Overweight in Young Latino Children

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Abstract

Background—Acculturation status is associated with overweight and obesity among Latino adults, but the relationship between maternal acculturation and overweight in Latino children is inconsistent and has not been adequately studied.

Methods—We analyzed 3-year follow-up data from 185 Latina mothers and children who were recruited at San Francisco General Hospital. Outcome measure was the child's body mass index at age 3 years, adjusted for age and sex and categorized as healthy (<85%) or overweight (≥85%). Independent variables were maternal acculturation status, child health status, and child nutritional factors.

Results—At age 3 years, 43% of children were overweight. In multivariate logistic regression analyses, childhood overweight was associated with maternal acculturation status (adjusted odds ratio [OR] 1.99, 95% confidence interval [95% CI] 1.07–3.69) and maternal obesity (OR 3.71, 95% CI 1.40–9.84). Childhood overweight was also more likely among children who were reported to eat well or very well (OR 3.33, 95% CI 1.46–7.58) and children whose weight was perceived as too high (OR 11.88, 95% CI 2.37–59.60), as compared to children who were reported to eat poorly/not well and children whose weight was perceived as normal, respectively.

Conclusions—Interventions to reduce the high rates of overweight among young Latino children should address the importance of maternal acculturation and obesity as well as maternal perceptions of children's weight and eating habits.

Keywords

Obesity; Overweight; Child; Preschool; Hispanic Americans; Mexican Americans

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Introduction

Over the last 20 years the prevalence of overweight and obesity among adults in the U.S. increased dramatically (1,2), and there was a similar increase among children and adolescents (3). According to the National Center for Health Statistics, there was a 23% increase in the prevalence of childhood overweight over a recent 5-year period, 1999–2004 (4) The high rate of overweight among children is of concern because of the potential for obesity-related complications that may begin during childhood or adolescence, such as diabetes mellitus, hypertension, metabolic syndrome, and orthopedic complications (5–8).

The prevalence of overweight and obesity in the U.S. varies by socioeconomic status and race/ethnicity; people of low socioeconomic status and ethnic minorities have disproportionately high rates of overweight and obesity (9–11). Among children, Latino girls and boys have the highest or second highest rates of overweight of all racial/ethnic groups (3). Therefore, intervention and prevention efforts to reduce ethnic disparities in overweight may need to be tailored to address risk factors that uniquely or disproportionately affect specific subgroups (9,12–14). Acculturation, a multidimensional and dynamic process of change, reflects the "process by which immigrants adopt the attitudes, values, customs, beliefs and behaviors of a new culture" (15). Acculturation has often been conceptualized as a linear process from the culture of origin to the new culture, but newer conceptual models emphasize the multidimensional and dynamic nature of the acculturation process (16). Most studies of body mass in Latino adults have reported that higher levels of acculturation are associated with an elevated risk of overweight and obesity (17–20). Among children, however, the relationship between acculturation and overweight has not been well studied and results are conflicting (8,12,21–24). It is difficult to compare the existing studies of childhood overweight because of varying definitions for acculturation status (maternal or parental) and body mass outcomes. Given the high rates of overweight among Latino children and the relationship between acculturation and body mass among Latino adults, it is critical to assess the role of acculturation and other factors involved in overweight among Latino children. The objective of our study was to assess the role of maternal acculturation, child health and dietary factors, and maternal perceptions of the child's body mass on risk of overweight among young Latino children.

Materials and Methods

Design

The Latino Health Project is a prospective study of pregnant Latina women. As previously described (25), from July 1997 to September 1999 we recruited 351 pregnant Latina women from the prenatal clinic at San Francisco General Hospital, the municipal hospital for the City and County of San Francisco. San Francisco General Hospital is located in the Mission district, a predominately Latino community.

Subjects

In the prenatal clinic, bilingual, bicultural research assistants screened women to assess eligibility and approached all eligible women to ask them to participate in the study. To be eligible, women had to fulfill six study criteria: 1) self-report their ethnicity as Latina; 2) have a singleton pregnancy; 3) have reached the second half of pregnancy (gestational age >19 weeks); 4) have no active history of substance use or psychiatric illness; 5) planned to keep the baby after delivery, and 6) planned to remain in the San Francisco Bay Area during the study period. The participants underwent 45-min structured interviews in English or Spanish by two research assistants during pregnancy and annually until 3 years postpartum. Research assistants were bilingual and bicultural women who were trained in interview and measurement techniques and observed before conducting independent interviews. The Committee on Human

Research at the University of California, San Francisco approved the study protocol, and written informed consent was obtained from each woman. Data for this study were taken from the baseline (pregnancy) and 3-year interviews. Interview instruments assessed acculturation status, behavioral factors, demographic factors, and health status.

Dependent Variable

The dependent variable was the child's body mass index at age 3 years. During the study interview conducted in the General Clinical Research Center at San Francisco General Hospital when the child was 3 years old, research assistants obtained measurements of the child's height and weight using a digital scale while the child wore light clothing and no shoes. Research assistants were trained to obtain the measurements by the nursing staff of the General Clinical Research Center at San Francisco General Hospital. Body mass index was adjusted for age and sex and dichotomized as healthy (<85th percentile, referent) or overweight (≥85th percentile) (26).

Independent Variables

From the data collected during the baseline (pregnancy) interview, we obtained information about four measures of maternal acculturation: acculturation index score, self-reported degree of Americanization, birthplace, and the number of years residing in the U.S. We assessed multiple measures of acculturation because each measure may represent a different aspect of this complex phenomenon (15). We included accepted measures of acculturation (acculturation index, birthplace, number of years residing in the U.S.) that are conceptualized as linear measures as well as self-reported Americanization, which may capture other more nuanced aspects of the acculturation process (16). As a standard measure of acculturation, we used a validated five-item acculturation index (27) that focuses on language use in various settings. For example, the index assesses the language the person prefers to speak at home, with five possible responses: only Spanish (score = 1), Spanish more than English (score = 2), equal Spanish and English (score = 3), English more than Spanish (score = 4), and only English (score = 5). The score for all five questions was averaged for a summary score that ranged from 1.0. (least acculturated) to 5.0 (most acculturated) and we analyzed the acculturation index score as a continuous variable. Cronbach's alpha coefficient to assess reliability for the acculturation index measures was high (raw 0.83, standardized 0.85). Maternal birthplace is commonly used as a proxy measure of acculturation (24) and we categorized birthplace as born in Central/South America, born in Mexico or born in the U.S. The number of years residing in the U.S. was obtained by self-report and analyzed as a continuous variable. For U.S.-born women, the number of years residing in the U.S. equaled the woman's age at enrollment in the study (19). Finally, we asked each woman how Americanized she considered herself, and the responses ranged from very Latina (score = 1) to very American (score = 5). This information was analyzed as a continuous variable. The Americanization question was similar to the assessment of Anglo orientation that has been analyzed in other studies (28), and we pre-tested all the acculturation questions with non-participant Latina mothers to assess clarity of wording. In addition, we tested the Cronbach's alpha coefficient for the acculturation index measures and found that the raw coefficient was 0.83 and the standardized coefficient was 0.85, indicating a high level of reliability.

Other Independent Variables

We included three maternal demographic factors in the analysis. Mother's age at the time of the 3-year interview was computed as the difference between the date of the interview and her date of birth and analyzed as a continuous variable. Educational attainment, a measure of socioeconomic status, and marital status were obtained from the baseline (pregnancy) interview. Educational attainment, defined as the number of years of schooling, was analyzed

as a continuous variable, and marital status was dichotomized as married (married or single and living with partner) or not married (single and not living with partner, separated, divorced or widowed).

Four dimensions of child health were analyzed: birth weight, health status, sex, and television viewing. Birth weight and sex were obtained from the medical record and birth weight was dichotomized as ≤4000 and >4000 g. During the 3-year study interview we asked each mother to report her child's health status, which was scored on a four-point scale that ranged from poor to excellent. Television viewing is associated with an increased risk of overweight children (21,29,30), and we asked each mother how much television or videos her child watched every day. Television viewing was categorized as ≤2 h or >2 h (31).

To assess the effect of nutrition variables on overweight children, we assessed multiple dimensions of the child's diet during the study interview. The questions were developed simultaneously in English and Spanish and pre-tested with non-participant Latina mothers to assure clarity of wording. Each mother reported how well her child ate, and the responses ranged from poorly to very well on a four-point scale. Each mother also reported the frequency, but not the quantity, with which her child consumed fast food, "frijoles" (beans), fruit, juice, meat, soda, tortillas, and vegetables. We analyzed consumption of fruits and vegetables because Latino children in other communities have been identified as a high-risk group for inadequate consumption of fruits and vegetables (32). Consumption of frijoles and tortillas was assessed as an indicator of a traditional Latino diet (14,22). We categorized the consumption of frijoles, juice, meat, and vegetables as daily, weekly, or less than weekly. We categorized the consumption of soda and tortillas as daily, weekly or monthly, or less than monthly. Finally, we categorized fruit consumption as two or more servings each day, once a day, or less than daily. Food frequency categories were defined based on the distribution of the data and to allow for meaningful interpretation of the results.

We used maternal height and weight measurements obtained by the research assistant during the 3-year study interview to compute maternal body mass index (BMI, kg/m^2), which we categorized as healthy (<25), overweight (25–29.9) or obese (≥30) (21). Each mother also reported her perception of the child's weight (21) on a three-point scale that ranged from too low to too high.

Data Analysis

Distributions of the maternal and child characteristics were computed using proportions or means and standard deviations. We used generalized linear models to conduct analyses of variance and to test the association between perception of the child's health, eating habits, and perception of the child's weight with the child's measured body mass. Logistic regression was used to compute unadjusted odds ratios (OR), 95% confidence intervals (95% CI), and *p* values to estimate the relationship between each maternal or child characteristic and overweight children. Finally, all characteristics that were significantly associated with overweight children in the unadjusted logistic regression analyses at *p* <0.05 were selected for inclusion in multivariate logistic regression analyses. All analyses were performed using SAS version 9.1 (33).

Results

There was no significant difference in the acculturation index score, Americanization score, number of years residing in the U.S. or educational attainment between women who were retained in or lost to the study (data not shown). We limited this analysis to women who had complete information for all study variables (*n* = 185) and excluded 67 women because of

missing data for either maternal or child BMI (24), primarily because the interview was conducted by telephone and measurements were not obtained.

Acculturation Measures

Latina women in our study had low acculturation status by all four measures. Nearly all women were immigrants who had resided in the U.S. for relatively short periods of time, and they reported low scores on the acculturation index and Americanization measure (Table 1). The women were relatively young, had attained a low educational level, and were primarily married.

Child and Maternal Factors

Mean age of the children was 3.0 years (range 2.9–3.7 years, not shown). Nearly one-fifth of children were reported to be in fair or poor health (Table 1), and two-thirds watched >2 h of television each day, exceeding the limit recommended by the American Academy of Pediatrics (31).

Nearly two-thirds of mothers reported that their child ate well or very well (Table 1). Almost all children drank juice every day, whereas soda consumption was less frequent. Fast food consumption was common; nearly two-thirds of children ate fast food every week. Three-quarters of children ate fruit on a daily basis and approximately half of the children ate meat or vegetables every day.

When mothers were asked about their perception of their child's weight, three-quarters of mothers reported that the child's weight was fine and almost 10% reported that the child's weight was too high (Table 1). However, according to the measurements obtained during the interview, almost half of all children (43%) were overweight. Three-quarters of mothers were overweight or obese.

Maternal Perceptions

In unadjusted generalized linear models, children who were reported to have fair/poor health status had a lower mean body mass (16,27) than children who had good/excellent health status (body mass 17.47, $p = 0.005$). Similarly, children who were reported to eat poorly, not well, or fair had significantly lower mean body mass than children who were reported to eat well or very well (16.33 vs. 17.78, $p < 0.0001$). Finally, body mass of the children varied by maternal perception of weight (weight too low—mean BMI = 15.87, fine/normal weight—mean BMI = 17.16, weight too high—mean BMI = 19.99, $p < 0.001$). In multivariate analysis of variance that included all three perception variables, we found that p values were as follows: child's health status ($p = 0.0475$), child's eating habits ($p = 0.125$), and perception of the child's weight ($p < 0.001$).

Unadjusted Logistic Regression Analyses

In unadjusted logistic regression analyses of overweight, maternal Americanization score was associated with an increased risk of overweight in children (OR 1.96 for every integer increase in Americanization score, 95% CI 1.25–3.09, Table 2). U.S.-born women were six times more likely to have overweight children than Mexican-born women (OR 6.44, 95% CI 1.30–31.82).

Maternal report of the child's health status was the only measure of health that was significantly associated with the overweight child in unadjusted comparisons, and children who were reported to have fair or poor health status were much less likely to be overweight than children who were reported to have good or excellent health status (OR 0.25, 95% CI 0.10–0.60, Table 2). Two measures of nutrition were associated with overweight, and children who were reported to eat well or very well were four times more likely to be overweight than children who were reported to eat not well or poorly (OR 3.95, 95% CI 2.06–7.57). Children who consumed

frijoles on a daily or weekly basis were three times more likely to be overweight than children who consumed frijoles less frequently.

Maternal anthropometric measures obtained during the 3-year study interview were strongly associated with the overweight child. In unadjusted analyses, obese mothers were nearly four times more likely to have overweight children than mothers who had healthy BMI (OR 3.73, 95% CI 1.68–8.26, Table 2). Maternal perception of the child's weight had the strongest association with the overweight child; children whose weight was perceived as too high were ten times more likely to be overweight than children whose weight was perceived as normal (OR 10.67, 95% CI 2.37–48.08).

Adjusted Logistic Regression Analyses

In multivariate logistic regression analyses, we analyzed the seven maternal and child characteristics that were significantly associated with overweight children in unadjusted comparisons. After adjustment for these factors we found that maternal acculturation, as measured by the Americanization scale, remained significantly associated with an increased risk of overweight children (OR 1.99 for every integer increase in Americanization score, 95% CI 1.07–3.69, Table 3). Similarly, obese mothers remained at higher risk for having overweight children than mothers with healthy BMI (OR 3.71, 95% CI 1.40–9.84).

Maternal report of the child's eating habits was significant in multivariate models, and children who were reported to eat well or very well were three times more likely to be overweight than children who ate not well or poorly (OR 3.33, 95% CI 1.46–7.58, Table 3). Interestingly, maternal perception of the child's weight had the strongest association with overweight; children whose weight was perceived as too high were 12 times more likely to be overweight than children whose weight was perceived as normal (OR 11.88, 95% CI 2.37–59.60).

Discussion

In this prospective study of Latino women and children in San Francisco, nearly half of the 3-year-old children we studied were overweight (43%). This rate is very similar to the rates reported among 2-year-old Mexican American children in Salinas Valley, CA (8), 2- to 4-year-old Latino children in New York city (12) and 3-year-old Latino children in the Fragile Families and Child Wellbeing Survey (23). Together these results highlight the magnitude of the problem of overweight among very young Latino children and underscore the need for effective intervention and prevention programs that begin in early childhood.

We found that maternal acculturation was associated with an elevated risk of overweight children, which suggests that the relationship between acculturation and children's body mass follows the same pattern that has been documented among Latino adults (17–20). In our study, mothers' self-reported degree of Americanization was the only measure of acculturation that was independently associated with overweight among their children, but the small sample limited our ability to fully test the relationship between all acculturation measures and overweight children. It is important to assess multiple dimensions of acculturation because previous studies of the relationship between acculturation and overweight children have reported conflicting or inconsistent results. Using the same definition of overweight that we used, there was no effect of maternal birthplace or a composite measure of acculturation on overweight children in the Fragile Families study (23) or Latino preschoolers (22). In a study of school-aged Mexican American children in Houston, TX, U.S.-born mothers were twice as likely to have overweight children as compared with mothers who were born in Mexico, but the maternal acculturation index score was not associated with the child's body mass (24). On the other hand, in a multiethnic study of participants in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) in New York City, children with a U.S.-

born parent had a decreased risk of being overweight (12), which contradicts the general association of higher levels of acculturation and overweight. These conflicting findings on the relationship between acculturation and child body mass could be related to differences in study populations or varying definitions of key variables, including acculturation measures. Further study is needed to compare multiple measures of acculturation and to determine the pathway through which acculturation influences body mass outcomes. A recent study reported acculturation differences in feeding practices (22), which may provide new insight into culturally specific risk factors for child overweight.

In our study, two subjective measures of nutrition status were strongly associated with overweight children. Children whose mothers reported that the child ate well or very well were more likely to be overweight than children whose mothers reported that the child ate not well or poorly. Similarly, children whose mothers perceived that the child's weight was too high were much more likely to be overweight than children whose mothers perceived the child's weight was normal. Due to the nature of our study interview, we could not determine how mothers develop their perception of the child's weight, and further study is needed to elucidate this relationship. It is possible that maternal perception of her child's body habitus or eating habits is an attitudinal measure of acculturation status. It is difficult to test the causal effect of the child's eating habits because we collected our data at a single point in time, and overweight develops over time. Longitudinal studies that include objective measures of portion sizes and information about preparation method are needed to define the causal relationship between eating habits and body mass. In a study of young Latino children in Chicago, IL, Ariza et al. found that mothers of overweight children usually categorized their child's weight as normal (21). Similarly, in the Third National Health and Nutrition Examination Survey (34), and in a large study of WIC participants (35), there was a high degree of misclassification of child weight. In our study, less than one-tenth of mothers considered that their child's weight was too high, and further study is needed to understand how mothers and other family members form subjective impressions of children's health and body mass (36,37). Among African-American and White mothers enrolled in WIC, mothers often focused on functional definitions of overweight rather than objective measures such as height and weight (38). Others have speculated that Latinos have a cultural disposition that equates overweight with greater health (37), but this topic must be explored in future studies. We did not collect data about portion sizes, history of feeding practices or physical activity, which also may be important.

We anticipated that maternal obesity would be associated with the child's body mass and we found that children whose mothers were obese were more likely to be overweight than children whose mothers had a healthy BMI. Our results are consistent with the results of the Fragile Families and Child Wellbeing Survey (23), a national multiethnic study (39), two studies of Mexican American mothers (8,40), and a study of older Mexican-American children in Houston (24). Despite the consistent relationship between maternal and child body mass, however, it is not clear whether the underlying explanation is related to genetic factors, eating habits, physical activity, or a complex interrelationship among these or other factors (39). Notwithstanding these underlying questions, however, intervention programs should focus on family-based approaches to healthy lifestyles and body mass (10,41), particularly since Latina women have very high rates of overweight and obesity.

Our findings are subject to several limitations. First, we recruited our sample from a single hospital-based clinic, and we limited this analysis to women who remained enrolled at 3 years postpartum and had complete data for the study variables. Second, information about the child's diet focused on the frequency with which the child consumed specific foods, which may not be sufficiently detailed to capture important aspects of the child's nutrition. Further study with more detailed instruments including portion sizes may identify the effect of dietary risk factors among young Latino children. Third, we relied on maternal report of many characteristics of

the child, including health status, which is consistent with the method used in the National Health Interview Survey but which may introduce a source of bias. Finally, although a broad range of factors may contribute to body mass and obesity, including biological, environmental, and sociocultural factors (21,41), as well as food insecurity (42,43), we had limited data on demographic and nutrition factors. Future studies should assess a range of factors including objective measures of physical activity, other measures of anthropometric status, and assessment of paternal body mass (26). Despite these limitations, our findings are most applicable to low-income Latino families living in urban areas, and our sample was similar to the study populations in recent studies of Latino children in Chicago, IL (21) and Houston, TX (24), which suggests that our findings are may be generalized to Latino populations in other urban areas of the U.S.

In conclusion, Latino children have very high rates of overweight by the age of 3 years. Our findings highlight the importance of three risk factors for child overweight: maternal acculturation, maternal perceptions of children's eating habits and body weight. Clinical and policy efforts to reduce the prevalence of overweight among Latino children should address the role of acculturation and body mass within the family context. Further study is needed to identify the biological and sociocultural pathways that culminate in overweight children.

Acknowledgments

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Table 1

Distribution of characteristics among 185 mother/child pairs in the Latino Health Project, San Francisco, CA

Maternal and child characteristics	Mean (SD[*]) or %
Acculturation, maternal	
Acculturation index score, mean	1.7 (SD 0.7)
Americanization score, mean	1.4 (SD 0.7)
Birthplace, %	
Central/South America	36.8
Mexico	57.8
U.S.	5.4
Years in U.S., mean	6.6 (SD 5.9)
Demographic factors, maternal	
Age (years) mean	29.2 (SD 6.2)
Education (years) mean	8.5 (SD 3.4)
Marital status % married	79.3
Health factors, child	
Birthweight, % >4000 g	11.3
Health status, % fair or poor	19.1
Sex, % female	50.5
Daily television viewing, % >2 h	67.2
Nutrition factors, child	
How well the child eats, % well or very well	62.4
Fast food consumption, %	
Weekly	62.9
Monthly	29.4
Less than monthly	7.7
"Frijoles" (bean) consumption, %	
Daily	34.0
Weekly	50.0
Less than weekly	16.0
Fruit consumption, %	
Daily, twice or more	59.8
Daily, once	26.3
Less than daily	13.9
Juice consumption, %	
Daily	93.3
Weekly	3.1
Less than weekly	3.6
Meat consumption, %	
Daily	40.2
Weekly	56.7
Less than weekly	3.1
Soda consumption, %	
Daily	12.4
Weekly or monthly	52.1
Less than monthly	35.6
Tortilla consumption, %	
Daily	60.8
Weekly or monthly	27.8
Less than monthly	11.3
Vegetable consumption, %	
Daily	50.0
Weekly	41.2
Less than weekly	8.8
Body mass	
Maternal perception of child's weight, %	
Too low	15.0
Fine/normal	75.8
Too high	9.3
Child's body mass, age- and sex-adjusted percentile, %	
Healthy (<85th percentile)	57.2
Overweight (≥85th percentile)	42.8
Maternal BMI (kg/m², %)	
Healthy (≤25)	26.9
Overweight (25–29.9)	37.1
Obese (≥30)	36.0

[*] Standard deviation

Table 2

Unadjusted odds ratios (OR) and 95% confidence intervals (95% CI) for child overweight (≥85th percentile)

	OR	95% CI		p value
Acculturation index score, continuous	1.33	0.91	1.94	0.14
Americanization, continuous	1.96	1.25	3.09	0.004
Birthplace				
Central/South America	1.20	0.65	2.22	0.57
Mexico	1.00	Reference		
U.S.	6.44	1.30	31.82	0.02
Years in U.S., continuous	1.04	0.99	1.09	0.13
Demographic factors, maternal				
Age, years (continuous)	1.00	0.95	1.05	0.92
Marital status				
Married	1.26	0.63	2.53	0.52
Not married	1.00	Reference		
Health factors, child				
Birth weight, g				
≤4000	1.00	Reference		
>4000	1.10	0.47	2.58	0.83
		OR	**95% CI**	**p value**
Health status				
Fair or poor	0.25	0.10	0.60	0.002
Good or excellent	1.00	Reference		
Sex				
Female	1.00	Reference		
Male	1.39	0.79	2.47	0.25
Television viewing, daily (h)				
≤2	0.92	0.71	1.19	0.53
>2	1.00	Reference		
Nutrition factors, child				
How well the child eats				
Not well or poorly	1.00	Reference		
Well or very well	3.95	2.06	7.57	<0.0001
Fast food consumption				
Weekly	1.34	0.43	4.17	0.61
Monthly	2.07	0.63	6.83	0.23
Less than monthly	1.00	Reference		
	OR	**95% CI**		**P value**
"Frijoles" (bean) consumption				
Daily	2.86	1.08	7.55	0.03
Weekly	3.09	1.22	7.85	0.02
Less than weekly	1.00	Reference		
Fruit consumption				
Daily, twice or more	1.14	0.49	2.67	0.76
Daily, once	1.02	0.39	2.63	0.97
Less than daily	1.00	Reference		
Juice consumption				
Daily	0.97	0.21	4.48	0.97
Weekly	1.33	0.15	11.93	0.80
Less than weekly	1.00	Reference		
Meat consumption				
Daily	0.81	0.16	4.29	0.81
Weekly	0.69	0.13	3.59	0.66
Less than weekly	1.00	Reference		
Soda consumption	1.45	0.57	3.68	0.44
Daily				
Weekly or monthly	0.77	0.41	1.44	0.41
Less than monthly	1.00	Reference		
Tortilla consumption	**OR**	**95% CI**		**p value**
Daily	0.82	0.33	2.03	0.66
Weekly or monthly	0.54	0.20	1.48	0.23
Less than monthly	1.00	Reference		
Vegetable consumption				
Daily	1.59	0.54	4.63	0.40
Weekly	1.22	0.41	3.64	0.72
Less than weekly	1.00	Reference		
Body mass				
Maternal BMI (kg/m^2)				
Healthy (≤25)	1.00	Reference		
Overweight (25–29.9)	1.83	0.83	4.05	0.41
Obese (≥30)	3.73	1.68	8.26	0.001
Maternal perception of the child's weight				
Too low	0.21	0.07	0.64	0.006
Fine/normal	1.00	Reference		

	OR	95% CI		*p* value
Too high	10.67	2.37	48.08	0.002

Table 3

Adjusted odds ratios (OR) and 95% confidence intervals (95% CI) for child overweight (≥85th percentile)

	OR	95% CI		p value
Americanization, continuous	1.99	1.07	3.69	0.03
Birthplace				
Central/South America	1.21	0.57	2.59	0.62
Mexico	1.00	Reference		
U.S.	3.71	0.47	29.46	0.22
Health status (child)				
Fair or poor	0.45	0.15	1.38	0.16
Good or excellent	1.00	Reference		
How well the child eats				
Not well or poorly	1.00	Reference		
Well or very well	3.33	1.46	7.58	0.004
"Frijoles" (bean) consumption				
Daily	0.82	0.23	2.81	0.73
Weekly	2.06	0.65	6.49	0.22
Less than weekly	1.00	Reference		
Maternal BMI (kg/m^2)	OR	95% CI		P value
Healthy (≤25)	1.00	Reference		
Overweight (25–29.9)	2.47	0.93	6.58	0.07
Obese (≥30)	3.71	1.40	9.84	0.009
Maternal perception of the child's weight				
Too low	0.19	0.04	0.87	0.03
Fine/normal	1.00	Reference		
Too high	11.88	2.37	59.60	0.003