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## Using Qualitative Methods to Design a Culturally Appropriate Child Feeding Questionnaire for Low-Income, Latina Mothers: Development of a Child Feeding Questionnaire for Latinos

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### Abstract

**Objectives**—Obesity rates remain high among children in the United States (US), but children of low-income, minority families are at particularly high risk. Latinos are the largest and most rapidly growing US population group. Effective strategies will require attention to a wide array of culturally mediated variables that influence child feeding practices through the social contexts in which behaviors take place. This paper presents the design and implementation of a qualitative study examining low-income, Latina mothers' perceptions of child weight status and feeding practices, and their associations with the development of overweight in children. Guided by the social ecologic model and social contextual model on the role of the family in mediating health behavior, the Latina Mother Child Feeding Practices (LMCFP) study provided a systematic exploration of the influence of social class, culture, and environmental factors associated with mothers' perceptions of child overweight on feeding practices and behaviors.

**Methods**—The design for this qualitative study consisted of three sequential phases: focus groups, in-depth interviews and cognitive interviews with Latina mothers conducted by Spanish-speaking researchers.

**Results**—Results showed the important role of socio-cultural factors in influencing Latina mothers' child feeding practices. In the short-term, this research yielded information to develop a child-feeding questionnaire appropriate for low-income, Latina mothers.

**Conclusion**—Findings have important implications in developing nutrition education strategies for child health promotion that account for the social and cultural context of minority, low-income caregivers.

## Keywords

childhood overweight and obesity; Latina; child feeding practices

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## Introduction

Among Hispanic/Latinos (hereafter referred to as Latinos), the largest and most rapidly growing US population group, the dramatic rise in child obesity rates presents a pressing public health concern. Pediatric Nutrition Surveillance data showed that 36% of Latino children aged 2 to 5 were either overweight or obese in 2008, compared with 29% of non-Latino blacks and 27% of non-Latino whites<sup>1</sup>. Because childhood body mass index (BMI) tracks into adulthood, secular increases in child obesity are likely to increase the burden of adult disease among Latinos. Altering future chronic disease trends will require substantive efforts to reduce obesity incidence at early ages, highlighting the importance of research on determinants and interventions addressing child obesity in this racial/ethnic group<sup>1,2</sup>.

Families are important social environments within which food-related behaviors among young children are developed. Parents provide not only the genetic predisposition to obesity but also serve as role models, foster feeding interactions and create home environments that shape their children's experiences with food and eating<sup>4-6</sup>. Nevertheless, a limited number of interventions have directly involved parents in childhood obesity prevention efforts<sup>6</sup>.

Successful strategies among underrepresented minorities also require attention to the cultural norms and social context that affect families' day-to-day realities<sup>7,8</sup>. Ethnic origins of minority populations imply differences in an array of culturally-mediated variables that are potentially relevant for the design of interventions to prevent obesity<sup>7</sup>. Furthermore, cultural differences in parental feeding practices across and within ethnic minority population groups indicate a need for culturally appropriate questionnaires. Latinos comprise a heterogeneous group with different national origins and a spectrum of cultural, social and religious practices as well as varying acculturation levels that may have implications for interventions<sup>9</sup>. Acculturation has been associated with changes in dietary behaviors and obesity in immigrant adults<sup>9-11</sup> and with parental beliefs about child weight status and feeding practices<sup>12-14</sup>. In particular, language use has been associated with Latino mothers' feeding practices and with their child's weight status<sup>14-17</sup>. A recent study among low-income participants in the Special Supplemental Nutrition Program for Women, Infants and Children (WIC) revealed significant differences in feeding practices and beliefs among Spanish-speaking mothers compared with English-speaking Latina mothers and non-Latina mothers<sup>11</sup>. Such variations must be taken into account in developing questionnaires and intervention materials that are culturally sensitive to Latino populations.

This paper describes qualitative methods used to design a culturally appropriate child feeding questionnaire for Latino families. The "*Latina Mother Child Feeding Practices (LMCFP)*" was a formative, partnership-based research study utilizing qualitative methods to: (1) examine Latina mothers' feeding practices and perceptions of weight status; and (2) understand how these factors may influence preschool aged children's dietary intake and development of overweight in preschool years.

## Rationale for Study Design

Although several questionnaires have been developed to study the link between parental feeding practices and styles and child weight status, relatively little research has focused on low-income Latino families. The Child Feeding Questionnaire (CFQ) designed by Birch et al. identifies seven major factors (perceived child weight, concern about child weight,

restriction, pressure to eat, monitoring, parent responsibility for feeding, and perception of parent weight status) that intend to capture parents' self-reported beliefs, attitudes and practices about child feeding and obesity proneness<sup>16</sup>. A lack of cross-cultural equivalence of feeding beliefs and practices and psychometric properties may, however, limit the usefulness of the CFQ in Latinos and other racial/ethnic groups<sup>12</sup>. The Infant Feeding Questionnaire (IFQ) and Preschooler Feeding Questionnaire (PFQ) of Baughcum and colleagues<sup>17</sup> were developed and tested among mothers of diverse SES and African-American race/ethnicity. The IFQ retrospectively identifies maternal feeding practices and beliefs during infancy and the PFQ explores six contextual factors: maternal concern over child's weight, structure during feeding interaction, concern about amount of food child eats, use of food to shape child's behavior and child's daytime bottle use. Among urban, low-income, African-American mothers, the PFQ questions were interpreted to mean something other than intended, especially with respect to difficulty in child feeding, pushing the child to eat more, and using food to calm the child<sup>12</sup>.

The Caregiver's Feeding Style Questionnaire (CFSQ), assessing feeding styles associated with child obesity in African-American and Latino groups, was designed by Hughes and collaborators with consideration for cultural and socioeconomic factors<sup>18</sup>. However, there remains a need to identify specific aspects of minority cultures that influence the broader social context of parenting. Furthermore, existing questionnaires have focused on measuring specific aspects of child feeding practices and styles and have not considered parental confidence in creating a healthful home environment. Our research indicated that low-income, Latino parents may recognize child obesity but may not necessarily have the knowledge and/or confidence to foster healthful eating practices for their children<sup>19</sup>. These findings point to cultural variations in word interpretation and response style, supporting the need for culturally- and linguistically-appropriate child feeding instruments for diverse populations<sup>20</sup>.

In terms of measuring the family and home environment, the Child Feeding Practice Questionnaire (CFPQ)<sup>3</sup> expanded on previous questionnaires<sup>16, 18</sup> with additional items assessing availability of healthy foods, child's involvement in meal planning and preparation, and teaching about nutrition. The Home Environment Survey (HES)<sup>21</sup> assesses the physical and social home environment related to physical activity and eating habits, including availability, accessibility, parent modeling and diet and activity policies. Although these questionnaires enhance previous child feeding surveys, none considered the role of organizational and neighborhood influences on healthful eating. For minority, low-income populations, macro-level environments may shape the day-to-day decisions that parents make<sup>11,22</sup> and have larger negative effects on disadvantaged and minority children than on their advantaged white peers<sup>7,23</sup>.

As more children grow up in families with immigrant parents of Latino origin<sup>2</sup>, understanding how parental and social contextual factors shape feeding practices will be essential to slowing obesity trends. The Latino Mothers' Child Feeding Questionnaire (LMCFQ) was developed to measure parental and social contextual influences on child feeding practices and child eating habits and to examine the association of these influences with child weight status among Latino mothers and their preschool children participating in the WIC Program. Results from our study can be used to inform the design and testing of an intervention to promote healthy feeding and eating practices that are culturally appropriate for this population.

## Conceptual Framework

The social ecological model (SEM)<sup>24</sup> and the social contextual model (SCM)<sup>25</sup> provide the conceptual framework for exploring the complex, multi-level influences on early child feeding practices and eating habits that may lead to child overweight in Latino families in the U.S. Public health approaches to obesity prevention and control across the lifespan have utilized the SEM to provide a systematic consideration of obesity as a chronic, multi-factorial condition determined by a range of personal, family, organizational and environmental influences potentially amenable to intervention and modification<sup>1,2</sup>. A recent adaptation of the SEM, the social contextual model (SCM) developed by Sorensen et al.<sup>25</sup>, relates social class and culture to multiple levels of influence on families<sup>22</sup> posited by ecologic approaches<sup>22, 24, 26</sup> including: individual (e.g., material circumstances and daily hassles), interpersonal (e.g., social support and networks), organizational (child care, federally-funded nutrition programs.) and environmental (e.g., access and proximity to grocery stores) factors. A strength of this approach lies in its emphasis on the expression of cultural pathways in terms of everyday practices and routines that are understandable to children and families participating in the research and may explicitly inform the design of health promotion interventions.

## Methods

The LMCFP research capitalized on a randomized, controlled intervention trial<sup>37</sup> testing the efficacy of a non-formal education model, the 'Just for You' Program (JFY) in changing lifestyle behaviors among low-income, multiethnic mothers<sup>27</sup>. We utilized collaborative structures that had been developed under the auspices of the JFY parent grant to recruit Latina women with young children from WIC Programs co-located in community health centers in the greater Boston metropolitan area. The JFY study population comprised of low-income, primarily Latina women; 55% of the 678 women enrolled in the JFY trial were born outside the U.S.; 67% spoke Spanish as their first or native language<sup>36</sup>. Of foreign-born women, 96% spoke Spanish as their first language compared to 30% of native-born women.

Development of the CFQ was conducted in three phases: 1) Focus groups, 2) in-depth interviews, and 3) cognitive interviews. Focus groups were chosen to obtain general themes, as well as information about the wording choices that women from the targeted population used when discussing these themes. In-depth interviews were selected to explore themes identified in the focus groups more deeply and to provide opportunities for additional, more sensitive topics to arise through the greater privacy assured through one-on-one data collection. Data from these first two phases were used to construct survey items, which were pretested via cognitive interviewing to detect potential problems in item interpretation, response mapping, and response editing.

Participants in the first two phases of the study were purposively selected from women enrolled in the JFY trial. Inclusion criteria included: being of Latino ethnicity, living in the greater Boston metropolitan area, speaking Spanish as the primary language spoken at home and having delivered a live-born baby in the past 48 months. We selected three non-overlapping samples of women for the three phases by contacting every fifth woman from the JFY population who meets these criteria. Because we anticipated this predominantly immigrant group to be mobile, we iteratively went through the list to select every fifth woman as needed to fulfill sample size requirements. Participants were recruited using both mailed flyers and phone calls. Participants in the cognitive interviews were selected from a convenience sample of Latino mothers enrolled in four WIC Program located in serving predominantly Spanish-speaking neighborhoods in the greater Boston metropolitan area.

The sample was similar in demographics to the sample recruited from the JFY trial focus groups and in-depth interviews.

Focus groups and individual in-depth interviews were conducted over a six-month period. Focus group discussions took place at two Boston-area community health centers; in-depth and cognitive interviews were conducted in participants' homes. Focus groups, in-depth interviews, and cognitive interviews were conducted in Spanish by an experienced, trained female interviewer of native Latino origin.

Throughout this research, we applied standard methods in qualitative research<sup>28</sup>. This included using a trained and experienced interviewer and focus groups moderator; developing an interview protocol with open-ended questions; audio-taping interview sessions; taking notes during focus groups and writing observations after the interview or focus group discussion; obtaining a complete verbatim transcription of tapes in Spanish; and translation of transcripts into English by a professional translator. Two experienced qualitative data analysts conducted categorical coding of the data for thematic content analysis. Participants were informed of all research procedures and, prior to focus groups and interviews, were informed of the degree of their participation and assured that all information provided will remain confidential.

### **Phase I: Focus Groups**

We invited 60 women to participate and 31 attended (51.7%) six focus groups, conducted from September to December 2005. Results from *Phase I* enabled us to identify: (1) Latina mothers' perceptions of their own and their child's weight status and definition and understanding of overweight and related nutritional and health consequences; (2) child feeding practices related to child overweight; (3) socioeconomic, cultural, organizational and environmental influences on mothers' child-feeding practices; and (4) potential barriers that mothers in this population face in making healthy feeding choices for their children.

### **Phase II: In-depth Interviews**

*Phase II* consisted of conducting 20 individual in-depth interviews with a non-overlapping sub-sample of women to further explore factors associated with mother's child feeding practices and children's eating habits. Approximately six-months after the conduct of focus groups, we invited a non-overlapping sample of 25 women to participate in this phase and 20 women agreed to participate (80%). Qualitative data from *Phases I* and *II* provided: (1) a contextualized understanding of factors in mothers' lives that influence child feeding styles and behaviors; (2) a sense of the prevalence and type of specific barriers for mothers in this population. For example, participants identified environmental and social factors influencing child feeding, diet and physical activity, such as supermarket proximity, food cost, weather, neighborhood safety, television habits, time limitations and limited support from neighbors, family and friends; (3) information that will be useful in wording and framing questions to be developed for the child feeding questionnaire.

### **Phase III: Development of Child Feeding Questionnaire including Cognitive Interviews**

In *Phase III*, we used empirical findings from *Phases I* and *II* to develop a quantitative child feeding questionnaire (the LMCFPQ) culturally and linguistically appropriate for Latinos.

The LMCFPQ development was guided by five main domains of influences on child's eating habits, which were operationalized as follows: (1) Parental influences (Parental perceptions of their own and child's weight status, child's healthy eating, parental

perceptions of responsibility in shaping child's eating habits, parental support and modeling of healthy eating, and parental confidence in helping their children develop and maintain healthy eating habits); (2) Family and home food environment (Availability of foods in the house and parental food policies as they related to healthy eating and family meal time policies such as TV use during meals, and time and schedule constraints on cooking for the family and eating together as a family); (3) Social cultural influences (Economic constraints including cost of food and food insecurity and cultural influences on foods and eating habits); (4) Neighborhood environment (Availability, accessibility, and proximity of supermarkets, grocery stores, and fast-food restaurants, variety and quality of local produce, and convenience of eating out); (5) Organizational influences (Childcare participation and food environment and policies, WIC Participation, role of WIC staff in teaching about healthy eating including food purchase and preparation, and WIC staff-client connectedness).

The LMCFP questionnaire was developed through a collaborative process involving WIC staff and experts in questionnaire development. To equate items across the Spanish and English version of the questionnaires, translation/back translations of the survey instrument were conducted iteratively. The initial translation was conducted by a naive translator (i.e., someone who was not informed of the concepts being translated and had no research background but whose native language was Spanish). The translated and back-translated survey drafts were pretested in cognitive interviews with English- (N=5) and Spanish-speaking (N=10) Latino mothers to determine how a sample of the study population might follow questionnaire instructions, interpret the survey items, and choose response categories. We tested the LMCFPQ with English- and Spanish-speaking Latinas because previous research<sup>9</sup> had shown that there are important differences in parents' beliefs regarding parenting feeding behaviors related to child overweight between English- and Spanish-speaking Latinos<sup>9-11</sup>.

Cognitive interviewing showed that the instructions and questions appeared to be similarly understood by mothers in both language groups. However, some response scales proved confusing to the Spanish-speaking Latino mothers. Each item in the LMCFPQ queried either degree of agreement ("strongly agree", "agree", "neither agree nor disagree", "disagree", "strongly disagree") or frequency ("always", "often", "sometimes", "rarely", "never"). Some mothers in the Spanish-speaking group found the "strongly agree" and "agree" and the "disagree" and "strongly disagree" options at the ends of the scale to be too close in meaning. Consequently, the response options for the degree of agreement items were modified following similar procedures used by Brown et al.<sup>29</sup> to include a two-stage approach to obtaining Likert-scale responses with the use of flash cards. First, participants were asked if they agreed or disagreed with a statement. Once participants selected a response, they were guided to the next level (slightly agree/disagree or strongly agree/disagree). The frequency response scale was retained as a five-point scale, although the response option labels were modified to "always", "most of the time", "sometimes", "rarely", and "never" to provide further distinction between the Spanish options for "always" and "often."

Start and stop times were recorded for each cognitive interview to calculate the duration of each interview and assess the feasibility of using the questionnaire in a subsequent large-scale study. After incorporating feedback from cognitive interviews, the Spanish version of the revised survey was translated back to English and compared to the original English version to ensure equivalency. In addition, two WIC program staff who were bilingual, native Spanish-speakers reviewed the final Spanish and English versions to ensure that the survey was appropriate for addressing a diverse Latino population.

Additional pre-testing of the LMCFP questionnaire, were conducted in the summer of 2009. Readability assessment was conducted using Microsoft readability software. The English version of LMCFP questionnaire had 1% passive sentences, 75.9% Flesch Reading Ease (easily understandable by 13–15 year old students), and 5.1 Flesch-Kincaid Grade Level (understandable by an average 5<sup>th</sup> grade student). The Spanish version had 0% passive sentences, 68% Flesch Reading Ease (easily understandable by 13–15 year old students), and 4.5 Flesch-Kincaid Grade Level (understandable by an average 4<sup>th</sup> grade student). Literacy and linguistic aspects of the questionnaire were further assessed by a professional translation company that further revised the questionnaire to ensure the linguistic and cultural appropriateness of the questionnaire for a varied population of Latina women.

Through expert reviews and qualitative pretests, we explored content validity and usability of the questionnaire among a multi-cultural Latino population. The questionnaire was assessed for construct validity by WIC program staff (nutritionists/dietitians) and experts in the fields of child feeding, nutrition, obesity, and survey methodology. After appropriate revisions, the LMCFP questionnaire went through another pretesting phase that included cognitive interviews with 5 English-speaking Latino mothers and 7 Spanish-speaking Latino mothers. To ensure that the cultural and linguistic diversity of the target population were addressed, both groups comprised women from a variety of cultural backgrounds and countries of origin. A trained interviewer bilingual in Spanish and English employed strategies such as concurrent ‘think-alouds’ (in which respondents vocalize their response process), paraphrasing, and probing to explore how respondents comprehend and answer the survey questions. Cognitive interview feedback was also used to help determine whether the items address the intended constructs and to observe how respondents interpret and follow instructions, in an effort to improve LMCFPQ usability. Feedback was incorporated into a revised LMCFPQ with ambiguous or confusing terms removed.

Following these revisions, we audio-taped 5 English and 5 Spanish pretests followed by an interviewer debriefing session, in order to estimate survey administration time, test the questionnaire revisions, and explore interviewer administration issues. The “pretests” were conducted with low-income, Latino mothers who had at least one child between the ages of 3–5 years of age representative of the target population for the proposed research. Results showed that there were no perceived repetitive questions and that the final draft of revised questionnaire was easily understood by low-income mothers. The average time for conduct of interviews was 55 minutes. The final LMCFP survey is comprised of 112 items divided into ten scales: 1) Child’s Weight and Eating Habits; 2) Your Home; 3) Making Ends Meet; 4) Cultural Influences on Child’s Eating; 5) Foods Where You Live; 6) Your Child’s Childcare; 7) Your Participation in the WIC Program; 8) About Your Family and Friends; 9) About Your Culture; 10) About You. Questionnaire sections range from 4 to 37 items. The LMCFPQ included 85 items developed from the qualitative study and 27 items adapted from four other validated surveys<sup>3, 14, 17, 18</sup>. A copy of the questionnaire is available upon request to the main author (ACL).

Study methods allowed for the development and refinement of hypotheses for later quantitative testing by providing a description and an understanding of the situation<sup>28, 30, 31</sup>. Findings also served to generate information about terminology and concepts of child weight status and child feeding practices and to identify the most meaningful language for a child feeding questionnaire culturally appropriate to Latino populations<sup>32</sup>.

## Discussion

The aim of this study was to systematically explore the influence of social class, culture, and environmental contextual factors on mothers’ perceptions of child overweight and feeding

practices and behaviors in a low-income, Latino population using qualitative methods. Qualitative methodology provided deeper insight into personal experiences, obstacles, perceptions and possible solutions on child feeding practices among low-income Latino families and allowed for the identification of multiple contextual factors<sup>22, 33</sup> that may be associated with child-feeding practices and child overweight in this population. Findings from our study also served to identify key elements required for the future development of nutrition education interventions for low-income, multiethnic, primarily Latino populations participating in food assistance programs such as WIC<sup>34</sup>.

The results from the LMCFP study not only provided new qualitative information but also guided the development of a child-feeding questionnaire appropriate to low-income Latinos. The focus groups and interviews enabled us to understand the processes behind child feeding practices within the familial, socio-economic and cultural context and to include relevant questions in the LMCFQ. Formative research such as the one described in this paper provides the essential basis for developing intervention targeted to diverse cultural settings for which existing information is limited.

Results of this study should be considered in light of some limitations. Findings are based on a non-random, purposive sample of low-income, Latina mothers in the greater Boston metropolitan area initially recruited through the WIC Program to participate in a randomized health promotion trial<sup>27</sup>. Purposive sampling can be considered a limitation on the generalizability of qualitative findings, but the multi-ethnic composition of participants in focus groups and interviews strengthens the potential applicability to several Latino population groups. The opinions and responses of mothers participating in the focus group discussions may have been influenced by some of the more vocal mothers at the discussion. Mothers recruited to participate in this study could have been those who were more concerned in general about child feeding issues and healthy lifestyles. Future research can address these limitations by exploring social contextual influences on children's eating and physical activity and sedentary behaviors in Latino immigrants from other countries and other immigrant groups. In addition, research is needed that builds upon the qualitative findings reported here, but quantifies the relationship of social context factors to early development of child overweight.

Public health researchers and practitioners need more information on how unique groups process health messages in order to construct and deliver positive, easy to implement messages for their target populations<sup>35</sup>. Although the dietary and physical activity goals will be similar, parental, family, and community messages and techniques grounded in cultural traditions and norms will differ for each ethnic group<sup>33</sup>. To our knowledge, to date there is still a lack of questionnaires that: (1) assesses environmental and organizational influences on child feeding practices; and (2) is culturally and linguistically appropriate for a Latino population. Consequently, the LMCFP questionnaire can be a valuable contribution to the existing pool of child feeding questionnaires and may be used to assess socio-cultural, environmental and organizational influences among a low-income Latino population and guide future programs and interventions designed to prevent or reduce child overweight in this population.

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