INTERVENTION TABLE 8

Neighborhood Availability of Food Stores

Source	Intervention Components	Study Design and Execution	Reach	Adoption, Implementation and Process Evaluation	Enforcement/ Sustainability	Impacts and Outcomes
United States						
Powell, Auld (2007) United States	Availability of local-area food stores ***OTHER INTERVENTION COMPONENTS:*** *Multi-component:* Not reported *Complex:* Not reported	***DESIGN:*** Cross-sectional study ***DURATION:*** Not applicable ***SAMPLE SIZE:*** Over 30,000 8th and 10th grade students from 280 schools were surveyed annually by the Monitoring the Future (MTF) study. A total of 73,079 observations were used in this study from 7 years of data from the MTF study (1997-2003). ***PRIMARY OUTCOME:*** Overweight/obesity ***MEASURES:*** 1. Monitoring the Future Surveys (gender, grade, age, race/ethnicity, highest schooling completed by father and mother, rural/urban area neighborhood designation, total student income, weekly hours of work by the student, whether the mother works full- or part-time, height and weight) 2. American Chamber of Commerce Researchers Association food price data, fruit and vegetable price index, fast food price index 3. Bureau of Labor Statistics Consumer Price Index (deflation of food price indices) 4. Bureau of Labor Statistics Consumer Expenditure Survey (weighting of price indices) 5. Dun & Bradstreet data on food store outlets and outlet density ***DATA COLLECTION:*** Four MTF surveys were given in ordered sequence to students to ensure virtually identical subsamples for each form. Body mass index [BMI] was calculated based on self-reported height and weight. Food price data were obtained for quarters one and two from the ACCRA Cost of Living Index reports. From the items provided in the ACCRA data, two price indices were created: a fruit and vegetable price index and fast food price index. All prices were deflated by the Bureau of Labor Statistics Consumer Price Index. Each price index was weighted based on expenditure shares provided by ACCRA, derived from the Bureau of Labor Statistics Consumer Expenditure Survey. Data on food store outlets were obtained from a business list developed by Dun & Bradstreet, information was pulled by ZIP code for 1997 - 2003. The outlet density data were linked to the individual-level data by the students' school zip code. Information on the total number of grocery food stores was classified into four subcategories. ***LIMITATIONS:*** Possible measurement error in the density data if students lived in different areas than their schools; estimated coefficients on food stores might only be interpreted as causal if, holding everything else in the model constant, variation in food store density came from the supply side or if supply was perfectly inelastic	11-18 year olds 30.34% Racial/ethnic minority populations ***ELIGIBILITY:*** Data from the 1997-2003 MTF surveys for which information was available on height and weight and for which there were non-missing information on the covariates ***EXPOSURE/ PARTICIPATION:*** Not applicable	***LEAD AGENCY:*** University of Illinois research team ***THEORY/ FRAMEWORK:*** Not reported ***EVIDENCE-BASED:*** Not reported ***REPLICATION/ ADAPTATION:*** Not applicable ***ADOPTION:*** Not applicable ***IMPLEMENTATION:*** Not applicable ***FORMATIVE EVALUATION:*** Not reported ***PROCESS EVALUATION:*** Not reported	***RESOURCES:*** Not applicable ***FUNDING:*** National Institute on Drug Abuse (MTF survey) and the Robert Wood Johnson Foundation (evaluation) ***STRATEGIES:*** Not applicable	***OVERWEIGHT/OBESITY:*** 1. Availability of chain supermarkets had a statistically significant negative relationship with adolescent BMI and overweight status (p=0.01). Each additional chain supermarket outlet per 10,000 capita was estimated to reduce BMI by 0.11 units and the prevalence of overweight by 0.6 percentage points. 2. BMI and overweight were significantly higher in areas where there were more convenience stores (p=0.05); an additional convenience store per 10,000 capita was associated with a 0.03 unit increase in BMI and a 0.15 percentage point increase in overweight. 3. Availability of non-chain supermarkets and general grocery stores was not significantly associated with adolescent BMI. 4. Increased availability of chain supermarkets had a stronger association with BMI among African-American students compared to their White and Hispanic counterparts (p=0.01). One additional chain supermarket per 10,000 capita was associated with lower BMI among African-American students by 0.32 units; the associated BMI of White and Hispanic students was lower by 0.10 and 0.09 units, respectively. 5. Increased availability of chain supermarkets was associated with a 0.12 unit decrease in BMI among students whose mothers worked full-time (p=0.001). This decrease was ~4 times greater that students whose mother did not work.

Source	Intervention Components	Study Design and Execution	Reach	Adoption, Implementation and Process Evaluation	Enforcement/ Sustainability	Impacts and Outcomes
Morland, Diez Roux (2006) Mississippi, North Carolina, Maryland, Minnesota	Access to food store outlets ***OTHER INTERVENTION COMPONENTS:*** *Multi-component:* Not reported *Complex:* Not reported	***DESIGN:*** Cross-sectional study ***DURATION:*** Not applicable ***SAMPLE SIZE:*** 10,763 adults; data from 3rd visit (1993-95) of the Atherosclerosis Risk in Communities (ARIC) study ***PRIMARY OUTCOME:*** Overweight/obesity ***MEASURES:*** 1. ARIC participant data 2. US Census tracts/national geographic boundaries containing 3000-4000 individuals (proxies for neighborhoods) 3. Geocoded business addresses of food stores and food service places ***DATA COLLECTION:*** Researchers used ARIC participant data from 207 tracts across four sites. Addresses of food stores and food service places were collected from the local Departments of Environmental Health and state Departments of Agriculture and geocoded to census tract. Supermarkets were defined as a large corporate-owned chain food stores, and were distinguished from grocery stores or smaller non-corporate-owned food stores. Convenience stores included all food stores that carried a limited selection of foods. Full service restaurants, franchised fast food, and limited service restaurants were all classified. ***LIMITATIONS:*** Data was self-reported; estimates of the impact of the local food environment on overweight/obesity were attenuated by adjustment for individual-level risk factors which explained only a portion of the observed associations; there might have been residual confounding by mismeasured individual-level variables or confounding by omitted variables; individuals were not asked where they shopped for food potentially causing misclassification; authors assumed that the local food environment remained stable between 1993-1999	Adults, 23.2% racial/ethnic populations (evaluation sample) ***ELIGIBILITY:*** Participants were excluded if they moved out of the ARIC-defined area or had missing values for any covariate (n=814). Racial/ethnic groups other than Black and White excluded due to the limited number of individuals within those groups (n=1310). ***EXPOSURE/ PARTICIPATION:*** Not applicable	***LEAD AGENCY:*** The research team from Mount Sinai School of Medicine- New York, New York, University of Michigan-Ann Arbor and the University of North Carolina- Chapel Hill. ***THEORY/ FRAMEWORK:*** Not reported ***EVIDENCE-BASED:*** Not reported ***REPLICATION/ ADAPTATION:*** Not applicable ***ADOPTION:*** Not applicable ***IMPLEMENTATION:*** Not applicable ***FORMATIVE EVALUATION:*** Not reported ***PROCESS EVALUATION:*** Not reported	***RESOURCES:*** Not applicable ***FUNDING:*** National Institute of Aging, Columbia Center for the Health of Urban Minorities, National Institute of Health, National Center on Minority Health and Health Disparities, National Institute of Environmental Health Science (evaluation); National Heart, Lung and Blood Institute (ARIC study) ***STRATEGIES:*** Not applicable	***OVERWEIGHT/OBESITY:*** 1. Compared to people who lived in areas without any supermarkets, people with a supermarket had a 9% lower prevalence of overweight (prevalence ratio [PR] =0.91, 95% CI=0.87-0.95), a 24% lower prevalence of obesity (PR=0.76, 95% CI=0.67-0.85) and a 12% lower prevalence of hypertension (PR=0.88, 95% CI=0.79-0.97). Adjustment for socioeconomic status & other types of food stores reduced associations between the presence of 1 or more supermarkets and the prevalence of overweight (PR=0.94, 95% CI=0.90-0.98), obesity (PR=0.83, 95% CI=0.75-0.92) and hypertension (PR=0.92, 95% CI=0.85-1.01). 2. Compared to areas with no grocery stores, the adjusted prevalence of overweight individuals was 3% greater in areas with at least one grocery store (PR=1.03, 95% CI=1.00-1.07). Obesity was 7% more prevalent (PR=1.07, 95% CI=0.99-1.16) in areas with grocery stores; differences not significant. 3. The presence of convenience stores was associated with an increased prevalence of overweight (adjusted PR=1.06, 95% CI=1.02-1.10) and obesity (adjusted PR=1.16, 95% CI=1.05-1.27). 4. People living in areas where supermarkets and convenience stores were the only types of food stores available had a 35% higher prevalence of obesity compared to people who lived in areas where supermarkets were the only type of food store available (adjusted PR=1.35, 95% CI=1.05-1.73). 5. The greatest increase in obesity was in areas with grocery and/or convenience stores, but no supermarkets.

Source	Intervention Components	Study Design and Execution	Reach	Adoption, Implementation and Process Evaluation	Enforcement/ Sustainability	Impacts and Outcomes
Mushi-Brunt, Haire-Joshu (2007) United States	Availability and accessibility of grocery stores with fruits and vegetables ***OTHER INTERVENTION COMPONENTS:*** *Multi-component:* Not reported *Complex:* Not reported	***DESIGN:*** Cross-sectional study ***DURATION:*** Not applicable ***SAMPLE SIZE:*** 797 children aged 6-11 years ***PRIMARY OUTCOME:*** Overweight/obesity and nutrition ***MEASURES:*** 1. Child height and weight measurements 2. Child questionnaire (assessment of food, physical activity preferences, home availability and accessibility of fruits and vegetables [F&V]) 3. Parent survey including 28 item food frequency questionnaire (parent and child demographic characteristics and dietary intake) 4. Addresses of grocery stores (local food environment) 5. Data from 2000 Census Bureau Summer File 3 (neighborhood characteristics) ***DATA COLLECTION:*** Nurses measured children's height and weight. Trained telephone interviewers administered 30 minute surveys to parents. The community agency distributed and collected the children's questionnaires. Grocery store addresses were obtained from several sources: local chamber of commerce, telephone registries and grocery store websites. Census Bureau data identified neighborhood characteristics and these characteristics were laid over a base map of census tract boundaries. The grocery store and study participant addresses were then matched to street maps of the metropolitan area. The distance between each study participant and the nearest grocery store was calculated and the distribution patterns of weight status were examined. ***LIMITATIONS:*** Data regarding F&V intake of the children was reported by the parents; it is possible that geocoded grocery stores were inaccurately identified; lack of generalizability to other settings; due to the study design there is an inability to make casual inferences, the actual direction of the observed relationships is unclear	6-11 year olds, 60.3% Black and 39.7% White ; 40.3% Lower-income; 66% Female (evaluation sample) ***ELIGIBILITY:*** Participants were included if they were being served by a tutoring/ mentoring community agency for "at-risk" children that participated in the "Partners of all ages reading about diet and exercise" intervention, had parental consent and had addresses with the ability to be geocoded to census tracts ***EXPOSURE/ PARTICIPATION:*** Not applicable	***LEAD AGENCY:*** Department of Health Sciences, Indiana University-Purdue University; Saint Louis University- School of Public Health ***THEORY/ FRAMEWORK:*** Ecological approach ***EVIDENCE-BASED:*** Not reported ***REPLICATION/ ADAPTATION:*** Not applicable ***ADOPTION:*** Not applicable ***IMPLEMENTATION:*** Not applicable ***FORMATIVE EVALUATION:*** Not reported ***PROCESS EVALUATION:*** Not reported	***RESOURCES:*** Not applicable ***FUNDING:*** Not reported ***STRATEGIES:*** Not applicable	***OVERWEIGHT/OBESITY:*** 1. 60.3% of low income children living less than 1 mile from a grocery store were normal weight compared to 58.2% of those who lived further than 1 mile from a grocery store. 2. 58.5% of high income children living less than 1 mile from a grocery store were normal weight compared to 64% of those living further away. ***NUTRITION:*** 3. There were significant differences in mean F&V intake, such that children in low poverty neighborhoods ate more servings (mean=3.16 servings) than children in high poverty neighborhoods (mean=2.3 servings, t=4.03, p<0.001). 4. Children living in neighborhoods without a grocery store had a lower intake of F&V than those living in a neighborhood with at least one grocery store (not statistically significant). 5. Children residing less than one mile from the nearest grocery store had lower fruit and vegetable intake that those living farther away (not statistically significant). ***ENVIRONMENT:*** 6. Nearly twice as many grocery stores were located in low poverty neighborhoods verses high poverty neighborhoods. 7. 50% of neighborhoods (defined as census tracts) with more than 10% of the population below poverty had no grocery stores within the census tract, whereas only 24.2% of low poverty neighborhoods had no grocery stores within the census tract.

Source	Intervention Components	Study Design and Execution	Reach	Adoption, Implementation and Process Evaluation	Enforcement/ Sustainability	Impacts and Outcomes
Inagami, Cohen (2006) California	Access to neighborhood grocery stores ***OTHER INTERVENTION COMPONENTS:*** *Multi-component:* Not reported *Complex:* Not reported	***DESIGN:*** Cross-sectional study ***DURATION:*** Not applicable ***SAMPLE SIZE:*** 2,144 respondents from the 2000-2002 Los Angeles Family and Neighborhood Study (LAFANS); 65 neighborhoods sampled with an average 41 households per neighborhood. Poor neighborhoods were oversampled. ***PRIMARY OUTCOME:*** Overweight/obesity ***MEASURES:*** 1. Household interviews (socioeconomic status [SES], employment, locations of worship, medical care, shopped for groceries, entertainment, height and weight to calculate body mass index [BMI]) 2. 2000 decennial US Census data (used to develop residential neighborhood and grocery store neighborhood disadvantage score) ***DATA COLLECTION:*** Residential neighborhood (DSR) and grocery store neighborhood (DSG) disadvantage score were calculated using four summary statistics of census tracts in Los Angeles County, measures of socioeconomic status, and a proxy measure for grocery store quality (created by authors). The difference in the continuous disadvantage scores between the residential and grocery store neighborhood was calculated, with higher scores indicating shopping in a more disadvantaged neighborhood compared to the individual's area of residence. The DSG-DSR for each person was then averaged. The difference in continuous disadvantage scores was calculated between the residential neighborhood and other sites of respondent's daily activities. Exact locations of the individual's residence and grocery store were unknown, so distances between the residence and grocery store were estimated to be from the centroid of the residential census tract to the centroid of the grocery store census tract. The centroid-to-centroid distance were categorized into four groups; those who stayed within their census tract, those who traveled 0.01 to 1.0 mile, those who traveled 1.01 to 1.75 miles, and those who traveled 1.76 miles or more. ***LIMITATIONS:*** Causality or reverse-causality relationship between neighborhood and BMI cannot be determined; height and weight data was self-reported; information was limited to the location of the primary grocery store frequented by the respondents; no information was collected regarding food eaten outside the home, specific measures of grocery store quality, what was purchased or eaten, or individual physical activity patterns; missing BMI and grocery store information could have biased the results	Adults 55.2% Latino, 8.6% African American, 25.6% White, 6.8% Asian, 3.6% Other; 68.2% Lower-income (evaluation sample) ***ELIGIBILITY:*** Individuals for whom income, BMI, and grocery store location were missing, and for whom BMI was > 47 were eliminated (n=476). ***EXPOSURE/ PARTICIPATION:*** Not applicable	***LEAD AGENCY:*** Veterans Affairs Health Services and Research Development, David Geffen School of Medicine-UCLA, RAND Corporation, Social Science Research Laboratory-San Diego State University ***THEORY/ FRAMEWORK:*** Not reported ***EVIDENCE-BASED:*** Not reported ***REPLICATION/ ADAPTATION:*** Not applicable ***ADOPTION:*** Not applicable ***IMPLEMENTATION:*** Not applicable ***FORMATIVE EVALUATION:*** Not reported ***PROCESS EVALUATION:*** Not reported	***RESOURCES:*** Not applicable ***FUNDING:*** United States Department of Health and Human Services, Health Resources and Services Administration -Maternal and Child Health ***STRATEGIES:*** Not applicable	***OVERWEIGHT/OBESITY:*** 1. Independent of individual-level factors and residential-level SES, individual exposure to grocery store neighborhoods with a greater disadvantage relative to the individual's residential neighborhood increased BMI (data not reported). 2. If the average resident from a low-SES area shops in an area with a neighborhood indicator score of -3.98, -2 SD from the mean (meaning a higher SES area than where they live), a 5'5" individual will weight 9.2 lbs less than if he or she lived in a low-SES area where the average resident shops in an area with a neighborhood indicator of 2.74, +2 SD from the mean (meaning a lower SES area than where they live). 3. Individuals who lived in very-low-SES areas were 1.51 BMI units higher than individuals who lived in very-high-SES areas. When grocery store neighborhood disadvantage indicators were taken into account, the association between BMI and very-low-residential SES became stronger, increasing 39%. 4. Distance (between centroids of individual's residential neighborhood and the grocery store that the individual frequented) of >1.76 miles was an independent predictor for a BMI increase of approx. 0.775 units ($p \leq 0.05$).

Source	Intervention Components	Study Design and Execution	Reach	Adoption, Implementation and Process Evaluation	Enforcement/ Sustainability	Impacts and Outcomes
Moore, Diez Roux (2008) North Carolina, Maryland, New York	Availability of local area food outlets ***OTHER INTERVENTION COMPONENTS:*** *Multi-component:* Not reported *Complex:* Not reported	***DESIGN:*** Cross-sectional study ***DURATION:*** Not applicable ***SAMPLE SIZE:*** 2.384 participants, aged 45-84 from 3 study sites from the Multi-Ethnic Study of Atherosclerosis (MESA) study ***PRIMARY OUTCOME:*** Nutrition ***MEASURES:*** 1. 120-item food frequency questionnaire (using two dietary measures, the Alternative Healthy Eating Index [AHEI] and the "fats and processed meats" [FPM] dietary pattern) 2. InfoUSA, Inc (data on supermarkets) 3. Spatial Analyst extension of ArcGIS (Geographic Information System) (density of supermarkets per square mile) 4. Phone survey of MESA neighborhoods (ranked [using a 5 point Likert scale] their neighborhood on the quality and availability of fresh fruits and vegetables and the availability of low-fat products) ***DATA COLLECTION:*** Baseline measures collected by MESA researchers; however the methods were not identified. Supermarket data was obtained from InfoUSA, Inc. in November 2003 and supermarkets were identified using Standard Industrial Classification codes. A random digit dial phone survey of MESA neighborhoods between January and August 2004 collected perceived availability of healthy foods in participants' neighborhoods or the area within 1 mile around their home from both MESA and non-MESA participants. ***LIMITATIONS:*** Measures may be affected by same-source bias; New York respondents were overrepresented in the highest quartile of supermarket density; regional factors and other features of urban design may impact the relationship between local food environment and diet; limited sample size and limited range of food environment exposures within sites hindered the ability to examine heterogeneity of effects by site; there was no direct measure of the cost or quality of healthy foods; study design does not preclude a reverse-causal explanation for the results	Adults 41.7% Non-Hispanic Black, 14.7% Hispanic, 43.6% Non-Hispanic White (evaluation sample) ***ELIGIBILITY:*** Participants excluded if their home address could not be geocoded, information on one or more dietary indicators was not available, or if there were missing food environment measures. ***EXPOSURE/ PARTICIPATION:*** Not applicable	***LEAD AGENCY:*** Research teams from the University Michigan, Ann Arbor and University of Minnesota, Minneapolis ***THEORY/ FRAMEWORK:*** Not reported ***EVIDENCE-BASED:*** Not reported ***REPLICATION/ ADAPTATION:*** Not applicable ***ADOPTION:*** Not applicable ***IMPLEMENTATION:*** Not applicable ***FORMATIVE EVALUATION:*** Not reported ***PROCESS EVALUATION:*** Not reported	***RESOURCES:*** Not applicable ***FUNDING:*** National Heart, Lung, and Blood Institute ***STRATEGIES:*** Not applicable	***NUTRITION:*** 1. Participants with no supermarkets within 1 mile of their home were 25% less likely to have a healthy diet, as measured by the AHEI, than participants who had the most stores near their home (relative probability=0.75, 95% CI: 0.59-0.95). 2. Participants with no supermarkets within 1 mile of their home were 46% less likely to have a healthy diet on the basis of the FPM measure (relative probability=0.54, 95% CI: 0.42-0.70). 3. Participants living in the areas ranked worst in food availability were 22-35% less likely to have a healthy diet than those in the best-ranked areas. 4. For the AHEI, the probability of having a healthy diet was reduced in the 3 bottom categories of perceived healthy food availability in comparison with the top category. 5. For the FPM measure, the probability of having a healthy diet was lower in the bottom category than in the two middle categories for all 3 measures. There was suggestion of a dose-response trend for the FPM measure. 6. In analyses using site-specific quartiles of densities, living in areas with fewer supermarkets was still associated with worse diets, but associations were attenuated. For the AHEI, the relative probabilities were 0.84 (95% CI: 0.68-1.04), 0.99 (95% CI: 0.78-1.27), and 0.72 (95% CI: 0.56, 0.93) for the 1st, 2nd, and 3rd quartiles, respectively. 7. There was no consistent evidence that the association of food environment measures with diet differed qualitatively by age, sex, race/ ethnicity, per capita income or time spent in the neighborhood.

Source	Intervention Components	Study Design and Execution	Reach	Adoption, Implementation and Process Evaluation	Enforcement/ Sustainability	Impacts and Outcomes
Bodor, Rose (2008) Louisiana	Neighborhood access to food store outlets with in-store availability of fruits and vegetables ***OTHER INTERVENTION COMPONENTS:*** *Multi-component:* Not reported *Complex:* Not reported	***DESIGN:*** Cross-sectional study ***DURATION:*** Not applicable ***SAMPLE SIZE:*** 102 household respondents in 6 census tracts ***PRIMARY OUTCOME:*** Nutrition ***MEASURES:*** 1. Telephone interviews (socioeconomic status [SES], household size, car ownership, participation in food assistance programs) 2. 24 hour recall instrument (fruit and vegetable (F&V) intake) 3. Direct observation (store access, visual location of all food retailers in study neighborhoods) 4. Annual gross sales 5. In-store observations (in-store availability of F&V, shelf space length for fresh, canned, and frozen F&V) ***DATA COLLECTION:*** Household level data was collected by phone interviews with primary shoppers. Food retailers were identified using the Louisiana Office of Public Health's 2001 list of food retailers, which was verified by driving around the study neighborhoods and visually locating all the food retailers. Stores were categorized into 2 groups: small food stores and supermarkets according to annual gross sales. A Geographic Information System generated distances to construct 2 variables describing small food store access: distance to the nearest small food store in kilometers and a dichotomous variable indicating the existence of a small food store within 100 meters (m) of the household residence. Trained observers used measuring wheels to determine shelf space length in stores for F&V availability. ***LIMITATIONS:*** Survey design could have caused inflated intake results; the survey did not take into account F&V from mixed dishes; response rate was low; data were collected from a small sample confined to a single geographic section of New Orleans; respondents were not asked about their level of education and the in-store observations did not obtain information on whether food stores participated in government food assistance programs; causality cannot be determined due to study design; the % of African Americans was somewhat lower in the study sample (53.5%) than in the census data (65.2%), and the same with poverty rates (31% versus 39.5%)	Urban, Adults 37.4% White, 53.5% Black, 9.1% Other; 31% Lower-income (evaluation sample) ***ELIGIBILITY:*** Census tracts were selected based on diversity of socio-economic and racial/ethnic groups and high levels of land use mix. Those with incomplete information were excluded. ***EXPOSURE/ PARTICIPATION:*** Not applicable	***LEAD AGENCY:*** The research team from Tulane University ***THEORY/ FRAMEWORK:*** Not reported ***EVIDENCE-BASED:*** Not reported ***REPLICATION/ ADAPTATION:*** Not applicable ***ADOPTION:*** Not applicable ***IMPLEMENTATION***: Not applicable ***FORMATIVE EVALUATION:*** Not reported ***PROCESS EVALUATION:*** Not reported	***RESOURCES:*** Not applicable ***FUNDING:*** National Research Initiative of the USDA ***STRATEGIES:*** Not applicable	***NUTRITION:*** 1. Respondents who had a small food store within 100m had a significantly higher mean intake of vegetables (3.3 servings, SD= 2.3) compared to those that did not (2.4 servings, SD=1.6, $p<0.05$). 2. Respondents who had a small food store within 100m had a marginally significant higher mean intake of fruits than those who did not (2.4 servings, SD=2.1 versus 1.8 servings, SD=1.4, $p<0.10$). 3. Respondents with no fresh vegetable shelf space available within a block of their residence had the lowest mean intake of vegetables (2.4 servings per day), those who had up to 3m of fresh vegetable shelf space within a block had a higher intake (3.3 servings), and those who had a greater than 3m of fresh vegetable shelf space within a block had the highest intake (4.5 servings, $p<0.05$). A similar dose-response relationship was not seen for fruits. 4. Linear regression models revealed that distance to the nearest small food store or supermarket was not associated with fruit or vegetable consumption. 5. The amount of fresh vegetable space near the residence was a significant positive predictor of vegetable intake; each extra meter of shelf space was associated with an additional intake of 0.35 servings per day ($\beta=0.351$, $p<0.025$). None of the measures of neighborhood fruit availability (fruit shelf space, number of varieties near the residence) were significant predictors of fruit intake.

Source	Intervention Components	Study Design and Execution	Reach	Adoption, Implementation and Process Evaluation	Enforcement/ Sustainability	Impacts and Outcomes
Rose, Richards (2004) United States	Household access by participants in the Food Stamp Program (FSP) to neighborhood food stores with in-store availability of fruits and vegetables ***OTHER INTERVENTION COMPONENTS:*** *Multi-component:* Not reported *Complex:* Not reported	***DESIGN:*** Cross-sectional study ***DURATION:*** Not applicable ***SAMPLE SIZE:*** Secondary data from 963 FSP participants from the 1996-97 National Food Stamp Program Survey (NFSPS) ***PRIMARY OUTCOME:*** Nutrition ***MEASURES:*** 1. 1-week food inventory method, including 2 at-home interviews 2. Weekly household food use (all foods used from the home food supply) allowed creation of household fruit and vegetable use variable, expressed for each as grams per adult male equivalent per day, scaled to the needs of an adult male (19-50 years of age), using the 1989 recommended energy intakes 3. Self-reported store access variables (household car ownership, information on store where most of household food purchased, whether store was a supermarket, distance/ round-trip travel time to food store) allowed creation of trichotomous store access measure (combined supermarket shopping, travel time, and car ownership) 4. An attitudinal factor based on average of 10 questions (importance of dietary choices to the respondent) 5. Other independent variables (urbanization, household income per adult male equivalent, household size in adult male equivalents, single parent status, schooling, employment status, race/ethnicity of the household respondent) ***DATA COLLECTION:*** To conduct this secondary data analysis, researchers used data from 1996-97 NFSPS survey that was conducted by Mathematica Policy Research, Inc. ***LIMITATIONS:*** Store access variables were not true measures of access (referent to the store where the household bought most of its food); cannot claim that easy access caused increase in fruit consumption (e.g., supermarkets may choose locations where demand for their products is high); other unmeasured characteristics may have accounted for the relationship observed; store distance was self-reported; results are based on food used by the household from at-home food supplies only	General Population, 62.9% Lower-income; 44.1% White, 39.4% African American, 13.3% Hispanic, 3.2% Other (evaluation sample) ***ELIGIBILITY:*** After initial random selection from sampling units (usually counties) households participating in FSP were randomly selected from participant lists; other NFSPS eligibility requirements not reported; complete data for variables in analysis required. ***EXPOSURE/ PARTICIPATION:*** Not applicable	***LEAD AGENCY:*** Author/research team (secondary data evaluation); Mathematica Policy Research, Inc (NFSPS survey) ***THEORY/ FRAMEWORK:*** Not reported ***EVIDENCE-BASED:*** Not reported ***REPLICATION/ ADAPTATION:*** Not applicable ***ADOPTION:*** Not applicable ***IMPLEMENTATION:*** Not applicable ***FORMATIVE EVALUATION:*** Not reported ***PROCESS EVALUATION:*** Not reported	***RESOURCES:*** Not applicable ***FUNDING:*** NFSPS funded by Food and Nutrition Service of the USDA; Secondary data analysis: not reported ***STRATEGIES:*** Not applicable	***NUTRITION:*** 1. Those living ≤ 1 mile of their principal food store consumed 285 grams per adult male equivalent per day of fruit (standard error of the mean [SEM]= 21), while those living greater than 5 miles consumed 220 grams per adult male equivalent per day (SEM=25), a difference of about 65 grams per adult male equivalent per day (p=0.023). 2. Those with shorter round-trip travel times to their principal food store consumed more, 269 versus 244 grams per adult male equivalent per day, although this difference was not statistically significant (p=0.422). 3. In multivariate models adjusted for socioeconomic variables, households that purchased most of their food from supermarkets consumed 82 grams per adult male equivalent per day (95% CI: 7,157) more fruit than households that shopped from other stores. 4. Using multivariate analysis, households living further than 5 miles from their principal store consumed significantly less fruit than the reference group of those living within a mile. (mean difference = -62 grams per adult male equivalent per day, 95% CI: -117,-7) 5. The supermarket access variable which combined store, travel time, and car ownership revealed that those with easy supermarket access consumed greater amounts of fruits (mean=84 grams per adult male equivalent per day, 95% CI: 5, 162) than did those with no access. 80 grams is considered an average weight for a serving of F&V; thus those with easy supermarket access consumed about 1 more serving of fruits than those with no access. 6. The results on vegetable consumption generally followed the same pattern as fruit consumption, although only diet attitude and awareness of guidelines were significant (data not shown).

Source	Intervention Components	Study Design and Execution	Reach	Adoption, Implementation and Process Evaluation	Enforcement/ Sustainability	Impacts and Outcomes
Wang, Kim (2007) California	Availability of food stores ***OTHER INTERVENTION COMPONENTS:*** *Multi-component:* Not reported *Complex:* 1. Neighborhood socioeconomic characteristics	***DESIGN:*** Cross-sectional study ***DURATION:*** Not applicable ***SAMPLE SIZE:*** 7,595 adults from the Stanford Heart Disease Prevention Program (SHDPP) ***PRIMARY OUTCOME:*** Overweight/obesity ***MEASURES:*** 1. SHDPP questionnaires (body mass index [BMI], gender, age, ethnicity, individual socioeconomic status [SES] derived from income and education, smoking, physical activity, and nutrition knowledge) 2. US 1980 & 1990 Census data (neighborhood SES index derived from median family income, median housing value, % having blue collar workers, % unemployed, and % of less than high school education. This index was split into tertiles with the highest, middle, and lowest tertiles considered high, middle and low SES) 3. CA State Board of Equalization and telephone business directories 1979-1990 (proximity to and density of various types of retail food stores). ***DATA COLLECTION:*** Individual-level data was gathered from surveys conducted by SHDPP. Neighborhood-level data from the census and government and commercial sources were used to describe exposure to different types of retail food stores, number of stores, and proximity. The authors analyzed previously collected data on (1) individual level clinical and sociodemographic data, (2) US census data to describe social characteristics of the neighborhood, and (3) historical food store data obtained from government and commercial sources to describe physical characteristics of the neighborhood. ***LIMITATIONS:*** Unable to verify classified food store data due to historical nature of data; the foods offered in stores likely changed over the course of the SHDPP study (although year of study was included in the model); the findings relate to small to mid-sized cities in agricultural regions in ethnically diverse California, and therefore might not be generalizable to other populations; no adjustment was made for multiple comparisons in this study; data are cross-sectional precluding conclusions regarding causality	Adults aged 25-74, 11.2% Racial/ ethnic populations ***ELIGIBILITY:*** Included in original Stanford Heart Disease Prevention Program ***EXPOSURE/ PARTICIPATION:*** Not applicable	***LEAD AGENCY:*** University of California - Berkeley School of Public Health ***THEORY/ FRAMEWORK:*** Not reported ***EVIDENCE-BASED:*** Not reported ***REPLICATION/ ADAPTATION:*** Not applicable ***ADOPTION:*** Not applicable ***IMPLEMENTATION:*** Not applicable ***FORMATIVE EVALUATION:*** Not reported ***PROCESS EVALUATION:*** Not reported	***RESOURCES:*** Not applicable ***FUNDING:*** American Heart Association through the National Institute of Environmental Health Sciences, and the National Heart, Lung, and Blood Institute ***STRATEGIES:*** Not applicable	***OVERWEIGHT/OBESITY:*** 1. Closer proximity to ethnic markets (regression coefficient=-0.157, SE=0.079; $p<0.05$), supermarkets (regression coefficient=-0.300, SE= 0.131; $p<0.05$) and higher density of small grocery stores (regression coefficient= 0.053, SE= 0.023, $p<0.05$) was significantly associated with higher BMI among women only. 2. Neighborhood SES was significantly associated with BMI. Participants living in low socioeconomic neighborhoods had an adjusted mean BMI that was about 0.6 kg/m^2 higher than that of participants living in high socioeconomic neighborhoods ($p<0.01$). 3. There was no evidence of interaction effects between neighborhood socioeconomic and physical characteristics, after controlling for individual-level sociodemographic and behavioral factors.

Source	Intervention Components	Study Design and Execution	Reach	Adoption, Implementation and Process Evaluation	Enforcement/ Sustainability	Impacts and Outcomes
Zenk, Lachance (2009) Michigan	Neighborhood retail food environment ***OTHER INTERVENTION COMPONENTS:*** *Multi-component:* Not reported *Complex:* Not reported	***DESIGN:*** Cross-sectional study ***DURATION:*** Not applicable ***SAMPLE SIZE:*** 919 adults ≥25 yrs old from 3 large Detroit communities ***PRIMARY OUTCOME:*** Nutrition ***MEASURES:*** 1. Modified Block 98 semi-quantitative food frequency questionnaire (fruit & vegetable intake) 2. Food store availability and proximity (count of food stores by type that were located in the residential neighborhood, which was defined as a 0.5 mile Euclidean distance buffer from the centroid of the residential census block) 3. In-store audit of retail fruit and vegetable supply (availability, variety, quality, and affordability). Quality and cost were assessed for a subset of 20 fruits and vegetables. ***DATA COLLECTION:*** The researchers used data from three data sources: 1) a 2002-2003 community survey of urban African-American, Latino and non-Hispanic adults who resided in one of three large geographic communities in Detroit, conducted by the Healthy Environments Partnership; 2) a 2002 in-person audit of food stores located in the communities conducted by a team of two researchers; and 3) a 2002 mapping of the locations of supermarkets in metropolitan Detroit, MI. In the analysis the researchers used dichotomous indicators for large grocery stores, small grocery stores, convenience stores without gasoline stations, specialty stores and liquor stores. Because only one supermarket was located in the study neighborhoods, the researchers measured supermarket proximity as the street-network distance in miles from the centroid of the residential census block to the nearest supermarket by using ArcGIS Network Analyst 9.1. ***LIMITATIONS:*** Neighborhoods were not sampled for maximum variation in the retail food environment, and therefore there may be insufficient variation to detect environmental effects; observed and perceived measures of neighborhood fruit and vegetable supply did not include frozen, canned, or dried; study did not include gas station convenience stores or food service places (i.e., restaurants), which may underestimate their role in F&V intake; store listings in business databases were incomplete and researchers relied primarily on in-person observation of stores to classify type; the researchers assessed neighborhood fruit and vegetable supply on the basis of a single observation in a single season; the relatively small average number of survey respondents per census block may have resulted in underestimated standard errors and, thus, greater risk of a Type I error	Urban, Adults, 56.8% African American, 22.2% Latino, 18.8% White, 2.3% Other (evaluation sample) ***ELIGIBILITY:*** Not reported ***EXPOSURE/ PARTICIPATION:*** Not applicable	***LEAD AGENCY:*** University of Chicago researchers ***THEORY/ FRAMEWORK:*** Not reported ***EVIDENCE-BASED:*** Not reported ***REPLICATION/ ADAPTATION:*** Not applicable ***ADOPTION:*** Not applicable ***IMPLEMENTATION:*** Not applicable ***FORMATIVE EVALUATION:*** Not reported ***PROCESS EVALUATION:*** Not reported	***RESOURCES:*** Not applicable ***FUNDING:*** National Institute of Environmental Health Sciences ***STRATEGIES:*** Not applicable	***NUTRITION:*** 1. After adjusting for socioeconomic status, the presence of a large grocery store in the neighborhood was associated with an average 0.69 more daily fruit and vegetable servings (p=0.002). 2. The association between distance to the nearest supermarket and daily fruit and vegetable servings was not significant. 3. The presence of other store types in the neighborhood (specialty convenience, liquor, small grocery) was negatively, but not significantly, associated with fruit and vegetable intake. 4. Latinos who had a large grocery store in the neighborhood, compared to African-Americans, consumed 2.20 more daily servings of fruits and vegetables (p=0.010). 5. The presence of a convenience store in the neighborhood was associated with 1.84 fewer daily fruit and vegetable servings in Latinos than African-Americans (p=0.016) 6. On average, across all neighborhoods, each additional store that sold fresh produce was associated with a 0.35 daily serving increase in fruits and vegetables in Latinos relative to African-Americans (p=.053).

Source	Intervention Components	Study Design and Execution	Reach	Adoption, Implementation and Process Evaluation	Enforcement/ Sustainability	Impacts and Outcomes
Boehmer, Lovegreen (2006) Arkansas, Missouri, Tennessee	Access and distance to grocery stores and in-store availability of fruits and vegetables ***OTHER INTERVENTION COMPONENTS:*** *Multi-component* 1. Access to recreational facilities 2. Perceptions of neighborhood traffic safety 3. Perceptions of safety from crime 4. Land-use mix and distance to grocery stores 5. Presence and absence of sidewalks and shoulders on the street and aesthetic quality of the environment *Complex* Not reported	***DESIGN:*** Cross-sectional study ***DURATION:*** Not applicable ***SAMPLE SIZE:*** 2,210 adults from 13 rural communities in Arkansas, Missouri, and Tennessee ***PRIMARY OUTCOME:*** Overweight/obesity ***MEASURES:*** 1. Weight and height (body mass index [BMI]) 2. Survey (moderate-to-vigorous physical activity [MVPA], walking behavior, sedentary leisure-time activity, perceived recreational facilities, land use, barriers related to traffic safety and crime, aesthetics, food environment, demographic characteristics, presence of quality sidewalks and shoulders on streets, availability of fruits and vegetables) ***DATA COLLECTION:*** The present study used data from a previously administered survey that used a modified version of the BRFSS and was collected between July and September 2003. Demographic characteristics and moderate and vigorous physical activity were measured using standard BRFSS questions with established psychometric properties. Open-ended environmental perception items were calculated using a four-level, ordinal response scale, with most items having been tested for reliability. MVPA was stratified into 3 categories; meeting recommendations, insufficient activity, and not active. BMI and MVPA were combined to create risk categories. The lowest risk group was defined as normal weight and active (recommended MVPA) and the highest risk group was defined as obese and inactive (insufficient and not active). ***LIMITATIONS:*** Causal inferences cannot be achieved using cross-sectional data; the study did not account for selection bias or response bias; social, intrapersonal, and biological factors that interact with environmental factors were not accounted for; non-response bias may limit the representativeness of the sample; the sample over-represented women and older individuals and cannot accurately estimate the prevalence of obesity in the study population; there was a small sample size for some subgroups	Adults, 74.4% Female, 93.4% White, 36.8% Income <$25,000, 59.1%; Income >$25,000; 27% Obese; 31% Overweight (evaluation sample) 8 communities met the US Census definition of rural; 12 were located within a nonmetropolitan county. The communities in TN and AR were selected to match the MO sites on size, race/ethnicity, and proportion of the population living below the poverty level. ***ELIGIBILITY:*** Communities with established walking trails were eligible for participation. Households within those communities within a 2-mile radius of the existing walking trails were eligible. English speaking adults were eligible to participate. ***EXPOSURE/ PARTICIPATION:*** Not applicable	***LEAD AGENCY:*** Researchers were from Saint Louis University (evaluation) ***THEORY/ FRAMEWORK:*** Ecological framework ***EVIDENCE-BASED:*** Not reported ***REPLICATION/ ADAPTATION:*** Not applicable ***ADOPTION:*** Not applicable ***IMPLEMENTATION:*** Not applicable ***FORMATIVE EVALUATION:*** Not reported ***PROCESS EVALUATION:*** Not reported	***RESOURCES:*** Not applicable ***FUNDING:*** National Institutes of Health ***STRATEGIES:*** Not applicable	***OVERWEIGHT/OBESITY:*** *Stratified Analysis:* 1. Having no sidewalks or shoulders on most streets was not significantly associated with obesity nor was the availability and quality of fresh fruits and vegetables. Further distance to the nearest supermarket was associated with increased odds of obesity (OR: 1.8, 95% CI= 1.3-2.4). 2. Neighborhood perceptions of having no or a few destinations within close proximity (3-6 destinations: OR=2.03, 95% CI= 1.33-3.09; 1-2 destinations: OR=1.72,95% CI= 1.13-2.62; none: OR=1.63, 95% CI= 1.07-2.5), feeling unsafe from crime (OR=2.91, 95% CI= 1.86-2.55, p<0.05), feeling unsafe from traffic (OR=2.46, 95%CI= 1.63-3.71, p<0.05), and finding the community somewhat pleasant (OR=1.73, 95% CI= 1.28-2.34) or not pleasant (OR=2.02, 95% CI= 1.29-3.15, p<0.05) were all associated with being obese/inactive. 3. Neighborhood perceptions of a lack of places to be physically active (OR=1.46, 95% CI= 1.1-1.94), no available equipment (OR=1.55, 95% CI=1.19-2.02), few or moderate number of destinations within close proximity (3-6 destinations: OR=1.49, 95% CI= 1.08-2.06; 1-2 destinations: OR=1.42,95% CI= 1.03-1.97), feeling unsafe from crime (OR=2.09, 95% CI= 1.5-2.92, p<0.05), feeling unsafe from traffic (OR=1.65, 95% CI=1.2-2.27, p<0.05), finding the community somewhat pleasant (OR=1.44, 95% CI= 1.13-1.92) or not pleasant (OR=1.85; 95% CI=1.31-2.59, p<0.05), and having an unmaintained community (OR=1.48, 95% CI=1.09-1.99) were all associated with being obese. 4. Perceived lack of equipment for physical activity was associated with being obese (OR= 1.8, 95% CI=1.3-2.4) and obese/inactive (OR= 1.8, 95% CI=1.2-2.7) among only women. 5. Women had stronger associations between obesity and indicators of poor aesthetics (OR= 1.3, 95% CI=1.0-1.7 for interesting things; OR= 1.7, 95% CI=1.2-2.3 for well-maintained) and feeling slightly/not at all safe from crime (OR= 2.4; 95% CI=1.6-3.5). *Multivariate Analysis:* 6. Furthest distance (>20 minutes) to the nearest recreational facility (OR=2.74, 95% CI=1.68-4.48), having 3-6 destination types near home (OR=1.76, 95% CI=1.09-2.84), and feeling unsafe from crime (OR=2.59, 95% CI=1.56-4.28) were neighborhood environmental perceptions associated with being obese. 7. Furthest distance (>20 minutes) to the nearest recreational facility (OR=1.53, 95% CI=1.1-2.11) and feeling unsafe from crime (OR=1.71, 95% CI=1.19-2.46) were neighborhood environmental perceptions associated with being obese.

Source	Intervention Components	Study Design and Execution	Reach	Adoption, Implementation and Process Evaluation	Enforcement/ Sustainability	Impacts and Outcomes
Franco, Diez-Roux (2009) Maryland	Availability of healthy food in neighborhood food stores ***OTHER INTERVENTION COMPONENTS:*** *Multi-component:* Not reported *Complex:* Not reported	***DESIGN:*** Cross-sectional study ***DURATION:*** Not applicable ***SAMPLE SIZE:*** 759 men and women aged 45-84 years from the Baltimore site of the Multi-Ethnic Study of Atherosclerosis (MESA) study ***PRIMARY OUTCOME:*** Nutrition ***MEASURES:*** 1. Food Frequency Questionnaire adapted from the Insulin Resistance Atherosclerosis Study instrument (usual dietary intake over the past year) – found to be valid for multi-ethnic populations 2. Nutrition Environment Measures Survey in stores (NEMS-S) instrument (availability of healthy foods) 3. InfoUSA data (list of food stores) 4. Sociodemographic questionnaire (age, sex, race/ethnicity, income, education) ***DATA COLLECTION:*** Baseline (used for present study) examination of the MESA Baltimore cohort took place between August 2000 and August 2002. Participants completed the food frequency questionnaire, and to reflect diet quality 2 empirically derived dietary patterns were identified: 1) the fats and processed meats pattern that reflected a diet of low quality and 2) the whole grains and fruit pattern that reflected a diet of high quality. The availability of healthy foods for each MESA participant was characterized by using 3 complementary approaches: 1) availability of healthy food in the neighborhood (census tract) of the participant's residence, 2) availability of healthy foods in the closest food store to each participant's residence, and 3) availability of healthy foods in all of the food stores located within 1 mine of the participant's residence. InfoUSA provided information on all grocery stores, supermarkets, and convenience stores located within the selected census tracts. The InfoUSA list was improved by comparing it with food license records from the city and county health departments and by having data collectors drive through the main thoroughfares to identify omitted stores. The research team visited each food store and used NEMS-S to assess the availability of healthy food. ***LIMITATIONS:*** Cross-sectional study and therefore a causal relationship cannot be implied; some 1-mile buffers fell outside the study area, which may have introduced measurement error; dietary data were collected at baseline (2000-2002), but food availability data were collected in 2006 and therefore stores open in 2002 but closed by 2006 were not included; the small sample size made it difficult to draw reliable conclusions from race-stratified analysis; price of food (an important determinant of dietary patterns) was not investigated in these analyses; the whole grains and fruit pattern may be less precisely measured, resulting in misclassification and bias towards the null	Adults, 50.4% Black, 49.6% White, 17% Lower-income Mean age = 63 years (evaluation sample) ***ELIGIBILITY:*** Individuals who classified themselves and White or Black and were free of clinically apparent cardiovascular disease were invited to participate. All participants gave written informed consent. Participants were excluded due to missing dietary data or other covariates (N=124). ***EXPOSURE/ PARTICIPATION:*** Not applicable	***LEAD AGENCY:*** The research team ***THEORY/ FRAMEWORK:*** Not reported ***EVIDENCE-BASED:*** Not reported ***REPLICATION/ ADAPTATION:*** Not applicable ***ADOPTION:*** Not applicable ***IMPLEMENTATION:*** Not applicable ***FORMATIVE EVALUATION:*** Not reported ***PROCESS EVALUATION:*** Not reported	***RESOURCES:*** Not applicable ***FUNDING:*** National Heart, Lung, and Blood Institute. Authors were supported by the National Heart, Lung, and Blood Institute, Mid-Career Mentorship Award in Patient-Oriented Research and Diabetes Research and Training Center Grant, Center for a Livable Future at the Johns Hopkins Bloomberg School of Public Health and the Fulbright Program. ***STRATEGIES:*** Not applicable	***NUTRITION:*** 1. Participants in the lowest category of food availability based on the neighborhood (census tract) or closest store measure had significantly higher values for the fats and processed meats pattern (higher value = lower quality diet) than those in the highest category ($p<0.05$). This association did not change substantially after adjustment for age, sex, income, and education (adjusted mean ± SE difference: 0.23 ± 0.11, $p=0.049$ and 0.22 ± 0.09, $p=0.021$; p for linear trend across categories = 0.08 and 0.02, respectively) 2. This association was reduced and no longer statistically significant after adjustment for race/ethnicity (mean difference: 0.12 for neighborhood, $p=0.314$ and 0.10 for closest store, $p=0.215$). 3. For each SD increase in the availability of healthy foods in the neighborhood and closest store, the fats and processed meats dietary pattern score decreased by 0.04 and 0.08 units, respectively (dietary quality improved). However, this association was weakened after adjustment for race/ethnicity. 4. Participants in the low healthy food availability tertile had lower scores for the whole grains and fruit pattern (higher dietary quality) than did those in the highest tertile (mean differences: -0.16 and -0.07 for the availability in the neighborhood and closest store, respectively) after adjustment for age, sex, income, and education, but the differences were not statistically significant.

Source	Intervention Components	Study Design and Execution	Reach	Adoption, Implementation and Process Evaluation	Enforcement/ Sustainability	Impacts and Outcomes
Powell, Bao (2009) United States	Restaurant and food store outlet availability ***OTHER INTERVENTION COMPONENTS:*** *Multi-component:* 1. Food pricing of energy-dense foods and healthy foods *Complex:* Not reported	***DESIGN:*** Cross-sectional study ***DURATION:*** Not reported ***SAMPLE SIZE:*** 3,797 children (aged 6-17 years) from 3 waves of the National Longitudinal Survey of Youth 1979 (NLSY79) data ***PRIMARY OUTCOME:*** Overweight/obesity (body mass index [BMI]) ***MEASURES:*** 1. NLSY79 data (individual-level data) 2. American Chamber of Commerce Researchers Association (ACCRA) Cost of Living Index reports (food price data) 3. Dun and Bradstreet business lists through Marketplace software (food store and restaurant outlets) 4. Census 2000 county-level population estimates ***DATA COLLECTION:*** The Robert Wood Johnson Foundation Bridging the Gap/ImpacTeen study provided the price and outlet density data available. Price data from ACCRA reports were matched to the NLSY79 sample based on the closest city match available in the ACCRA using the NLSY79 geocode county indicators. Based on the items in the ACCRA, the researchers created two indices, a fruit and vegetable price index and a fast food price index. Outlet density was matched by year at the county-level to the NLSY79 and computed as the number of available outlets per 10,000 capita using Census 2000 county-level population estimates. The researchers examined a continuous BMI outcome measure of weight using a random effects model and estimated separate models by children's socioeconomic status (SES) according to family income and mother's education level. ***LIMITATIONS:*** ACCRA price data collected in a limited number of cities and metropolitan statistical areas and they do not provide price data at lower geographic units; price data collection based on establishment samples that reflect a mid-management standard of living; ACCRA does not always continuously sample the same cities so data are not fully comparable over time; a small number of food items are surveyed across food groups; given that the price data are only available for a limited number of geographic areas, the researchers limited their sample to observations with an exact county-level match or a match with the closest ACCRA city in a contiguous, limiting generalizability	6-17 year olds, 21% racial/ ethnic populations (sample) ***ELIGIBILITY:*** Children must live in the same household as their mothers and be linked by their mother's identifiers to the NLSY79 adult data. Girls who reported that they were pregnant at the time of the interviews were excluded from the sample. ***EXPOSURE/ PARTICIPATION:*** Not reported	***LEAD AGENCY:*** Researchers from the Institute for Health Research and Policy, University of Illinois-Chicago and the Global Health Economics and Outcomes Research, Abbot Laboratories ***THEORY/ FRAMEWORK:*** Economic theory ***EVIDENCE-BASED:*** Not reported ***REPLICATION/ ADAPTATION:*** Not applicable ***ADOPTION:*** Not applicable ***IMPLEMENTATION:*** Not applicable ***FORMATIVE EVALUATION:*** Not reported ***PROCESS EVALUATION:*** Not reported	***RESOURCES:*** Not applicable ***FUNDING:*** National Research Initiative of the U.S. Department of Agriculture Cooperative State Research Education and Extension Service ***STRATEGIES:*** Not applicable	***OVERWEIGHT/OBESITY:*** 1. A $1 increase in the price of fruits and vegetables raises BMI by 2.0 units. Increasing the price of fruit and vegetables by 1 standard deviation increases BMI by 2.0 units (p=0.01). 2. A 10% increase in the price of fruits and vegetables was associated with a 0.7% increase in child BMI (p=0.01). 3. Fast food prices were not found to be statistically significant in the full sample but were weakly negatively associated with BMI among adolescents with an estimated price elasticity of 0.12. 4. The associations of fruit and vegetable and fast food prices with BMI were significantly stronger both economically and statistically among low- versus high-socioeconomic status children. 5. For the full sample, the BMI fruit and vegetable price elasticity is 0.07(p=0.01) and the fast food price elasticity of BMI is -0.07 (not significant). 6. Increased supermarket availability is statistically significantly associated with lower BMI (-0.1928, SD=0.0772, p<0.05). 7. Food outlets, considered as a whole, were not found to have a strong statistical significant association with children's BMI when defined either on a per capita or per land area basis.

Source	Intervention Components	Study Design and Execution	Reach	Adoption, Implementation and Process Evaluation	Enforcement/ Sustainability	Impacts and Outcomes
Laraia, Siega-Riz (2004) North Carolina	Accessibility of supermarkets, grocery and convenience stores ***OTHER INTERVENTION COMPONENT:*** *Multi-component:* Not reported *Complex:* Not reported	***DESIGN:*** Cross-sectional study ***DURATION:*** Not applicable ***SAMPLE SIZE:*** 918 pregnant women from the Pregnancy, Infection & Nutrition (PIN) cohort ***PRIMARY OUTCOME:*** Nutrition environment (DQI-P) ***MEASURES:*** 1. Self administered 120-item modified NCI-Block Food Frequency Questionnaire [validated] (socio-demographic characteristics, health habits and medical history, access to food outlets) 2. Arcview GIS (Geographical Information Systems) (construct density & distance measures, residential density and food retail outlets) ***DATA COLLECTION:*** A self-administered food frequency questionnaire was distributed at 26-28 weeks gestation, followed by a telephone interview at 26-31 weeks gestation which solicited information on socio-demographic characteristics, health habits and previous as well as current medical history on women who visited four prenatal care clinics. Updated nutrient values based on data from the US Department of Agriculture 1994-1996 Continuing Survey of Food Intake by Individuals for women ages 19-44 and folate values for fortified foods from the USDA's 1998 nutrient database were used in the nutrient composition table that generated daily intake values. Based on dietary data generated from the food frequency questionnaire, a diet quality index for pregnancy DQI-P was constructed. The DQI-P was treated as a categorical variable using tertiles to create cutpoints; the lowest was compared to the highest tertile. Residential addresses of women residing in Wake County, NC were geo-coded by Geographic Data Technology and the 561 street addresses of Wake County food retail outlets (obtained from the United States Department of Agriculture 2000 inspection registry) were also geocoded. Arcview GIS was used to visualize the relationship between where women live and the location of various food sources, and to construct density and distance measurements. ***LIMITATIONS:*** There was no information on the type of transportation women had available to them, where the women actually shopped or the quality or cost of foods at the various food retailers; geocoding can be inaccurate because of error inherent in the geo-referencing process; food retail data were collected in 2000 after women were recruited from 1995 to 2000 and therefore we do not know of changes in the food retail environment over these 5 years	Pregnant women 16 - 42 yrs old 62% lower-income 47.8% African American, 34.7% White, 17.5% Other ***ELIGIBILITY:*** Within 24-29 weeks' gestation, and attending one of four prenatal clinics in Wake County, NC ***EXPOSURE/ PARTICIPATION:*** Not applicable	***LEAD AGENCY:*** Researchers from the University of North Carolina Chapel Hill and University of Tennessee ***THEORY/ FRAMEWORK:*** Authors state the study is based on the theories of the food environment ***EVIDENCE-BASED:*** Not reported ***REPLICATION/ ADAPTATION:*** Not applicable ***ADOPTION:*** Not applicable ***IMPLEMENTATION:*** Not applicable ***FORMATIVE EVALUATION:*** Not reported ***PROCESS EVALUATION:*** Not reported	***RESOURCES:*** Not applicable ***FUNDING:*** Not reported ***STRATEGIES:*** Not applicable	***NUTRITION ENVIRONMENT:*** 1. Women living > 4 miles from a supermarket had a 3-fold greater probability of falling into the lowest compared to the highest DQI-P tertile (crude OR= 3.02, 95% CI: 1.8-5.2). 2. Women living > 4 miles from a supermarket had more than twice the odds of falling into the lowest compared to the highest DQI-P tertile compared to women living within 2 miles of a supermarket, after controlling for individual characteristics (age, race, marital status, income, and education) and distance to grocery and convenience stores (OR=2.16; 95% CI=1.2, 4.0). 3. Each 1-mile change in distance to the closest convenience store was associated with increased odds of falling into the lowest compared to the highest DQI-P tertile, after adjusting for individual characteristics (adjusted OR=1.17, 95% CI=1.02, 1.35). 4. No association was found between a 1-mile change in distance to the closest grocery store and a change in the odds of falling into the lowest compared to the highest DQI-P tertile.

Source	Intervention Components	Study Design and Execution	Reach	Adoption, Implementation and Process Evaluation	Enforcement/ Sustainability	Impacts and Outcomes
International						
Cummins, Petticrew (2005) Scotland	Development of a large scale food retail store in a deprived Scottish community ***OTHER INTERVENTION COMPONENTS:*** *Multi-component:* Not reported *Complex:* Not reported	***DESIGN:*** Non-randomized trial ***DURATION:*** On-going ***SAMPLE SIZE:*** 412 participants (191 Exposed, 221 Unexposed) ***PRIMARY OUTCOME:*** Nutrition ***MEASURES:*** 1. Questionnaires (fruit and vegetable consumption, self-psychological health and sociodemographic characteristics) ***DATA COLLECTION:*** Respondents were asked about portions of fruits and vegetables (F&V) consumed daily. Self-reported health was dichotomized to either 'good or excellent' or 'poor or fair.' Data on psychological health were collected using the general health questionnaire (GHQ-12). ***LIMITATIONS:*** Low response rate may cause selection bias; the study had low power to detect a true effect; possible over-reporting of F&V intake; the study focused on areas with high deprivation; hypermarket results may be mixed with other known or unknown interventions; the demographic profiles of intervention and comparison communities differed at baseline	General Population, Lower-income ***ELIGIBILITY:*** Not reported ***EXPOSURE/ PARTICIPATION:*** All residents living near the hypermarket were exposed to the intervention. Participant access (e.g., transportation, affordability of products) was not assessed.	***LEAD AGENCY:*** Department of Geography, Queen Mary, University of London; MRC Social and Public Health Sciences Unit; Institute for Retail Studies, University of Stirling ***THEORY/ FRAMEWORK:*** Not reported ***EVIDENCE-BASED:*** Not reported ***REPLICATION/ ADAPTATION:*** Not reported ***ADOPTION:*** Not reported ***IMPLEMENTATION:*** A hypermarket was opened in a lower income community in Glasgow. ***FORMATIVE EVALUATION:*** Not reported ***PROCESS EVALUATION:*** Not reported	***RESOURCES:*** 1. Developers to design, build and maintain the new store 2.10 pound shopping voucher for incentives ***FUNDING:*** The Department of Health-Reducing Health Inequalities Initiative funded the evaluation. Not reported for intervention. ***STRATEGIES:*** Not Reported	***NUTRITION:*** 1. After adjusting for baseline consumption, sex, age, employment, and education there is weak evidence for an effect of the intervention on mean fruit consumption (-0.03 portions/day, 95% CI: -0.25 to 0.30), mean vegetable consumption (-0.11 portions/day, 95% CI: -0.44 to 0.22), and fruit and vegetables combined (-0.10 portions/day, 95% CI: -0.59 to 0.40). 2. Among switchers (those who reported 'switching' their main food purchase from other stores to the hypermarket at follow up), adjusted analyses (for sex, age, employment and education) showed a minor increase in fruit (0.23 portions/day, 95% CI: -0.15 to 0.60), vegetable (0.09 portions/day, 95% CI: -0.36 to 0.54), and fruit and vegetable (0.35 portions/day, 95% CI: -0.33 to 1.03) consumption compared with non-switchers. ***OTHER:*** 3. Respondents with fair to poor self-reported health increased in the intervention area compared with the comparison area at follow-up (adjusted OR=1.52, 95% CI: 0.77 to 2.99). Conversely, the odds of having poor psychological health were reduced but were not statistically significant. 4. The odds of poor psychological health was reduced among switchers compared to non-switchers (adjusted OR=0.24, 95% CI: 0.09 to 0.66).

Source	Intervention Components	Study Design and Execution	Reach	Adoption, Implementation and Process Evaluation	Enforcement/ Sustainability	Impacts and Outcomes
Veugelers, Sithole (2008) Nova Scotia, Canada	Neighborhood access to shops with moderately priced fresh produce ***OTHER INTERVENTION COMPONENTS:*** *Multi-component:* 1. Access to parks, playgrounds and recreational facilities 2. Perceptions of safety from crime 3. Access to stores (mixed land-use) *Complex:* Not reported	***DESIGN:*** Cross-sectional study ***DURATION:*** Not applicable ***SAMPLE SIZE:*** 4,966 fifth grade students from 282 elementary schools ***PRIMARY OUTCOME:*** Overweight/obesity, nutrition, physical activity, and sedentary activity ***MEASURES:*** 1. Children's height and weight (N=4298) 2. Parental survey (socioeconomic status, neighborhood characteristics, child activities) 3. Child Harvard Food Frequency questionnaire (number of daily servings of fruits and vegetables [F&V], percentage of energy obtained from dietary fat) ***DATA COLLECTION:*** Children's height and weight measurements were collected by research assistants and public health staff. Children's physical activity was based on parental responses and characterized in terms of number of times per week the child engages in sports with/without a coach and number of hours per day child spends playing video games, watching TV or using the computer. Based on the food frequency questionnaire, diet was characterized in terms of 1) number of daily servings of F&V, 2) % energy obtained through dietary fat, and 3) a diet quality index ***LIMITATIONS:*** Study participation rates were slightly lower in residential areas with lower average household income, so the authors calculated response weights to overcome potential non-response bias	5-13 year olds, 10.8% Lower-income ***ELIGIBILITY:*** Children whose parents did not complete the parental survey, or who reported energy intakes less than 500 kcal or greater than 5,000 kcal per day were excluded from data analysis (n=1173). ***EXPOSURE/ PARTICIPATION:*** Not applicable	***LEAD AGENCY:*** University of Alberta- School of Public Health and the University of Saskatchewan ***THEORY/ FRAMEWORK:*** Not reported ***EVIDENCE-BASED:*** Not reported ***REPLICATION/ ADAPTION:*** Not applicable ***ADOPTION:*** Not applicable ***IMPLEMENTATION:*** Not applicable ***FORMATIVE EVALUATION:*** Not reported ***PROCESS EVALUATION:*** Not reported	***RESOURCES:*** Not applicable ***FUNDING:*** Canadian Population Health Initiative, Canadian Institute of Health Research New Investigator Award, Canada Research Chair in Population Health Scholarship, and Alberta Heritage Foundation for Medical Research Scholarship ***STRATEGIES:*** Not applicable	***OVERWEIGHT/OBESITY:*** 1. Children in neighborhoods with good access to shops were 26% less likely to be overweight (OR=0.74. 95% CI=0.60-0.91) and 33% less likely to be obese (OR=0.67, 95% CI=0.48-0.94) than children from neighborhoods with poor access to shops. 2. Children in neighborhoods with good access to playgrounds and parks were 24% less likely to be overweight (OR=0.76, 95% CI=0.62-0.95) and 29% less likely to be obese (OR=0.71, 95% CI=0.53-0.99) than children in neighborhoods with poor access. 3. Children in neighborhoods with good access to recreational facilities were 29% less likely to be overweight (OR=0.71, 95% CI=0.56-0.90) and 42% less likely to be obese (OR=0.58, 95% CI=0.40-0.84) than children in neighborhoods with poor access. 4. No association between neighborhood safety and overweight and obesity. ***NUTRITION:*** 5. Children in neighborhoods with the best access to shops (highest one-third) reported more consumption of F&V (incremental risk [IR] =1.04, 95% CI: 1.00-1.09), substantially less consumption of dietary fat (IR=0.51, 95% CI: 0.33-0.78), and a higher diet quality index (IR=2.26, 95% CI: 1.09-4.69) in comparison to neighborhoods with the poorest access to shops (lowest one-third). ***PHYSICAL ACTIVITY:*** 6. Children in neighborhoods with good access to playgrounds, parks and recreational facilities engaged more in sports with a coach than children in neighborhoods with poor access (IR=1.64, 95% CI: 1.38-1.95; IR=1.76, 95% CI: 1.47-2.12, respectively). 7. Children in safe neighborhoods engaged more in sports without a coach than children in unsafe neighborhoods (OR=1.23, 95% CI: 1.04-1.46). ***SCREEN TIME:*** 8. Children in neighborhoods with good access to playgrounds, parks and recreational facilities spent less time in front of a computer or TV screen than children in neighborhoods with poor access (IR=0.72, 95% CI: 0.62-0.84; IR=0.64, 95% CI: 0.55-0.75, respectively).

Source	Intervention Components	Study Design and Execution	Reach	Adoption, Implementation and Process Evaluation	Enforcement/ Sustainability	Impacts and Outcomes
Hackett, Boddy (2008) United Kingdom	Availability of food outlets ***OTHER INTERVENTION COMPONENTS:*** *Multi-component:* 1. Presence of land-use mix *Complex:* Not reported	***DESIGN:*** Cross-sectional study ***DURATION:*** Not applicable ***SAMPLE SIZE:*** 1,535 children from 90 primary schools in Liverpool ***OUTCOME:*** Nutrition ***MEASUREMENTS:*** 1. Food intake questionnaire (food consumption patterns) collected as part of the SportsLinx project (found to be valid and reliable) 2. ArcView geographic information system used to identify areas associated with the most and the least desirable eating habits 3. Ordinance survey census matching map (housing density, width of streets) 4. Direct observation of areas where children with the most and least desirable eating habits lived (green space, shops, food stores, traffic) ***DATA COLLECTION:*** Dietary data were collected as part of the annual SportsLinx 2004-2005 project. Children recorded whether or not they had eaten foods on a list of 44 specific foods, in any amount, during the previous day. The list of foods included 19 types that children would be encouraged to eat (positive markers, e.g., baked potato) and 25 types that children would be discouraged from eating (negative markers, e.g., chips). Total numbers of foods eaten was summed to give positive and negative marker scores, respectively. An Ordinance Survey grid reference was allocated to each child on the basis of his or her home postcode accurate to the nearest 100 meters (m) using a matching procedure available from the Census Dissemination Unit. These were plotted to produce point maps showing the geographical distribution of the children, subdivided by the four dietary groups. Kernal Density estimation was used in the geographical information system (GIS) ArcView to produce smoothed boundary free density maps to identify areas associated with the most and least desirable eating habits. In this way population density was produced for the four dietary groups. Areas where children with the most and least desirable eating habits were found to live were visited by the research team, and observations regarding the amount of green space, shops, food stores and traffic were observed. ***LIMITATIONS:*** Data from the questionnaire were self-reported; cross-sectional study design and therefore causal inferences cannot be made; two areas chosen as the focus of the study were selected somewhat subjectively	9-10 year olds, Overall data are presented from approx. 32% of Liverpool's 9-10 year old children. ***ELIGIBILITY:*** Only children with the least desirable and most desirable eating habits were used in the full analysis ***EXPOSURE/ PARTICIPATION:*** Not applicable	***LEAD AGENCY:*** Researchers from Liverpool John Moore University School of Social Science, Canadian Centre for Vaccinology, Liverpool Primary Care Trust, and the Research Institute for Sports and Exercise Sciences ***THEORY/ FRAMEWORK:*** Not reported ***EVIDENCE-BASED:*** Not reported ***REPLICATION/ ADAPTATION:*** Not applicable ***ADOPTION:*** Not applicable ***IMPLEMENTATION:*** Not applicable ***FORMATIVE EVALUATION:*** Not reported ***PROCESS EVALUATION:*** Not reported	***RESOURCES:*** Not applicable ***FUNDING:*** The study was funded by Liverpool City Council. ***STRATEGIES:*** Not applicable	***NUTRITION:*** 1. The area where children with the least desirable eating habits lived was found to have dense housing, small terraced houses, and narrow streets based on observations from the ordinance survey census matching map. Observations based on a visit to the area found no greenery, little space, many shops especially selling sweets and take-away meals (many boarded up), a large supermarket and several mini-markets and very heavy traffic on the "main" road. 2. The area where children with the most desirable eating habits lived was found to have less dense housing, larger terraced houses, wider streets, wider service ways and allotments based on observations from the ordnance survey census matching map. Observations based on a visit to the area found trees, grass and some flowers, small front gardens on all houses, more space to play, and no shops of any kind.

Source	Intervention Components	Study Design and Execution	Reach	Adoption, Implementation and Process Evaluation	Enforcement/ Sustainability	Impacts and Outcomes
Pearson, Russell (2005) United Kingdom	Access to supermarkets ***OTHER INTERVENTION COMPONENTS:*** *Multi-component:* 1. Fruit and vegetable (F&V) pricing *Complex:* 1. Area socioeconomic deprivation	***DESIGN:*** Cross-sectional study ***DURATION:*** Not reported ***SAMPLE SIZE:*** 426 household respondents from 4 electoral wards (2 rural, 2 urban) in South Yorkshire provided complete information ***PRIMARY OUTCOME:*** Nutrition ***MEASURES:*** 1. 24 hour food recall questionnaire (fruit and vegetable [F&V] intake) 2. Demographics questionnaire (grocery store use, car ownership, mobility) 3. Small area deprivation score (localized measure of socioeconomic deprivation) 4. Shopping basket survey (price and availability of four staple vegetables [carrots, onions, cauliflower, potatoes], two salad ingredients [lettuce, tomatoes], and three common fruits [apples, bananas, oranges], price per unit weight index employed for comparisons) ***DATA COLLECTION:*** Researchers mailed questionnaires to 1,000 randomly selected addresses in 4 electoral wards. Respondents recorded the number of portions/servings of F&V eaten per day with guidelines furnished by the researchers and also provided household demographic information. The researchers used respondents' postal codes to match a small area deprivation score for each address and to derive road travel distance from each home to the nearest supermarket. Grocery stores allowed the researchers to conduct shopping basket surveys to ascertain local prices. Researchers recorded the price of the lowest cost variety where multiple choices were available. A price per unit weight index was used in order to make price comparisons. All supermarkets were visited over a 14-day period. The researchers conducted data analyses. ***LIMITATIONS:*** 24-hour recall questionnaire was self-reported; the sample is limited to those drawn from 4 of 22 wards, limiting generalizability; logistics of conducting the shopping basket survey constrained the extent of the geographical coverage; regression models used data from closest supermarket, but a majority of respondents reported using more than one supermarket	Adults ***ELIGIBILITY:*** Four wards were selected to reflect diversity in grocery shopping facilities, material deprivation and level of urbanization. For the 1,000 addresses randomly selected from those wards to participate, the household member largely responsible for grocery shopping was asked to complete the questionnaire. Individuals with incomplete information were excluded from the analysis. ***EXPOSURE/ PARTICIPATION:*** Not reported	***LEAD AGENCY:*** The research team from the School of Health and Related Research at University of Scheffield ***THEORY/ FRAMEWORK:*** Not reported ***EVIDENCE-BASED:*** Not reported ***ADOPTION:*** Not applicable ***REPLICATION/ ADAPTATION:*** Not applicable ***IMPLEMENTATION:*** Not applicable ***FORMATIVE EVALUATION:*** Not reported ***PROCESS EVALUATION:*** Not reported	***RESOURCES:*** Not applicable ***FUNDING:*** Barnsley Metropolitan Borough Council ***STRATEGIES:*** Not applicable	***NUTRITION:*** 1. Deprivation, supermarket fruit and vegetable price, distance to nearest supermarket and potential difficulties with grocery shopping were not significantly associated with either fruit or vegetable consumption. 2. Male grocery shoppers ate less fruit, approximately one third of a portion per day, than female grocery shoppers (β=-0.30; 95% CI: -0.57, -0.02; p=0.04). 3. Consumption of vegetables increased slightly with age, by one-tenth of a serving per day per 15 year age increment (β=0.12; 95% CI: 0.00, 0.23; p=0.05). 4. There was a similar trend of an increase in fruit consumption with age, but the effect was not statistically significant (β=0.13 servings/day/15 year age increment; 95% CI: -0.01, 0.27; p=0.07).

Source	Intervention Components	Study Design and Execution	Reach	Adoption, Implementation and Process Evaluation	Enforcement/ Sustainability	Impacts and Outcomes
Rabin, Boehmer (2007) Europe	Neighborhood availability of fruits and vegetables in food stores ***OTHER INTERVENTION COMPONENTS:*** *Multi-component:* 1. Urbanization (urban population density) 2. Public transportation 3. Density of motorways *Complex:* Not reported	***DESIGN:*** Cross-sectional study ***DURATION:*** Not applicable ***SAMPLE SIZE:*** Approximately 591 million participated in this study that was conducted in 24 European countries. ***PRIMARY OUTCOME:*** Overweight/obesity ***MEASURES:*** 1. National-level Surveys and Databases (self-reported body mass index [BMI], disease prevalence, total amount of food available for consumption, percent of total energy available from fat, average available fruits and vegetables per person, urbanization, number of people living in a household, number of vehicles per household, price of gasoline, percentage of paved roads, density of motorways, government policies [accountability, stability, effectiveness, regulatory quality, control of corruption, rule of law], economic components [gross domestic product, students in tertiary education, unemployment rates]) 2. Geographical Information System (GIS) software (mapped data of obesity prevalence) ***DATA COLLECTION:*** A search was performed to identify physical, economic, and policy macro-environmental indicators from databases of international health, economic, and other governmental organizations for the selected countries. Databases included: World Health Organization non-communicable diseases InfoBase, World Health Organizations European Health for All Databases; the United Nations Economic Commission for Europe/Environment and Human Settlements Division trends in Europe and North America; the World Bank Institute World Development Indicators; the Panorama of transport, statistical overview of transport in the EU, European Commission, and Eurostat; and the World Bank Institute Governance indicators for 1996-2002. Average governance indicator was calculated as a mean of the six policy variables for each country. ***LIMITATIONS:*** Cross-sectional study design introduces potential biases and cannot establish temporality; conclusions are limited to country-level associations, ignoring within-country variations and individual-level associations; self-reported obesity data was used; quality of data identified from international databases may differ depending upon the accuracy and methodology used by reporting countries; not all countries had the same types of information	General population As part of the selection criteria only studies that were nationally representative (both rural and urban samples) and based on self-reported data were used. ***ELIGIBILITY:*** Countries were eligible if they had data in all 3 of the obesity categories. ***EXPOSURE/ PARTICIPATION:*** Not applicable	***LEAD AGENCY:*** The research team was from Saint Louis University. ***THEORY/ FRAMEWORK:*** Ecological model ***EVIDENCE-BASED:*** Not reported ***REPLICATION/ ADAPTATION:*** Not applicable ***ADOPTION:*** Not applicable ***IMPLEMENTATION:*** Not applicable ***FORMATIVE EVALUATION:*** Not reported ***PROCESS EVALUATION:*** Not reported	***RESOURCES:*** Not applicable ***FUNDING:*** Not reported ***STRATEGIES:*** Not applicable	***OVERWEIGHT/OBESITY:*** 1. Overall obesity prevalence was inversely associated with economic variables (real domestic product: β=-0.175, p=0.002; gross domestic product: β=-0.168, p<0.001), food availability (available fat: β=-0.323, p=0.010, available fruits/vegetables: β=-0.019, p=0.049), urbanization (urban population: β=-0.095, p=0.080), transportation (total passenger cars: β=-0.017, p<0.001, new passenger cars: β=-0.081, p=0.018, price of gasoline: β=-0.095, p=0.042, paved roads: β=-0.064, p=0.033, motorways: β=-0.224, p=0.022), and policy (governance indicator: β=-2.528, p=0.007). 2. Female obesity prevalence was inversely associated with economic variables (real domestic product: β=-0.257, p=0.001), food availability (available fat: β=-0.399, p=0.004), transportation (passenger cars: β=-0.020, p<0.001, new passenger cars: β=-0.087, p=0.028, price of gasoline: β=-0.096, p=0.041, paved roads: β=-0.073, p=0.032, density of motorways: β=-0.227, p=0.030), and policy (governance indicator: β=-3.575, p<0.001). 3. Male obesity prevalence was inversely associated with available fruits/vegetables (β=-0.022, p=0.028) and density of motorways (β=-0.197, p=0.067).

REFERENCES

Bodor, J.N., Rose, D., Farley, T.A., Swalm, C., and Scott, S.K. (2008). Neighbourhood fruit and vegetable availability and consumption: The role of small food stores in an urban environment. *Public Health Nutrition*. 11(4): 413-420.

Boehmer, T.K., Lovegreen, S.L., Haire-Joshu, D., Brownson, R.(2006). What Constitutes an Obesogenic Environment in Rural Communities? *American Journal of Health Promotion*. 20(6):411-421.

Cummins, S., Petticrew, M., Higgins, C., Findlay, A., and Sparks, L. (2005). Large scale food retailing as an intervention for diet and health: Quasi-experimental evaluation of a natural experiment. *Journal of Epidemiology and Community Health*. 59: 1035-1040.

Franco, M., Diez-Roux, A.V., Nettleton, J.A., Lazo, M., Brancati, F., Caballero, B., Glass, T., and Moore, L.V. (2009). Availability of healthy foods and dietary patterns: The Multi-Ethnic Study of Atherosclerosis. *American Journal of Clinical Nutrition*. 89(3): 897-904.

Hackett, A., Boddy, L., Boothby, J., Dummer, T.J., Johnson, B., and Stratton, G. (2008). Mapping dietary habits may provide clues about the factors that determine food choice. *Journal of Human Nutrition and Diet*. 21(5): 428-437.

Inagami, S., Cohen, D.A., Finch, B.K., and Asch, S.M. (2006). You are where you shop: Grocery store locations, weight, and neighborhoods. *American Journal of Preventive Medicine*. 31(1): 10-17.

Laraia, B.A., Siega-Riz, A.M., Kaufman, J.S., and Jones, S.J. (2004). Proximity of supermarkets is positively associated with diet quality index for pregnancy. *Preventative Medicine*. 39(5): 869-875.

Moore, L.V., Diez Roux, A.V., Nettleton, J.A., and Jacobs, D.R., Jr. (2008). Associations of the local food environment with diet quality--a comparison of assessments based on surveys and geographic information systems: The multi-ethnic study of atherosclerosis. *American Journal of Epidemiology*. 167(8): 917-924.

Morland, K., Diez Roux, A.V., and Wing, S. (2006). Supermarkets, other food stores, and obesity: The atherosclerosis risk in communities study. *American Journal of Preventive Medicine.* 30(4): 333-339.

Mushi-Brunt, C., Haire-Joshu, D., Elliott, M.B., and Brownson, R.C. (2007). Fruit and vegetable intake and obesity in preadolescent children: The role of neighborhood poverty and grocery store access. *American Journal of Health Education*. 38(5): 258-265.

Pearson, T., Russell, J., Campbell, M.J., Barker, M.E. (2005). "Do 'food deserts' influence fruit and vegetable consumption?--a cross-sectional study." *Appetite* 45: 195-197.

Powell, L.M., Auld, M.C., Chaloupka, F.J., O'Malley, P.M., and Johnston, L.D. (2007). Associations between access to food stores and adolescent body mass index. *American Journal of Preventive Medicine*. 33(4 Suppl): S301-307.

Powell, L.M. and Bao, Y. (2009). Food prices, access to food outlets and child weight. *Economics and Human Biology*. 7(1): 64-72.

Rabin, B., Boehmer, T., Brownson, R. (2007). "Cross-national comparison of environmental and policy correlates of obesity in Europe." *Eur J Public Health* 17(1): 53-61.

Rose, D. and Richards, R. (2004). Food store access and household fruit and vegetable use among participants in the US Food Stamp Program. *Public Health Nutrition*. 7(8): 1081-1088.

Veugelers, P.J., Sithole, F., Zhang, S., and Muhajarine N. (2008). Neighbourhood characteristics in relation to diet, physical activity and overweight of Canadian children. *International Journal of Pediatric Obesity*. 3(3): 152-159.

Wang, M.C., Kim, S., Gonzalez, A.A., MacLeod, K.E., and Winkleby, M.A. (2007). Socioeconomic and food-related physical characteristics of the neighbourhood environment are associated with body mass index. *Journal of Epidemiology and Community Health*. 61(6): 491-498.

Zenk, S.N., Lachance, L.L., Schulz, A.J., Mentz, G., Kannan, S., and Ridella, W. (2009). Neighborhood retail food environment and fruit and vegetable intake in a multiethnic urban population. *American Journal of Health Promotion*. 23(4): 255-264.