,759
With other people sitting at the table	69	62,7	3	50,0	17	54,8	
With other people using electronics	13	11,8	0	0,0	4	12,9	
Alone sitting at the table	18	16,4	2	33,3	5	16,1	
Alone using electronics	10	9,0	1	16,7	5	16,1	
By the end of the meal							0,095
Think they ate enough	69	62,7	4	66,7	26	83,9	
Think they ate more or more than they would like	25	22,7	0	0	3	9,7	
They think they ate little or less than they would like	16	14,4	2	33,3	2	6,4	

Cut-off parameters: * BMI: Body mass index (WHO, 2007). In bold, values with p < 0.05. Source: Own research, 2020.

the meals (69.5%), as shown in Table 2. As for the variables related to under/overestimation, there was a statistical difference regarding knowing how to read and write ($p=0.003$) and consumption mode at mealtimes ($p=0.004$).

Of the total number of residents in areas covered by the UBSF in question, 51.7% were in an FNI situation. Considering the assessment of body dissatisfaction and FNS, body satisfaction was higher among those who were food insecure (26.8%), while dissatisfaction with excess weight prevailed among those who were food insecure (79.0%). The perception of overestimation of body size increased among participants who were food insecure (93.0%) – Table 3.

Among those who were in FNI, 64.5% were in a light situation. Dissatisfaction with excess weight (78.9%) and body overestimation (85.5%) prevailed in those who were at some level of FNI, being higher among those who were mildly food insecure. It is also observed that as the level of FNI severity increases, the greater the body satisfaction and, consequently, the lower the dissatisfaction and distortion with self-image (Table 4).

DISCUSSION

The prevalence of dissatisfaction and body distortion was high among the participants, standing out between the sexes, according to education level and nutritional status. The assessment of body self-image indicates the presence of negative issues related to body constitution, as dissatisfaction with excess weight prevailed in the female universe, in overweight condition, of low socioeconomic class, with recent weight gain being an associated factor. Overestimation of body size (they believe they have larger silhouettes than they do) also prevailed among the female universe, with a statistical association between the mode of consumption at mealtimes and the level of education.

In this sense, it is considered, as in the literature, that in contemporary times there is an influence on the perception of body image and satisfaction/dissatisfaction with

Table 2: Sociodemographic variables, nutritional status and food conditions according to the level of body perception of users of the Basic Health Unit III - Elda Maria, in Nova Floresta, Paraíba, 2020. (N=147)

Variables	Underestimation of body size (n=16)		Overestimation of body size (n=131)		p
	n	%	n	%	
Sex					0,012
Female	11	68,8	121	92,4	
Male	5	31,2	10	7,6	
Can read and write					0,003
Easily	7	43,8	85	64,9	
Hardly	4	25,0	31	23,7	
Illiterate	5	31,2	15	11,4	
Recently gained weight					0,117
Yes	6	37,5	71	54,2	
No	10	62,5	60	45,8	
Nutritional Status					
Eutrophic	0	0,0	10	7,6	
Overweight	9	56,3	70	53,4	0,423
Obesity I	5	31,3	43	32,8	
Obesity II	2	12,5	5	3,8	
Obesity III	0	0,0	3	2,3	
Feeling while eating					0,082
Pleasure	16	100,0	99	75,5	
Displeasure	0	0,0	5	3,8	
Both	0	0,0	27	20,6	
How do they consume their meals					0,004
With other people sitting at the table	7	43,7	82	62,5	
With other people using electronics	6	37,5	11	8,4	
Alone sitting at the table	3	18,8	22	16,8	
Alone using electronics	0	0,0	16	12,2	
By the end of the meal					0,086
Think they ate enough	8	50,0	91	69,5	
Think they ate more or more than they would like	5	31,3	15	11,5	
They think they ate little or less than they would like	3	18,7	25	19,0	

Caption: Cut-off parameters* BMI: Body mass index (WHO, 2007). Source: Own research, 2020.



the body in certain socioeconomic contexts. The Longitudinal Study of Adult Health in Brazil 15 which evaluated data from 6,289 women and 5,188 men, aged between 35 and 59 years, using the Brazilian Silhouette Scale, showed that, between the sexes, 85.4% of the participating women are more likely to report dissatisfaction with being overweight. Likewise, the proportions of overweight and obesity increased with age, especially among those with lower per capita income and fewer years of schooling. Other studies carried out in Brazil also show that among women there is a prevalence of dissatisfaction due to feeling overweight. 16,17,18

Scientific investigations show that such changes in body constitution - due to the desire to have smaller body shapes than the real body - is prevalent in the universe of women in all age groups. 15,17,19 In this sense, considering that in the 20th century the recognition of obesity as a health risk and a certain set of social values that overvalue certain standards of beauty and exclude the existence of others, sustain discourses and practices that produce social stigmas, as they reinforce negative feelings related to aesthetics in the subjects, even more so when it comes to female bodies. 6,7,20

The discussion about body self-assessment has several impacts because it is easily and well structured in the culture that different conceptions of ideal bodies are conveyed in the media under the mediation of economic and political interests, reinforcing aesthetics under the thin and/or muscular stereotypes. 5,18 Even in the midst of sociocultural appeals, self-perceptions of the body go through a negotiation of these values about themselves, and with that other intrinsic and extrinsic aspects enter into negotiation in the subject. However, the social and economic aspects demarcate a great influence, because among women of different economic social classes the conception of a "beautiful body" is very different. 19

Other aspects associated with self-perception have to do with recent weight gain and the mode of consumption at mealtimes

Table 3: Food and Nutrition Security according to dissatisfaction and perception of body self-image of users of Basic Health Unit III – Elda Maria, Nova Floresta, Paraíba, 2020. (N=147)

Body image	Food and nutrition security				p
	FNI (n=76)		FNS (n=71)		
	n	%	n	%	
body dissatisfaction					0,224
Satisfied	12	15,8	19	26,8	
Dissatisfaction with thinness	4	5,3	2	2,8	
Dissatisfaction with being overweight	60	79,0	50	70,4	
body perception					0,118
no distortion	0	0,0	0	0,0	
Overestimation of body size	65	85,5	66	93,0	
Underestimation of body size	11	14,5	5	7,0	

Caption: FNI: Food and Nutrition Insecurity; FNS: Food and Nutrition Security. Source: Own research, 2020.

Table 4: Levels of Food and Nutrition Insecurity according to dissatisfaction and perception of body self-image of users of Basic Health Unit III - Elda Maria, Nova Floresta, Paraíba, 2020. (N=147)

Body image	Levels of food and nutrition insecurity						p
	Light FNI (n=49)		Moderated FNI (n=18)		Severe FNI (n=9)		
	n	%	n	%	n	%	
Body dissatisfaction							0,014
Satisfied	6	12,2	3	16,7	3	33,3	
Dissatisfaction with thinness	0	0,0	3	16,7	1	11,1	
Dissatisfaction with being overweight	43	87,8	12	66,7	5	55,6	
body perception							0,197
No distortion	0	0,0	0	0,0	0	0,0	
Overestimation of body size	44	89,8	14	77,8	7	77,8	
Underestimation of body size	5	10,2	4	22,2	2	22,2	

Caption: FNI: Food and Nutrition Insecurity; Source: Own research, 2020.

in this study. As food is constituted together with the subject in the life experience as a symbolic element, it participates in the construction of the perception of body, health, identity and others. According to

Poulain 6, nowadays, the relations of the act of eating are inserted, beyond social expressions, in the center of the construction of the process of one's own identity. Thus, it is clear that the relationships between food

and being go beyond merely biological relationships. Food practices take place in the social relationship, they suffer from limits on ways of life and health. All socially imposed rules, and social and economic possibilities are reflected in food choices, as well as the thin body cult patterns still negate the plurality of others.^{6,7,20}

In Brazil, food choices can be evaluated in terms of regular and permanent access to quality food, in sufficient quantity and without compromising access to other essential needs – which characterizes the concept of Food and Nutrition Security (FNS). When a family group and/or the individual perceives scarcity or lacks resources to maintain the practice of eating in everyday life, Food and Nutrition Insecurity (FNI) occurs.²² In this sense, 51.7% of the public interviewed in this study reported some level of FNI and among these, dissatisfaction with excess weight prevailed - desiring to have smaller body shapes - especially among those who were at a light FNI level (when the first changes/feelings in eating are noticed). While among those who were on FNS, the satisfaction of body self-image was higher.

Studies show that in the country, there were more than 10.3 million people living in households where there was severe food deprivation at times in the period from

2017 to 2020.^{13,23,24} Thus, these findings may be related to the fact that in vulnerable life situations, more fragile and with few options to strengthen support and social bonds, there are greater chances of modification of some elements of life and care, including food.

Recognized among families, especially those who are in a situation of greater vulnerability, access (quantity, quality, frequency) to food is negatively influenced by the current dismantling of health, social and food policies, that exacerbate socioeconomic inequalities, what we have is a great advance of neoliberal policies in Brazil.²⁵

Effective monitoring in Primary Health Care for those users who are overweight and obese – related to high levels of body dissatisfaction – therefore, it includes a combination of scientific evidence with the cultural/regional characteristics of the community and the care practices of professionals, in addition to the availability of resources from the health services themselves.

The limits of the research are related to the fact that it is not a research with a representative sample, its transversal cut is a cut that maps at the territorial level an important problem and brings more complex information about what involves the themes of body and food. It is necessary to consider

the reality and specificity of each population, especially the one with greater situations of social and economic vulnerability, as well as the characteristics of the food and nutritional system of each location. Despite this, it is suggested to carry out research that continues to assess the determinants of subjects based on local characteristics, as studies that aim to understand the subjective and objective experiences of subjects - in their specific spaces of interactions - are relevant so that the various socioeconomic and food dimensions are, in fact, understood.

CONCLUSION

The research showed a high prevalence of body dissatisfaction and distortion, especially among women of low socioeconomic class. Gender, as well as level of education, nutritional status and level of food and nutritional insecurity were related to body image.

Some links between body self-image, FNS and FNI have been elucidated, however, this debate is still scarce in the literature, and it is important that other studies continue to investigate these variables in an intra-municipal and intra-regional way.

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