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Research report

Perceptions and choices of Brazilian children as consumers of food products

A.C. Mazzonetto, G.M.R. Fiates*



Nutrition Post Graduate Program (Programa de Pós-graduação em Nutrição), Nutrition in Foodservice Research Group (Núcleo de Pesquisa de Nutrição em Produção de Refeições – NUPPRE), Federal University of Santa Catarina (Universidade Federal de Santa Catarina – UFSC), Florianópolis, Brazil

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ABSTRACT

In order to identify children's perceptions about food choices and their behavior as consumers and influencers of food purchases, 16 focus groups were conducted with 71 students aged 8–10 years. Transcriptions were submitted to lexical analysis using the Alceste software. The initial contextual unit broke down into 1469 elementary contextual units, 84% of which were retained in the descending hierarchical classification. Results from the larger and more specific classes are reported here. Children were students from public schools where energy-dense nutrient-poor (EDNP) food consumption was severely restricted, but these foods were still bought by the children themselves or requested from their parents. Television shows and advertisements motivated food consumption in general, and consumption of EDNP foods was associated with social events and eating outside the home. Situations that emphasize the pleasure and satisfaction of not eating according to food guidelines are being addressed by traditional educational strategies directed at the individual. Appealing to the senses and employing visual stimuli to get to the affective component of children's attitudes seems to be an alternative tool for promoting healthy eating, instead of the traditional approach based on recommendations and restrictions.

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Introduction

Children's eating habits are determined, among a variety of factors, by food preferences. Energy dense nutrient poor (EDNP) foods are easily incorporated into food preferences (Birch, 1999). Because of their sweet taste, fruits are also considered tasty and therefore are more easily accepted by children; vegetables, on the other hand, tend to be rejected on the grounds of being sour or bitter and having unpleasant textures (Krølner et al., 2011). Therefore, vegetable consumption needs to be stimulated in order to become a learned preference (Dovey, Staples, Gibson, & Halford, 2008).

Taste, food marketing and brand recognition by children have been related to their preference for energy dense nutrient poor foods (Cairns, Angus, Hastings, & Caraher, 2012; Cornwell & McAlister, 2011). The situation led a number of countries to develop some kind of control strategy to restrict food advertising to children (Hawkes & Lobstein, 2011).

Parents influence children's preferences by making different kinds of foods available in the home environment, while children influence parents' choices by requesting specific food items (Birch, 1999; Cooke, 2007; McNeal, 2000; Patrick & Nicklas, 2005). Children recognize trips to the supermarket as opportunities to influence family

purchases and to have their preferences taken into consideration. Previous research indicates that parents do consider their children's opinions at the time of purchase, even when the child has asked beforehand and has not accompanied them (Kelly, Turner, & McKenna, 2006; Marshall, O'Donohoe, & Kline, 2007; Wilson & Wood, 2004).

Besides acting as influencers, children are also recognized as primary consumers, since they are able to make independent purchases with their own money. Also, preferences formed in childhood are often retained in adulthood (McNeal, 2000). As accomplished consumers, children are the target of a wide range of promotional channels such as television, internet, magazines, comic books and gifts. Television is still the most popular promotional channel, and the high frequency of commercials is said to exert a direct effect on children's food preferences and purchase behavior. The most common categories of food products promoted to children are sugared breakfast cereals, soft drinks, savory snacks, confectionery and fast foods (Cairns et al., 2012), and these are the same food groups that children tend to either buy for themselves or request from their parents (Marshall et al., 2007; Olivares et al., 2011; Özgen, 2003; Wilson & Wood, 2004). A similar situation has been identified in Brazil (Fiates, Amboni, & Teixeira, 2008).

Brazil, with over 195 million inhabitants, has the largest population of any South American nation; 50 million (23.3%) are children from 0 to 14 years, 84.4% of them living in urban areas. In 2010, the average monthly household income for of urban families was

* Corresponding author.

E-mail address: gfiates@ccs.ufsc.br (G.M.R. Fiates).

around 2400 Brazilian *reais* (€1040) and food expenditures accounted for about 20% of consumer spending (Brasil, 2011). According to National Surveys of Family Budgets, the household availability of fruits and vegetables is low, while the availability of processed, sugary, and fatty foods has been increasing (Brasil, 2004; Brasil, 2010a). Such availability appears to affect food intake by children, according to data obtained in 2008 by the Brazilian Food and Nutrition Surveillance System. Approximately half of the 26,000 children aged 5–10 years who were investigated had eaten sweets, chocolates, cream-filled cookies, crackers or packaged salty snacks on at least three occasions during the week preceding the survey. Meanwhile, only 3 in 10 children had eaten fruit and 1 in 10 had eaten vegetables on a daily basis (Brasil, 2009). Moreover, national data indicate that approximately one-third of Brazilian children are overweight (Brasil, 2010b).

The aim of the present study was to identify Brazilian children's perceptions about their behavior as food buyers and as influencers of food purchases, and about the motivators behind their food choices. Qualitative approaches are recommended to understand human behaviors, including in children, since they value participants and their perceptions. They can also highlight behavior aspects that quantitative methods fail to identify (Krueger & Casey, 2009; Pope & Mays, 1995). Nevertheless, it can be difficult for the analyst to avoid a tendency to privilege those comments that conform to his or her personal expectations (Dransfield, Morrot, Martin, & Ngapo, 2004). In 1986, a software called Alceste was developed in order to assist in data analysis and interpretation, helping to overcome such limits. Alceste could be described as a combination of textual and statistical analysis. The different word categories are generated automatically by the software, not by the researcher, thus increasing the objectivity of the process and reducing human influence (Guerrero et al., 2009; Reiner, 1986). To our knowledge, Alceste has so far not been employed in food and nutrition research with children. The use of the software enabled analysis of focus group transcriptions employing lexical analysis, what constitutes a rather innovative approach.

Method

This research is part of a larger study with an intergenerational approach, approved by the Human Research Ethics Committee of the Federal University of Santa Catarina (protocol 1140/10), and prepared in accordance with the ethical standards laid down in the 1964 Helsinki Declaration (World Medical Association, 2000).

Subjects

The study was conducted in Florianópolis, capital of Santa Catarina state, in the southern region of Brazil. All 10 municipal schools designated exclusively for children enrolled in the first four elementary school grades were included. The schools did not have canteens, and bringing snacks from home was actively discouraged by school management. All the schools benefited from the National School Meal Program. Since the development of independent consumer skills and persuasion and negotiation strategies appears more clearly from the age of 8 onwards (John, 2008; McNeal, 2000), this was the age group chosen for the present study.

Eight school principals agreed to participate and all 8- to 10-year-old students from the respective schools were invited – from both morning and afternoon classes. All children who handed signed consent forms on the designated day participated in the focus groups. Socioeconomic data were obtained from the children's registration cards.

Focus groups

Sixteen focus groups were conducted, including children of both sexes who studied in the same classes and were of approximately the same age (average variation of 1 year). Each group had a maximum of six children. The groups were led by a previously trained moderator and the discussions were recorded on two digital recorders. An observer was responsible for annotating nonverbal expressions and adding these to the transcripts.

Semi-structured script

A semi-structured script following the stages suggested by Krueger and Casey (2009) was developed to guide the group discussions. Three focus groups were conducted in order to test the script, and the results were not considered in the analysis. The script was slightly modified after obtaining feedback from the pilot test. It was composed of two blocks of questions: the first about motivations for eating energy-dense nutrient-poor (EDNP) foods and for eating fruits and vegetables; and the second about behavior as buyers and as influencers of food purchases. Pictures of fruit and vegetables and of EDNP foods were used to stimulate discussion. EDNP foods included those with high levels of sugar, fat and salt that were prohibited from being sold at school cafeterias in Santa Catarina state (Santa Catarina, 2001) and those most advertised to and purchased by children (Cairns et al., 2012; McGinnis, Gootman, & Kraak, 2006). These were: sweets, salty snacks, fried snacks, soft drinks, artificial juices, “fast food” and sugary flakes.

Data analysis

After *verbatim* transcription of the recordings from the 16 focus groups, the moderator reviewed the transcripts, assembled them to form a single *corpus*, and organized them according to Alceste software (ALCESTE, V.4.5, Image, Toulouse, France) requirements. Alceste was used to assist in data analysis and interpretation.

Alceste conducts lexical analysis using the descending hierarchical classification method. It is based on calculations made about the concurrence of words in segments of text with the aim of synthesizing and organizing essential information in a textual database (Dransfield et al., 2004; Guerrero et al., 2009). It operates in the following five stages: (1) Text segmentation and word coding: the *corpus* is segmented into elementary units of context (EUCs), which are text segments that contain a characteristic idea. The words are classified using an internal dictionary; (2) Lemmatization: the words are reduced to their radicals and classified as “analyzable” (nouns, verbs, adjectives, adverbs, etc.) or “supplementary” (prepositions, pronouns, etc.); (3) Definition of a contingency table of “analyzable” reduced forms and elementary units of context (EUCs); (4) Top-down hierarchical classification analysis: performed to obtain stable classes and their significant words (tested by chi-square); (5) Class description to aid interpretation.

Following these analyses, the software generates a report. The significant vocabulary of each class, that is, the words which give sense to the classes, was selected based on the concomitant occurrence of the following criteria: (1) Higher than average frequency (17 times) of occurrences in the *corpus*; (2) Class association, determined by a chi-square value (χ^2) above 3.84 ($gl = 1$, indicating that the reliability of association between the word and the class is greater than 95%). Elementary Units of Contexts (EUCs) significantly associated to the classes were also identified based on a chi-square value above 3.84. EUCs are segments of text that contain a characteristic idea or a meaning. The same researcher responsible for conducting the focus groups interpreted the results based both on the significant words and on the significant EUCs of each class. The chi-square value associating words and EUCs to the classes enabled the

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