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# Examining a Paradox: Obesity and Food-Stamp Participation in Louisiana

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Chi-square analyses suggest that a number of individual variables can be good indicators of obesity, including race, income, the presence of children in the household, education, opinions about fat intake, and food-stamp participation. Although chi-square analyses suggest an increased likelihood of reporting food-stamp-program participation among obese primary grocery shoppers in Louisiana, preliminary multivariate results indicate that direct causality is not necessarily supported.

For nearly forty years, Food Stamp Program (FSP)<sup>1</sup> benefits have ensured that growing children, their parents, and single and elderly adults in low-income families have the ability to achieve adequate, nutritional food-consumption levels. During the past decade, the national trend of rising excessive weight and obesity levels, particularly among the poor, has garnered much attention. An outcropping of this trend is the rise of the belief that FSP participation can lead to, or is at least associated with, increasing levels of obesity among participants.

The validity of this belief has been researched since at least 2000, and the U.S. Department of Agriculture recently released its report entitled "Food Stamps and Obesity: What Do We Know?" (Ver Ploeg and Ralston 2008). The report reviewed existing studies on FSP participation and obesity and found that most FSP participants do not have an increased likelihood of being overweight or obese. But there is evidence that nonelderly adult female FSP participants tend to have an increased incidence of obesity.

## Research Motivation and Objective

The studies in the report generally do not focus on state-specific characteristics. Louisiana is particu-

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<sup>1</sup> As of October 1, 2008, the Food Stamp Program's new name is the Supplemental Nutrition Assistance Program (SNAP).

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larly burdened by the obesity problem and has a significant number of individuals participating in the FSP. The state is ranked fourth-highest in the country in obesity with over 30 percent of the population being identified as obese (LA Obesity Council n.d.). The monthly average FSP participation rate in Louisiana is over 650,000 persons and 266,000 households (USDA-FNS n.d.), representing about 15 percent of the state's population and 10 percent of households. This study quantifies and characterizes the prevalence of obesity among food-stamp participants in Louisiana.

## Data and Methods

Data were obtained from a 2002 survey of 1,300 primary grocery shoppers and/or meal preparers in Louisiana, and were analyzed using chi-square analysis. Respondents were asked to indicate if in the last 12 months they or anyone in their household was authorized to receive food stamps (including a food-stamp card or voucher or cash grants from the state for food). This formed the basis for the study's STAMPS variable. Survey participants were also asked how much they weighed without shoes and how tall they were without shoes. Responses to these two questions were subsequently used to calculate each respondent's Body Mass Index (BMI). If a survey participant's BMI was less than 18.5 they were classified as underweight. Calculated BMIs of 18.5–24.9, 25–29.9, and 30 or greater were classified as healthy weight, overweight, and obese, respectively.

Respondents were also asked about the importance of nutritional factors. The importance of a diet low in cholesterol and fat, the importance of using sugar and salt in moderation, and the importance of a variety of fruits and vegetables was ranked using

a five-point Likert scale ranging from (1) not at all important to (5) extremely important. For this study, positive responses (extremely, very, and somewhat important) were collapsed into one category and negative responses (not too important and not at all important) were combined into a separate category creating the binary variables CHOLST, LOWFAT, SUGAR, SALT, and VARIETY. Label use was captured using the binary variable LABEL, and demographic variables were binary with the exception of AGE.

### Discussion and Chi-Square Results

Table 1 summarizes the definitions and average values for the focus variables that measured FSP participation and weight levels. Nearly 16 percent of survey respondents were in households that received food stamps during the previous year (Table 1). About 31 and 25 percent of survey respondents in this study were identified as being overweight or obese, respectively. Individuals identified as having a healthy weight comprised 41 percent of respondents. Underweight respondents made up about three percent of the survey sample. The average BMI was 26.69.

Focus variables are compared against demographic, behavioral, and attitudinal variables for chi-square analyses used in this report. Tables 2 and 3 illustrate these explanatory variables. Women made up 72 percent of the survey sample (Table 2). The majority of the primary grocery shoppers surveyed are white (69 percent), while 27 percent are black. Nearly 70 percent of respondents had children in their household. The average age was

47. Respondents were most likely to report having a low income. Just about half of participants were married. Educational attainment varied among survey participants—one-quarter had completed at least an undergraduate degree, about 60 percent had earned a high school diploma, and approximately 15 percent had some education but did not graduate from high school.

A high percentage of participants had positive attitudes towards moderating cholesterol, fat, sugar, and salt in their diet. Seventy-five and 72 percent of respondents, respectively, agreed that a diet low in cholesterol and fat is important (table 3). Sugar and salt moderation was important to about 68 percent of the primary grocery shoppers surveyed. Attitudes about having a diet full of fruit and vegetable variety were also positive among most participants. Nearly nine out of ten respondents reported that they use nutritional labels when purchasing or preparing foods.

A comparison of the focus variables (STAMPS, HEALTHY/UNDER WEIGHT, OVER WEIGHT, and OBESE) to some selected variables of interest is presented in Tables 4 and 5. Chi-square results reveal that race, income, the presence of children, marital status, and education are key indicators of food-stamp participation in Louisiana (Table 4). This is expected. However, particular opinions about fat and sugar intake and label usage are not useful indicators of food-stamp participation in Louisiana.

A number of variables prove to be good indicator of obesity (Table 5). Of those respondents who are obese, they are more likely to be women (75 percent) or be a part of a low-income household

**Table 1. Definitions and Mean Values for Focus Variables.**

Variable	Definition	Mean value
STAMPS	= 1 if enrolled in FSP; 0 otherwise	0.153
AVERAGE BMI	Average Body Mass Index	26.69
OBESE	= 1 if BMI indicates obesity; 0 otherwise	0.250
OVER WEIGHT	= 1 if BMI indicates overweight; 0 otherwise	0.310
HEALTHY WEIGHT	= 1 if BMI indicates healthy weight; 0 otherwise	0.414
UNDER WEIGHT	= 1 if BMI indicates underweight; 0 otherwise	0.026

(68 percent), as expected. African-Americans tend to make up a higher proportion of obese respondents (38 percent) than overweight respondents (30 percent) or healthy/underweight respondents (18 percent). Having a college education significantly reduces the likelihood of being obese. Only 15 percent of obese respondents had a college education, whereas 28 and 29 percent of healthy/underweight and overweight respondents, respectively, earned college degrees. Fewer survey participants who were obese reported that they agreed that a diet

low in fat was important (22 percent, compared to 32 and 24 percent, respectively, for the remaining two weight categories). Finally, chi-square analysis indicates that food stamp participation appears to be a strong indicator of obesity in Louisiana. Obese participants had a 22 percent chance of also reporting that they received food stamps. In comparison, just 14 percent of healthy/underweight respondents and 12 percent of overweight respondents were also likely to report that they received food stamps in the past year.

**Table 2. Definitions and Mean Values for Demographic Variables.**

Variable	Definition	Mean value
FEMALE	= 1 if female; 0 otherwise	0.721
BLACK	= 1 if black; 0 otherwise	0.266
WHITE	= 1 if white; 0 otherwise	0.694
OTHER RACE	= 1 if not black or white; 0 otherwise	0.040
CHILDREN	= 1 if children present in household; 0 otherwise	0.692
AGE	Age of respondent in years	47.17
LINCOME	= 1 if identified as low income household; 0 otherwise	0.605
MINCOME	= 1 if identified as a medium income household; 0 otherwise	0.143
HINCOME	= 1 if identified as a high income household; 0 otherwise	0.251
MARRIED	= 1 if married; 0 otherwise	0.488
COLLEGE	= 1 if college graduate; 0 otherwise	0.249
HSCHOOL	= 1 if high school graduate; 0 otherwise	0.598
LHSCHOOL	= 1 if obtained some high school education; 0 otherwise	0.153

**Table 3. Definitions and Mean Values for Behavioral/Attitudinal Variables.**

Variable	Definition	Mean value
CHOLST	= 1 if agree that a diet low cholesterol is important; 0 otherwise	0.749
LOWFAT	= 1 if agree that a diet low in fat is important; 0 otherwise	0.729
SUGAR	= 1 if agree that sugar in moderation is important; 0 otherwise	0.676
SALT	= 1 if agree that salt in moderation is important; 0 otherwise	0.680
VARIETY	= 1 if agree that fruit/vegetable variety in diet is important; 0 otherwise	0.865
LABEL	= 1 if use nutritional labels; 0 otherwise	0.896

**Table 4. Comparison of Selected Variables and Food Stamp Participation.**

	Food Stamp Participation (STAMPS)	
	Non-Participants	Participants
FEMALE	71%	79%
BLACK*	22%	51%
LINCOME*	55%	90%
CHILDREN*	36%	55%
MARRIED*	54%	23%
COLLEGE*	27%	13%
LOWFAT	28%	24%
SUGAR	32%	35%
LABEL	90%	88%

\* Significant chi-square results (0.10 level and above).

**Table 5. Comparison of Selected Variables and Obesity.**

	Obesity and weight variables		
	Healthy/under weight	Overweight	Obese
FEMALE*	74%	67%	75%
BLACK*	18%	30%	38%
LINCOME*	57%	59%	68%
CHILDREN*	42%	35%	37%
MARRIED*	46%	53%	49%
COLLEGE*	28%	29%	15%
LOWFAT*	32%	24%	22%
SUGAR	32%	30%	36%
LABEL	89%	90%	90%
STAMPS*	14%	12%	22%

\* Significant chi-square results (0.10 level and above).

### Multivariate Analysis

The next step in this research was to conduct multivariate analyses to determine the influence multiple variables can have on obesity in Louisiana. Preliminary results (not shown) demonstrate that, consistent with the literature, food-stamp-program participation in Louisiana does not appear to affect the likelihood of being overweight for men or women. However, male FSP participants are about 15 percent less likely to be obese than are male non-participants. This is contrary to previous findings. Female participants are 13 percent more likely to be obese than are female non-participants. The result for women is consistent. Both results appear to support the idea that men and women can be affected differently because the FSP benefit calculation does not account for the dissimilar caloric needs of men and women. However, stronger indicators of obesity are frequency of exercise, living in less densely populated (rural) areas within Louisiana, and lower levels of education. Marital status and the presence of children in the household are also important. Thus cultural, demographic, and lifestyle choices appear to play a more important role in determining weight levels than do other factors.

### Conclusion

Although chi-square analysis can indicate a higher association between food-stamp participation and obesity in Louisiana, preliminary multivariate results (not shown in this report) indicate that direct causality is not supported. Multivariate results also

suggest that for public programs that aim to affect food choices through awareness and ultimately through influencing perceptions and attitudes, Louisiana may prove particularly challenging. In this study, women classified as obese appear to be acutely aware of the need to watch the fat in their diets, as they most often reported that choosing a diet low in fat was extremely or very important. If, as the theory goes, food stamps allow these women to spend and consume more on food than they normally would, FSP participation may be counterproductive for weight control. Although these women understand the importance of a low-fat diet, they also do not want to see benefits or food go to waste. The model also could be capturing a change in attention to health-related factors such as weight changes. In other words, some may have adopted the attitude that "I'll worry about fat when I'm fat."

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