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Cross-Sectional Relationships Between Household Food Insecurity and Child BMI, Feeding Behaviors, and Public Assistance Utilization Among Head Start Children From Predominantly Hispanic and American Indian Communities in the CHILE Study

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Abstract

Associations between food insecurity and overweight/obesity, feeding behaviors, and public food assistance utilization have been explored to a greater extent among adults and adolescents than among young children. This cross-sectional study examines a subset of pre-intervention implementation data (n = 347) among families participating in the Child Health Initiative for Lifelong Eating and Exercise (CHILE) study conducted in rural New Mexico among predominantly Hispanic and American Indian Head Start centers. No significant relationships emerged between food insecurity and child overweight/obesity, certain feeding behaviors, or public food assistance utilization. Additional research is necessary to understand relationships between food insecurity and child overweight/obesity status, use of public assistance benefits, and certain feeding behaviors among rural preschool-aged children in predominantly Hispanic and American Indian communities.

Keywords

food insecurity; preschool-aged children; obesity; feeding behavior; food assistance; rural population; Head Start program; CHILE

INTRODUCTION

The US Department of Agriculture (USDA) defines food insecurity as “[a] lack of consistent access to adequate food ... an economic and social condition that may result in hunger (a physiological condition) if prolonged.”^{1(p2)} From 2003 to 2011, 18.3% of American households with children were classified as food insecure by the USDA’s Economic Research Service Household Food Security Survey (HFSS), with 9.4% lacking nutritious or adequate food for children at certain times of the year.¹ The most severe degree of food insecurity among children (very low food security) was disproportionately high among Hispanic households, which represented 35.7% of households in this category.¹ American Indian/Alaska Native (AI/AN) households also experience a disproportionate prevalence of food insecurity, with approximately 23% of AI/AN households vs 15% of non-AI/AN households reporting food insecurity in the 2006–2008 Current Population Survey and 28.0% of AI/AN households with children vs 15.7% of non-AI/AN households with children reporting food insecurity in the 2001–2004 Current Population Survey.² From 2003 to 2011, the prevalence of food insecurity in New Mexico was 21.9% among households with children, with 12.4% lacking nutritious or adequate food for children at certain times of the year.¹

Childhood overweight/obesity is another prominent public health concern in the United States and New Mexico. In 2010, the national prevalence of overweight/obesity among low-income preschool-aged children was 30.5%, with the highest national prevalence seen among AI/AN (42.2%) and Hispanic (35%) children.³ As of the 2012 census, these 2 groups constituted more than half (57.2%) of New Mexico’s population.⁴

There is some evidence that food insecurity and obesity may be related, and although there is a growing body of research exploring this association among children, a clear relationship has not yet emerged.^{5–9} A recent review found that compared to women from food secure households, women from food insecure households were more likely to be obese.¹⁰ Gundersen et al reported no relationship between food insecurity and multiple indicators of obesity (triceps skinfold, waist circumference, body mass index [BMI], body fat, and trunk fat) among low-income children 8–17 years of age using cross-sectional National Health and Nutrition Examination Survey (NHANES) 2001–2004 data, after adjusting for race/ethnicity and gender.⁸ There are few studies of this relationship in preschool-aged children.⁶ Metallinos-Katsaras et al conducted a large ($n = 28\,353$) longitudinal study that explored the relationship between food insecurity and obesity among preschool-aged children.⁶ They found that children from households that were food insecure without hunger during the child’s infancy had a higher BMI-for-age z -score in preschool compared to children from persistently food secure households.⁶ They did not see this relationship for households that were food insecure with hunger. This effect was modified by prepregnancy maternal weight status, with the association still present for children whose mothers were either overweight/obese or underweight prior to pregnancy but not for children whose mothers had a normal weight status prior to pregnancy.⁶ One explanation for this difference is that in utero conditions may predispose the fetus to overweight and obesity later in life in cases of both prenatal overnutrition and undernutrition.^{11–13}

Another theory is that food insecurity may decrease quality rather than quantity of food available to children in such households.⁶ Supporting this theory is a prospective cohort study among mothers and children in the United Kingdom that used a 6-point shortened version of the 1999 HFSS adapted with UK-appropriate language ($n = 1631$ families followed until child age 3).¹⁴ The study found no differences in obesity and overweight between those who were food insecure vs not food insecure; however, the food insecure group had both a higher consumption of potato chips and processed meats and a lower consumption of vegetables compared to the group that was not food insecure.¹⁴ These dietary differences contributed to higher caloric intakes among children from food insecure households.¹⁴ Though few studies have examined the relationship between food insecurity and dietary patterns in preschool-aged children, studies including children and adolescents have found that food insecurity is positively correlated with adverse dietary intake patterns, such as increased frequency of family meals containing sugar-sweetened beverages or fast food.^{14–16} Although the causes of childhood obesity are complex and the evidence for specific dietary contributors to obesity are mixed, experts have recommended that children avoid sugar-sweetened beverages and regular consumption of fast food to prevent childhood obesity.¹⁷

Changes in child self-regulation due to caregiver pressure in an uncertain food access situation are another potential mechanism for the relationship between food insecurity and childhood obesity.^{18–21} This potential relationship between food insecurity and parental pressure has not been previously explored, although existing research provides evidence that a child's ability to self-regulate energy consumption may be compromised by coercive and restrictive feeding behaviors such as plate cleaning encouragement and limitation of palatable foods.^{18–21}

Household participation in food assistance programs may further complicate the relationship between food insecurity and obesity. Household participation in food assistance programs such as the USDA's Supplemental Nutrition Assistance Program (SNAP), formerly the Food Stamp Program, has been associated with child dietary patterns that are different than those of children from low-income nonparticipant households.²² These differences include higher consumption of sugar-sweetened beverages, high-fat dairy, and processed meats, which may affect overall dietary quality of children receiving this type of food assistance.²² However, a higher intake of certain micronutrients (iron, calcium, and folate) associated with these dietary patterns was also observed in SNAP participants vs nonparticipants, contributing to a lack of significant difference in overall Healthy Eating Index 2005 or Alternate Healthy Eating Index scores.²² SNAP participants were not more likely to be overweight or obese compared to income-eligible nonparticipants after controlling for sociodemographic confounders.²² This was also the case in an analysis of 1976–1980, 1988–1994, and 1999–2002 NHANES data that found no systematic differences in weight status between Food Stamp Program or USDA Special Supplemental Nutrition Program for Women, Infants and Children (WIC) participants and income-eligible nonparticipants.²³ In 2009, the WIC program made several changes to the food package to promote intake of fruits, vegetables, whole grains, and low-fat dairy among participants.²⁴ New York State WIC recently found increased daily fruit, vegetable, and whole grain consumption and slightly reduced prevalence of obesity among 1- to 4-year-old participants in July–December 2011 compared

with the same period in 2008 (prior to the food package changes).²⁵ In addition, despite the fact that WIC was not designed to address household food insecurity, WIC participation has also been recently linked to improved household food security status.²⁶ In general, it is suggested that concurrent enrollment in WIC, SNAP, Temporary Assistance for Needy Families (TANF), and medical assistance programs, such as Medicaid, occur to provide an optimal food and health safety net for low-income families.²⁷

Head Start is a program that serves low-income preschool children and is thus on the frontlines of addressing the problems of food insecurity, poor nutritional status, and obesity in this population. Head Start provides balanced snacks and meals to children through the Child and Adult Care Food Program, a core USDA child nutrition program, but this only partially addresses child food insecurity.²⁸ Gooze et al examined food insecurity concerns using 2008 Head Start director surveys ($n = 1810$).²⁹ Fourteen percent of Head Start directors indicated staff reports of either “often” or “very often” observing children for whom they had concern of inadequate food intake at home, with 54% of directors indicating a direct (giving food) and 98% indicating an indirect (food assistance referral) response to perceived child food insecurity.²⁹ Obesity is also a concern among the Head Start population, with 37% of a nationally representative sample of 3349 Head Start children either overweight or obese in Fall 2009.³⁰ In response to recommendations of the Surgeon General³¹ and Institute of Medicine³² to begin obesity prevention efforts in early life, Head Start has begun to directly incorporate obesity prevention in their program through such curricula as the “I Am Moving, I Am Learning” program enhancement.³³

The present study analyzes pre-intervention implementation data from the Child Health Initiative for Lifelong Eating and Exercise (CHILE), an evidence-based intervention to prevent obesity among Head Start children in rural communities.³⁴ We report the prevalence of household food insecurity, childhood overweight/obesity, feeding behaviors such as plate cleaning encouragement and eating away from home, and utilization of federal public assistance programs, including WIC, SNAP, TANF, and Medicaid, and examine cross-sectional relationships between these factors among Head Start children from rural Hispanic and American Indian communities in New Mexico using secondary data from the CHILE study. This analysis will inform the current gap in literature related to these relationships in early childhood and especially in rural Hispanic and American Indian communities.

METHODS

Study Design

The present study examines a cross-sectional subset of pre-intervention implementation data from the CHILE study, which was a cluster-randomized childhood obesity prevention intervention occurring between 2008 and 2010 that has been described in detail elsewhere.³⁴ In brief, the study was conducted among 1879 children from 16 rural New Mexico Head Start Centers within a 200-mile radius of Albuquerque, New Mexico, serving predominantly Hispanic and American Indian communities. There were 8 immediate intervention sites and 8 comparison sites that received the intervention after the final data collection.

Participants

We analyzed initial parent interviews from both intervention and comparison sites that were conducted prior to intervention exposure with either a parent or caregiver of 406 children. To eliminate possible effects of the intervention, we excluded data from interviews conducted after intervention implementation. CHILE interview subjects were recruited by community coordinators at each site using a convenience subsample, with a target of recruiting 20 respondents per site for each interview period. Participants with missing data for either of the major variables of interest, food insecurity ($n = 2$) or child BMI ($n = 30$), were excluded to yield a final sample of 374 interviews with families of children ages 3–5 years old (Figure 1).

Parent Interviews

Select CHILE parent interview questions were used to measure the following variables: food insecurity status, feeding behaviors (plate cleaning, food limitations, frequency of fast food meals, and frequency of dining out), and public assistance utilization (WIC status, SNAP status, TANF status, Medicaid status). The interview questions and their corresponding measures and coding methods are described in Table 1. These survey questions were designed by the multidisciplinary CHILE team to collect pre- and postintervention data on variables that may have been affected by the intervention or confound or modify effects of the intervention.

Anthropometric Data

Heights and weights of children were measured by trained CHILE research staff following a standardized research protocol using a Schorr board stadiometer (± 0.06 cm; Schorr Productions, LLC) and SECA 770 digital scale (± 0.1 kg; SECA, Hamburg, Germany). Quality control measures included a 3-person measurement team that recorded 2 measurements for each child's height and weight, repeating the measurement a third time for inconsistent values, and quality assurance monitors who repeated measurements on every 10th child. Measures were performed in the same season in which interviews were conducted. BMI (kg/m^2) was calculated using measured child height and weight and converted to BMI percentile based on the 2000 Centers for Disease Control and Prevention growth charts.³⁶ These percentiles were collapsed to reflect obese/overweight status (≥ 85 th percentile; $n = 100$) vs not overweight/obese status (< 85 th percentile; $n = 274$), which included underweight (< 5 th percentile; $n = 6$) children because there were too few to be considered separately. We conducted a sensitivity analysis excluding the 6 underweight children and it did not change the conclusions that we drew from our results.

DATA ANALYSIS

We tested the hypotheses that children in this sample from food insecure households may have a different proportion of overweight/obesity; experience different feeding behaviors such as plate cleaning encouragement, limitation of certain foods, and frequency of eating out for dinner; and receive a different proportion of public assistance than those from households that were not food insecure.

Bivariate relationships between food insecurity and gender, overweight/obesity, plate cleaning encouragement, limiting of certain foods, >1 time/week fast food frequency and >1 time/week dining out frequency, and receipt of federal assistance benefits (WIC, SNAP, WIC and/or SNAP, TANF, and Medicaid) were tested using Pearson's chi-squared test and 2-sided significance was established at $P = .05$ for all statistical tests. Multivariate analysis did not change the interpretation of our results. All statistical analyses were conducted using *Small Stata 12.1 for Mac*.³⁷

RESULTS

Descriptive characteristics of the study sample are presented in Table 2. Parent interview participants varied in their relationship to the child: 77% were biological mothers, 10% biological fathers, and 13% other caregivers including stepmothers, grandparents, aunts, uncles, cousins, sisters, and foster mothers. The majority (79%) of respondents had obtained at least a high school diploma. The prevalence of reported food insecurity among respondents was 21%. The prevalence of obesity and overweight among the respondents' children was 27%. Participation in public assistance programs was generally high (60% WIC, SNAP, and/or Medicaid), with the exception of TANF (15% participation; Table 2). Plate cleaning encouragement and the limiting of certain foods (foods that were limited varied widely; sweets, fats, and dairy were most frequent) were common among participants (73% and 71%, respectively) and frequency of fast food meals more than once per week was 32%.

Bivariate analyses found no significant relationships between food insecurity and BMI category, plate cleaning encouragement, limiting of certain foods, frequency of dinners outside the home, or use of various public assistance programs (Table 3). The relationship between food insecurity and WIC participation in the last 3 years approached significance, with 89% of respondents who indicated experiencing food insecurity also reporting WIC participation, compared to 80% of those not reporting food insecurity ($P = .06$).

DISCUSSION

Our findings suggest that rural preschool-aged children in predominantly Hispanic and American Indian communities whose caregivers indicate "yes" to the question "Do you ever feel that you don't have enough food for your family?" are not more likely to be overweight or obese than children of the same population whose caregivers answer "no" to the same question. In addition, there were not significant differences in plate cleaning encouragement, limiting of certain foods, eating fast food and dining out for dinners more than once per week, and public assistance use between families reporting food insecurity vs food secure families.

There was a positive trend between reported household food insecurity and household receipt of WIC benefits in the past 3 years. That is, children whose families report food insecurity may be more likely to also have a member of their household receive WIC benefits than children from food secure households. This relationship is not surprising, given that both WIC and Head Start serve low-income families, and one of the primary purposes

of WIC is to provide nutritious food to low-income women, infants, and children up to age 5 if they are at nutritional risk.^{38,39} National data have shown that there is “self-targeting of participation” in food assistance programs by the neediest households, with low-income food insecure families with children being more likely to seek food assistance benefits such as WIC, SNAP, and the USDA National School Lunch Program than low-income families with children who are not food insecure.^{1(p26)} It is unlikely that a targeted assistance program such as WIC would relieve household food insecurity entirely, nor is this the purpose of WIC, but it is clear that some food insecure families may seek out such programs, supporting the need for routine screening and referral for food insecurity at WIC and Head Start. Currently, food security screening varies by state in WIC and by state and center for Head Start programs.^{29,40} For example, New Mexico WIC uses a single question on their Nutrition and Activity Self-History Form to assess food insecurity as a nutritional risk factor for eligibility and to trigger staff to offer food assistance information sheets to those indicating food insecurity.⁴⁰ The question reads, “Do you often run out of money or food stamps to buy food?”^{40(p2)} It has also been suggested previously that Head Start programs could incorporate routine food security screening into their enrollment process.²⁹ Head Start currently encourages “identification of [children’s] nutritional needs,” including “major community nutritional issues” in Program Performance Standards, but to our knowledge, food insecurity screening policies are currently determined by individual Head Start sites; national guidance would help to clarify this role for Head Start in assessing and responding to household food insecurity.^{41(p127)}

The findings of this study did not support an association between child overweight/obesity and food insecurity, which is consistent with several previous studies, including one conducted among young children.^{8,14} This is also consistent with the fact that we did not find significant differences in coercive and restrictive feeding behaviors (plate cleaning encouragement, limiting of certain foods) and dining out behaviors previously associated with obesity among young children by food security status.

Major strengths of our study include the focus on underserved populations and exploration of potential mechanisms for the relationship between food insecurity and obesity among children. Currently, there is limited evidence available about the relationship between household food insecurity and overweight and obesity among young children, especially those living in rural areas or of American Indian descent.^{10,42} In addition, this study is among few aiming to investigate the role of coercive and restrictive feeding behaviors in the relationship between food insecurity and overweight and obesity among young children.^{43,44}

Our study has several limitations. The use of a single question with no specified time frame to measure food insecurity did not allow for determination of seasonal/intermittent food security status, food security status among children, or degree of food insecurity, as those studies with data derived from the HFSS have established.^{1,6,26,45,46} Although the HFSS is the national standard for evaluation of food security,⁴⁵ it was not included in the baseline survey for the CHILE study because the survey was extensive and covered a wide range of topics, and a thorough assessment of food security was not the primary purpose of the instrument. Other studies have validated shorter screenings between 1 and 6 questions in length.^{5,6,35,47,48} Kleinman et al developed a one-question screening asking respondents, “In

the past month, was there any day when you or anyone in your family went hungry because you did not have enough money for food?" and validated it against the HFFS in a study conducted among families recruited from an urban neighborhood health center.⁴⁷ Additionally, prior to the HFSS development, a single question was used to assess household food access adequacy by NHANES as well as the Continuing Study of Food Intake by Individuals.⁴⁹ It should be noted that the sample in the present study does reflect the average food insecurity of families with children in the state measured using the HFSS between 2003 and 2011 (21% and 22%, respectively).¹ However, 2 studies that examined food insecurity longitudinally found that food insecurity may occur in short intervals, underscoring the need to evaluate the duration of food insecurity in future studies.⁴⁶ Clearly, inclusion of more multidimensional food insecurity questions detailing the degree of food insecurity, the degree to which children are affected by food insecurity, and the duration of food insecure episodes may have allowed for more extensive analyses in this study.

It is possible that use of food assistance in this study sample may have been underestimated because we did not have data on participation in the Food Distribution Program on Indian Reservations. Because some families in the sample were residing on American Indian reservations, some respondents may have been participating in Food Distribution Program on Indian Reservations but not SNAP at the time of the survey.⁵⁰

Inherently, the cross-sectional nature of this study prevents the establishment of causal relationships. It is also important to note that the parent interview was not originally intended for use as a cross-sectional instrument but rather a repeated measures instrument to measure change over time in the CHILE study. Additionally, families from smaller Head Start centers may have been disproportionately represented in the survey due to convenience sampling. This may limit the generalizability of these findings to other rural Hispanic and American Indian communities.

There were additional factors not included in this analysis that could be related to both food insecurity and childhood obesity, making them potential confounders. Self-reported maternal weight status, prepregnancy maternal weight status, gestational diabetes, smoking status, maternal age, social class, and poverty have all been related to household food insecurity and childhood obesity.^{6,51} Though some of these measures were included in the questionnaire, the nature of the survey design limited the ability to connect maternal self-reported data to the children's BMI data, because mothers were not exclusively recruited for the parent interview, and the respondents varied widely in their relation to the child.

Finally, the lack of significant findings in the study may have been limited by the statistical power to detect a relationship between the variables of interest. Because this study was an analysis of secondary data, power calculations conducted at the planning stages were not designed for cross-sectional analyses of the chosen variables and thus may have led to an underpowered study that did not have a large enough sample to detect differences.

The findings of no significant differences in the present study suggest that there may be no relationship between caregiver-indicated food insecurity and child overweight or obesity

status, use of benefits, or certain feeding behaviors among rural preschool-aged children in predominantly Hispanic and American Indian communities.

Further longitudinal studies of the relationship between obesity and food insecurity among pediatric and underserved populations should be conducted with adequate planning for power analysis and survey design to better inform future programs and interventions. Future studies should include validated multidimensional food insecurity questions such as those derived from the HFSS to allow for determination of intermittent exposure to food insecurity, duration and degree of food insecurity, and food security status among children.^{1,6,26,45,46} Further validation of single-question measures of food insecurity, such as the study conducted by Kleinman et al,⁴⁷ is also warranted to better support screening for food insecurity in settings such as Head Start and WIC and capturing food insecurity data in complex studies.

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Initial CHILE* parent interviews & corresponding
child BMI data prior to intervention exposure (n=406)

Excluded from food insecurity analysis
Missing data for food insecurity (n=2)
Missing data for child BMI (n=30)

Retained for food insecurity analysis
Parent interviews (n=374)

FIGURE 1.

CHILE Food Insecurity Sample Flow Chart. *CHILE = Child Health Initiative for Lifelong Eating and Exercise, a cluster-randomized childhood obesity prevention intervention occurring between 2008 and 2010.

TABLE 1

Survey Questions^a

Question	Measure	Response	Bivariate variable collapse
Food insecurity			
Do you ever feel that you don't have enough food for your family?	Food insecurity status		
Public assistance utilization			
Did you or another member of the household receive WIC benefits any time during the past 3 years?	WIC status		
Did you or another member of the household receive food stamps ^b /EBT card during the past 12 months?	Food Stamp status	Yes No	Yes = Positive No = Negative
Did you or another member of the household receive TANF during the past 12 months?	TANF status	Don't Know Refused	Don't Know, Refused = Missing
Are you or another member of your household receiving Medicaid?	Medicaid status		
Feeding behaviors			
Was [CHILD'S NAME] ever encouraged to clean his/her plate?	Plate cleaning		
Are there any foods you try to limit or don't allow the child to eat?	Food limitations		
How often does your family eat supper/dinner at a fast food restaurant? (Check one)	Frequency of family fast food meals	Never 1 day/week 2–4 days/week	>1 day/week = Positive
How often does your family eat supper/dinner at a commercial place? (NOT including fast food restaurants) (check one)	Frequency dining out	5–6 days/week Every day Don't know Refused	Never, 1 day/week = Negative Don't know, Refused = Missing

^aWIC indicates Special Supplemental Nutrition Program for Women, Infants, and Children; EBT, electronic benefits transfer; TANF, Temporary Assistance for Needy Families.

^bThe terminology “food stamps” was chosen over Supplemental Nutrition Assistance Program (SNAP) due to concern over whether participants were familiar with the name change, which had just occurred in the year in which data collection began.³⁵

TABLE 2

Descriptive Characteristics for 3- to 5-Year-Old Head Start Children ($n = 374$)^a

Measure	M	SD	Min	Max
Child BMI percentile	64.43	26.91	0.44	100.00
Household size	5.64	2.76	2.00	23.00
Child age (months)	47.71	7.73	34.00	67.00
	Frequency	%		
Male child	192	51.34		
Female child	182	48.66		
Food insecure ^b	80	21.39		
Plate cleaning ^c	274	73.26		
Limiting certain foods ^d	267	71.39		
>1 Time per week frequency fast food meals	120	32.09		
>1 Time per week frequency of dining out (not fast food)	50	13.37		
Receipt of WIC benefits in last 3 years ^e	304	81.28		
Food stamps in the last 12 months ^e	223	59.63		
WIC and/or food stamps ^e	332	89.01		
TANF in the last 12 months ^e	56	14.97		
Medicaid ^e	323	86.36		

^aBMI indicates body mass index (kg/m^2 ; BMI percentiles assigned according to 2000 Centers for Disease Control and Prevention growth charts³⁶); WIC, Special Supplemental Nutrition Program for Women, Infants, and Children; TANF, Temporary Assistance for Needy Families.

^bFood insecure refers to a positive interview response of “yes” to the question, “Do you ever feel that you don’t have enough food for your family?”

^cPlate cleaning behavior refers to a positive interview response of “yes” to the question, “Was [CHILD’S NAME] ever encouraged to clean his/her plate?”

^dLimiting certain foods refers to a positive interview response of “yes” to the question, “Are there any foods you try to limit or don’t allow the child to eat?”

^eBenefits are received by one or more members of the household.

TABLE 3

Bivariate Results^a

CHILE baseline household food security status												
Variable	Food insecure ^b				Not food insecure ^c				χ^2 ^e	P	OR	CI
	<i>n</i> ^d	Total	<i>n</i>	%	<i>n</i> ^d	Total	<i>n</i>	%				
Female child	37	80	46.25	145	294	49.32	0.24	.63	0.88	0.52–1.49		
Overweight/obese child ^f	19	80	23.75	81	294	27.55	0.46	.50	0.82	0.43–1.49		
Plate cleaning ^g	59	76	77.63	215	286	75.17	0.20	.66	1.15	0.61–2.24		
Limiting certain foods ^h	60	80	75.00	207	293	70.65	0.58	.44	1.25	0.69–2.32		
Fast food > 1 time/week	20	80	25.00	100	294	34.01	2.34	.13	0.65	0.35–1.16		
Dining out > 1 time/week	8	80	10.00	42	294	13.37	1.00	.32	0.67	0.26–1.52		
WIC in last 3 years ⁱ	71	80	88.75	233	293	79.52	3.55	.06	2.03	0.94–4.88		
Food stamps last 12 months ^j	45	80	56.25	178	294	59.63	0.48	.49	0.84	0.49–1.43		
Food assistance (WIC or Food Stamps) ^j	75	80	93.75	257	293	87.71	2.34	.13	2.10	0.78–7.09		
TANF last 12 months ^j	10	79	12.66	46	292	15.75	0.46	.49	0.77	0.33–1.66		
Medicaid last 12 months ^j	72	80	90.00	251	294	85.37	1.14	.29	1.54	0.67–3.97		

^a CHILE indicates the Child Health Initiative for Lifelong Eating and Exercise (CHILE), a cluster-randomized childhood obesity prevention intervention occurring between 2008 and 2010; OR, odds ratio; CI, confidence interval; WIC, Supplemental Nutrition Program for Women Infants and Children; TANF, Temporary Assistance for Needy Families.

^b Food insecure refers to a positive interview response of “yes”, to the question “Do you ever feel that you don’t have enough food for your family?”

^c Not food insecure refers to a negative interview response of “no” to the question “Do you ever feel that you don’t have enough food for your family?”

^d *n* = sample size.

^e χ^2 tests were at $P = .05$.

^f Overweight/obese child refers to children whose body mass index (BMI) percentiles were 85.

^g Plate cleaning behavior refers to a positive interview response of “yes” to the question, “Was [CHILD’S NAME] ever encouraged to clean his/her plate?”

^h Limiting certain foods refers to a positive interview response of “yes” to the question, “Are there any foods you try to limit or don’t allow the child to eat?”

ⁱ Benefits are received by one or more members of the household.