

Neighborhood Food Environment, Diet and Health: Quasi Experimental Study

Report on the Baseline Survey

NFE Website Version

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Project Details and Abstract

Neighborhood, Food Environment, Diet and Health: Quasi Experimental Study

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Abstract

Reducing the population prevalence of obesity is a current major public health goal. Interventions to reduce the prevalence of obesity have generally focused on individual behavior and lifestyle but have met with limited success. Strategies that focus on the role of the built environment have been neglected. The purpose of this innovative pilot study is to evaluate, using a quasi-experimental design, the impact on diet and psychological health of a five-year \$40 million state-government funded program – The Pennsylvania Fresh Food Financing Initiative - that aims to improve the local built food retail environment in Philadelphia. The project has four specific aims. 1) To describe and compare fruit and vegetable consumption patterns and measures of psychological health in an intervention neighborhood against a matched comparison neighborhood. 2) To evaluate whether these patterns change after the opening of a new food superstore (the intervention) in the intervention neighborhood compared to a matched comparison site. 3) To explore impacts on defined subgroups of residents based on income, education and baseline consumption status. 4) To investigate changes in the retail economy in the intervention neighborhood and compare these with the comparison neighborhood.

A telephone survey of residents of two Philadelphia neighborhoods (one intervention and one comparison) with an achieved sample size of four hundred and sixty-six men and women aged 18+ in each neighborhood at follow-up will be undertaken. At baseline, respondents will be contacted with a pre-notification letter which will then be followed by a telephone call designed to elicit responses to questions relating to diet, mental health, perceptions of food access, food shopping behavior, transport and a range of socio-demographic data. Respondents will then be followed-up at eight months in order to assess the effect of the intervention. In addition geographical information systems will be used to assess positive and negative changes in the local food retail economy and relate them to changes in physical access to food. Findings from the project will be used to prepare a proposal to NIH for a larger mixed-method, multi-site experimental study in a range of community settings (urban, town, rural) throughout the USA.

Methodology

Study Description

The Neighborhood Food Environment, Diet and Health Study is a multi-wave project investigating the role of built environments on dietary habits. The project uses a quasi-experimental design to evaluate the impact of the Pennsylvania Fresh Food Financing Initiative, which seeks to improve the local food retail environment in Philadelphia.

Survey Instrument and Survey Administration

A telephone survey instrument was developed for the study.¹ The survey instrument was an 111-item questionnaire that included questions on

- Shopping activities
- Food environment
- Diet
- Health & Well being
- Food security
- Neighborhood conditions
- Demographics and socioeconomic status (SES)

The data for the baseline survey were collected through Computer Assisted Telephone Interviewing (CATI) by interviewers at the Penn State Survey Research Center.² Data collection occurred between June and September 2006.³

Sample

The target number of completed interviews for the baseline survey was 1,440.⁴ Table 1 reports the distribution of completed interviews by site and the response rate. The mean length of a completed interview was approximately 35 minutes (median = 33 minutes).

¹ Human subject approval was secured from Penn State's Office of Research Protection # 20247). Pre-notification letters, along with a cash incentive of \$1, were sent to names and addresses matching the telephone numbers in the sample. Participants in the study received \$20 for their time answering questions in the baseline telephone survey.

² The CATI software enabled data entry quality control by only allowing valid responses to be entered by the interviewer. The survey was also programmed to automatically guide interviewers through any skip or branching patterns within the survey. The CATI software also gives interviewers the flexibility to go back and correct answers or add respondent comments to any question.

³ A sample of households was purchased from Survey Sampling International. The sample consisted of Listed Household and RDD telephone numbers. The listed telephone numbers were purchased based on location within designated census tracts. The RDD telephone numbers were generated randomly within telephone exchanges which provided an optimally efficient coverage within the designated census tracts.

⁴ Data collection stopped when we reached 1440 completed interviews.

Table 1: Completed Interviews and Response Rates

	Total	Intervention	Control
Completed Interviews	1440	723	717
Response Rate ^A	47.2%	47.4%	47.0%

^A = This is the screener response rate (i.e., of those passing the screen questions the percent listed above completed the survey).

Note: the response rate for the RDD sample was 47.5% and for the Listed sample 46.8%

The resultant baseline telephone survey data has been cleaned and linked to some distance-based variables associated with the food environment of Philadelphia. The resultant baseline data set contains over 400 variables for analysis. The project team has several planned analyses of the baseline data. However as the project is essentially a study of an intervention (the opening of a new large supermarket) the most meaningful analysis cannot begin until the collection of the follow-up data; likely in 2009.

Selected Summary Data

In this section several salient variables from the baseline are reported. These variables capture key dimensions of our study population, their self-reported health and wellbeing, and their feelings about their neighborhood and food environment. This section presents frequencies and/or means only. No interpretation and no multivariate analyses (or breakdown by neighborhood) are presented.

Respondents provided information on the name and location of the main food store where they did their major food shopping. The number of total stores listed by the 1440 respondents is shown in table 2.

Table 2. – Number of stores listed by study respondents

	Total
Number of unique stores (major food stores) listed by respondents ^A	111
Count and Percent of respondents with complete store name/location information	1329 (92.3%)
Total	1440

^A = 25 stores were listed by respondents from both study sites. There were 410 respondents using these 25 stores (111 from the Intervention site and 299 from the Control site).

Table 3 – selected variables relevant to **shopping activities**

	Total
Mean Number of times visited named store for major food shopping	3.34
Mean Number of other stores visited for major food shopping	1.22
Mean Distance to named store used for major food shopping (road distance in kilometers)	3.53
Mean Distance to named store used for fruit and vegetables (road distance in kilometers)	3.50
Mean Distance to named store used for convenience shopping (road distance in kilometers)	1.95
Percent who buy fruit and vegetables at the primary named store	74.3
Percent who obtained food from Food Trucks	15.8
Percent using own car/van for major shopping trip ^A	47.4
Percent using car/van of other family or friends for major shopping trip ^A	27.7
Percent using a hack/taxi for major shopping trip ^A	8.7
Percent using public transportation (bus, subway, SEPTA) for major shopping trip ^A	24.9
Percent who when making major shopping trip leave from home	89.1
Total	1440

Table 3 (continued) – selected variables relevant to **shopping activities**

	Total
Time in minutes of major shopping trip.	105.0
Mean dollar amount spent on food per month	270.8
Total	1440

[^]= for these questions the respondent was asked to answer yes to all responses that apply to major shopping trips during the past month

Table 4 – selected variables relevant to **food environment**

	Total
Percent strongly agree or agree that “There is a good choice of different types of grocery stores in my neighborhood”	35.0
Percent strongly agree or agree that “The quality of the grocery stores in my neighborhood is good”	48.3
Percent strongly agree or agree that “The choice of fresh fruit and vegetables to purchase in my neighborhood is good”	53.8
Percent strongly agree or agree that “The quality of fresh fruit and vegetables to purchase in my neighborhood is good”	55.3
Percent strongly agree or agree that “Fresh fruit and vegetables in my neighborhood are expensive.”	59.1
Total	1440

Table 5 – selected variables relevant to **health and wellbeing**

		Total
Percent of respondents who list their health as Excellent or Very Good.”		32.0
Mean BMI		29.3
Obesity Status: Percent		
	Underweight	1.5
	Normal	27.2
	Overweight	30.6
	Obese	37.5
	Missing	3.1
GHQ-12 Total problems present ^A		
	0	42.4
	1	17.1
	2	11.0
	3	7.2
	4	3.4
	5	3.6
	6	3.0
	7 or more	7.0
	Missing	5.3
Total		1440

^A = the GHQ-12 is an abbreviated version of the sixty-item General Health Questionnaire.

Table 6 – selected variables relevant to **food security**

	Total
Percent reporting Sometimes or Often true that “The food that we bought just didn’t last, and we didn’t have enough money to get more.”	37.2
Percent reporting Sometimes or Often true that “We could not afford to eat balanced meals.”	25.3
Percent reporting Yes that “In the last 12 months, did you or other adults in your household ever cut the size of your meals or skip meals because there wasn’t enough money for food.”	16.2
Percent reporting that Almost every month that meals were cut or skipped when asked “How often did this happen?”	5.1
Percent reporting Yes that “In the last 12 months, did you ever eat less than you felt you should because there wasn’t enough money for food.”	16.9
Percent reporting Yes that “In the last 12 months, were you ever hungry but did not eat because you could not afford enough food.”	9.6
USDA Food Security Status	
Food Secure	71.9
Low Food Security	18.9
Very Low Food Security	7.6
Missing	1.5
Percent receiving Food Stamps	33.5
Percent receiving WIC	9.0
Total	1440

Table 7 – selected variables relevant to **neighborhood conditions**

	Total
Mean length of residence in years	18.3
Median length of residence in years	13.5
Percent strongly agree or agree that “I feel like I am part of this area”	65.9
Percent strongly agree or agree that “This area is badly placed for shops and services.”	44.7
Percent strongly agree or agree that “This area has a better reputation than most.”	37.4
Percent strongly agree or agree that “This area is kept very clean.”	49.4
Percent strongly agree or agree that “Employers find this a good area a good place to locate”	38.8
Percent strongly agree or agree that “My local area is not as good as areas nearby.”	39.7
Percent strongly agree or agree that “The City takes little interest in my area.”	47.3
Percent strongly agree or agree that “This area is a good area to raise children.”	43.8
Total	1440

Table 8 – selected variables relevant to **demographics and socioeconomic status**

	Total
Respondent: Percent Female	77.9
Mean Age	49.19
Median Age	49.00
Percent Under 30	16.2
Percent 31-60	58.3
Percent Over 60	25.5
Respondents' Race/Ethnicity ^A	
Percent White	8.3
Percent Black	85.8
Hispanic/Latino	3.1
Respondents' Employment Status ^B	
Employed Full-time	33.8
Employed Part-time	11.0
Unemployed	14.4
Homemaker	6.2
Retired	23.1
Student	4.2
Disability/SSI	6.0
Respondents' highest level of education	
Less than High School	16.4
High School Grad/Equivalent (GED)	36.8
Some College/Vocational Programs	28.1
College Graduate	18.5
Percent Income less than \$40K	68.5
Respondent main breadwinner ^C	52.2
Respondent lives Alone (percent)	25.1
Of those not living alone the	85.3
respondent lives with other adults	
respondent lives with children	75.1
Total	1440

^A = Does not sum to 100 as several race groups are not shown and 27 respondents refused to answer this question

^B = Does not sum to 100 as several other small categories are not shown

^C = The second largest named category is spouse/partner (13.8%), Mother/Father, Siblings or Extended Family (4.7%). Note 341 respondents have missing values (23.7%)

Table 9 – selected variables relevant to **diet**

		Total
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During the past month ...		
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Eat bananas		80.5
Eat apples/pears		68.5
Eat oranges		64.4
Eat grapefruit		22.8
Eat peaches/nectarines		51.6
Eat grapes/plums		84.6
Eat canned fruit (e.g., applesauce/pineapple)		58.1
Eat cantaloupe		50.3
Eat strawberries		61.7
Eat watermelon		60.0
Number of fruit groups consumed out of ten listed		
	0	1.0
	1	1.6
	2	3.9
	3	7.1
	4	9.3
	5	15.3
	6	17.6
	7	16.5
	8	14.6
	9	7.4
	10	5.0
How many servings of fruit did you eat per week or per day		
	Not in past week	8.7
	1-2 in past week	17.7
	3-4 in past week	20.8
	5-6 past week	5.6
	1 a day	23.0
	2 a day	13.7
	3 a day	7.0
	4+ a day	2.7
	DK	0.8
<hr/>		
Total		1440
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Table 9 (continued) – selected variables relevant to **diet**

	Total
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During the past month ...	
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Eat broccoli	82.8
Eat carrots/mixed vegetables	74.2
Eat corn	81.9
Eat green peas/green beans	78.1
Eat cooked spinach	54.0
Eat greens (collards, turnip greens)	70.9
Eat sweet potatoes/yams	58.1
Eat French fries/home fries	75.0
Eat potatoes (not fried)	83.2
Eat cole slaw/cabbage	62.6
Eat green salad	84.2
Raw tomatoes	70.1
Eat salad dressing	81.4
Eat other vegetables (squash/cauliflower)	51.9
Eat refried beans/bean burritos	12.6
Eat pinto beans/black beans	53.2
Eat vegetable stew	22.7
Eat vegetable soup	43.0
Eat split pea/bean/lentil soup	16.9
Eat other soups	59.0
How many servings of vegetables did you eat	
Not in past week	2.7
1-2 in past week	13.8
3-4 in past week	21.1
5-6 past week	6.6
1 a day	33.0
2 a day	16.0
3 a day	3.7
4+ a day	2.5
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Total	1440
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Table 9 (continued) – selected variables relevant to **diet**

	Total
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During the past month ...	
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What milk do you usually drink?	
Do not drink milk	10.5
Whole	38.3
Low-fat 1%	9.7
Reduced-fat 2%	24.9
Non-fat	4.9
Soy	5.6
Lactose	4.3
Other	1.6
What type of soda do you normally drink?	
Do not drink soda	26.0
Diet or low calorie	20.1
Regular	53.7
Drinks orange juice	80.2
Drinks other juices	75.6
Eats donuts	43.8
Eats snack cakes	63.0
Eats cookies	61.4
Eats ice cream	72.9
Eats pumpkin/sweet potato pie	18.6
Eats other pies	25.6
Eats chocolate candy	61.0
Eats other candy	50.6
Eats butter (not margarine)	55.7
Always/sometimes eats low-fat cheese	24.5
Always/sometimes eats low-fat ice cream	32.9
Always/sometimes eats low-fat salad dressing	38.4
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Total	1440
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