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Exploring how bicultural and assimilated children of Mexican origin influence their Latina mothers' diet: Perspectives from mothers and children

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Abstract

Social and cultural factors influence dietary intake and behaviors. Research shows that mothers consume a lower quality diet when they have a child who is assimilated to the US culture versus bicultural. The purpose of this study was to qualitatively compare how bicultural and assimilated children influenced their culturally traditional mothers' dietary intake/behaviors. Separate one-on-one interviews with 21 Mexican-origin mothers and their bicultural (n = 11) or assimilated (n = 10) children (10–13 years old) were conducted. We used framework analysis to reduce qualitative data to themes and subthemes. Data were analyzed separately and then compared between mothers of bicultural versus assimilated children. Mothers of bicultural children reported typically having an easier time consuming a better quality diet than mothers of assimilated children. For example, although all children requested non-traditional foods, bicultural children were typically more accepting of their mothers preparing traditional healthier foods than assimilated children. Furthermore, mothers believed their children's food preferences both influenced and were influenced by their own feeding styles. Mothers of bicultural children described using more "Mexican" (i.e., authoritative) feeding styles that they believed shaped their children's palate into preferring traditional foods. Mothers of assimilated children explained that their children's

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Appendix A. Supplementary data

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preference for non-traditional foods resulted in their use of more permissive or indulgent feeding styles. Longitudinal research is needed to test and confirm the directionality between feeding styles and child's food preferences. Interventions may need to consider the reciprocal influences between mothers' feeding styles, children's food preferences, and how children influence their mothers' dietary intake/behavior.

Keywords

Latinos; Families; Dietary behaviors; Mothers; Acculturation; Qualitative

1. Introduction

As with many American adults, most Latinos are not meeting dietary recommendations necessary to help prevent chronic diseases including cardiovascular disease and cancer (Kirkpatrick, Dodd, Reedy, & Krebs-Smith, 2012; Krebs-Smith, Guenther, Subar, Kirkpatrick, & Dodd, 2010). Researchers have known for decades that risk for chronic disease tends to cluster in families (typically referred to as cohabitating, related kin; Venters, 1989), and recently, this has also been shown among Latinos (Carnethon et al., 2017). Shared health behaviors (e.g., diet and physical activity) between family members may be one of the primary reasons for the clustering of chronic disease observed (Drenowatz et al., 2014). Given that dietary behaviors tend to occur in the presence of others, as in the case of family meals or deciding to eat at a restaurant, the family is very relevant to understanding the determinants of dietary risk for disease (Brown, 2006; Coveney, 2002; Nestle et al., 1998). However, most research examining the predictors of adults' dietary intake has been limited to studies that examine individual level factors (Brug, 2008; Nestle et al., 1998; Shaikh, Yaroch, Nebeling, Yeh, & Resnicow, 2008). The importance of family in the context of dietary behaviors may be particularly relevant to Latinos, given that Latino culture revolves around the family unit and individuals value interdependence with family members over independence (Galanti, 2003). To design effective, culturally appropriate dietary interventions for Latino populations, researchers need to explore the social and cultural context in which dietary intake and related behaviors occur (Brown, 2006; Coveney, 2002).

There is substantial evidence showing that children's dietary intake and BMI is influenced by parents' feeding style, modeling of dietary behaviors, and making specific foods available in the home (Larsen et al., 2015). Although evidence for the importance of parents on their children's diet is abundant, the evidence is limited for the role of children on their Latino parents' dietary intake (Brown, 2006); one exception is the well-established literature showing that children regularly influence their parent's food purchasing behaviors (Calderon et al., 2017; Turner, Kelly, & McKenna, 2006; Wingert, Zachary, Fox, Gittelsohn, & Surkan, 2014). Theories including Social Cognitive Theory (Bandura, 1998), the Ecological Model (Bronfenbrenner, 2009), and Family Systems Theory (Bavelas & Segal, 1982) suggest that the family context is as relevant to adult dietary behavior as it is to child dietary behavior. Evidence shows that children's food preferences play a role in what mothers cook for their families (Brown, 2006). Furthermore, qualitative studies exploring sources of influence on the foods Latina immigrant mothers prepare and consume with their family suggest that

children's preference for "American" foods is a basis for conflict within the family and a motivator for keeping traditional foods in the home (Colby, Morrison, & Haldeman, 2009; Edmonds, 2005; Gray, Cossman, Dodson, & Byrd, 2005; Sussner, Lindsay, Greaney, & Peterson, 2008).

Another important determinant of Latinas' dietary intake and behaviors is acculturation (Ayala, Baquero, & Klinger, 2008; Perez-Escamilla, 2011). Acculturation is the process by which individuals learn and/or adopt certain aspects of the dominant culture while retaining some or most aspects of their culture of origin (Berry, 2003). Research shows that Latinas who have retained their traditional culture and have not adopted the US culture tend to consume more fruits, vegetables, less salt, and fewer added sugars and calories from fat than Latinas who have adopted the US culture (Perez-Escamilla, 2011). Studies also show that Latinos who have adopted the US culture tend to cook less frequently and eat out more often than those who have not adopted the US culture (Dubowitz et al., 2007; Mills et al., 2016), which contributes to lower dietary quality (An, 2015; Mancino, Todd, & Lin, 2009). Recent research suggests that the acculturation of Latina mothers' children is associated with mothers' dietary intake and behaviors (Soto et al., 2017). The results of that study provide evidence that even among culturally traditional Latina mothers, having a child who has assimilated to the US (i.e., adopted the US culture and shed their traditional culture) is associated with mothers' less favorable dietary intake and behaviors compared with having a child who is bicultural (i.e., adopted the US culture and maintained their traditional culture). Although this work provides evidence that children's acculturation may be important to mothers' diet, we do not know why this is the case or how it occurs.

Building on our previous work (Soto et al., 2017) and theoretical models that assert the role of family members on individuals' health behaviors (Bavelas & Segal, 1982), we used qualitative methods to explore how mothers and their children perceive how children influence their mothers' dietary intake and behavior. We collected data from Mexican-origin mothers and their children between the ages of 10–13 years. This age group was chosen because research shows that with transition to adolescence, Latino children can be as influential in their parents' cultural socialization as parents are in their children's cultural socialization (Updegraff & Umaña-Taylor, 2015). Using qualitative interviews with mothers and their children, we compared mother/child perspectives on how bicultural versus assimilated children influenced their mothers' dietary intake and behaviors.

2. Methods

We conducted semi-structured, one-on-one interviews with mothers and children, and surveys with mothers. Using triangulation, the process of using multiple methods to observe the same phenomenon, three sources of data (interviews with mothers, interviews with children, and surveys from mothers) were analyzed separately and then combined to provide a more complete understanding of how children impact their mothers' dietary intake and behaviors (Creswell, 2013). This study was approved by San Diego State University's Institutional Review Board.

2.1. Participants and sampling

We used purposive convenience sampling to recruit mothers of children between 10 and 13 years of age from elementary schools, Latino-serving grocery stores, after Spanish-language mass in a Catholic church, and by word of mouth. Most participants lived in Chula Vista, California, located in San Diego County, which is situated near the US-Mexico border. We gave mothers a brief introduction to the study, and if they were interested in participating, they were contacted via telephone by trained bilingual and bicultural Research Assistants (RAs) and screened for eligibility. Mothers were eligible if they: a) had at least one child between 10 and 13 years old; b) lived with their child at least four days per week to minimize variance of mothers' contact with their children across the sample; c) did not live with anyone who was on a medically prescribed diet to avoid cases where a prescribed diet drove food choices in the home; and d) were culturally traditional based on the Bidimensional Acculturation Scale (BAS; Marin, Sabogal, Marin, Otero-Sabogal, & Perez-Stable, 1987). The BAS is a primarily language-based acculturation scale that generates two dimension scores: a 12-itemHispanic/Spanish-language dimension and a 12-item non-Hispanic/English-language dimension. Children were eligible if they were a) within the eligible age range and b) bicultural or assimilated to the US based on their responses to the BAS. If mothers had more than one child between 10 and 13 years old, the child with the closest birthdate to the day of the screening was chosen to participate.

2.2. Procedure for data collection

Prior to data collection, trained research assistants reviewed the informed consent form with mothers and the informed assent process with children. This was followed by obtaining written consent from mothers and written assent from children if they agreed to participate after obtaining answers to clarifying questions regarding participation. Data were collected by trained bilingual and bicultural RAs in the location of mothers' choice (at home (n = 18) or a local library (n = 3)). The entire assessment protocol, including the interviews and survey, lasted between 60 and 90 min. We collected surveys prior to conducting the semi-structured interview for several reasons: a) to help cue mothers about a variety of dietary intake and behaviors that they may otherwise forget to discuss in the semi-structured interview (Deshefy-Longhi, Sullivan-Bolyai, & Dixon, 2009), and b) to prime mothers to speak about their own dietary intake and behaviors rather than only focus on their child's diet during the interview. Mothers were given a \$15 gift card for their time. We were flexible with children's needs (e.g., after-school events or homework) by allowing mothers to decide if their children should be interviewed first. Semi-structured one-on-one interviews occurred with the children, typically lasting between 15 and 20 min. Children were given their choice of a variety of school supplies as an incentive for participation. Although mothers were usually interviewed without children present, it was not always possible to interview children without the mother nearby (n = 9 bicultural children and n = 4 assimilated children). Qualitative interviews were digitally recorded and attended by the interviewer and note-taker.

2.3. Quantitative measures

Mothers responded to sociodemographic questions and a survey on their dietary intake and behaviors. Daily intake of fruits and vegetables (excluding French fries, potatoes, and beans/legumes) was assessed using the 19-item National Cancer Institute (NCI) All-Day Screener (Thompson et al., 2002). In the validation study of the screener, the correlation between the summary score for the screener and 24-hour dietary recalls among women were moderate ($r = .51$; Thompson et al., 2002). Daily servings of sugary beverages were measured by the 5-item subscale from the Youth/Adolescent Questionnaire (YAQ; Rockett, Wolf, & Colditz, 1995), which was based on the Willett Food Frequency Questionnaire (FFQ; Willett et al., 1985) and used previously among Latina mothers (Ayala et al., 2008). In the validation study, the correlation of the sugary beverages subscale between the YAQ and the Willett FFQ in young adults between the ages of 18–31 was .62 (Larson, Harnack, & Neumark-Sztainer, 2012). Mothers' daily percent of calories consumed from fat was estimated by the 16-item NCI Multifactor Fat Screener (Thompson et al., 2007). The Fat Screener was moderately correlated with biomarkers of fat in women ($r = .58$) in the validation study (Thompson et al., 2007). We obtained the sum of mothers' frequency of consuming foods that were prepared away from home during a typical week in the last month from the following sources: (a) grocery stores, (b) relatives' or friends' homes, (c) fast food restaurants, (d) other restaurants (including take-out), (e) cafeterias, and (f) other outlets including vending machines and on-street vendors (Ayala et al., 2008). Finally, mothers estimated the percent of grocery dollars spent on fruits and vegetables per week in the past month.

2.4. Qualitative interviews

We developed the semi-structured interview guides, which we pilot tested with three mothers and their children (not included in the study sample). The interviews were conducted in Spanish with mothers and in English with children. Using open-ended questions, the semi-structured interview guide allowed for participants to diverge from the questions to discuss related topics and elaborate on new themes (Bernard, 2006). Interviews with mothers were designed to elicit: 1) views about how their child's food preferences differed or were similar to their own, 2) beliefs about how living in the US versus their country of origin influenced their own and their child's diet (if not born in the US), 3) experiences accommodating meal preparation, grocery shopping, and away-from-home eating for their child, 4) views about how their family discussed food and handled food-related conflict, and 5) perspectives on other sources of influence on their dietary intake and behaviors. Interviews with children were designed to elicit their: 1) food preferences, 2) beliefs about traditional (e.g., Mexican) foods, 3) perspectives about potential sources of influence on their diet (e.g., parents, family, friends, school), 4) experiences requesting food purchases, meals, or away-from-home eating from their parents, and 5) family discussions around food. Audio recordings of the interviews were transcribed verbatim in their original language.

To fully explore themes that we had not anticipated when the interview guides were first developed (Chapman, Hadfield, & Chapman, 2015), we used an iterative process, common in qualitative research (Chapman et al., 2015; Curry, Nembhard, & Bradley, 2009; Francis et

al., 2010). For example, after conducting five interviews, we discovered that children influenced the way mothers cooked or prepared family meals in more ways than we had anticipated. Therefore, we added questions about mothers adjusting their meals to suit children's athletic schedule and asked for examples of how children introduced their mothers to new foods. Interviews were conducted until no new insights were gleaned from new data and saturation of the themes had been reached (Charmaz, 2014).

2.5. Data analysis

Descriptive statistics (e.g., means, frequencies) were computed for sociodemographic and dietary variables in SPSS (version 22; IBM, Armonk, NY). We used these to describe the overall sample and the two subsamples: mothers and their bicultural children, as well as mothers and their assimilated children.

After each set of interviews, the first author (S.S.), who attended most of the interviews, met with the interviewer to discuss initial impressions. To become immersed in the content of the interviews, S.S. also listened to the audio of the interviews and identified key themes and subthemes that were used to create an initial codebook. Separate codebooks were created for mothers' and for children's data analyses.

To analyze qualitative data, we used framework analysis, a variant of content analysis (Ritchie & Spencer, 2002). Using the qualitative software program, Atlas.ti (Mac v.1.6.0 (1999), Berlin, Scientific Software Development), we coded and hierarchically grouped codes to reduce the data to themes and subthemes for interpretation. To build a picture of the data collected as a whole (Ritchie & Spencer, 2002), we summarized and compared the themes and subthemes from the mother and child interviews. We drew comparisons between mothers of bicultural versus assimilated children to assess for similarities and differences across the two groups.

Validity of our findings were maximized by triangulating on different sources of data (Creswell, 2013), combining qualitative data from mothers and their children and using survey data to provide additional description. We also identified illustrative quotes from mothers and children to connect our themes to participants' voices and provide evidence of the validity of our findings. To ensure reliability of the data we employed several methods described by Graham (2007). The evolution of the codebook was carefully documented and crosschecked with previously coded interviews to ensure the use of stable codes across interviews. Further, to confirm consistency in the coding, a second coder examined a randomly selected 20% of mother and 20% of child transcripts and met with S.S. to discuss discrepancies and come to an agreement on codes and code definitions.

3. Results

3.1. Sample characteristics

Twenty-one mother-child dyads participated in the study, including 11 mothers of bicultural children and 10 mothers of assimilated children. All women were biological mothers of the children interviewed except for one grandmother who was raising her biological grandchild. All mothers of bicultural children were born in Mexico compared to 80.0% of mothers of

assimilated children. Most children in our sample were boys (72.7% bicultural and 60.0% assimilated). Two bicultural children and one assimilated child were born in Mexico (Table 1).

3.2. Mothers' dietary intake and related behaviors

Consistent with previous research (Soto et al., 2017), mothers of bicultural children generally had a better dietary quality than mothers of assimilated children. Compared to mothers of assimilated children, mothers of bicultural children reported more daily servings of fruits, vegetables, a higher percent of grocery dollars spent on fruits and vegetables, a lower percent of calories from fat, and less frequent away-from-home eating. Conversely, more daily servings of sugary beverages were observed among mothers of bicultural children ($M = 0.9$, $SD = 0.5$) than assimilated children ($M = 0.6$, $SD = 0.5$; Table 1). Due to the small sample size, statistical analyses were limited; however, we observed a statistically significant ($p < 0.05$) difference in the frequency of weekly away-from-home eating between the two groups. Mothers of bicultural children consumed away-from-home foods significantly less frequently ($M = 2.4$ days, $SD = 1.5$) than mothers of assimilated children ($M = 4.1$ days, $SD = 2.8$; Table 1).

3.3. Themes found in qualitative interviews with mothers and children

We identified several themes describing how children's food preferences influenced mothers' dietary intake and behaviors, and how children's food preferences and mothers feeding style were related (Fig. 1). These themes included a) the bidirectional influence between mothers' feeding style and children's food preferences, b) how children's food preference influenced what mothers cooked/prepared, purchased at the grocery stores, and consumed away-from-home, and c) other sources of influence on mothers' dietary intake and behaviors (e.g., spouses). Because similar themes were found across mother and child interviews, themes from both interviews were combined in the presentation of results below. In many cases, themes and subthemes were present in both groups (mothers of bicultural and assimilated children); however, they differed in the way that the themes were expressed or in their frequency of occurrence within each group. Below, we separate the results by child acculturation group when these differences occur.

3.3.1. Bidirectional influences between children's food preferences and mothers' feeding style

3.3.1.1. Mothers of bicultural children.: Mothers frequently described their feeding style to explain their children's food preferences and behaviors. Mothers of bicultural children explained that with few exceptions, they employed what many mothers referred to as a "Mexican" feeding style to indicate that children were expected to eat what mothers cooked. Mothers described "Mexican" feeding styles that reflected how they were fed as children in Mexico by explaining that "there were no preferences; you ate what was served".

He has to adapt to what we eat. That is, he doesn't say 'oh don't buy that because I don't want to eat that.' No. For example, a meal of enchiladas and rice. 'You are going to eat that because that is what we have.' We don't let him eat something different later.

Mothers' attributed their use of this feeding style to their shared food preferences with their children. Mothers frequently used the term *acostumbrado/a* (used to) to explain that this method of parenting is why children were *used to* eating what their mothers prepared. In other words, mothers believed that by cooking their traditional Mexican dishes and insisting that children ate what was prepared, they had shaped their children's palate to prefer these foods.

They often ask me to make salmon, they like salmon a lot with white rice. Or I don't know, tacos dorados [fried tacos]. They ask for simple things, sometimes they even ask for lentils with taquitos and fresh cheese or things like that because I've gotten them used to it.

When we asked a mother of a bicultural child how she considers her child's food preferences when making food for her family, she said:

My children are the type that eat everything because I've always cooked and so since they were little I've gotten them used to eating what I cook.

When asked if she has ever wished that her parents purchased the foods she saw on television, one bicultural child said:

Um no cause I kinda grew up eating the foods that my parents make.

While bicultural children also enjoyed "American" foods including pizza and hamburgers, their mothers would only indulge these food cravings on occasion, limiting their exposure to non-traditional foods. Additionally, although some bicultural children disliked certain foods (e.g., onion), mothers explained that overall, they did not have difficulty cooking for their family because everyone liked the same things.

I have always done the cooking and I see that my children prefer what I cook for them. And so I prepare what I see that they like and what pleases them.

Having children who preferred their mothers' traditional cooking meant that mothers could cook and purchase foods as they wished, with few food-related conflicts with their children.

3.3.1.2. Mothers of assimilated children.: In contrast to mothers of bicultural children who believed that their feeding style shaped their child's food preferences, mothers of assimilated children believed that their child's food preferences influenced their feeding style. Although three mothers of assimilated children also said they employed a traditional "Mexican" feeding style, many reported being less assertive and more indulgent and permissive with their children. Examples of indulgent feeding styles included preparing family meals that were liked by children but not by mothers (e.g., spaghetti) or allowing children to consume a separate meal than what was prepared for the rest of the family. Two mothers explained that the reason they did not use a "Mexican" feeding style was because they did not want to parent their children the way their mothers parented them. These mothers (the two that were born in the US) said they did not want to be strict about food and eating with their children.

There were times when I wouldn't want to eat and my mom would say, 'you have to eat it' but she wouldn't explain why you have to eat it. Because you're going to

grow, it will energize you, things like that. So then ok I would eat it but I would almost throw up. So remembering all that, how my mom would force me to eat, well I don't want to do that with my kids, right?

Mothers and assimilated children described their food preferences as being different from their children's.

She [mother] doesn't like what I like. She doesn't like to eat what I eat.

As a result, food-related conflicts were common between mothers and children, discussed in 8/10 interviews. Mothers also expressed unpleasant situations because their children disliked their cooking, and these mothers conveyed a lack of control in their ability to feed their families.

Sometimes I don't even know what to make. I don't even know what to remove, what to add. I just feel frustrated.

Four mothers were concerned that if they did not give in to their child's food preferences, their child would not eat.

I fulfill his food cravings or else he won't eat! So I try to make what they like and well I eat it with them because if I make what I like they won't want to eat.

3.3.2. How children's food preferences influenced what mothers cooked/ prepared, purchased at the grocery stores, and consumed away-from-home (Table 2)

3.3.2.1. How children influenced what their mothers cooked and prepared.: Mothers acquiesced to their children's food preferences when cooking or preparing meals in a number of ways, though the extent of and rationale for acquiescing sometimes differed between groups. The following are ways that mothers used children's food preferences when cooking: a) mothers used children's food preferences to decide what to cook or prepare, b) mothers changed the way foods were prepared to children's liking, c) mothers included foods or meals because their children preferred them, and d) mothers limited or excluded foods because their children disliked them.

3.3.3. Mothers used children's food preferences to decide what to cook or prepare—When deciding what to prepare for their families, it was common for mothers to base their decision on what their children preferred to eat. This influence often came in the form of mothers asking their children for suggestions. Children also said that mothers frequently prepared the foods they liked, sometimes without having to ask their mothers for them.

3.3.3.1. Mothers of bicultural children.: This subtheme was heard in 6/11 mothers of bicultural children. Among these mothers, the whole family usually shared the same food preferences; therefore, mothers' dietary intake remained stable. For example, when asked if she ever cooked anything only because her daughter preferred it, this mother of a bicultural child said:

Well usually when she asks for something special, we generally all like it. Father, mother, and my other child. It's not like it's special just for her.

Although many mothers said they at least *occasionally* consider their children's food preferences when cooking, many mothers also insisted that the decision on what to prepare for their family was ultimately theirs. Nearly all (10/11) mothers of bicultural children indicated that overall, they do not frequently change their cooking based on their child's preferences.

3.3.3.2. Mothers of assimilated children.: Seven out of ten mothers of assimilated children said they chose meals (e.g., spaghetti) because they knew their children would eat them, even if mothers did not prefer the meal. The following quote comes from a mother of an assimilated child who was asked how her child's food preferences influence her diet:

Well I think it changes because we want them to remain happy with the family so that they'll eat. Or else they won't eat and we want them to eat. Do you understand? Like we want that they eat so we eat what they eat.

Assimilated children also reported that their mothers often took their food preferences into consideration when preparing meals. For example, when asked if his mother ever cooks foods that he does not like (i.e., cucumber or seafood), this child said:

No she doesn't cook it because I don't like it.

3.3.4. Mothers changed the way foods were prepared to children's liking—

Approximately one third of mothers across both groups described changing the way they prepared foods to suit their children's preferences and in some cases their children's needs. For example, mothers said they would cook lighter, healthier dishes the night before their child participated in a sports game and a heavier dish after the game. Mothers also said they would choose to fry meat, chicken, or fish instead of using another cooking method because they knew this was how their child preferred to eat it. For instance, a mother of a bicultural child explained:

I cook in the way that I know they will eat the best. For example, because they prefer things breaded, I make things breaded so they'll eat better.

3.3.5. Mothers included foods or meals because their children preferred them—

Most (15/21) mothers explained that the primary reason they ate take-out pizza, cooked spaghetti, baked sweets with their child, or included other foods was because of their children's preferences for these foods. In each case, mothers said they would probably not eat these foods if their child did not ask for them.

3.3.6. Mothers limited or excluded foods because their children disliked them—

Mothers across both groups often reported limiting the amount of hot spices used in their cooking, eliminating certain foods including *nopales*, or sometimes making a dish without vegetables to please their children.

3.3.6.1. Mothers of bicultural children: While mothers in both groups reported limiting or excluding foods because their children disliked them, this was less common among mothers of bicultural children (3/11).

3.3.6.2. Mothers of assimilated children: This theme was heard from 6/10 of mothers of assimilated children. Assimilated children also acknowledged that their mothers eliminated the foods they did not like including cauliflower and fish. These mothers said they cut back on making certain meals including soups, stuffed peppers, or fish because their children did not like them. A mother of an assimilated child explained:

For example, stuffed pepper [*chile relleno*] is too spicy for them with green salsa [*chile*], he won't try it and won't eat it. I love it, I used to make it once a month but now twice a year ... Also the mole because he doesn't like Mexican spice, he likes the kind of spice that he wants. I'm talking about chicken wings but with the hot sauce that they love, 'oh this is delicious' and they lick their fingers. But if it tastes like Mexican food and it has too much pepper [*chile*], that's it. They won't eat it. So really, I've stopped making it as frequently. I'll make it if I'm craving it but I don't include it into my menu of meals.

Examining all of the above ways that children's food preferences influenced mothers and how these influences differed by child acculturation, some of these differences were attributed to mothers' feeding style. For example, mothers of bicultural children said they occasionally considered their child's food preferences, but overall, mothers did not change what they will cook *only* because the child wants something else. On the other hand, most mothers of assimilated children said they changed what or how they cooked to suit their child's preferences (e.g., indulgent feeding style).

3.3.7. How mothers did not allow children to influence what mothers cooked and prepared—While the subthemes above describe how children's food preferences influenced what mothers cooked and consumed, mothers also employed several methods of avoiding having to change how and what they cooked because of their children's food preferences. The subthemes were a) children chose what goes on their plate or put aside the foods they did not like, b) mothers disguised foods that children disliked, c) mothers cooked separate meals for children, and d) children cooked/prepared meals for themselves.

3.3.8. Children chose what goes on their plate or put aside the foods they did not like—A solution to keep from adjusting meals to suit children was to allow them to choose what foods go on their plate or put aside the foods they dislike. This bicultural child explained how she handles foods that contain tomatoes.

Well it's weird because sometimes when she [mother] does like ceviche or tacos and she puts that [tomatoes], I actually eat it if it's not a lot or sometimes I just like to take them off. But if it's like small pieces, like if she cooks them, I'll eat them.

While, this subtheme was less common among bicultural children (3/11) because children typically enjoyed the foods their mothers cooked, it was mentioned by 6/10 of mothers of assimilated children because their children were more likely to dislike the foods prepared by their mothers.

3.3.9. Mothers disguised foods that children disliked—If the food item that the child disliked was essential to the meal, including onion, garlic, and celery, mothers across both groups used methods of disguise to maintain the integrity of the recipe (3/11 mothers of bicultural versus 2/10 of assimilated children). Common methods of disguise included finely dicing the ingredient or blending the ingredients so they would be indistinguishable from each other.

3.3.10. Mothers cooked separate meals for children

3.3.10.1. Mothers of bicultural children.: Four out of eleven mothers of bicultural children described instances where they made separate dishes for their children. These mothers said that they often cooked separate meals to do something special for their children. For example, one mother would occasionally make boxed macaroni and cheese for her children as a treat. Meanwhile, she prepared something separate for herself and her husband.

3.3.10.2. Mothers of assimilated children.: As with mothers of bicultural children, 4/10 of mothers of assimilated children described cooking separate meals for children. However, mothers explained that they usually prepared separate meals because their children did not like what mothers had prepared.

3.3.11. Children cooked/prepared meals for themselves—This theme was not heard among mothers of bicultural children. The most extreme measures mothers took to keep their children's food preferences from disrupting their cooking, reported by half of the mothers of assimilated children, was to allow children to make their own meals. The following quote comes from a mother who said she has frequent conflicts with her son around food:

So he ends up mad but at the end of the day. He knows he either has to eat that food or he has to make something ... Sometimes I say ok, don't eat it and make yourself something else. It's not like 'ok, what do you want?' No, it's fine if you don't like it. Make yourself a sandwich. He doesn't use the stove but he can make a sandwich, a hotdog, something fast. But I'm not going to cook for each person.

3.3.12. How children influenced their mothers' food purchases—Children primarily influenced the foods mothers purchased in two ways: mothers either avoided purchasing foods disliked by children or purchased foods because children liked them. Not purchasing foods that children disliked was less common, discussed in about one third of all interviews with mothers, than purchasing foods that children liked, discussed in nearly all interviews.

3.3.13. Not purchasing foods that was children disliked

3.3.13.1. Mothers of bicultural children.: Mothers of bicultural children avoided purchasing things like brown rice and lentils because their children would not eat them. However, 4/10 of these mothers also explained that they did not allow their children's dislike of foods to keep them from purchasing them. When these mothers of bicultural children were asked if they purchase foods they know their children do not like, they said:

Yes, I still buy them...because in the end he eats what I give him.

Like beets. He doesn't like them but, because I add them to my smoothie, I still buy them.

3.3.13.2. Mothers of assimilated children.: Mothers of assimilated children were similar to mothers of bicultural children in not purchasing foods that children disliked except that they also reported avoiding purchasing vegetables.

3.3.14. Purchasing foods because children liked them—Most mothers said they purchased foods because their children liked them. Primary among these foods were fruits. However, regardless of acculturation, children asked for and received unhealthy snacks including cookies, chips, candy, and sugary beverages. In most cases, children shared these snacks with their mothers. The following assimilated child explained how she chooses the breakfast cereal for the whole family when she goes grocery shopping with her mother.

Like Captain crunch, fruit loops, I would mostly eat the corn flakes as well...[they are] for the whole family. Like I would randomly put it in the shopping cart and she [mother] would like - she wouldn't mind.

3.3.15. How children influenced their mothers' away-from-home eating

3.3.15.1. Mothers of bicultural children.: Mothers of bicultural children discussed eating foods prepared outside the home typically only on Sundays.

3.3.15.2. Mothers of assimilated children.: Mothers of assimilated children explained that they frequently catered to their children's requests for pizza or other types of fast food because they knew their children would eat and enjoy them.

Among all mothers, several common subthemes emerged related to how children influenced mothers' away-from-home eating: a) children chose the restaurant; b) mothers shared foods or meals that children ordered; and c) children were rewarded with away-from-home foods.

3.3.16. Children chose the restaurant—Mothers in both groups explained that children were allowed to choose the restaurant because eating foods from restaurants was an experience meant for the children.

3.3.16.1. Mothers of bicultural children.: Allowing children to choose the restaurant was common among families with a bicultural child (9/11), usually because the child would choose a restaurant favored by the rest of the family.

3.3.16.2. Mothers of assimilated children.: Sixty percent of mothers with an assimilated child discussed allowing their child to choose the restaurant. One reason why mothers let their child choose the restaurant was because their child would otherwise not like the restaurant their parents chose:

Which ones do we go to? Like IHOP, Denny's, rarely Applebee's, Chili's ...I hardly take them to Mexican restaurants because some eat and others don't.

3.3.17. Mothers shared foods or meals that children ordered—Three out of eleven mothers of bicultural children and four out of ten of mothers of assimilated children said they allowed their children to choose a meal (e.g., pizza) or food (e.g., dessert) that was going to be shared among family members. The following quote is from a mother of a bicultural child:

The children decide, well he decides. And we give them the option to decide on the weekend. The weekend is theirs because during the week, it's true, I am very strict about what they eat.

In other cases, mothers across both groups said trying their child's food led to mothers discovering a new favorite food (e.g., barbecued ribs). The following is a quote from a mother of a bicultural child:

I eat the boneless- I really liked those. Is that what they're called? The little chicken with buffalo or something like that. And although it irritates my stomach I eat them. I don't eat a lot but yes, he was like 'try them mom' and I ate one and oh yes I liked them and the next time 'ok order the little chicken that you ordered the other day.'

3.3.17.1. Mothers of bicultural children.: Nearly all (9/11) mothers of bicultural children also said that they would try their children's food or sometimes finish their plate because they often enjoyed the same foods as their children.

3.3.17.2. Mothers of assimilated children.: Trying the food that assimilated children ordered was less common (6/10) because children often chose foods that mothers did not prefer.

3.3.18. Children were rewarded with away-from-home foods—Another way that children influenced their mothers' eating was with food-related rewards for school accomplishments. Approximately half of all mothers discussed using food as a reward. Typical methods of rewarding children included buying ice cream and taking children to their favorite restaurants.

3.3.19. Other sources of influence on mothers' dietary intake and behaviors—During the interviews, mothers described other sources of influence on their dietary intake and behaviors. These included spouses, other children, household income, and themselves.

3.3.19.1. Spouses.: Spouses were often cited as an important source of influence on mothers' cooking. For example, mothers said they cooked more red meat than they would otherwise because their husband preferred it. Approximately one third of all mothers also explained that their spouses were often more indulgent with their children than they were, overriding their parenting.

My husband is more like let them be kids. If they want sweets give them sweets. If they want chocolate, give them chocolate ... but my husband goes 'don't be that strict and let them be kids; tomorrow they're worry and they'll decide if they want to eat it or not.'

Mothers of assimilated children: In two cases, mothers of assimilated children described how they were the only ones in the family that wanted to consume traditional Mexican food while their husbands and children were united in preferring American foods. For example, one mother of an assimilated child whose husband was non-Latino white said:

I adjusted to their food because before when I wanted to make my things and then theirs, there would be too much food that wouldn't even fit in the refrigerator...So if my husband and my son made food they liked and I made what I like, things from my hometown, then there would be two different dinners for all. So if I made pork in *salsa verde*, refried beans, and rice, all Mexican, but they made pizza with pasta, which doesn't even go with my food. So little by little I started adapting more to American food. Every now and then I'll cook Mexican food and sometimes they eat it and sometimes they don't.

3.3.19.2. Other children.

Mothers of bicultural children: Mothers with multiple children often discussed the influences of other children on their dietary intake and behaviors. Mothers of bicultural children explained that the whole family typically liked the same foods, making it easier to plan meals.

Mothers of assimilated children: Mothers of assimilated children cited difficulty handling their children's different food preferences. A couple of these mothers explained that they served as the "taxi" for their children by purchasing foods from a number of different fast food restaurants to suit each child's preferences.

3.3.19.3. Household income.—Limited household income was discussed as an important source of influence in purchasing foods at the grocery store or purchasing away-from-home foods among 4/11 mothers of bicultural and 2/10 mothers of assimilated children. Mothers explained that main determinant for purchasing the snacks children requested in grocery stores was having enough money. Some mothers also said their family rarely ate at restaurants because they could not afford to do so. Families often chose buffet restaurants over restaurants with a menu because buffet restaurants were more economical. Some mothers with large families said they could not afford to take their children to restaurants and instead brought home fast food or pizza as a more cost-effective alternative. Bicultural children also understood that their family's financial resources were limited by finding cheaper alternatives at the grocery store or insisting that the family stay home rather than go out to eat to avoid spending the money.

3.3.19.4. Mothers as the most important source of influence.

Mothers of bicultural children: Over half (6/11) of mothers of bicultural children believed they (mothers) were the most important sources of influence over their own dietary intake and behaviors. These mothers explained that because they were in charge of purchasing foods and feeding their family, they were ultimately responsible for their own diet. Several mothers identified culture as a source of influence. For example, a mother of a bicultural child said that the reason she cooks the way she does is primarily because that is the way her mother cooked.

Mothers of assimilated children: Four out of ten mothers of assimilated children said they (mothers) were their most important source of influence. Some mothers of assimilated children acknowledged that their cooking had changed as a result of living in the US because they were more susceptible to consuming away-from-home foods, preparing meals using pre-cooked foods, consuming more fried foods, and fewer vegetables:

It's easier here [in the US] to cook things faster. Even pizza, you put it in the oven and it's done. They make it easy for you to warm foods up in microwaves, I usually don't buy those but I just started to try the little bags that come with everything prepared like pasta with broccoli. And I do make spaghetti.

4. Discussion

Recent evidence has shown that even among traditional mothers, dietary intake and behaviors vary according to children's acculturation (Soto et al., 2017). The purpose of our study was to explore how and why this may occur. In our sample of traditional, predominantly Mexican-origin mothers, we found differences in feeding styles, children's food preferences, and how children influenced their mothers' diet, cooking, food purchasing, and away-from-home eating across children's acculturation status. We also found evidence of bidirectional influences between mothers and children. For example, some mothers explained that their feeding styles influenced children's food preferences and others said that children's food preferences influenced their feeding styles. In all cases, participants reported that children's food preferences influenced mothers' diet. Our study extends previous research on the active role that mothers play in their children's diet and preferences (Larsen et al., 2015) by exploring how children's food preferences may link back to mothers' diet.

Feeding styles are one aspect of general parenting style, which can be described as authoritative (e.g., demanding with clear expectations while responsive to children's preferences), indulgent (e.g., few demands and expectations with high responsiveness to child preferences), authoritarian (e.g., strict obedience required without responsiveness to child's preferences) and uninvolved (e.g., few boundaries imposed with little interaction with child; Hughes, Shewchuk, Baskin, Nicklas, & Qu, 2008). Within the general realm of parenting, children and adolescents with authoritative parents fare the best, as authoritative parenting ensures that children are more receptive to positive parental influence, are able to engage in more effective self-regulation, and have strong social competence outside of the family (Steinberg, 2001). Authoritative and indulgent feeding styles have been prominent in research among Latinos and low-income parents (Hughes, Power, Fisher, Mueller, & Nicklas, 2005), suggesting their importance for future interventions. For example, studies have found that indulgent feeding styles are associated with poorer diet and weight outcomes in children than authoritative feeding style, potentially because indulgent mothers may not allow children to develop the necessary skills for self-regulation, and because these mothers may indulge children's unhealthy eating preferences (Hennessy, Hughes, Goldberg, Hyatt, & Economos, 2010; Hughes et al., 2008, 2005; Olvera & Power, 2010). Our study uncovered how mothers who may employ indulgent feeding practices may affect children's eating and in return, children's influence on their mothers' diet.

Although we did not intend to explore mothers' feeding styles, the differences in feeding styles by mothers of bicultural versus assimilated children suggested a potentially important precursor to children's food preferences. Mothers of bicultural children described using a more traditional, "Mexican" feeding style, in which children were expected to eat what was prepared, while remaining somewhat flexible to child preferences (e.g., purchasing foods liked by children). This feeding style may correspond to an authoritative style that is both demanding and responsive to children (Hughes et al., 2005). Mothers who employed this feeding style usually cooked traditional foods that they expected their children to consume, and thus successfully created a palate for traditional foods among their bicultural children. By limiting their children's exposure to non-traditional foods, they effectively created an environment focused on traditional foods. However, these mothers were also responsive to children's preferences by allowing them to remove foods they disliked or by occasionally preparing a child's favorite meal as a treat. Our findings suggest that an authoritative feeding style may be how children come to prefer the same traditional foods as their mothers, making it easier for mothers to maintain their traditional diet. Thus, addressing mothers' feeding style may be a promising approach to improve child food preferences and indirectly, improve mothers' diet in future interventions.

On the other hand, mothers of assimilated children often described using a more indulgent feeding style and often described limiting or excluding foods disliked by their children, allowing non-traditional foods into their home, and consuming away-from-home foods to appease their children's food preferences. This finding is in line with previous work that shows that an indulgent feeding style is associated with less favorable diet and BMI outcomes in children than an authoritative feeding style (Shloim, Edelson, Martin, & Hetherington, 2015). Mothers frequently described scenarios where they were not in control of their child's eating due to children's preferences for non-traditional foods. A potential explanation for why mothers employed more permissive practices is that they wanted to extend their children's autonomy and respect and validate their children's food preferences. Regardless of the rationale for using a more indulgent feeding practice, mothers of assimilated children may benefit from strategies that increase their knowledge about the nutritional content of non-traditional foods (Brug, 2008), their ability to prepare meals that will be enjoyed by all family members (Brug, 2008; Pollard, Kirk, & Cade, 2002), and their self-efficacy to establish and enforce food rules to elevate their role as an authority over their children gain control at the dinner table (De Bourdeaudhuij, 1997). Mothers could also benefit from developing skills on how to balance setting limits and expectations while allowing their children develop their autonomy and personal preferences around food. Careful instruction on authoritative feeding behaviors may help mothers achieve the balance between demandingness of children and responsiveness to their needs.

Additional research can help elucidate some of our findings and control for potential confounders. For example, more mothers of bicultural children had lower monthly household incomes than mothers of assimilated children, which may have limited their ability to purchase away-from-home foods. Thus, future studies could examine how child acculturation is associated with mothers' diet across levels of household income. Longitudinal research is also needed to investigate differences in feeding styles by child acculturation to: a) determine directionality, and b) examine how feeding styles indirectly

relate to mothers' dietary intake and behavior. Finally, our study described the experiences of mothers of children in late childhood/early adolescence. Given that food preferences are established around age five (Birch & Fisher, 1998) and external influences begin to impact children around age six (Rozin, 1999), interventions may be more effective if conducted with mothers of young children.

Though the literature is limited, a review found that feeding styles are generally indicative of general parenting styles (Collins, Duncanson, & Burrows, 2014). Mothers with more indulgent feeding styles may also have a more indulgent style of parenting in general, which prompts a broader question based on our results indicating that mothers of assimilated children tended to have more indulgent feeding styles: are mothers with a more indulgent parenting style "allowing" their children to become assimilated? Conversely, perhaps mothers who employ a more authoritative parenting style are more likely to transmit their cultural values to their children and ensure that children retain their traditional culture as they adopt aspects of the US culture (i.e., bicultural). We found that most children, regardless of acculturation, enjoyed and wanted non-traditional foods. Unlike most mothers of bicultural children, mothers of assimilated children often yielded to these preferences. These mothers may also allow their children to adopt other aspects of the US culture, facilitating their children's assimilation, which may affect other health behaviors. Additional research is needed to determine whether mothers' parenting style influences children's acculturation process.

4.1. Limitations

Given the qualitative design, our study is not generalizable to other populations. Specifically, our sample consisted of self-selected mothers who predominantly lived in Chula Vista, CA, were culturally traditional, of mostly Mexican-origin, and had children between 10 and 13 years old, most of whom were boys. Furthermore, eligibility criteria was not limited to immigrant mothers, therefore, some of the questions regarding differences in diet preferences living in the US versus Mexico were not relevant. Two of ten mothers of assimilated children were born in the US versus none of the mothers of bicultural children, potentially introducing differences between the groups not attributed to children's acculturation. Most bicultural children ($n = 9$) compared to less than half of the assimilated children ($n = 4$) were interviewed in the presence of their mothers (typically preparing dinner or doing chores nearby). This may have inhibited these children and therefore, we may have heard more open perspectives from assimilated than from bicultural children. Another potential limitation is that the order of interviewing mothers and children was not consistent across dyads to accommodate child needs (e.g., after school activities). Some children may have been more honest in their responses and therefore mothers who were present during their children's interviews may have also responded more honestly. These limitations were tempered by the use of multiple sources of data. Indeed, mothers' data supported children's data. Another limitation was our method of assessing dietary intake through self-report, which is susceptible to recall bias and social desirability bias to under-report unhealthy and over-report healthy dietary intake. However, these findings are not intended to be quantitatively accurate, but to describe the sample. Finally, the qualitative data were largely interpreted by the first author, thus susceptible to personal biases. To

counteract this potential, a second coder helped to develop the codebook after coding 20% of all interviews and the last author assisted with the interpretation of the findings.

5. Conclusions

In this study, we responded to the call for research to better understand the intersection between social and cultural factors of dietary intake and behaviors (Brug, 2008; Nestle et al., 1998; Venters, 1989). We found evidence of the reciprocal relationship between mothers' feeding styles and their children's food preferences, and how children's food preferences influence mothers' dietary intake and behaviors. Our results provide a qualitative description of why mothers of assimilated children may consume a lower quality diet than mothers of bicultural children (Soto et al., 2017) and generate hypotheses that can be tested in future work.

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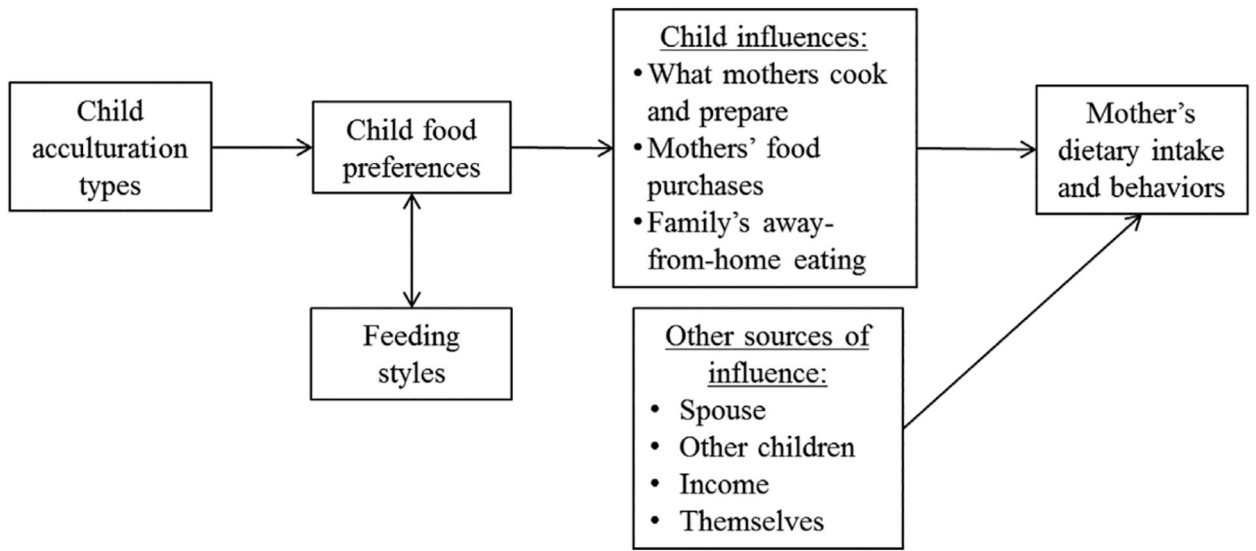


Fig. 1. Narrative themes from interviews with mothers and children.

Table 1

Participant demographic characteristics and dietary intake (N = 21 mother-child dyads).

	Mothers of bicultural children (n = 11) % (n) or mean \pm SD	Mothers of assimilated children (n = 10)
<i>Mothers' sociodemographic characteristics</i>		
Age	43 \pm 9	39 \pm 6
Married/living as married	90.9 (10)	80.0 (8)
Completed high school/GED	36.4 (4)	10.0 (1)
Employment		
< 35h/week	18.2 (2)	10.0 (1)
Not employed or homemaker	81.8 (9)	90.0 (9)
Monthly household income < \$2000	63.6 (7)	40.0 (4)
Number of children	3 \pm 1	4 \pm 2
Born in Mexico (vs. US)	100.0 (11)	80.0 (8)
Years resided in the US	16.4 \pm 7.7	14.8 \pm 6.1
Hispanic acculturation score ^a	3.7 \pm 0.3	3.9 \pm 0.2
Non-Hispanic acculturation score ^a	1.8 \pm 0.4	1.8 \pm 0.4
Normal weight (vs overweight or obese)	9.1 (1)	30.0 (3)
<i>Children's sociodemographic characteristics</i>		
Age	12 \pm 1	11 \pm 1
Child gender (male)	72.7 (8)	60.0 (6)
Born in Mexico (vs. US)	18.2 (2)	10.0 (1)
Years child has resided in the US	9.8 \pm 4.6	9.0 \pm 4.2
Hispanic acculturation score ^a	3.1 \pm 0.3	2.1 \pm 0.3
Non-Hispanic acculturation score ^{a,b}	3.4 \pm 0.3	3.6 \pm 0.4
Normal weight (vs overweight or obese)	72.7 (8)	50.0 (5)
<i>Mothers' dietary intake and behaviors</i>		
Daily servings of fruits	1.0 \pm 1.0	0.6 \pm 0.5
Daily servings of vegetables	0.9 \pm 0.8	0.7 \pm 0.4
Daily servings of sugary beverages	0.9 \pm 0.5	0.6 \pm 0.5

	Mothers of bicultural children (n = 11) % (n) or mean \pm SD	Mothers of assimilated children (n = 10)
Percent calories from fat	29.7 \pm 4.6	31.1 \pm 3.2
Weekly away-from-home eating ^b	2.4 \pm 1.5	4.1 \pm 2.8
Percent of weekly grocery dollars spent on fruits and vegetables ^b	41.3 \pm 13.6	26.2 \pm 6.7

^aScale is from 1 to 4 with higher scored indicating more adherence to the domain.

^bIndicated statistically significant difference between the two groups ($p < 0.01$).

Table 2
 Themes and subthemes of perceived child influences among mothers and their bicultural or assimilated children.

Theme	Subtheme	Mothers and <i>bicultural</i> children (n = 11)	Mothers and <i>assimilated</i> children (n = 10)
Child influences on what mothers cook and prepare	Mothers used children's food preferences to decide what to cook	Because mothers and children typically shared food preferences, using children's food preferences was easy (n = 6)	Using child preferences guaranteed their child would eat (n = 7)
	Mothers limited or excluded foods their children disliked	Few mothers reported doing this (n = 3)	Common strategy, included excluding traditional meals and foods (n = 6)
	Mothers changed the way foods were prepared to children's liking (e.g., frying/foods)	Reported by 6/21 mothers	
	Mothers included foods or meals because their children preferred them (e.g., pizza, spaghetti)	Reported by 15/21 mothers	
How mothers did not allow children to influence what mothers cooked and prepared	Children had to eat what mothers prepared	Reported as an expectation by 6 mothers	Less common, reported by 3 mothers
	Children chose what goes on their plate or put aside the foods they did not like	Few mothers reported doing this (n = 3)	These children were likely to dislike foods prepared by their mothers (n = 6)
Child influences on mothers' food purchases	Children cooked/prepared meals for themselves	Not discussed	Many mothers used this strategy (n = 5)
	Mothers cooked separate meals for children	Done as a treat for children (n = 4)	Done because children would not otherwise eat (n = 4)
	Mothers disguised foods that children disliked (e.g., dicing food)	Reported by 2–3 mothers	Sometimes avoided buying certain vegetables (typically with fruit purchases)
	Avoided purchasing foods disliked by children	Certain foods (brown rice, lentils) but 4 mothers said they never do this	More frequently than once per week to cater to children's requests
Child influences on away-from-home eating	Purchased foods <i>because</i> children liked them (e.g., fruits, cookies, chips, sugary beverages)	Majority of mothers and children reported this	
	Frequency of away-from-home eating	Weekends (Sundays)	
	Child chose the restaurant	Because of similar food preferences (n = 10)	Because child would not like the restaurant that parents chose (n = 6)
Used food to reward child accomplishments	Mothers frequently tried child's meal/food	Led to introduction of new foods (n = 10)	Less common because they did not share food preferences (n = 6)
	Child allowed to choose a meal/food to be shared with mother/family	Reported by 3–4 mothers and children	
	Used food to reward child accomplishments	Reported by 4–6 mothers and children	