

Nutrition

Eating Together: Mealtimes With African-American Mothers and Their Toddlers

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Obesity is a major health problem among African-American children (Dwyer, et al., 2000), placing them at increased risk for long-term health problems (American Dietetic Association, 2004). In addition to ethnicity, low-socioeconomic status and parental feeding behaviors can influence the risk of childhood obesity (Kumanyika, 2006; Lindsay, 2006). The purpose of this study was to identify typical mealtime behaviors of low-income African-American mothers with toddlers in order to provide a cultural perspective about feeding practices and how these practices might relate to risky food choices. A qualitative research design using focus group methods, described by Krueger and Casey (2000), was used.

The sample included 27 low-income African-American mothers of toddlers residing in an urban setting. Mothers were between 19 and 51 years of age (mean of 30 years), and toddlers ranged from 6 months to 44 months old (mean of 30.2 months). Seventy percent of the mothers were single and 64% had more than one child. While 81% had a high school diploma or equivalent, 45% were not employed outside the home.

Broad, open-ended questions, developed during team meetings were followed by more specific questions to clarify the participants' responses and focus the discussion. An African-American woman moderated the focus groups.

Focus groups were audio-taped and transcribed verbatim. Each of the authors read the transcripts and independently identified recurring themes, then met to discuss as a team. Three themes were identified by group consensus: (a) Toddler Autonomy and Environmental Influences, (b) Toddler Self-Regulation of Feeding and Mealtime Interaction, and (c) Maternal Perceptions of Healthy Mealtime Behaviors of Toddlers.

A) Toddler autonomy and environmental influences includes toddler independence in food choice and mealtime environment. Mothers allow their toddlers to choose what and where they eat. One mother said she would feed her children even if they weren't hungry, while another allowed her child to prepare microwave bacon whenever she wanted. Another mother preferred her daughter to eat while watching TV because it helped her eat faster.

B) Toddler self-regulation of feeding and mealtime interaction includes toddlers being allowed to regulate food intake within a social milieu. Mothers respond to hunger and satiety cues as they perceive them. One child would grab his belly and say 'oh Mama, I'm full' so his mother would know he was finished. Most women said they had family mealtimes where their toddlers were expected to sit at the table, but a few said they preferred not to eat with their children so they could work on other tasks, such as doing dishes.

C) Maternal perceptions of healthy mealtime behaviors of toddlers includes perceptions of a “healthy toddler” and toddlers’ dietary intake. Many mothers stated their children ‘ate well’ and had ‘a good appetite’. There was a discrepancy between what mothers fed their children; One mother said she had ‘vegetable kids’, while another said she had ‘McDonald’s in the freezer’.

Different mealtime routines exist within families. To establish healthy eating patterns in children requires a variety of parental strategies including setting limits, establishing consistent routines, and encouraging and modeling desirable eating behaviors.

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Food Friends: A Social Marketing Campaign to Encourage Healthful Habits in Preschoolers and Their Families

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Food Friends—Making New Foods Fun for Kids™ is a program that combines social marketing and educational strategies to increase preschool-aged children's willingness to try new foods. In addition to opportunities for children to learn about, explore, and taste new foods through *Food Friends* in the classroom, parents should be encouraged to provide children with multiple opportunities to taste new foods within positive environments that encourage children's acceptance of a variety of foods. Parents influence children's eating practices by controlling availability and accessibility of foods, providing meal structure, and modeling eating behaviors.

In developing a parent component to *Food Friends*, 26 telephone interviews were conducted in English and Spanish with parents of preschoolers enrolled in eight Head Start programs throughout Colorado. Interviews assessed parents' perceived benefits and barriers to offering new foods to their children, their preferences and needs for information and materials to help them offer new foods, and their preferences for receiving information, materials, and messages. Taglines and graphics were pre-tested in three phases using quantitative surveys and open-ended questions to determine a tagline, secondary message, and graphic for the parent component. Formative research, together with expertise of marketing professionals and nutrition educators, led to the development of bilingual taglines and graphics that were pre-tested with 414 parents, Head Start staff, and experts. Based on survey results, "Family Fun with New Foods" was chosen as the tagline, and "Enjoy New Foods Today for Good Health Tomorrow" was chosen as the secondary message. Educational resources and materials for parents were developed using formative research results, expert advice, current literature, and constructs of the Social Learning Theory. Materials are based on seven simple tips for offering new foods to kids. These tips are seen repeatedly through parent materials, including: newsletter articles, handouts, activity tips with recipes, and fun food activities for families which address barriers to offering new foods, suggestions for ways to offer a variety of new foods, and tips to help children learn about and try new foods.

To assess the use and comprehension of the *Family Fun with New Foods* parent component and parents' intentions to adopt the suggested practices in the home, facilitated discussions were conducted at 4 Head Start sites. Ten open-ended questions were developed to gauge parents': 1) awareness of program messages, 2) ability, willingness and self efficacy of conducting suggested tips and activities, and (3) intent to use the tips. Analysis indicated that parents were aware of the program messages and identified behaviors they do when offering new foods. These behaviors were similar to the seven simple tips that were sent home on educational resources (role modeling, make it fun, keep offering new foods and avoid forcing children to try new foods). Information gathered from facilitated discussion reveals that key program messages were read and understood by the parents and behavioral intention was evident. These discussions also revealed additional information that was used to make minor modification to materials and communication strategies with Head Start centers.

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Preschoolers' Perceptions of Healthy Food

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Barriers to healthy eating may be children's own refusal of certain foods, either due to taste or unfamiliarity, and external messages they have been receiving about food intake. Perhaps one way to change young children's eating habits is to change their existing beliefs about food. The purpose of the following two studies was to 1) understand preschoolers' food beliefs and preferences and to 2) assess whether popular characters could serve as role models to encourage preschoolers to eat healthier foods.

Children were interviewed individually to assess their views about healthy foods. First, children were asked to define the meaning of "healthy." Children were then asked to pair personality/emotional traits with food choices. Four food pairs were provided for each trait. Pictures were provided for the traits and for the foods. Children were also asked to pick the foods in each pair that they would want to eat.

The findings indicate that the gap between what children know to be healthy and what they want increases with age. There was a linear increase by age in children's understanding of what choices the healthy children eat. However, there was no change over time in children's desire for the healthy choice. Children at all ages chose the "unhealthy" option about 70% of the time when asked what they would want to eat. For the other traits overall, however, children were slightly more likely to see healthy foods associated with positive than negative traits. Note, however, that of all of the positive traits, "cool" was least associated with eating healthy foods.

Perhaps one way to increase the image of healthy foods is to use popular characters as spokespeople for such foods. To test this hypothesis, a second study was conducted.

Children were asked to choose the character they liked best in each of 3 pairs. Then children were shown 6 slides, with 2 foods on each. Children were asked to choose what they wanted to eat from each of the 6 pairs. Children were assigned to one of three conditions. In condition 1, a sticker of one of the Sesame Street characters was placed on the first pair in each food grouping and a sticker of an unknown character (a Crumbsnatcher) was placed on the second food in each pair. In condition 2, a sticker of a Crumbsnatcher was placed on the first pair in each food grouping and a sticker of a Sesame Street character was placed on the second food in each pair. The control condition had no Muppets or Crumbsnatchers on the foods.

Results indicate that popular characters can play a role in increasing the appeal of healthy foods.

Taken together, the two studies indicate that preschool age might be a particularly important time to teach children about healthy foods and to encourage them cultivate a liking for healthier foods. As familiarity is a strong predictor of food preference, it is important that we look for innovative methods of making healthy food options more appealing.

Determinants of Hair Zinc Among a Group of Vancouver Preschoolers

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Marginal zinc deficiency is believed to be global in extent and present even in developed countries. It has no specific clinical symptom but in children is usually accompanied by a corresponding decline in hair zinc. In assessing the zinc status of children, the non-invasiveness of the procedure gives the hair zinc analysis an added advantage. Hair zinc is known to be affected both by dietary and non-dietary factors. Therefore, this study was conducted to determine which dietary and demographic factors are associated with low hair zinc in a group of preschoolers from Vancouver's inner city.

In this cross-sectional study 144 preschoolers (24-71 months) attended the clinics. While parents provided demographic, health and dietary information about their children, the children's height and weight were measured and a hair sample was collected.

The total dairy and beverage milk intake had significant negative correlations with hair zinc. Dairy products are high in calcium, which can interfere with zinc absorption, conceivably through the capacity of calcium to facilitate the excretion of zinc (Oberleas, Muhrer, & O'Dell, 1966). Two Canadian studies have shown negative correlations between calcium intake and the zinc nutriture of children (Smit Vanderkooy and Gibson, 1987, Gibson, Smit Vanderkooy, & Thompson, 1991).

Intake of whole-wheat cereals and grains also correlated negatively with hair zinc. Un-milled grains with large amounts of phytate, a potent inhibitor of zinc absorption, have been shown to have an association with sub optimal zinc status (Donovan & Gibson, 1995).

Among the eating/health behaviors, the relationship between 'breast-feeding' and hair zinc was particularly interesting. The hair zinc of breast-fed children was significantly higher than those formula-fed. Nevertheless, among breast-fed children, those fed for more than 6 months had significantly lower hair zinc than those fed for a period of 6 months or less. The bioavailability of zinc from human milk is significantly higher than that of cow milk (Lonnerdal, Keen, & Hurley, 1981). However, there is an unusually sharp physiological drop in the zinc content of human milk after birth reaching <25% of the initial zinc supply when the baby is 6 months old (Krebs and Hambidge, 1986).

Being described as "often sick" showed a strong negative correlation with hair zinc. Zinc is an acute phase response element and plasma zinc is redistributed to other tissues in response to acute infection/inflammation (Prasad, 1982). Conceivably, reduced hair zinc can be the net result of an ongoing decline in plasma zinc, the major supplier of hair zinc, among children who are "often sick".

Among the eating behaviors, those described as 'eats unhealthily' correlated negatively with hair zinc of the study children. However, our questionnaire had no uniform definition of "unhealthy eating" and was simply based on the parent's perception.

Several factors were associated with low hair zinc among these children. A larger survey with a more representative sample is required for a better understanding of these associations.

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Dietary Quality and Beverage Consumption of Mothers and Toddlers in Low Income Families

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The purposes of this study were: 1) to examine the beverage consumption in limited income families over two years; and 2) to explore how the beverage intake of mothers related to that of their toddlers and to the children's diet quality. Participants were 93 mother-child pairs in a longitudinal study of Early Head Start (EHS). Secondary data analysis was performed on 24-hour dietary recalls collected when children were 24 and 36 months of age. At enrollment, the average age of the children was 2.0 ± 4.8 months. Most of the mothers were Caucasian (78.6%), 41% had less than high school education and about half were single. Adequate dietary quality was defined by eating at least 1 serving of food from each of the recommended five food groups (fruit, vegetable, dairy, meat and grain) (USDA, 1996); a Food Group Score (FGS) was calculated from 0 (none) to 5 (all food groups). Inadequate diet quality was defined as FGS less than 5 (Lee, Hoerr, & Schiffman, 2005). Beverage consumption in fluid ounces was estimated for six categories: 1) milk, including flavored milks; 2) 100% fruit juice; 3) regular soft drinks; 4) sweetened beverages (not 100% fruit juice) and sport drinks; 5) caffeinated beverages, non carbonated; and 6) water.

Mother-child pairs reported four types of milk, 15 types of soft drinks and over 60 kinds of sweetened beverages. Children's juice intake was high at 24 and 36 months with 37.6% and 32.3% drinking over the recommended 6 fl oz of fruit juice per day while 2/3 of children consumed at least the recommended 16 fl oz of milk. Mothers averaged about two 12 fl oz cans of soft drinks per day. The average intakes of sweetened beverages for both mothers and children who consumed them were 10-13 fl oz at each of the two years. Only 11.2% and 14.2% of mothers drank the recommended 16 fl oz of milk at 24 and 36-month interviews, respectively. At both 24 and 36 months, the mothers' soft drink intakes were positively associated with that of their children, $r = 0.25$ ($p < 0.05$) and 0.30 ($p < 0.01$). Finally, mothers who consumed over 12 fl oz of soft drinks at 36 months were 3.8 times more likely to have a child whose diet quality was poor ($FGS < 5$) compared to mothers who did not consume soft drinks or drank less than 12 fl oz per day.

The intakes of soft drinks and sweetened beverages were high for both mothers and their children and the children's intakes of fruit juice were generally excessive. Mothers' beverage intakes were models for their children. Mothers with high intakes of soft drinks were more likely to have children with inadequate diet quality. Nutrition education for this population should focus on ways to reduce high soft drink intake in mothers and fruit juice intake in toddlers.

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