

Healthy Retail in Arizona- Working with SNAP

Personal and environmental factors associated with fruit and vegetable purchasing among Supplemental Nutrition Assistance Program (SNAP)-Authorized stores in Tucson, Arizona

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Background

In Pima County, 73 percent of the population does not meet the US Department of Agriculture guidelines for fruit and vegetable (FV) consumption.¹

Objective

To identify personal and environmental factors associated with the purchase of FVs.

Study Design & Setting

- Stores**
 - Six independently owned SNAP-authorized food retail outlets in Tucson, AZ.
 - Purposefully selected based on:
 - SNAP-authorization
 - Three or fewer checkouts
 - 1-mile radius of a school
 - Food desert census tracts²
 - Excluded stores: Gas stations, specialty stores such as liquor stores, bakeries, or butcheries, wholesale or super stores, dollar stores, pharmacies (n=477)
- Surveys**
 - In-person adult (≥18 years) validated survey³ (N=72)
 - Offered in English or Spanish
 - Survey questions included, shopping habits (n=20), health outcomes (n=14), and customer demographic (n=7)
 - A Likert scale (1-4, 4 being the highest) rated the store's environmental factors.

Analysis

- Tested for an association between FV purchasing and **personal** and **environmental** factors (color coded in tables).
- Bivariate logistic regression was used to test the associations between seven single independent variables and FV purchasing.
- Multiple logistic regression was used to include six independent variables in a single model, excluding SNAP participation.

Table 1. Participant Characteristics

Variables	Total n=72 n (%)	Bought FV n=33 (col. %)	No FV n=39
Gender			
Male	23 (31.94)	4 (12.12)	19 (48.72)
Female	49 (68.06)	29 (87.88)	20 (51.28)
Age			
18-29	25 (34.72)	6 (18.18)	19 (48.72)
30-39	12 (16.67)	6 (18.18)	6 (15.38)
40-49	15 (20.83)	10 (30.30)	5 (12.82)
50+	20 (27.78)	11 (33.33)	9 (23.08)
Race/Ethnicity			
White	14 (19.44)	3 (9.09)	11 (28.21)
Hispanic	43 (59.72)	23 (69.70)	20 (51.28)
Non-White/Non-Hispanic	15 (20.83)	7 (21.21)	8 (20.51)
Mode of Transportation			
Walk/Bike/Friend	22 (30.56)	4 (12.12)	18 (46.15)
Car/Bus	50 (69.44)	29 (87.88)	21 (53.85)
Fruit and Vegetable Rating			
Poor	28 (38.89)	7 (21.21)	21 (53.85)
Good	44 (61.11)	26 (78.79)	18 (46.15)
Influence of FV display on purchasing FVs			
None/little/some	36 (50.00)	11 (33.33)	25 (64.10)
A great deal/all of the influence	36 (50.00)	22 (66.67)	14 (35.90)
SNAP participant			
No	50 (69.44)	25 (75.76)	25 (64.10)
Yes	22 (30.56)	8 (24.24)	14 (35.90)

Table 2. Multiple Logistic Regression

Variables	Odds Ratio	95% CI	p-value
Gender			
Male	Reference		
Female	6.97	1.32, 36.82	0.02
Age			
18-29	Reference		
30-39	3.10	0.32, 30.24	0.33
40-49	6.96	0.75, 65.08	0.09
50+	4.93	0.43, 44.12	0.09
Race/Ethnicity			
White	Reference		
Hispanic	4.05	0.43, 38.02	0.22
Non-White/Non-Hispanic	4.38	0.43, 44.12	0.21
Mode of Transportation			
Walk/Bike/Friend	Reference		
Car/Bus	6.50	1.22, 34.55	0.03
Fruit and Vegetable Rating			
Poor	Reference		
Good	15.65	2.81, 87.04	<0.01
Influence of FV display on purchasing FVs			
None/little/some	Reference		
A great deal/all of the influence	5.31	1.20, 23.61	0.03

Results

- The majority of respondents were women (68%, n=49) and Hispanic (60%, n=43) (**Table 1**).
- Among those who bought FV (n=33), SNAP participation was low (24%, n=8) (**Table 1**).
- In the bivariate tests, SNAP participation was the only variable not significantly associated with FV purchasing (**data not shown**).
- The multiple logistic model (**Table 2**) showed positive and significant associations with purchasing FVs by:
 - Females (OR=6.97, p=0.02),
 - Travel by car or bus (OR=6.50, p=0.03),
 - Positive rating of FV quality (OR=15.65, p<0.01)
 - FV display (OR=5.31, p=0.03).
- Age and race/ethnicity were not significant in the adjusted model.

Conclusion

- Shoppers, especially women, who rated FV quality positively, were strongly associated with purchasing FVs.
- Tucson grocers may improve the probability of FV purchases by allocating resources (**Figure 1**) to improve fresh FV quality ratings.
- The mode of transportation may be a proxy indicator for distance traveled to a SNAP-authorized store or wealth and resources available to an individual. More investigation is needed to better understand the strong relationship between mode of transportation and the purchase of FV.

References

- Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System. Accessed via the Health Indicators Warehouse. US Department of Health & Human Services, Health Indicators Warehouse. 2005-09. Source geography: County
- USDA Economic Research Service <https://www.ers.usda.gov/data-products/food-access-research-atlas/documentation/>
- "Shop Healthy Iowa" (manuscript in process), by Baquero, B., Santos, N., et al. The University of Iowa.

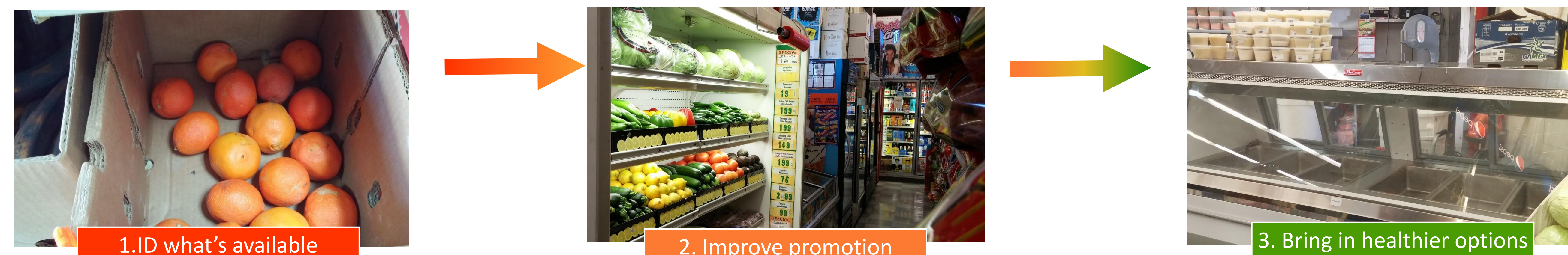


Figure 1. Order of Activities when implementing Healthy Retail strategies