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Consumption and expenditure on food prepared away from home among Mexican adults in 2006

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Abstract

Background—The objective of this study was to describe food expenditure and consumption of foods prepared away from home among Mexican adults.

Methods—Data were from 45,241 adult participants in the National Health and Nutrition Survey 2006, a nationally-representative, cross-sectional survey of Mexican households. Descriptive statistics and multivariable linear and logistic regression were used to assess the relationship between location of residence, educational attainment, socioeconomic status and the following: 1) expenditure on all food and at restaurants, and 2) frequency of consumption of comida corrida/ restaurant food and street food.

Results—Food expenditure and consumption of food prepared away from home were positively associated with socioeconomic status, educational attainment, and urban vs. rural residence ($p<0.001$ for all relationships in bivariate analyses).

Conclusions—Consumption of food prepared outside of the home may be an important part of the diet among urban Mexican adults and those with high socioeconomic status and educational attainment.

Keywords

Food; nutrition; public health; health status disparities; Mexico

INTRODUCTION

Obesity is a global epidemic.[1] Developing countries around the world have undergone a 'nutrition transition' characterized by overweight and obesity surpassing undernutrition as a leading cause of morbidity and mortality.[2, 3] In Mexico, where 69% of all adult men and 73% of all adult women are overweight or obese, prevalence has steadily increased and is

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CONFLICTS OF INTEREST

The author has no competing interests to disclose

AUTHOR CONTRIBUTIONS

BL was the sole author of this manuscript and conceptualized the study, conducted the analyses, and wrote and edited the manuscript.

now among the highest in the world.[4] Data from nationally-representative surveys suggest that 35% of Mexican women *ages 20 to 49 years old* were overweight or obese in 1988, compared to 62% in 1999, 72% in 2006, and 71% in 2012.[4] This trend has been attributed to a variety of factors, including urbanization, sedentary lifestyles, and consumption of soda and other energy-dense food and beverage items.[5, 6]

In the United States, where secular increases in overweight and obesity preceded those in Mexico, consumption of foods prepared away from home, including fast food and restaurant food, has played an important role in the obesity epidemic.[7–11] Foods prepared away from home tend to come in larger portion sizes, be more energy-dense, be higher in total fat, saturated fat, sodium, and cholesterol on a per-calorie basis, and be lower in dietary fiber, calcium, and iron.[12–15] Research has demonstrated that frequent consumption of food away from home is associated with increased caloric intake and body mass index.[9, 16] Furthermore, several studies have found that consumption of food away from home is associated with social and demographic factors, including income, education, age, gender, and other factors, and may contribute to disparities in diet-related chronic disease.[17, 18]

Relatively little is known about food purchasing and consumption behaviors among the Mexican population, particularly those related to food prepared away from home. Rivera and colleagues (2002) used data from the National Income and Expenditure Surveys to conduct one of the only studies of food purchasing among Mexicans, and found that most types of food are purchased in greater quantities in urban than rural areas, suggesting food purchasing may contributed to disparities in obesity and other diet-related chronic diseases.[5]

There is a dearth of knowledge regarding patterns in purchasing and consumption of foods prepared away from home within the Mexican population. Given the role that these foods have played in the obesity epidemic in the U.S.,[7–11] it is important to understand the extent to which Mexicans consume foods prepared away from home. It is also important to identify social and demographic characteristics associated with prepared meal consumption because previous studies have identified disparities in diet quality and the burden of diet-related chronic disease based on gender, area of residence, socioeconomic status, and other factors.[5, 19, 20] This study used data from the National Health and Nutrition Survey 2006 (ENSANUT) to accomplish three objectives: First, to describe expenditures on all food (i.e., restaurant and other food away from home as well as food to be prepared in the home) and at restaurants among Mexican households. Second, to describe purchasing of foods prepared away from home, including the following: 1) purchasing of *comida corrida* or restaurant food for breakfast, lunch, and dinner, and 2) purchasing of meals, snacks, and drinks from street vendors or convenience stores. Third, to describe whether food expenditure and consumption of prepared food are associated with social and demographic factors previously found to be associated with diet quality and the prevalence of diet-related chronic disease, including area of residence (i.e., urban vs. rural), educational attainment, and socioeconomic status.

METHODS

Data Source

Data were from the public-use data file of the ENSANUT 2006, a nationally-representative health survey conducted by the Mexican National Institute of Public Health.[4] The goal of the survey was to collect systematic data about the health and nutritional status of Mexican children, adolescents, and adults, as well as to help evaluate the performance of the national health system and other social programs. ENSANUT data were collected via in-person interviews covering topics related to health and health care, nutrition, household expenditure, use of social programs, and socio-demographics.

The ENSANUT sample included 45,241 adult participants ≥20 years old. The sample was constructed using a stratified, multi-stage, clustered sampling plan and was designed to produce results generalizable to both urban and rural areas within each of Mexico's 31 states and the Distrito Federal, the capital city. Sample weights were included in the ENSANUT public use data that account for the complex survey design and weight the data to be representative of the Mexican population living in households. The ENSANUT research protocol were reviewed and approved by the ethics committee of the National Institute of Public Health. All participants provided informed consent prior to the interview. Further details on the ENSANUT sampling strategy and study design are available elsewhere.[4]

Analytic sub-Sample

Analyses were restricted to two subsamples: 42,915 participants (95% of the total sample) with complete information regarding household food expenditure and 20,103 participants (44% of the total sample) who participated in a supplemental module regarding consumption of food away from home. The sub-sample of participants who received the 'food away from home' module was small because a random sub-sample of less than half of participants in the full survey was selected to participate in a supplemental module that included the food away from home questions and a food frequency questionnaire.

Variables

All food, restaurant, and total household expenditure—Participants were asked, "In the past month, how much did the household spend on food without considering alcoholic beverages or cigarettes? Do not include restaurant food." To assess restaurant expenditure, participants were asked, "In the past month, how much did the household spend on food at restaurants?" To assess expenditures on all food, both restaurant and non-restaurant expenditures were summed. Participants were also asked about other household expenditures, including those related to alcoholic beverages, tobacco, cleaning and personal hygiene products, rent and other bills (e.g., electricity), education, transportation, health, entertainment and recreation, and communications. To assess total household expenditures, the responses to these variables were summed. All outcomes were reported in Mexican pesos per month.

Consumption of comida corrida/restaurant food and street food—A randomly-selected subsample of 20,103 ENSANUT participants were asked a series of questions to

assess the frequency with which they purchase foods prepared away from home. To assess purchasing of *comida corrida* and other restaurant food, participants were asked three questions: "How often do you typically eat [BREAKFAST…LUNCH…DINNER] at *comida corrida* or a restaurant?" *Comida corrida* refers to a prepared meal typically served at smaller restaurants and food stalls. *Comida corrida* meals vary, but generally they are intended to be a full meal prepared in a style resembling a homemade meal, similar to food served in a dining hall or cafeteria. To assess purchasing of street food, participants were asked, "How often do you typically eat breakfasts, lunches, or dinners from street food vendors?" To assess purchasing of snacks and drinks away from home, participants were asked, "How often do you typically buy [SNACKS…DRINKS] from a convenience store or street vendor?" Response options for all questions were more than once per day, once per day, 4–6 times per week, 1–3 times per week, 1–3 times per month, less than once per month, and never. For all questions regarding consumption of food away from home, the definition of the vendor type (e.g., 'convenience store') was left open to the interpretation of the participant. In this study, responses were dichotomized as either: 1) ≥once per month, or 2) <once per month. This dichotomization was used for two reasons: First, relatively few participants (generally less than ~15%) reported *any* consumption of the outcomes assessed (e.g., *comida corrida* or restaurant food for lunch) and very few (generally less than 2%) reported engaging in these behaviors once per week or more. This relative infrequency necessitated aggregating responses into larger categories. Second, participants who reported never engaging in a given behavior were placed in the same category as those who reported engaging in that behavior less than once per month because it was assumed that eating a specific type of food away from home less than once per month would have little or no health impact.

Residence area—Localities in Mexico were classified as 'rural' if they had <2,500 inhabitants, 'urban' if they had 2,500 to 99,999 inhabitants, and 'large urban' if they had ≥100,000 inhabitants.

Education—Participants' educational attainment was classified into the following five categories, based on the last level of education completed: 1) <elementary school, 2) elementary school, 3) middle school, 4) high school or vocational school, 5) college or more.

Socioeconomic status—As discussed by Gutiérrez (2008), the Mexican National Institute of Public Health used principal components analyses to calculate a multidimensional socioeconomic status index based on the socio-demographic structure of households (e.g., number of occupants, employment status), housing conditions (e.g., water source, floor material, number of occupants), and household goods (e.g., radio, television and refrigerator).[21] This index, which was calculated based on reference data from the 2006 Household Income and Expenditure Survey, was intended as a cross-survey measure that could be used to determine household-level socioeconomic status using multidimensional items commonly included in Mexican health and social surveys. As described by Gutiérrez, the socioeconomic status index was used in the ENSANUT 2006 to identify the following groups of households: 1) those with a high probability of being food insecure, 2) those with

a high probability of being food secure but suffering from material deprivation, and 3) those who are food secure and not suffering from material deprivation. Based on the index score and cutoff points based on reference data from the 2006 Household Income and Expenditure Survey, the latter category of households were separated into six deciles.

Covariates—Multivariable analyses (described below) were used to adjust for a number of relevant covariates, chosen because previous research has demonstrated that they are associated with food expenditure and consumption of meals prepared away from home. These covariates include the following: 1) age, measured in years, 2) gender, dichotomized as male or female, 3) household size, defined as the number of adults and children living in the household at the time of the interview, 4) literacy, dichotomized as whether or not the participant self-reported knowing how to read or write, 5) employment status, dichotomized as whether or not the participant self-reported having any employment at the time of interview, 6) indigenous ethnicity, dichotomized based on self-identification, 7) marital status, classified as single, married, or divorced/widowed/separated, and 8) region of the country, classified as north, central, south, or Mexico City.

Statistical Analyses

The distributions of all variables were examined using descriptive statistics, including means and 95% confidence intervals of continuous variables and percentage distributions of categorical variables. Multivariable linear and logistic regression was used to predict consumption of foods prepared away from home based on urban residence, educational attainment, socioeconomic status, and relevant covariates (detailed above). In the models predicting consumption of *comida corrida* or at restaurants for meals, the outcome is whether participants report consuming *comida corrida* or at restaurants for breakfasts, lunches, or dinners ≥once per month. Similarly, for the model predicting consumption of street food, the outcome is whether participants consume meals from street food vendors or snacks/drinks from street vendors or convenience stores ≥once per month. All analyses were weighted using weights, strata, and primary sampling units in the ENSANUT data to account for probability of selection into the survey, non-response, and the complex sampling design. To reduce the probability of type I error associated with multiple comparisons and the large sample size, statistical significance is defined conservatively as $p<0.01$ for all analyses. All analyses were conducted using Stata 12.[22]

RESULTS

Descriptive statistics for the 45,241 participants who answered questions regarding food expenditure and the 20,103 participants who answered questions regarding consumption of foods prepared away from home are in Table 1. Approximately half of participants in each sample had an elementary school education or less. Over half of participants lived in a large urban area. Over one-third of participants lived in a household ranked in the lowest two deciles of the Mexican government's socioeconomic status index.

Table 2 includes monthly food expenditure among Mexican households by residence area, educational attainment, and socioeconomic status. Compared to those in rural areas, households in large urban areas spent nearly twice as much, or 270 additional pesos per

person per month, on all food ($p<0.001$). Although per capita food expenditure was greater in large urban areas, however, households in large urban areas actually dedicated a lower proportion of total household expenditure to food ($p<0.001$). This pattern held across educational and socioeconomic strata: households with higher levels of education and socioeconomic status spent more money per household member on food, but this represented a lower proportion of total expenditure. Furthermore, the proportion of food expenditure that was used at restaurants was significantly higher in urban vs. rural households and those with higher levels of educational attainment and socioeconomic status ($p<0.001$ for all comparisons).

Table 3 includes the percentage of participants within each social stratum who reported eating *comida corrida* or at restaurants ≥once per month. Overall, just 6% of participants reported eating dinner consisting of *comida corrida* or at restaurants ≥once per month, while about 12% of respondents reported eating breakfast or lunch at such outlets ≥once per month. In total, 19% of participants reported eating any meal (i.e., breakfast or lunch or dinner) consisting of *comida corrida* or at restaurants ≥once per month. *Comida corrida* and restaurant consumption varied across social strata. For example, under 3% of participants in the lowest two SES deciles reported eating these types of dinners ≥once a month, compared to 18% of those in the highest three deciles ($p<0.001$ for all three groups). Similarly, 1% of participants with less than an elementary school education ate *comida corrida* or at restaurants for dinner monthly or more, compared to nearly one-fourth of those with a college degree or higher ($p<0.001$). Just under 2% of participants in rural areas ate *comida corrida* or at restaurants for dinner monthly, compared to 5% in urban areas ($p<0.001$) and over 10% in large urban areas ($p<0.001$). These associations were similar for both breakfasts and lunches.

Table 4 includes the percentage of participants within each social stratum who purchased meals from street food vendors or snacks and drinks from street food vendors or convenience stores. The results suggest that street food vendors were a more frequent source of prepared meals among the Mexican adult population than *comida corrida or* restaurants. One-third of participants reported eating a meal at a street food vendor ≥once per month, well above the corresponding frequency for *comida corrida* or restaurant meals. When aggregated together, 40% of participants ate *comida corrida,* restaurant meals, or a meal from a street vendor ≥once per month. Street vendors were also a frequent source of snacks and drinks: 37% and 54% of participants reported consuming snacks and drinks, respectively, from street vendors ≥once per month. In total, 60% of participants consumed a snack *or* drink from a street vendor ≥once per month. Frequency of street food consumption increased with SES, educational attainment, and among those living in large urban vs. rural areas, patterns similar to those observed for meals consumed at *comida corrida* or restaurants.

The results of two logistic regression models predicting consumption of *comida corrida/* restaurant meals as well as at street food vendors are shown in Table 5. The outcome in Model 1 is the log-odds that participants eat *comida corrida* or at restaurants for breakfasts, lunches, or dinners ≥once per month. In Model 2 the outcome is the log-odds that participants purchase drinks at street vendors or snacks/meals from street vendors or

convenience stores ≥once per month. After adjustment for other factors, purchasing of all of the mentioned types of prepared food varied across strata defined by rural vs. urban residence, educational attainment, and socioeconomic status. Participants with a college degree or more had nearly four times the odds of eating *comida corrida* or at restaurants for a meal ≥once per month ($p<0.001$). Compared to those in the lowest two socioeconomic status deciles, those in the highest three deciles had 2.6 times the odds of eating *comida corrida* or at restaurants ≥once per month ($p<0.001$). Similarly, participants in large urban areas had twice the odds of eating these types of meals compared to their rural counterparts ($p<0.001$). After adjustment for other factors, purchasing of meals at street vendors and drinks or snacks from street food vendors and convenience stores also increased with education and was higher among residents of urban ($p<0.001$) and large urban ($p<0.001$) localities than among residents of rural localities. The relationship between socioeconomic status and street food purchasing was less clear, however, with no clear pattern.

DISCUSSION

Few previous studies have examined food expenditure and consumption of food prepared away from home among the Mexican population.[5] It is important to document the extent to which populations rely on prepared foods because foods prepared away from home tend to come in larger portion sizes than homemade meals and to be higher in total energy and energy density but lower in micronutrient density.[9, 10, 23] Furthermore, frequency of consumption of food prepared away from home is associated with increases in body mass index and some diet-related chronic diseases.[10, 11] Identifying social characteristics associated with consumption of foods prepared away from home may help explain the distribution of obesity and other diet-related chronic diseases within the Mexican population.[24]

The data presented in this study suggest that the frequency with which Mexican adults consume *comida corrida*, restaurant food, and street food is significantly and substantively greater among those in urban and large urban areas compared to rural areas, and increases dramatically with SES and educational attainment. Furthermore, total food expenditure and restaurant expenditure each follow a very similar pattern. Monthly expenditure at restaurants was 11 times greater among residents of large urban areas compared to those in rural areas, 27 times greater among those with a college education or higher compared to those with less than an elementary school education, and 37 times greater among those in the 8^{th} to 10^{th} deciles of the socioeconomic status index compared to those in the bottom two deciles.

An important finding of this study is that overall consumption of food prepared away from home is relatively uncommon among Mexican adults, particularly if compared to U.S. adults.[9, 11, 25, 26] For example, data from the Coronary Artery Risk Development in Young Adults study, which followed young adults in the U.S. over a fifteen year period, found that Blacks and Whites reported eating fast food an average of 1.3 to 2.4 times per week.[11] The 1994 to 1996 Continuing Survey of Food Intakes by Individuals, which assessed fast food consumption among U.S. adults based on two 24-hour dietary recalls, suggests that one-quarter of participants consumed fast food at least once during the two days being assessed.[9] In a study of 357 Latina women in San Diego, California, Ayala and colleagues found that

six in ten participants reported eating at fast food restaurants at least once per week, and that 45% ate lunch outside of the home one or more times per week.[26] In contrast, this study revealed that 94% of Mexican adults reported eating *comida corrida or* at restaurants for dinner less than once per month, and 88% reported eating breakfasts and lunches at these places less than monthly. Similarly, under one third of Mexican adults reported eating meals from street vendors once per month or more.

This study has limitations and strengths that should be considered when interpreting its findings. Perhaps the most serious limitation of this study is the potential for measurement error in the food expenditure and prepared foods variables. Adults within each household were asked to retrospectively recall expenditure on foods and at restaurants during the previous month, which is clearly challenging. Similarly, the data may be subject to reporting bias since participants may have systematically under-reported consumption of food prepared away from home due to social desirability or other reasons. Reporting bias in the module assessing consumption of foods away from home may be of particular concern since, to the author's knowledge, the module has not been validated. The items included in ENSANUT may also not have covered all types of foods away from home that are purchased and consumed by the Mexican population. For example, participants were asked about consumption of meals at *comida corrida*, restaurants or street food vendors, but there are a wide range of establishments in-between these categories (i.e., that are not vendors on the street but less formal than restaurants) about which data were not collected. These types of establishments are very common in Mexico and include cafes, supermarkets, markets, malls, work cafeterias, private houses or garages, and tacos, tortas or other Mexican food establishments. Unreported consumption at these types of establishments may at least partially explain the very low reported frequency of consumption of food away from home. A further potential weakness of the study is that measurement error in the expenditure and consumption data may be systematically associated with the independent variables of interest (i.e., socioeconomic status, educational attainment, and residence area). For example, participants with low education may systematically under- or over-report food or restaurant expenditure, introducing bias into the results of this study. Thus, the results presented in this study should be considered preliminary and should be confirmed in future studies. These weaknesses not withstanding, the study also has important strengths. ENSANUT data were collected from a very large, nationally-representative sample of Mexican adults. Furthermore, the study includes a wealth of data regarding health and nutrition. To my knowledge, this is the first and only study to examine consumption of meals prepared outside of the home among a representative sample of Mexican adults and, as such, its findings may have novel and important findings for understanding Mexico's obesity epidemic. While the potential for measurement error is real and potentially serious, at the very least this study underscores the need for validation of instruments and collection of further data regarding consumption of meals away from home among the Mexican population.

In conclusion, this study has presented preliminary evidence that food expenditure and consumption of food prepared away from home is generally low among the Mexican population, but varies widely by location of residence, educational attainment, and

socioeconomic status. The relationship between these social characteristics, food expenditure, and consumption of food prepared away from home may be important for understanding Mexican health, particularly why some populations may be at increased risk of obesity and other diet-related chronic diseases.[24]

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LIST OF ABBREVIATIONS

ENSANUT National Health and Nutrition Survey 2006

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Table 1

Descriptive statistics, ENSANUT 2006

	Expenditure sub-sample			Purchasing sub-sample		
	%	95% CI		%	95% CI	
Age						
20–29	26.0	25.1	26.9	22.8	21.8	23.7
30–39	24.6	23.9	25.2	24.2	23.3	25.1
40–55	28.6	27.8	29.4	29.6	28.6	30.7
55+	20.8	20.1	21.5	23.4	22.4	24.4
Gender						
Female	54.5	53.3	55.6	59.9	58.6	61.1
Male	45.5	44.4	46.7	40.1	38.9	41.4
Household Size						
1	2.0	1.9	2.1	2.1	1.9	2.3
2	9.5	9.1	9.9	9.8	9.2	10.4
3	14.9	14.3	15.4	14.0	13.3	14.8
4	21.8	21.1	22.4	21.0	20.0	22.0
5	20.6	20.0	21.3	20.2	19.3	21.1
6+	31.2	30.2	32.3	32.9	31.6	34.2
Indigenous						
No	81.4	80.1	82.7	76.0	74.5	77.6
Yes	18.6	17.3	19.9	24.0	22.4	25.5
Education						
<Elementary	9.9	9.2	10.6	14.4	13.5	15.3
Elementary	39.8	37.8	41.9	46.7	45.5	47.9
Middle School	26.5	25.8	27.3	23.1	22.0	24.2
HS or Vocational	13.4	12.4	14.3	9.5	8.7	10.3
≥College	10.4	8.7	12.0	6.4	5.5	7.2
Literate						
No	9.6	8.9	10.4	14.4	13.6	15.3
Yes	90.4	89.6	91.1	85.6	84.7	86.4

	Expenditure sub-sample			Purchasing sub-sample		
	%	95% CI		%	95% CI	
Marital						
Single	20.4	19.2	21.6	16.1	15.1	17.0
Married	68.7	67.2	70.1	72.7	71.6	73.7
Wid/Div/Sep	10.9	10.4	11.5	11.3	10.6	11.9
Employed						
Not Employed	48.2	46.7	49.7	56.0	54.8	57.3
Employed	51.8	50.3	53.3	44.0	42.7	45.2
SES Decile						
1–2	36.1	33.6	38.6	45.0	43.6	46.4
3–4	24.5	23.8	25.3	26.3	25.2	27.4
5–7	27.7	26.6	28.8	21.3	20.3	22.4
8–10	11.7	10.0	13.3	7.4	6.6	8.1
Rural/Urban						
Rural	20.8	18.5	23.0	34.5	33.2	35.9
Urban	23.8	21.1	26.4	22.4	21.2	23.6
Large Urban	55.4	50.8	60.1	43.1	41.7	44.5
Region						
North	24.1	20.6	27.5	19.3	18.4	20.2
Central	38.2	32.7	43.6	37.1	35.7	38.6
Mexico City	9.8	4.8	14.8	9.3	8.5	10.1
South	27.9	24.9	31.0	34.3	32.9	35.7
Sample size	**42,915**			**20,103**		

Table 2

Monthly household food expenditure, ENSANUT 2006 (n=42,915)

	Household Food Expenditure per Capita (pesos)			Household Food Expenditure (% total expenditure)			Household Restaurant Expenditure (% food expenditure)		
	Mean	**[95% CI]**	**p**	**Mean**	**[95% CI]**	**p**	**Mean**	**[95% CI]**	**p**
Total	478	[457–499]		49.0	[48.2–49.7]		2.7	[2.3–3.0]	
Rural/Urban									
Rural	284	[275–293]		55.1	[54.3–55.9]		0.6	[0.5–0.7]	
Urban	428	[414–441]	<0.001	51.4	[50.7–52.1]	<0.001	1.7	[1.5–1.9]	<0.001
Large Urban	554	[531–576]	<0.001	44.4	[43.6–45.1]	<0.001	3.9	[3.4–4.4]	<0.001
Education									
<Elementary	321	[308–334]		54.1	[52.8–55.3]		0.5	[0.3–0.7]	
Elementary	389	[379–398]	<0.001	51.0	[50.3–51.6]	<0.001	1.1	[1.0–1.3]	<0.001
Middle School	461	[447–475]	<0.001	46.9	[46.2–47.6]	<0.001	2.6	[2.2–3.0]	<0.001
HS or Vocational	553	[535–572]	<0.001	43.9	[42.7–45.0]	<0.001	4.5	[3.8–5.2]	<0.001
≥ College	816	[751–882]	<0.001	41.8	[40.7–42.8]	<0.001	8.3	[7.2–9.4]	<0.001
SES Decile									
1–2	293	[287–299]		53.1	[52.5–53.7]		0.5	[0.4–0.6]	
3–4	335	[237–343]	<0.001	49.6	[48.5–50.6]	<0.001	1.2	[0.9–1.4]	<0.001
5–7	580	[569–591]	<0.001	44.3	[43.7–44.9]	<0.001	3.5	[3.1–3.9]	<0.001
8–10	1020	[968–1073]	<0.001	40.2	[39.4–41.0]	<0.001	10.5	[9.4–11.6]	<0.001

Note: p-values are based on a t-test of the difference with the reference group. Reference groups are rural residence, <elementary school education, and 1st–2nd deciles of the socioeconomic status index. Food expenditure is measured in pesos spent per person in one month. **Household food expenditure refers to the sum of both restaurant and non-restaurant expenditure.**

Table 3

Consumption of *Comida Corrida* or at Restaurants for Breakfasts, Lunches, Dinners, or Any Meal ≥Once per Month, ENSANUT 2006 (n=20,103)

	Breakfast			Lunch			Dinner			Any Meal		
	%	[95% CI]	p	%	[95% CI]	p	%	[95% CI]	p	%	[95% CI]	p
Total	12.0	[11.2–12.9]		12.5	[11.7–13.4]		6.2	[5.7–6.8]		19.1	[18.1–20.1]	
SES Decile												
1st & 2nd	6.7	[5.9–7.5]		6.9	[6.1–7.8]		2.8	[2.4–3.4]		10.8	[9.8.–11.9]	
3rd & 4th	10.6	[9.1–12.4]	<0.001	10.5	[9.1–12.2]	<0.001	5.5	[4.4–6.7]	<0.001	16.3	[14.5–18.1]	<0.001
5th–7th	19.4	[17.4–21.6]	<0.001	19.9	[18.0–22.0]	<0.001	10.2	[8.9–11.8]	<0.001	30.7	[28.4–33.1]	<0.001
8th–10th	28.4	[24.3–32.9]	<0.001	32.4	[28.2–37.0]	<0.001	18.2	[15.1–21.7]	<0.001	46.5	[42.0–51.2]	<0.001
Educational Attainment												
<Elementary	3.8	[2.9–5.1]		3.4	[2.6–4.4]		1.1	[0.7–1.6]		5.5	[4.4–6.9]	
Elementary	6.9	[6.1–7.7]	<0.001	6.6	[5.9–7.4]	<0.001	2.9	[2.5–3.5]	<0.001	11.5	[10.4–12.6]	<0.001
Middle School	15.0	[13.3–16.8]	<0.001	16.4	[14.6–18.3]	<0.001	8.5	[7.2–10.0]	<0.001	24.1	[22.1–26.3]	<0.001
HS or Vocational	26.9	[23.5–30.7]	<0.001	28.0	[24.7–31.5]	<0.001	13.2	[10.9–15.8]	<0.001	40.6	[37.2–44.2]	<0.001
≥College	35.4	[30.1–41.1]	<0.001	39.4	[34.8–44.1]	<0.001	23.4	[19.6–27.6]	<0.001	55.9	[50.7–61.0]	<0.001
Urban/Rural												
Rural	4.8	[4.2–5.6]		5.1	[4.4–5.9]		1.8	[1.5–2.3]		8.2	[7.3–9.2]	
Urban	9.4	[8.3–10.6]	<0.001	9.7	[8.5–11.1]	<0.001	5.1	[4.3–6.0]	<0.001	15.8	[14.3–17.5]	<0.001
Large Urban	19.2	[17.5–21.0]	<0.001	19.9	[18.2–21.7]	<0.001	10.3	[9.2–11.6]	<0.001	29.6	[27.6–31.6]	<0.001

Note: p-values are based on logistic regression models predicting the relationship between food purchasing outcomes and each of the independent variables. One logistic regression is performed for each of the independent variables. Statistical significance is based on a t-test of beta coefficients predicting the difference between each category of the independent variable and the reference category (i.e., 1st and 2nd decile, <elementary education, and rural residence). 'Any meal' refers to consumption of breakfast or lunch or dinner from *comida corrida* or restaurants ≥once per month.

Table 4

Consumption of Meals from Street Food Vendors or Snacks/Drinks from Street Vendors or Convenience Stores ≥Once per Month, ENSANUT 2006 (n=20,103)

	Meal			Snack			Drink		
	%	[95% CI]	p	%	[95% CI]	p	%	[95% CI]	p
Total	32.2	[31.0–33.4]		37.4	[36.1–38.7]		53.6	[52.3–55.0]	
SES Decile									
1st & 2nd	26.6	[25.1–28.3]		36.5	[35.0–38.1]		51.3	[49.6–53.1]	
3rd & 4th	30.0	[27.6–32.4]	0.019	36.0	[33.6–38.6]	0.735	51.1	[48.7–53.5]	0.851
5th–7th	41.5	[39.2–43.8]	<0.001	40.5	[38.0–43.0]	0.005	60.2	[57.9–62.6]	<0.001
8th–10th	47.0	[42.4–51.6]	<0.001	38.8	[34.7–43.2]	0.310	57.8	[53.1–62.4]	0.010
Educational Attainment									
<Elementary	15.8	[13.6–18.3]		23.5	[21.2–25.9]		37.0	[34.4–39.7]	
Elementary	26.8	[25.2–28.5]	<0.001	32.9	[31.3–34.4]	<0.001	49.7	[48.0–51.4]	<0.001
Middle School	41.0	[38.6–43.4]	<0.001	44.5	[42.1–47.0]	<0.001	62.6	[60.2–65.0]	<0.001
HS or Vocational	47.9	[44.4–51.4]	<0.001	53.9	[49.4–58.3]	<0.001	66.9	[63.1–70.5]	<0.001
≥College	53.2	[47.9–58.5]	<0.001	51.8	[46.5–57.1]	<0.001	67.9	[62.3–73.1]	<0.001
Urban/Rural									
Rural	21.1	[19.4–22.9]		32.3	[30.5–34.2]		46.7	[44.6–48.9]	
Urban	29.7	[27.8–31.7]	<0.001	37.9	[35.8–40.1]	<0.001	52.7	[50.3–55.1]	<0.001
Large Urban	42.4	[40.3–44.4]	<0.001	41.2	[38.8–43.6]	<0.001	59.6	[57.3–62.0]	<0.001

Note: p-values are based on univariate logistic regression models predicting the relationship between food purchasing outcomes and each of the independent variables. One logistic regression is performed for each of the independent variables. Statistical significance is based on a t-test of beta coefficients predicting the difference between each category of the independent variable and the reference category (i.e., 1st and 2nd decile, <elementary education, and rural residence).

Table 5

Logistic Regression Predicting Consumption of *Comida Corrida* or Restaurant Food and Meals, Snacks, or Drinks from Street Vendors ≥Once per Month, ENSANUT 2006 (n=20,103)

	Monthly *Comida Corr*/Rest		Monthly Street Vendors	
	OR	**SE**	**OR**	**SE**
Age	0.979**	(0.00285)	0.970**	(0.00176)
Male	1.377**	(0.0988)	1.281**	(0.0782)
Household Size	0.959	(0.0168)	0.986	(0.0135)
Indigenous	0.948	(0.0894)	0.948	(0.0589)
Literate	1.834**	(0.321)	1.064	(0.0924)
Marital Status				
Single	Ref.		Ref.	
Married	1.008	(0.103)	1.166	(0.0930)
Div/Wid/Sep	0.988	(0.132)	1.159	(0.118)
Region				
North	Ref.		Ref.	
Central	0.799*	(0.0637)	1.008	(0.0741)
Mexico City	1.102	(0.150)	1.129	(0.169)
South	0.700**	(0.0583)	0.831*	(0.0588)
Employed	1.526**	(0.118)	1.389**	(0.0873)
Education				
<Elementary	Ref.		Ref.	
Elementary	1.062	(0.177)	1.147	(0.109)
Middle School	1.511	(0.278)	1.338*	(0.145)
HS or Vocational	2.517**	(0.474)	1.775**	(0.266)
College Grad	3.759**	(0.732)	1.735**	(0.263)
SES Decile				
1st & 2nd	Ref.		Ref.	
3rd & 4th	1.359*	(0.133)	1.084	(0.0770)
5th–7th	1.853**	(0.178)	1.283**	(0.0941)

	Monthly *Comida Corr*/Rest		Monthly Street Vendors	
	OR	**SE**	**OR**	**SE**
8th–10th	2.587**	(0.353)	1.145	(0.138)
Rural/Urban				
Rural	Ref.		Ref.	
Urban	1.426**	(0.127)	1.320**	(0.0986)
Large Urban	2.030**	(0.186)	1.557**	(0.130)

* $p < 0.01$,

** $p < 0.001$

Note: Outcome represents whether participants report consuming *comida corrida* or at breakfasts, lunches, or dinners ≥once per month and whether participants consume meals from street food vendors or snacks/drinks from street vendors or convenience stores ≥once per month.

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