

## Pictorial instrument of food and nutrition education for promoting healthy eating

### *Instrumento imagético de educação alimentar e nutricional para promoção da alimentação saudável*

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#### ABSTRACT

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To trace the course of building a pictorial instrument that explores semiotic resources about food and nutrition education. The instrument is directed at the treatment and prevention of obesity, considering the food and nutrition problems of the Brazilian population. The criteria for photo production were: images that could cause visual impact and transmit applied nutrition information, insinuating positive and negative eating practices for promoting healthy eating, and preventing and treating obesity. Themes were created to guide photo production, and preparations, food composition tables, and food labels were used for composing the images. Focus groups were conducted with nonobese and obese women, and dietitians to evaluate image comprehension. The pictorial instrument totaled to 20 photos, with 5 photos in each of the following themes: 'Sweet life, being aware of sugar', about sugar content in sweets and drinks; 'Tasty food with little fat', about fat content in foods; 'Eating well by making the best choices', about food replacements; and 'I take care of myself by eating healthy food, about encouraging fruit and vegetable intakes. The photos contain food, meals, and semiotic resources. The pictorial instrument describes four relevant themes to approach food problems in the Brazilian population. It can easily be used for both preventing and treating obesity, and for promoting healthy eating.

**Keywords:** Food and nutrition education. Obesity. Nutrition policy. Pictorial works.

#### RESUMO

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*A presente pesquisa buscou traçar o percurso da construção de um instrumento imagético explorando recursos semióticos para educação alimentar e nutricional, direcionado ao tratamento e prevenção da obesidade e*

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considerando os problemas alimentares e nutricionais da população brasileira. Os critérios estabelecidos para fundamentar a produção das fotos foram: imagens que causassem impacto visual e que transmitissem informações nutricionais aplicadas, insinuando práticas alimentares positivas e negativas frente à promoção da alimentação saudável, à prevenção e ao tratamento da obesidade. Foram criados temas a fim de orientar a produção das fotos utilizadas no instrumento e, para construir as imagens, foram utilizadas preparações, tabelas de composição nutricional e rótulos alimentares. Grupos focais foram realizados com mulheres eutróficas, mulheres obesas e também com nutricionistas, com o objetivo de avaliar a compreensão das imagens. O instrumento imagético totalizou 20 fotos, sendo cinco para cada um dos seguintes temas: 'Vida doce, cuidando do açúcar', que abordou o conteúdo de açúcar em doces e bebidas; 'Comida gostosa e com pouca gordura', que tratou do teor de gordura em alimentos; 'Comer bem fazendo as melhores escolhas', sobre substituições alimentares; e 'Cuido de mim com comida saudável', para estimular o consumo de frutas, verduras e legumes. As fotos contêm alimentos, refeições e recursos semióticos. O instrumento imagético aborda quatro temas de relevância para orientação de problemas alimentares diagnosticados na população brasileira, além de ser de fácil manejo para auxiliar tanto na prevenção quanto no tratamento da obesidade, bem como na promoção da alimentação saudável.

**Palavras-chave:** Educação alimentar e nutricional. Obesidade. Política nutricional. Obras pictóricas.

## INTRODUCTION

In the last years, studies have reported the worsening diet quality and nutritional status of Brazilians, as the intakes of grains, legumes, and fresh foods have decreased, and the availability of ultra-processed foods has increased<sup>1-3</sup>. This scenario has drawn attention to the mobilization of public policies that regulate nutrition facts labels<sup>4,5</sup> and intersectoral actions that enable the control of sugar, fat, and sodium contents in ultra-processed foods, given the high prevalence of obesity and food-related chronic diseases<sup>6-9</sup>.

In 2004 the "Global Strategy on Diet, Physical Activity and Health" of the World Health Organization<sup>10</sup> proposed measures to correct the global eating patterns with respect to proper energy balance, restriction of total fat intake, replacement of saturated fat intake by unsaturated fat intake, elimination of trans fat intake, increase in fruit, vegetable, whole grain, and seed intakes, and restriction of sugar, salt, and sodium intakes.

Among the "Política Nacional de Alimentação e Nutrição" (PNAN, National Food and Nutrition Policy) guidelines, the *Promoção da Alimentação Adequada e Saudável* (PAAS, Promotion of Proper and Healthy Eating) defends supporting problematizing food and nutrition

education strategies that promote dialogue between health professionals and the population to develop people's food practice-related self-care and autonomy<sup>11</sup>. In this respect access to information is critical for people to have the means of pondering on their eating habits<sup>12</sup>.

Nutritional information, even when supported by laws that regulate their use<sup>4,5,13</sup>, do not necessarily lead to healthier dietary changes. Food practices need to be deliberated in the context of life, and measures that involve counting calories, nutrients, or other similar procedures hardly change such practices in the medium- and long-run<sup>14</sup>.

Instruments that trigger reflection about one's food practices may help one to manage their choices, enabling greater autonomy and consequently, improvements in the nutritional quality of the diet. Health professionals need these tools to promote healthier food choices. As discussed in the "Marco de Referência de Educação Alimentar e Nutricional"<sup>9</sup> (Milestone Reference for Food and Nutrition Education), promotion of the voluntary practice of healthy food habits should be supported by problematization, and active food and nutrition education strategies that value culinary practice in order to encourage people's health-related autonomy and empowerment.

Among the food and nutrition education strategies that promote healthy eating, there have been reports of experiences on the use of culinary workshops<sup>15</sup>, use of problematization as support for dietary counseling in individual and group care<sup>16</sup>, garden cultivation as a nutrition education vehicle in schools<sup>17,18</sup>, and the use of films to encourage adherence to healthy eating habits<sup>19</sup>. These initiatives have gotten individuals to change their eating practices, which may be attributed to the ludic and innovative approach of the interventions, training to operate changes that involve skills, possibility of broad and even philosophical reflection on the space food occupies in life, analysis of the immediate and mediate implications of group food practices, and even politicization of food intake<sup>20</sup>.

In the scope of health care and education, it is important to increase the repertoire of healthy eating promotion tools that provide examples and provoke reflections about diet. This study stems from the need of more tools that effectively sensitize individuals about our population's diet quality and its implications. For example, in a therapeutic dialogue, how can individuals be shown what soda intake represents in their routine? The construction of food and nutrition education tools capable of mediating information about food and nutrition, and of encouraging questions was an imposed necessity, given our therapeutic experience with overweight and obese women, which motivated the proposal of creating a pictorial instrument.

The use of images can increase attention and understanding, help memorization, favor the proposed changes<sup>21,22</sup>, sensitize and provoke discussions, and encourage reflections, among others.

The choice of image and its compositional aspects have an intentional action, which is part of the pictorial production, in which the image context must be considered<sup>23</sup>. According to semiotic analysis, images have two lines of meaning. One of them is denotative, which refers

to the objects in the image. The other is connotative, which consists of ideas and values expressed by what is represented in such way that such meanings are constructed from semiotic resources that lead to image interpretation<sup>23</sup>. In semiotics image as a sign aims to represent an object. When explored for nutrition communication, images aim to facilitate the interpreter's (layperson in nutrition) understanding of the interpretant (that which the sign transmits)<sup>24,25</sup>.

This study aimed to construct a pictorial instrument for food and nutrition education that facilitates the promotion of healthy eating and that can be used for encouraging reflection on eating practices and their consequences.

## METHODS

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The study was approved by the Research Ethics Committee of the *Hospital das Clínicas Faculdade de Medicina de Ribeirão Preto - Universidade de São Paulo* (Clinics Hospital of the School of Medicine of *Ribeirão Preto - University of São Paulo*, nº 8725/2010).

The selection of the themes that would be approached by the pictorial instrument was based on food intake studies that report the Brazilian population's low daily intake of fruits and vegetables, and high daily intake of ultra-processed foods with high sugar, salt, and/or fat contents<sup>1-3,26</sup>. Thus, the instrument's food and nutrition guidelines include an alert about high sugar intake, fat content of foods, and support for lower intake of ultra-processed foods and higher intake of fruits and vegetables. Four themes were chosen to guide the instrument's picture production: "Sweet life, being aware of sugar", "Tasty food with little fat", "Eating well by making the best choices", and "I take care of myself by eating healthy food".

Image production was based on the following criteria: images that would cause visual impact, transmit applied information, and explain

food and nutrition principles associated with dietary recommendations, insinuating positive and negative eating practices that promote healthy eating, and prevent and treat obesity. These criteria required metaphorical images, representations of proportions, and expressions signaling ideas for the instrument to transmit the intended information, which required approximations and inaccuracies. Image construction considered both denotative and connotative meanings<sup>23</sup>. For example, to transmit notions of high energy intake awareness, weight gain was represented with fat without considering individual differences or special situations related to physical activity, body composition, physiological status, age, and metabolic particularities. Likewise, the amounts of foods and their components represented in the images required approximations. For example, fat was represented by yellow gel balls that expressed the proportion of fat in the food. The images contained foods, preparations, and a model to express judgment ideas about the image content, such as approval, surprise, disappointment, and indifference, to help individuals to interpret the messages conveyed by the images.

The *Tabela Brasileira de Composição de Alimentos* (Brazilian Food Composition Table)<sup>27</sup> was used for providing technical support to the nutritional information presented in the images. When said table did not contain a certain food, other tables were used<sup>28,29</sup>, including culinary preparations<sup>30</sup> and food labels. All foods in the images were weighed for calculating their nutritional composition.

The following fact was considered to show the relationship between sugar intake and weight gain: 454 g of fat tissue contains roughly 3500 kcal. In other words, to gain 1 kg of fat one needs to consume an extra 7700 kcal<sup>31</sup>. Moreover, the total amount of carbohydrates in a food was represented by the corresponding amount of sugar. Projections of weight gain and sugar intake defined month as a period of 30 days and year as a period of 365 days.

To construct the pictures of the theme "Eating well by making the best choices", we consulted the quantities (g/mL) and energy content (kcal) of energy-dense foods, and from the energy content of these foods, we calculated the amount (g) of foods that could be healthy replacements. In order to facilitate food comparisons, the energy in the foods compared in each picture could vary by as much as 5 kcal.

For the pictures of the theme "Tasty food with little fat", we calculated the amount of fat (g) in foods and preparations. These calculations were not done for the theme "I take care of myself by eating healthy food" because it aimed to suggest healthy food choices.

The foods were prepared and photographed in a dietary technique laboratory. The digital kitchen scale Dayhome (model Y65) with capacity of 5 kg and accuracy of 1 g weighed the foods, and graduated cylinders measured beverage volumes. The pictures were taken by the semiprofessional camera Nikon (Coolpix P500).

Considering its purposes, the instrument was tested with focus groups of dietitians (n=5), obese women (n=4), and normal weight women (n=6) to assess image interpretation.

The images were shown by themes to 3 focus groups and discussed. The meetings were recorded, transcribed, and their content, analyzed<sup>32</sup>.

## RESULTS

A total of 807 pictures were produced, which were periodically screened considering the themes and objectives proposed for image creation. The screening was performed by a group of graduate dietitians during three workshops organized by themes. A total of 787 pictures were excluded because of similarity to other images, sharpness, and preferences. The group selected the pictures that better transmitted the thematic ideas.

The pictorial instrument has a total of 20 pictures that cover 4 dietary themes, namely “Sweet life, being aware of sugar”, “Tasty food with little fat”, “Eating well by making the best choices” and “I take care of myself by eating healthy food”, each having five pictures (Figure 1). Table 1 shows the nutritional content of the foods in the images. The instrument has

instructions for using the images in food and nutrition education workshops, and each image presents the proposed objectives. Six pictures of the instrument show a person responding to the food with an expression (approval, surprise, disappointment, or indifference). Only the “Eating well by making the best choices” theme does not contain such images. The pictorial instrument

**Table 1.** Nutritional and complementary information for the images of each theme.

Image		Amount (g or ml)	Carbohydrates (g)	Fats (g)	Energy (kcal)	Intake time (of the image)	Weight gain (fat) (kg)	Amount of sugar (kg)
<b>“Sweet life, being aware of sugar”</b>								
F1	Sweets <sup>a,b,c,d</sup>	843	442.8	-	3,176.8	1 year (weekly)	19.8	21.3
F2 e F4	Soda, type Cola <sup>a</sup>	700	60.9	-	238.0	1 year (daily)	1.5	22.2
F3	Orange flavor drink mix <sup>d</sup>	500	60.0	-	257.5	1 year (daily)	1.6	21.9
F5	Soda, type Cola <sup>a</sup>	350	30.5	-	119.0	1 month (daily)	0.5	915.0
	Sweets <sup>a,b</sup>	90	62.1	-	436.0	1 month (daily)	1.7	1,863.0
<b>“Eating well by making the best choices”</b>								
F6	Corn chips <sup>d</sup>	170	-	-	897.6	-	-	-
	Healthy dish with natural fruit juice and fruit salad <sup>a,b,e</sup>	552 g and 240 ml	-	-	893.5	-	-	-
F7	Popcorn <sup>b</sup>	90	-	-	447.5	-	-	-
	Bread roll <sup>a</sup>	150	-	-	447.5	-	-	-
F8	Snack with soda and French fries <sup>d</sup>	265.0 g and 500.0 ml	-	-	992.0	-	-	-
	Healthy dish with natural fruit juice and fruit	611.0 g and 240.0 ml	-	-	992.4	-	-	-
F9	Chocolate cake <sup>c</sup>	80.0	-	-	368.0	-	-	-
	Fruits <sup>a</sup>	680.0	-	-	367.8	-	-	-
F10	Deep-fried <i>coxinha</i> <sup>a</sup>	129.0	-	-	365.0	-	-	-
	Natural sandwich and juice <sup>a,b</sup>	244.0 g and 200.0 ml	-	-	368.0	-	-	-
<b>“Tasty food with little fat”</b>								
F11	Bread roll <sup>a</sup>	50.0	-	1.5	-	-	-	-
	<i>Pão de queijo</i> <sup>a</sup>	42.0	-	10.3	-	-	-	-
	Deep-fried <i>coxinha</i> <sup>a</sup>	114.0	-	13.4	-	-	-	-
F12	Mozzarella pizza <sup>b</sup>	130.0	-	12.8	-	-	-	-
	Healthy dish <sup>a,b,e</sup>	451.0	-	11.5	-	-	-	-
F13	Healthy dish <sup>a,b,e</sup>	451.0	-	11.5	-	-	-	-
	Unhealthy dish <sup>a,b</sup>	429.0	-	51.7	-	-	-	-
F14	Onion with little oil <sup>b</sup>	8.0	-	8.0	-	-	-	-
	Onion with lots of oil <sup>b</sup>	40.0	-	40.0	-	-	-	-
F15	Sundae <sup>b,c</sup>	245.0	-	26.2	-	-	-	-

Note: F1 to F15: image count from 1 to 15; <sup>a</sup>Brazilian Food Composition Table (TACO), <sup>b</sup>Food Composition Table - Support for Nutritional Decision, <sup>c</sup>Table for Assessment of Food Intake in Cooking Units, <sup>d</sup>labels, and <sup>e</sup>: Preparations obtained from the software Dietpro.

can be freely accessed online at <http://ideias.namesa.unb.br/index.php?r=bibliotecaldeias/view&id=202>

The pictures of the theme “Sweet life, being aware of sugar” evidenced the amount of sugar present in sweets, soda, and ultra-processed juices and the short- and long-term relationships between their intake and weight gain. To illustrate these comparisons, the pictures show packs of sugar and fat for the respective amounts to create a visual impact. The theme “Eating well by making the best choices” used equivalence symbols that represented different

foods with equal energy content. The “Tasty food with little fat” theme shows yellow balls of gel that represent the amount of fat in the food(s), with each ball representing 1 gram of fat. Finally, the theme “I take care of myself by eating healthy food” includes pictures of fruits, vegetables, and natural condiments for preparing foods, and a healthy dish.

The images were proposed to encourage reflections about the impact of the eating practices incorporated by the Brazilian population and reflections that involve mediate aspects, such as ultra-processed foods, fresh foods, meals,



Figure 1. Photographs in the pictorial instrument. *Ribeirão Preto*, 2012.

snacks, and traditional foods, among other themes. Nonetheless, the images could trigger other discussions related to contemporary eating habits, such as support for sustainable production processes to promote the intake of fresh foods, and appreciation of cooking to promote individual food practice-related self-care and autonomy. Hence, in addition to the intended connotative meanings of the images and representations, there have been suggestions of possibly exploring the themes in the context of the “*Marco de Referência de Educação Alimentar e Nutricional*”<sup>9</sup>,

New Food Guide for Brazilians<sup>33</sup>, and scientific studies that warn about the alarming intake of ultra-processed foods and their association with excess weight and chronic noncommunicable diseases<sup>34,35</sup> (Chart 1).

Each focus group lasted about one hour and included picture projection and manipulation, followed by a discussion about their understanding and interpretation. Analysis of the groups with obese and normal weight women led to the creation of image comprehension categories, such as the *impact* caused by seeing

**Chart 1.** Themes covered by the pictorial instrument, food and nutrition objectives, and expanding the objectives of the discussion on food and nutrition education.

Themes	Food and nutrition objectives	Expanding the objectives of the discussion on food and nutrition education
“Sweet life, being aware of sugar”	To show the amount of sugar in some sweets and beverages, especially those that are ultra-processed, and provide notions of short- and long-term weight gain by consuming these foods daily.	By considering the principle of education as a permanent process that generates autonomy and active and informed participation, food and nutrition education transcends the transmission of knowledge and triggers reflections about situations that involve food and nutrition to search for alternative solutions and practices. Hence, the images of the theme give room for reflections about the intake of sugar, such as food intake induced by the food industry, the influence of publicity and its association with symbolic values, and the food and beverage industry.
“Eating well by making the best choices”	To compare the energy content of complete meals and habitual foods with other energy-dense and nutrient-scarce foods and preparations.	By valuing healthier foods in consonance with the structuring principle of social, environmental, and economic sustainability, fresh foods are prioritized, consequently supporting sustainable production processes and allowing the involvement of fairer and more egalitarian economic and social relationships.
“Tasty food with little fat”	To show the amount of fat in some foods and advise individuals to use small amounts of oil in preparations.	The images of this theme, especially the image that illustrates food preparation using little oil, refer to the structuring principle of valuing cooking as an emancipatory practice. In this sense, knowing how to prepare food generates autonomy, enables putting in practice technical information, expands the set of an individual’s possibilities, and widens reflection about the sensory aspects of foods, namely the possibility of preparing tasty foods using less oil. It also allows working the division of intrafamily chores, allowing it to be a field for creativity and reinforcement of affective relationships.
“I take care of myself by eating healthy food”	To encourage the intake of fruits and vegetables.	As proposed by the title of the theme, self-care, inserted in the structuring principle of promoting self-care and autonomy, corresponds to one of the aspects of living healthy. Self-care actions are voluntary and intentional, involve decision making, and aim to contribute specifically to human structural integrity, functioning, and development. Thus, supporting knowledge about healthy eating allows individuals to practice self-care by choosing fresh foods.

the amount of sugar in sweets and commercially prepared beverages, and the associated weight gain; the realization of the amount of fat in foods and preparations; and the association of *satiety* with the intake of fresh foods. The dietitians suggested that laypeople could have doubts about the interpretation of fat as a metaphorical resource for its association with weight gain and made suggestions for reformulating the representation of the amount of fat in the foods depicted in images that proposed better food choices and healthy eating. Once focus group analysis demonstrated that the dietitians, and obese and normal weight women had understood the images of the 4 themes of the pictorial instrument, images were selected to compose its final version.

## DISCUSSION

Based on denotative and connotative resources, the constructed instrument calls attention to positive and negative eating practices for promoting healthy eating, and preventing and treating obesity. The challenges of the pictorial instrument included approaching the food and nutrition problems of Brazilians with visually impacting images that transmit applied nutrition information, making explicit nutritional principles associated with dietary recommendations. As the categories that emerged in the focus groups trigger reflection on diet, the instrument is a tool that needs to be worked in food and nutrition education actions.

The images approached the dietary problems of Brazilians in four specific themes, which did not have to approach their immediate content. Therefore, food contents of sugar and fat, whose participation have been growing in individuals' diets in detriment of grain, legume, vegetable, and fruit participation<sup>2,35</sup>, can be discussed in the four themes of the pictorial instrument. For example, the theme that approaches sugar intake ("Sweet life, being aware of sugar") may also be discussed from the

perspective of the daily participation of ultra-processed foods. The relative availability of ultra-processed foods has increased, while the availability of minimally processed foods has decreased<sup>1,34</sup>. Among ultra-processed foods, sweetened beverages are the main culprits of the high energy intake of individuals who consume them regularly. Intake of these beverages has been directly associated with the intake of other energy-dense foods<sup>36</sup>, in addition to their low satiety and high glycemic load<sup>37</sup>.

Cultural meal sharing and eating practices and appreciation of cooking are aspects emphasized by the Brazilian Food Guide to rescue eating practices using structured meals and to reintroduce foods of the Brazilian cultural identity<sup>33</sup>. By placing structured meals in the images instead of snacks and other easily accessible energy-dense foods, the pictorial instrument proposes not only to replace them with healthier foods, but also to rescue the idea of a meal and encourage aspects of shared meals, our eating pattern, and a healthy diet.

In addition to the nutritional perspective of having fresh and minimally processed foods be the base of a diet, the sensible use of oils, fats, salt, and sugar for seasoning foods, and investment in culinary preparations, the images may be object of reflection on environmental, social, and economic sustainability, sensory aspects, and division of intrafamily chores involving affective ties and as a space of creativity that reinforces of group unity<sup>35</sup>. Ultra-processed foods have harmful effects and have been associated with higher obesity rates and worse nutritional profile<sup>26,35,38</sup>.

In fields of food and nutrition, the connotative meaning of the images is explored in order to attribute values to the products, such as solidity, brand positioning in the market, and social integration<sup>39</sup>, but sometimes these messages are hardly perceived by consumers<sup>40</sup>. The present study used visually impacting representations and comparisons to illustrate excess sugar in foods and beverages, namely piles of sugar and facial expressions of surprise and



disappointment; fat was used as a metaphor for weight gain with a pejorative tone in the theme "Sweet life, being aware of sugar". These resources were used for connoting negative eating practices, which reflected the impact they had on the focus groups. Comparisons of fat content in foods, evidencing foods with higher energy density and worse nutritional quality were explored in the images of the theme "Tasty food with little fat". Then in "Eating well by making the best choices", the images with whole meals connoted satiety, wellbeing, and health. These were semiotic resources to disseminate messages of negative and positive eating practices, and for the categories of perception and satiety, one could assume that the messages in the images were understood.

Applied nutritional information, another criterion used for composing the pictorial instrument, was explored by illustrating the accumulated amounts of sugar over time and weight gain in kilograms of fat, proposing the replacement of snacks and other comfort foods with meals and conventional regular foods, using units (balls) to represent fat content, suggesting intake of fruits and vegetables, and prioritizing the use of natural condiments. Other studies support the importance of integrating different educational materials, complemented by discussions and reflections, to construct a health education process<sup>41</sup> and possibly to help people to reflect on and use the guided contents<sup>21,42,43</sup>.

Using visual aid to guide food choices is an effective approach to transmit dietary information<sup>42,44,45</sup>, influencing the implicit attitude of people with respect to their choices<sup>44,46</sup>. The images of the pictorial instrument provide concepts, food quality assessments, and recommendations on four themes considered important to improve the Brazilian population's eating habits<sup>47</sup>. The literature uses different approaches to describe pictorial instruments for food and nutrition education, such as recommended nutritional content in food choices by food groups<sup>48</sup> and notions of proportion of food groups<sup>49,50</sup>, among others<sup>46,51</sup>. Among these

instruments, the iconographic representation of the food pyramid corresponds to a pictorial sign representative of a proper diet from the nutritional viewpoint. However, from the connotative perspective of food stratification into groups and vertical transmission of these instructions to the general public, readers may be induced to make incorrect interpretations; also such instruments may be of difficult applicability due to the type of classification they use and proposed quantification by portions<sup>24</sup>. In this sense, the use of metaphors in the present pictorial instrument, such as fat, gel balls, and sugar packs, aim precisely to provide notions of amount, suggesting better choices and informing the instrument user of proportions. Lanzillotti *et al.*<sup>24</sup> pointed out that the instrument's ability to communicate is more important than the format of the pictorial sign, and simple images favor the interpreter's understanding<sup>21</sup>. In addition health education materials have been criticized because they converge to the linear model of information transmission, not considering subject interpretation or their heterogeneity<sup>52,53</sup>.

Instruments that support food and nutrition education actions, enable healthier food choices, and support decisions by using critical resources should be encouraged in order to empower individuals to develop their own dietary style based on healthier food and nutrition principles<sup>54</sup>.

The limitations of the present study include the sample size (n=15) during the phase that involved analyzing the images of the pictorial instrument and the total number of focus groups since more individuals, including males, and focus groups could lead to different results. Image analysis by a quantitative method could also help to understand how individuals comprehend each image.

## CONCLUSION

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Based on the precepts of valuing individuals' autonomy and self-care as essential factors for the promotion of healthier and longer-

-lasting eating practices, the present study aimed to present the construction of a pictorial instrument, which explored semiotic resources to connote positive and negative eating practices that aim to encourage diet-related reflection. The images clearly encouraged individuals to reflect because of the impact caused by the huge amount of sugar and weight gain associated with the intake of sweet foods and beverages, and improved individuals' perceived fat content of foods and satiety foods. The constructed instrument emerges as a tool to be used in food and nutrition education, which will encourage individuals to question their own diet and possibly lead to the means that will empower their food practices and self-care.

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#### CONTRIBUTORS

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