

Using a Grocery List is Associated with Higher Diet Quality but not BMI in Parents of School-Aged Children.

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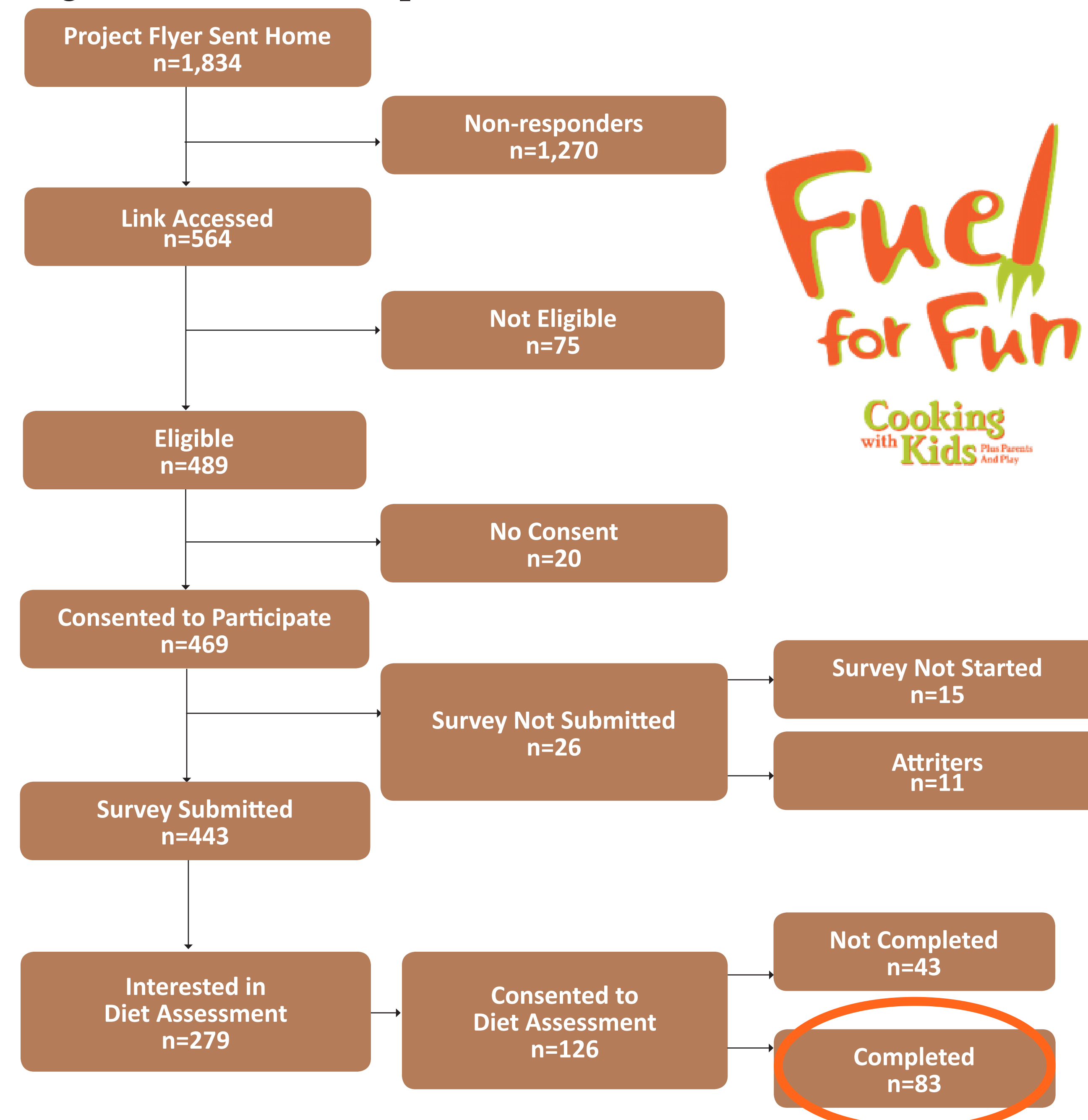
Abstract

Parents (n=356) of children participating in *Fuel for Fun*, a school-based culinary and physical activity intervention, completed online, tested surveys on BMI, socio-demographics and eating behaviors. A subset (n=83) completed ASA24 dietary assessment to obtain Healthy Eating Index (HEI). Participants who shopped with a grocery list “most of the time” or “almost always” were dichotomized versus those responding “sometimes/seldom/do not”. Independent samples t-tests compared differences in eating behavior, HEI and BMI by grocery list use. Ordinary least squares regression models measured the association between shopping with a list and HEI or BMI controlling for covariates. Parents (mean age 38.0 ± 6.5 y) were mostly white, non-Hispanic (87%), female (87%), and highly educated. BMI was overweight/obese for 42%. Total HEI ranged from 22.0 – 77.4, mean 55.5 ± 12.4 SD; grocery list users reported higher HEI (n=62, mean 57.8 ± 11.9 SD) relative to non-users (n=20, mean 48.0 ± 11.1 SD, p=0.002). No difference in mean BMI by use of grocery list was noted (p=0.10). Adjusted regression model indicated total HEI was higher among participants who consistently used a grocery list by 8.3 points (p=0.009), but use of a grocery list was not associated with BMI (p=0.11). Adopting routine use of grocery lists appears to be a feasible, low-tech, no-cost approach associated with higher dietary quality.

Objective

To examine the association between consistent use of a grocery list with baseline dietary quality and BMI among parent participants enrolled in *Fuel for Fun*, a year long, classroom based, culinary and physical activity intervention for 4th graders.

Figure. Parent Participation Flowchart



Methods

Recruitment

- Parents of 4th graders in 8 participating schools (32 classrooms) received paper and electronic flyers announcing the study and a link to an online consent and survey.
- Parents interested in the dietary study component received a link to an online consent and were contacted by the Pennsylvania State University Diet Assessment Center.

- The study was approved by IRBs at Colorado and Pennsylvania State Universities & the Rochester Institute of Technology.
- Parents completed the survey online using Qualtrics (Provo, UT) to provide sociodemographics, self-reported weight and height, current/former SNAP, and the following target measurements:

Target Measurement	Instrument & Description
Grocery List Use	How often do you shop with a grocery list? 5 response options: Do not, Seldom, Sometimes, Most of the time, Almost always. Ascertained as part of a validated 19-item survey about how individuals plan and fix food.
Healthy Eating Index (HEI)	Dietary intake data for 24-hour recalls collected and analyzed using the Automated Self-Administered 24-hour (ASA24) Dietary Assessment Tool, versions 2011 & 2014. ¹
Eating Competence	Satter Eating Competence Inventory ² (ecSI 2.0). 16 items, 5 response options scored from 3 to 0. Possible score 0 - 48; scores ≥ 32 indicate eating competence. Cronbach α 0.87.

Data Analysis

- Frequency of grocery list use was dichotomized into consistent (“most of the time/almost always”) and inconsistent (“sometimes/seldom/do not”).
- HEI-2010 was calculated by averaging up to 3 days of intake.
- Descriptive characteristics were calculated and the primary predictor (consistent or inconsistent grocery list use) and outcomes (HEI and BMI) were characterized.
- Variation in baseline characteristics by use of a grocery list was tested using independent samples t-tests.
- Separate ordinary least squares regression models examined the association between grocery list use, and (1) dietary quality was measured by HEI and (2) BMI, after controlling for race/ethnicity, education, gender, eating competence, and SNAP participation.
- All analyses were conducted using SPSS (24.0, 2016; Armonk, NY).

References

¹Kirkpatrick SI, Subar AF, Douglass D, Zimmerman TP, Thompson FE, Kahle LL, George SM, Dodd KW, Potischman N. *Am J Clin Nutr*. 2014;100:233-40.
²Lohse B, Satter E, Horacek T, Gebreselassie T, Oakland MJ. *J Nutr Educ Behav*. 2007; 39 (5s):S154-S166.

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Results

Table 1. Descriptive characteristics of parents with dietary data at baseline (n=83)

	n (%)
Gender	
Female	72 (87)
Race/ethnicity	
White, non-Hispanic	72 (87)
White, Hispanic	5 (6)
American Indian/Alaskan Native/Asian/Multiple	6 (7)
Age, years, Mean (SD)	38.0 (7)
BMI categories	
Underweight	1 (1)
Normal weight	47 (57)
Overweight	20 (24)
Obese	15 (18)
Education	
High school graduate	4 (5)
Some college	15 (18)
4-year college graduate	34 (41)
Post-graduate college	30 (36)
Eating Competence¹	
Eating competent	44 (56)
Use of grocery list²	
Most of the time	31 (38)
Almost always	31 (38)
Sometimes	16 (20)
Seldom	3 (4)
Do Not	1(1)
SNAP participation	
Current SNAP participant	8 (10)
Previous SNAP participant	9 (11)
Never participated in SNAP	66 (80)

Table 2. Parent characteristics by grocery list use¹

Survey	n	Range	Consistent grocery list use, n=62	Inconsistent grocery list use, n=20	p-value ²
Mean (SD)					
Healthy Eating Index	83	22-77	57.8 (11.9)	48.0 (11.1)	0.002
Body Mass Index	83	16-48	24.9 (5.2)	27.3 (7.1)	0.097
Eating Competence ³	79	17-48	34.1 (7.0)	32.5 (8.3)	0.397
Fruit availability	83	1-8	4.8 (1.3)	4.4 (1.7)	0.301
Vegetable availability	83	2-9	6.6 (1.7)	7.1 (1.7)	0.282
Fruit & vegetable availability	83	5-18	12.0 (2.6)	13.3 (2.7)	0.057

¹Participants reporting using a grocery list “most of the time” or “almost always” were classified as consistent grocery list users, participants reported using a grocery list “sometimes”, “seldom” or “do not” were classified as inconsistent grocery list users.
²Assessed by independent sample t-tests
³Eating competence missing for n=4 participants, all of whom were consistent grocery list users

- Consistent use of a grocery list was associated with an increase in HEI increase of 8.25 points, independent of race, gender, education, SNAP participation, and eating competence (Table 3).
- Consistent use of a grocery list was not associated with BMI (p=0.11).

Table 3. Predicting HEI and BMI with shopping list use: ordinary least-square regression model of associations between sociodemographics, eating competence, and grocery list use (n=79)

Variable	HEI			BMI		
	β-coefficient	Standard Error	2-tailed P	β-coefficient	Standard Error	2-tailed P
Shops with a grocery list	8.25	3.06	0.009	-2.34	1.44	0.110
Female	0.61	3.78	0.872	-0.22	1.78	0.900
White/non-Hispanic	3.27	8.32	0.696	2.98	3.92	0.449
Highest degree of education	0.36	1.55	0.816	0.15	0.73	0.835
Current or former SNAP participant	-8.41	3.27	0.013	2.07	1.54	0.184
Eating competent	7.40	2.68	0.007	-3.59	1.26	0.006

Results in bold are P < 0.05

Conclusions

Consistent use of a grocery list was associated with a higher dietary quality, but was not associated with BMI. Adopting routine use of grocery lists appears to be a feasible, low-tech, no-cost approach associated with higher dietary quality.