

Impact of Personal Preference and Motivation on Fruit and Vegetable Consumption of WIC-Participating Mothers and Children in Atlanta, GA

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ABSTRACT

Objective: To determine the effect of psychosocial and sociodemographic factors on consumption of fruits and vegetables (F&V) for women and children participating in the Atlanta Special Supplemental Nutrition Program for Women, Infants, and Children.

Methods: Participants (n = 249) were selected from 2 Atlanta Special Supplemental Nutrition Program for Women, Infants, and Children agencies. Data from this analysis were collected from in-person interviews. The dichotomous dependent variable was whether participants met recommended intakes for F&V. Independent variables were personal preference and motivation factors of F&V consumption, and sociodemographic factors. Bivariate analysis determined significant factors to include in logistic models.

Results: Only 27.7% of mothers and 44.2% of their oldest child consumed > 5 servings of F&V daily. Not knowing how to prepare F&Vs and spoilage of F&V before eating them were significantly related to F&V consumption of mothers.

Conclusions and Implications: Food storage and preparation resulted in significant differences in meeting criteria for F&V consumption. Future initiatives should include cooking classes and emphasize food preparation techniques.

Key Words: WIC, fruit, vegetable, nutrition education (*J Nutr Educ Behav.* 2014;46:62-67.)

INTRODUCTION

Fruit and vegetable (F&V) consumption is associated with decreased risk of chronic diseases such as cancer, stroke, cardiovascular disease, and obesity.¹⁻⁴ In the United States, only a quarter of adults and 1 in 5 children meet the suggested daily intake of 5 servings of F&V.^{5,6} In addition, 51% of these children consume < 1 serving of vegetables daily.⁶

Low-income populations have been linked to poor dietary patterns, specifically with lower intake of F&V.^{5,7-11} The lack of availability and convenience of healthy foods in low-income neighborhoods results in

lower F&V intake.^{7,9,12} The government has created food subsidies to help supplement the nutrition intake of low-income pregnant women and children < 5 years of age.¹³⁻¹⁷

The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) was established in the 1970s to provide supplemental nutrition to low-income pregnant and breast-feeding women along with infants and children up to 5 years old who are at nutritional risk.¹³ In addition to WIC subsidies, the Farmer's Market Nutrition Program was introduced in 1992 to provide coupons for WIC recipients to receive fresh, locally grown F&V.¹⁷

In 2007, WIC revised their package to provide opportunities to increase F&V intake.^{13,17} Both the Farmer's Market Nutrition Program and the updated WIC package are policy-based approaches aimed to increase the intake of F&V in pregnant women, infants, and children.^{13,15,16}

Low intake of F&V in low-income populations has been attributed to multiple sociodemographic and psychosocial factors.^{9,18-21} Sociodemographic variables of race, education, marital status, and smoking status were examined in prior studies, with mixed out-comes.^{9,18,21} Psychosocial factors of perceived environment, self-efficacy, knowledge, attitude, and social support are evidenced to influence F&V consumption, especially in low-income populations.^{9,19,20} These studies have shown that self-efficacy and positive reinforcement are correlated with F&V consumption. Moreover, many studies have shown that sociodemographic factors influence the effect of psychosocial factors on F&V intake.²²

The primary objective of the present study was to examine the relationship between psychosocial factors (personal preferences and motivation

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for healthy eating habits) and the consumption of F&V among mothers and children participating in the WIC program in the metro-Atlanta area. Sociodemographic factors were also examined as possible confounders of the relationship with F&V consumption. Understanding personal preferences and motivation will allow the WIC program to improve the effectiveness of its nutrition education efforts to increase F&V consumption.²³

METHODS

Study Population

Participants were selected from 2 metro-Atlanta WIC agencies. All 249 participants of the study met the following inclusion criteria: at least 18 years of age, English as the primary language; received WIC coupons or vouchers at the WIC clinic; had at least 1 child receiving WIC vouchers between the age of 1 and < 5 years (if mother had > 1 child receiving WIC, only the oldest child's F&V consumption was surveyed); and received WIC vouchers on date of interview.

Data Collection

Data were collected during 3 survey-based interviews with participants (baseline in-person interview; 1-week and 1-month follow-up telephone interviews). Only data from the baseline survey were used in this analysis, because psychosocial and sociodemographic data were only collected during this survey. Participants were selected and interviewed between April and October, 2009 and signed a consent form before completing the baseline survey. The study protocol was approved by the Emory University Institutional Review Board.

Outcome Variable: F&V Consumption

The baseline survey asked 6 questions pertaining to F&V intake for the mother and the oldest child receiving the food voucher, based on standard questions from the National Health and Nutrition Survey Questionnaire and the Behavioral Risk Factor Surveillance System Questionnaire.^{24,25} The questions asked about the daily or weekly consumption of 6 different

categories of F&V: fruit juice, fruit, green salad, potatoes (not including french fries), carrots, and other vegetables. Weekly consumption of each of the 6 F&V categories was added together for total F&V weekly consumption. Participants who answered with "Never," "Do not know," or "Refused" were given a 0 value to denote no intake of that F&V category. The total weekly intake for each participant was divided by 7 for average daily intake. The daily intake was compared with the suggested daily intake of 5 servings per day to determine whether each participant met the criterion.^{5,6} A final dichotomous variable was created classifying participants as "Meets criterion" and "Does not meet criterion." This procedure was conducted separately for both the mother and the oldest child.

Exposure Variable: Psychosocial Factors

The psychosocial factors included in this study focused on personal preference and motivation factors of F&V consumption for participants. A total

of 13 subtopics of personal preference and motivation were asked in the baseline survey, with 3 response options: "Disagree," "Agree," and "Neutral." After performing a correlation analysis, 8 of the 13 exposure statements were chosen for the final model. For each variable, the odds ratio signifies the odds the participant has of eating F&V if they agreed with the statement, compared with those who did not agree with the statement. The remaining 5 statements were eliminated because of a strong correlation with another question or a lack of relevance to the study of psychosocial effects and F&V consumption (Table 1).

Covariates: Sociodemographic Factors

Six sociodemographic variables (age, race, marital status, education, number of children in household, and number of adults in household) were identified as potential covariates based on information provided in other studies.^{9,12,18-23,26,27} An additional question regarding "concern about having enough money to eat

Table 1. Likelihood of WIC Mothers Consuming Fruits and Vegetables (n = 248)

Parameter	Estimate	OR	CI	P
Did not grow up eating many F&V	0.09	1.09	(0.66–1.81)	.73
Do not like the taste of F&V	0.12	1.13	(0.69–1.84)	.64
Already eat plenty of F&V	–0.47	0.62	(0.40–0.98)	.04*
Do not know when F&V in season	–0.05	0.95	(0.65–1.37)	.77
Difficult to store fresh F&V	0.45	1.56	(0.85–2.87)	.15
F&V often spoil before I eat them	0.42	1.53	(1.07–2.19)	.02*
Do not know how to prepare most F&V	0.77	2.16	(1.02–4.58)	.04*
Fresh F&V cost too much	–0.16	0.85	(0.60–1.22)	.38
Age	–0.02	0.99	(0.96–1.02)	.34
Race	3.13	22.97	(0–1,000)	.99
Marital status	0.02	1.02	(0.65–1.60)	.92
Education	–0.07	0.94	(0.66–1.33)	.71
Children in household	–0.04	0.97	(0.78–1.19)	.74
Adults in household	–0.09	0.91	(0.70–1.19)	.49
Concerned about money	0.52	1.67	(0.88–3.17)	.12

CI indicates confidence interval; F&V, fruits and vegetables; OR, odds ratio; WIC, Special Supplemental Nutrition Program for Women, Infants, and Children.

* $P < .05$ is considered significant.

Note: The statistical test used was odds ratios from logistic regression. For each variable, the odds ratio signifies the odds the participant has of eating F&V if they agreed with the statement, compared with those who did not agree with the statement.

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