Research report

Knowledge about food classification systems and value attributes provides insight for understanding complementary food choices in Mexican working mothers ☆

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ARTICLE INFO

ABSTRACT

Knowledge about mothers' perceptions of food classification and values about complementary feeding is necessary for designing educational and food supply interventions targeted to young children. To determine classification, attributes, and consumption/preparation routines of key complementary foods, 44 mothers of children < 2 y of age in 14 manufacturing businesses were studied. Using 31 key foods, we conducted free-listings, pile-sort, and food attributes exercises. Hierarchical clustering showed that mothers identified nine classes of key foods, including milk derivatives, complements, junk food, infant products, chicken parts, and other meats. From multidimensional scaling, mothers used three primary classification systems: food groups, food introduction stages, and food processing. Secondary classification systems were healthy–junk, heavy–light, hot–cold, good–bad fat, and main dish–complement. Child health and nutrition, particularly vitamin content, were salient attributes. Fruits and vegetables were preferred for initiating complementary feeding on the second month of age. Consumption of guava, mango, and legumes, however, was associated with digestive problems (empacho). Red meats were viewed as cold-type, heavy, and hard, not suitable for young children, but right for toddlers. Chicken liver was considered nutritious but dirty and bitter. Egg and fish were viewed as a vitamin source but potentially allergenic. Mothers valued vitamin content, flavor, and convenience of processed foods, but some were suspicious about expiration date, chemical and excessive sugar content and overall safety of these foods. Mothers' perceptions and values may differ from those of nutritionists and program designers, and should be addressed when promoting opportune introduction of complementary foods in social programs.

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Introduction

Complementary food choices are important determinants of infant feeding practices and future eating habits relevant to child health, development, and growth (Black et al., 2013). Life-course models explain how food choices develop in changing temporal, social, and historical contexts (Devine, 2005). People's life-course experiences affect food choice through ideals, personal factors, resources, and the social and food context (Sobal & Bisogni, 2009). Value attributes play a role in attaching positive or negative valences to the potential physiological, psychological, and sociological consequences when making food choices. These valences are modified by specific situations such as illness that eventually influence consumer behavior (Bisogni, Jastran, Seligson, & Thompson, 2012; Blake, Bisogni, Sobal, Devine, & Jastran, 2007; Myung, McCool, & Feinstein, 2008).

Food-related value attributes are health and nutrition, convenience, quality, sensory perceptions, and monetary considerations, among others (Dutta, Sywulka, Frongillo, & Lutter, 2006; Sobal & Bisogni, 2009; Winter-Falk, Sobal, Bisogni, Connors, & Devine, 2001). People cope with the diversity of foods that are potential satisfiers

of relevant values by grouping them into sets or categories so as to reduce the complexity of their choice (Blake et al., 2007; Siegler, 1991). Complementary food classifications are the developmental stages of food introduction, food groups based in the nutrient content of foods, food color, shape, texture, effects on the child, availability, and accessibility, among others (Bisogni et al., 2012; Blake et al., 2007; Bovet, Vauclair, & Blaye, 2005; Dutta et al., 2006; Gerber; Siegler, 1991; US Department of Agriculture, Food and Nutrition Service; Winter-Falk et al., 2001).

People construct and use food classifications in multiple dimensions including those culturally recognized, socially significant, and personally operational (Bisogni et al., 2012; Siegler, 1991) such as taxonomic categorizations (Bovet et al., 2005).Understanding folk categorizations is important because they may differ from scientific categorizations. Consistently, the social-sciences literature stresses the importance of understanding emic perspectives by studying and analyzing a setting or a behavior from the author's perspective (World Bank, 2014). Therefore, understanding caregivers' perceptions and value attributes about foods is needed if health providers' and child food programs are to assure proper communication and sustainability.

Developing countries are experiencing increases in maternal employment (González-Cossío, Rivera-Dommarco, Moreno-Macías, Monterrubio, & Sepúlveda, 2006). The mechanisms through which children's eating patterns relate with maternal employment are multifaceted. Time limitation may constrain parental food choices by offering low nutrient and energy-dense complementary food (Chaterji & Frick, 2005). Studies about maternal work and infant feeding have mostly focused on breastfeeding behaviors (Bran, Skinner, & Carruth, 2001; Chaterji & Frick, 2005; Hawkins, Griffiths, Dezateux, Law, & the Millennium Cohort Study Child Health Group, 2007; Hirani & Karmaliani, 2013; Lakati, Binns, & Stevenson, 2002). Few studies have been conducted in developing countries to understand working mothers' complementary feeding choices (Heinig et al., 2006; Pan-American Health Organization, 2013).

The objective of this study was to determine classification systems, value attributes, and food preparation/consumption routines of key complementary foods among Mexican mothers of children less than two years of age working in manufacturing businesses. This study aimed to expand knowledge about the barriers and facilitators for promoting desirable feeding choices of home and processed complementary foods in Hispanic working mothers using different caregiving arrangements.

Methods

Study design and data collection

This cross-sectional qualitative study was conducted in Central Mexico, in 14 manufacturing businesses located in the Cuernavaca City industrial zone. Businesses ranged from 115 to 920 employees and had at least 25% of working women. Data collection followed an interpretative approach, building upon the participant's real-life experiences and understandings regarding infant feeding (Hough & Ferraris, 2010). Three different purposive samples were chosen for data collection, which included free listing surveys, focus groups, screening surveys, and pile-sort and food-attributes exercises, as described below. In preparation for data collection, a one-week training workshop was conducted with local Spanish-speaking interviewers. Data collection instruments were pilot tested through personal interviews with mothers working in a manufacturing business located in the study site.

Free listing survey

Initially, a purposive sample of 20 key local informants knowledgeable of young child feeding was chosen for conducting a free listing survey (Hough & Ferraris, 2010). A total of 15 working mothers of young children, five day-caregivers, and five pediatric nurses were selected from a National Institute of Social Security (IMSS) regional hospital and a daycare in Cuernavaca City. To identify the cultural domain of foods given to young children, informants were asked to freely list all foods that are usually given to children less than one year of age in the region. They were interviewed individually, in a private room by a trained nutritionist who registered the list of foods mentioned by each informant. This survey was conducted in the winter season when certain seasonal fruits such as mango, tangerine, and guava were available.

Selection of key complementary foods

From the set of 112 foods given to children less than one year of age that were mentioned at least one time in the free listing survey, a list of 31 key foods was composed (Pan-American Health Organization, 2013). This list included the 21 most frequently mentioned foods, five processed foods that were less mentioned but relevant in infant feeding, and five foods that are potentially rich sources of iron, zinc, fat, and simple carbohydrates. Plastic color cards with the photograph and name of each of the key foods were developed to be used in the last phase of the data collection.

Focus group

A purposive sample of 12 working mothers of children < 2 y of age attending an IMSS daycare in Cuernavaca City was selected for conducting a focus group to pilot test the food cards. The session was carried out by a trained nutritionist at the daycare. An interview guide was developed including as inquiry topics: a) the pertinence/clarity of the color, size, and shape of the images, and b) the adequacy of the font size, color and words used in the text. The session lasted 28 minutes; it was audio-recorded and transcribed verbatim. Afterwards, some cards were redesigned.

Screening survey

To identify informants for the pile-sort and food-attributes exercises, a screening survey was conducted with all blue-collar women working in the 14 selected businesses. This survey asked for sociodemographic characteristics, including the number of children < 2 y of age, commuting time, working conditions, and childcare arrangements. Six mothers did not participate in this survey because of either a vacation or illness leave.

Single pile-sort and food-attributes exercises

A stratified purposive sample of 44 blue-collar working mothers relying on either family care (Group F = 22) or institutional daycare (Group D = 22), and using public transportation to get to and from work was chosen from the screening survey group to conduct both a single pile-sort and food-attributes exercises (Pan-American Health Organization, 2013). Mothers were selected looking for diversity in demographic (age, born place, schooling, and family structure), and working characteristics (income, years employed, extra time, absenteeism, commuting from home to work). All mothers selected agreed to participate.

A single pile-sort exercise was conducted first to identify culturally defined food groups. Trained interviewers asked the mothers to form as many piles as they wanted with at least two cards but placing one item in only one pile (Weller & Rommney, 1988).The mothers provided a name and a description of the classification criteria for each food group. Afterwards, a food-attributes exercise was conducted with these mothers. Interviewers showed one food card at a time to the mothers, while asking about their perceptions of food attributes and food preparation/consumption routines. Interviewers clarified the connotation (positive or negative) of an attribute when necessary. The sessions ranged from 20 to 32 minutes, they were audio-recorded and transcribed verbatim.