

Not All Grocers Are Created Equal: The Impact of Store Type on Food Access and Diet in Detroit

Aeneas Koosis^a, Alex B Hill^b and Alyssa Beavers^a;
Department of Nutrition and Food Science^a Department of Urban Studies and Planning^b



WAYNE STATE
UNIVERSITY

Detroit's food landscape reflects broader inequities: Independent store use was linked to food insecurity, while transport access correlates with better nutrition.

Background

Detroit's food environment has a high proportion of independent grocery stores, which often have limited selections, higher prices, and lower quality compared to major supermarket chains, potentially leading to difficulties in accessing healthy food for those who rely solely on independent grocers¹⁻².

Specific Aims

To analyze how socioeconomic factors, food access barriers, and neighborhood characteristics shape grocery shopping behaviors and fruit/vegetable consumption among Detroit residents.

Methods

Respondents were recruited through a cross-sectional survey of 656 Detroit adults from December 2021 to May 2022.

Outcome measures

- Fruit and vegetable intake frequency was measured using the Dietary Screener Questionnaire.
- The type of grocery store used (chain vs. independent).
- Food security status using the USDA 6-item module.
- Transportation was assessed using Food Access and Food Security During COVID-19 Survey

Statistical Analysis

- Bivariate associations were tested using chi-square tests for categorical variables and rank-sum tests for ordinal or non-normal continuous variables
- Open-ended questions captured participants' experiences regarding household food needs.

Results

Figure 1. Demographic of Detroit Grocery Shoppers (n=575)

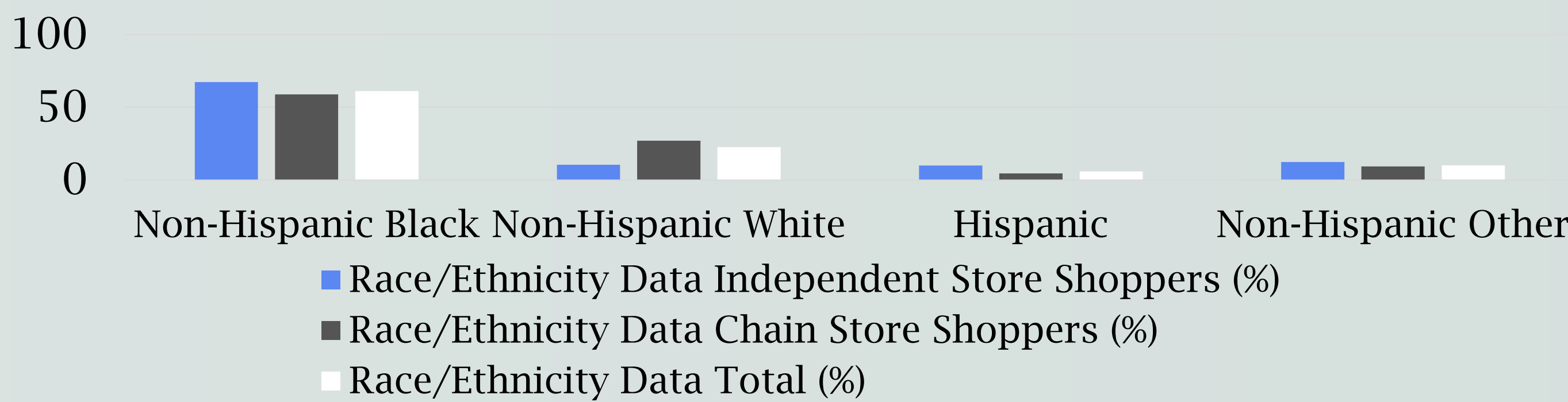


Figure 2. Education Levels of Detroit Grocery Shoppers (n=575)

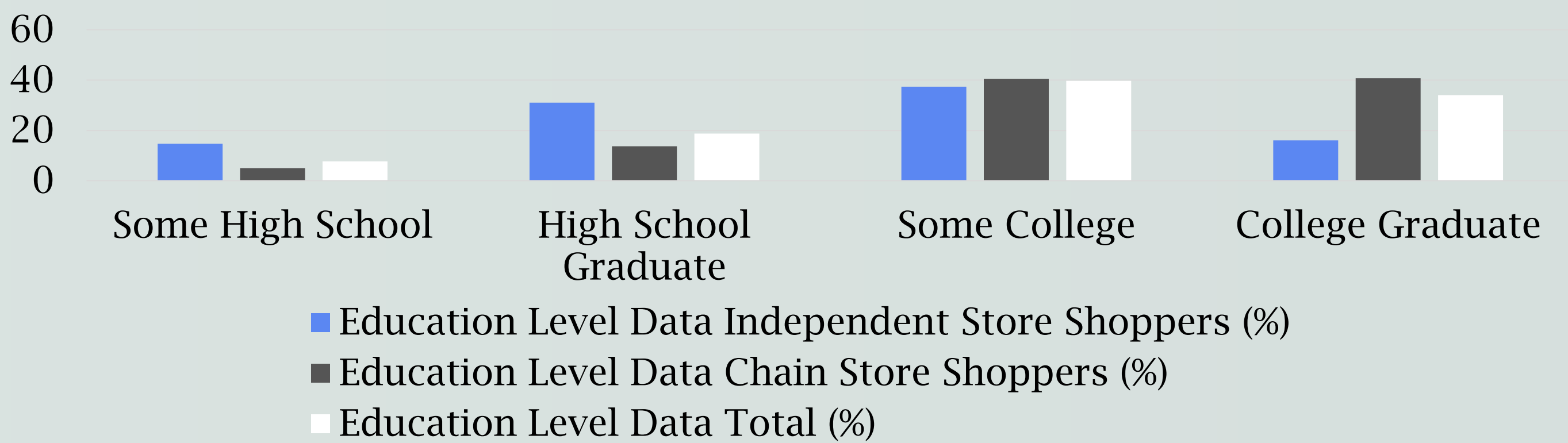
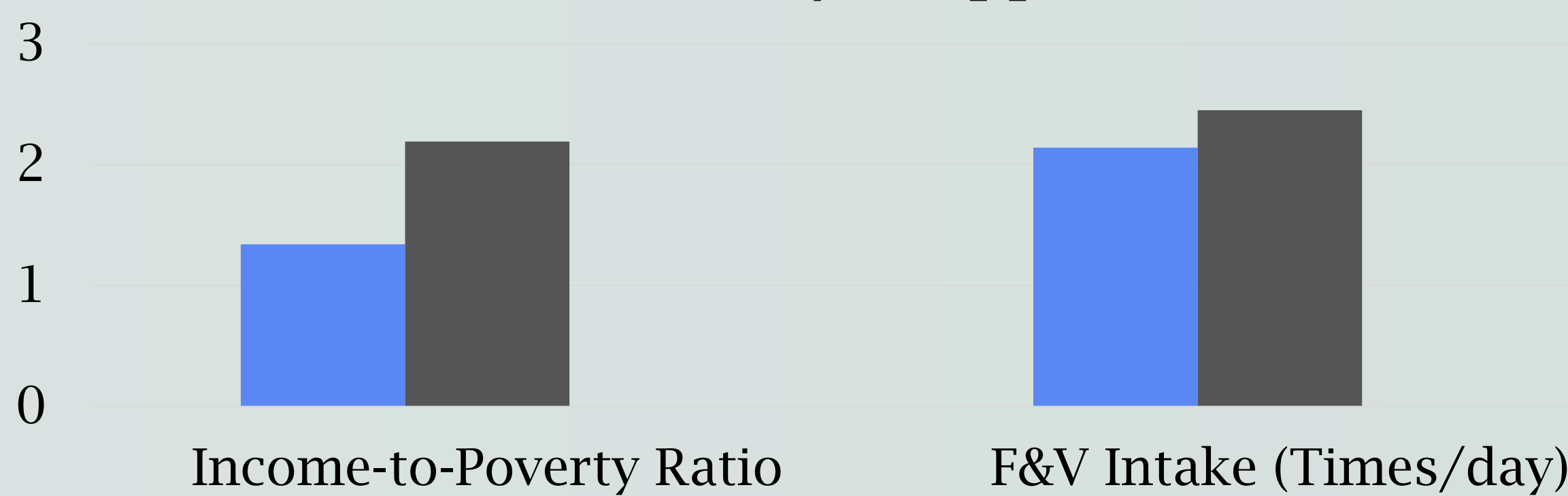


Figure 3. Income to Poverty and F+V Intake of Detroit Grocery Shoppers (n=575)



Note: Percentages/n values may not sum to 100% due to rounding and/or missing responses. Chain store shoppers have significantly higher IPR (2.20 vs 1.31), Consume more fruit and vegetables (2.5 vs 2.1), Black Shoppers and lower education shop more at independent stores

Figure 4. Food security status of independent grocery shoppers (n=575)

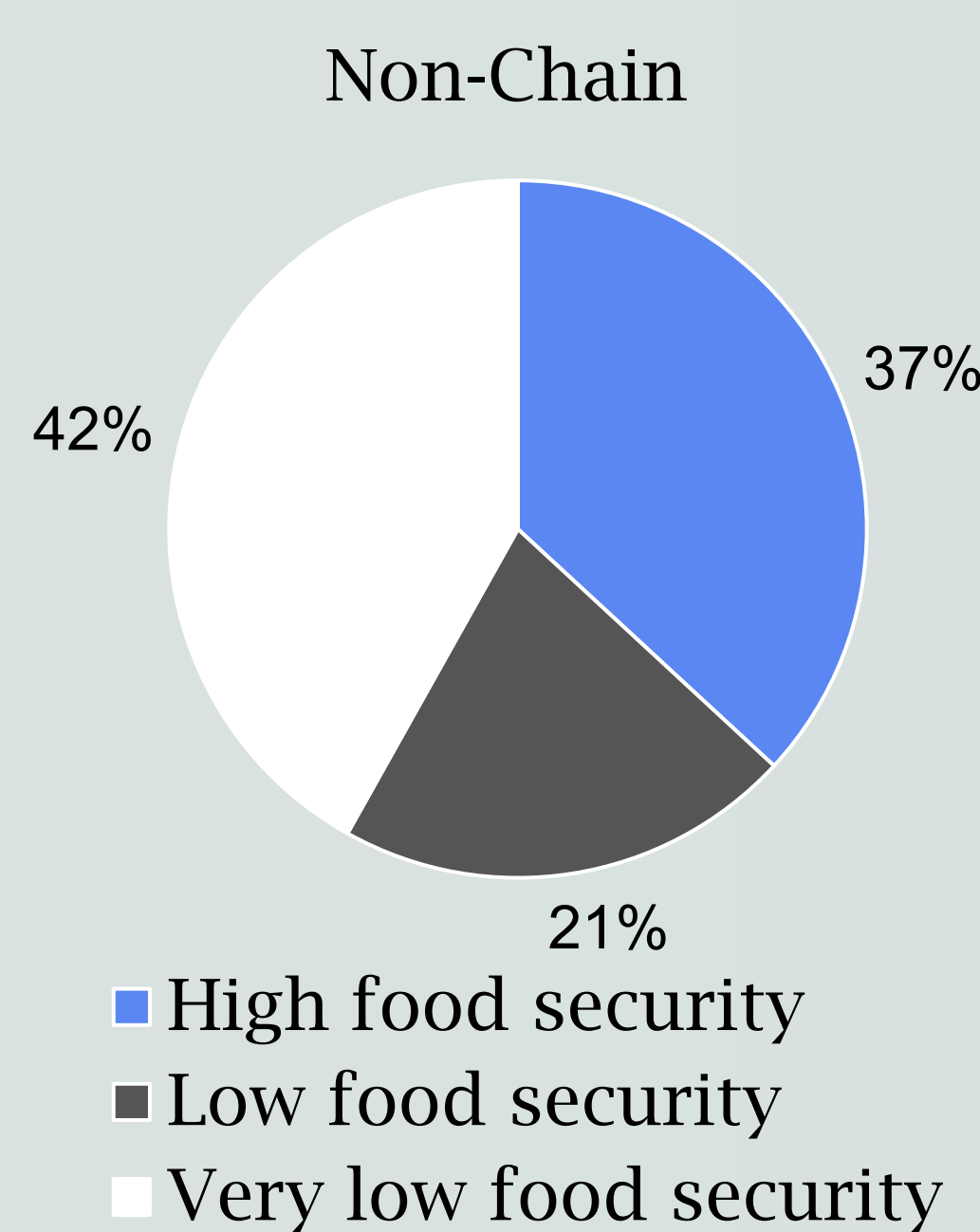
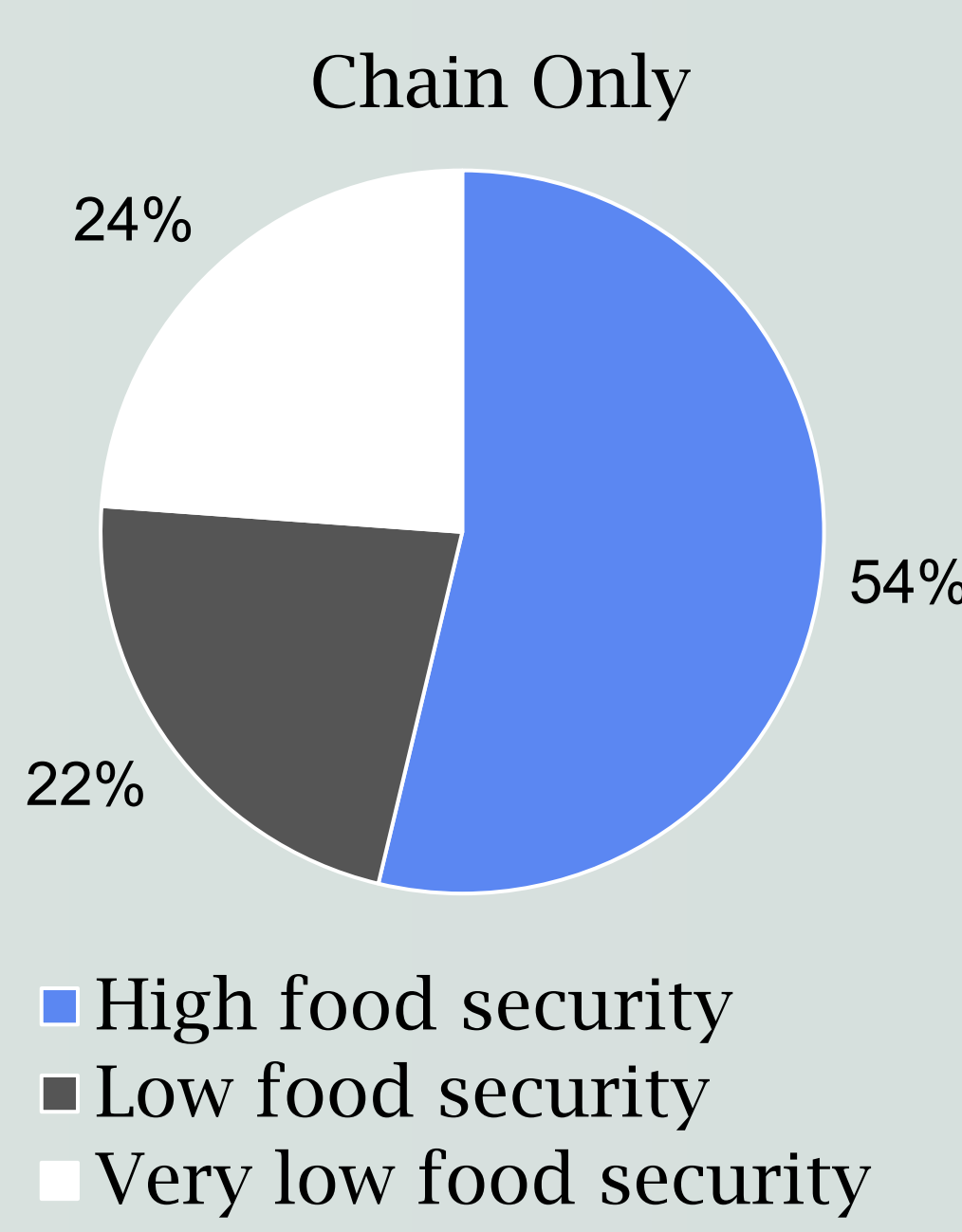


Figure 5. Food security status of chain grocery shoppers (n=575)



Food security status significantly differed between independent and chain grocery shoppers using Pearson's chi square, $p = 0.001$

Results

Figure 6. Transportation used by shopping behavior (n = 599)

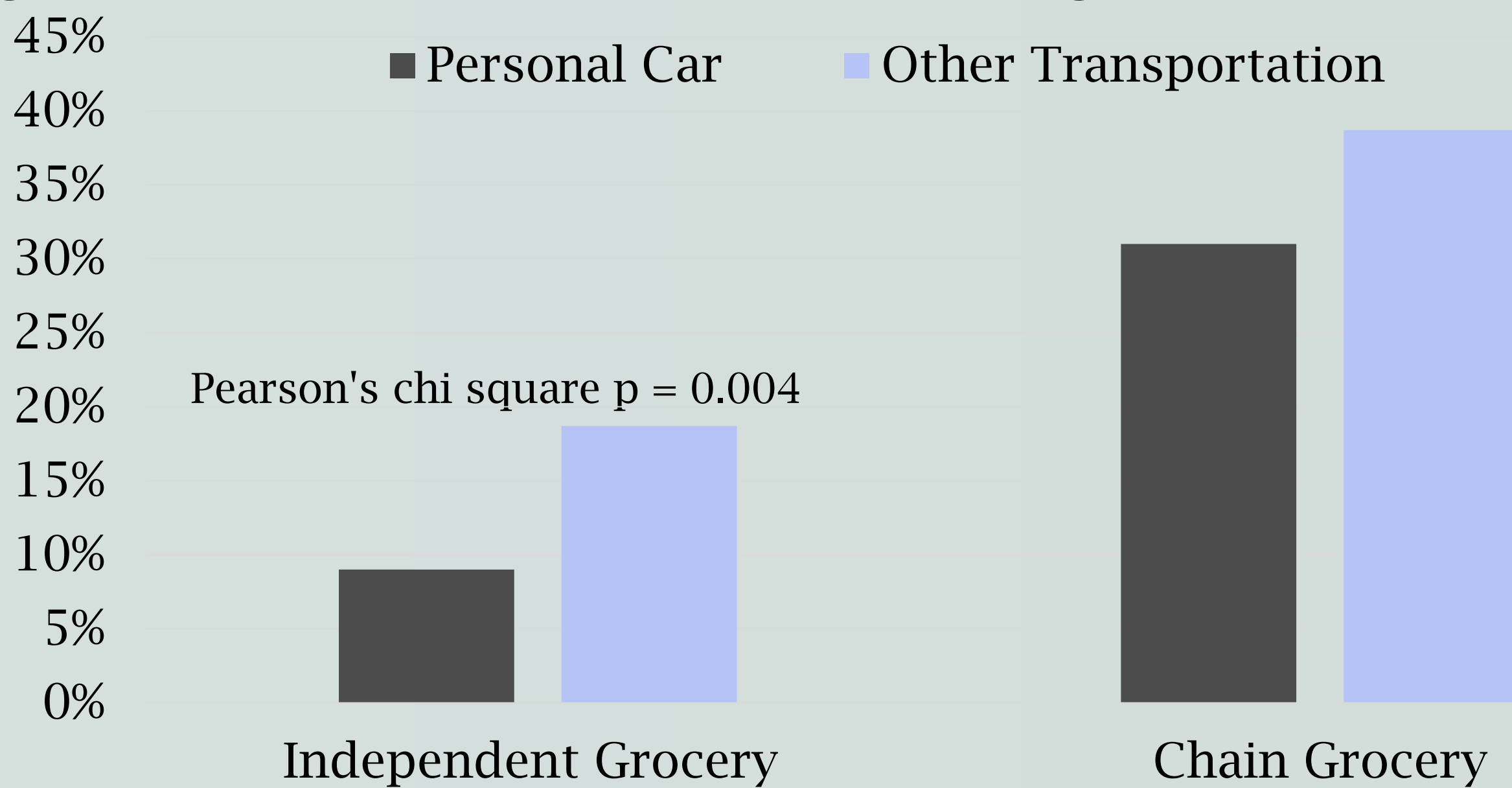


Table 1 Qualitative themes and example quotes

Theme	Count	Illustrative Quote
Availability	57	"The markets are spaces to far apart the market near me is 7 blocks away "
Affordability	63	"Prices are higher, so you get less food, when it comes to a healthy choice it's usually easy more expensive. Junk food is cheaper"
Accessibility	72	"We used to have great bus service to Walmart. They cancelled it. "

Conclusions

- Independent store use in Detroit is associated with higher rates of food insecurity.
- Shopping at chain grocery stores is associated with higher fruit and vegetable consumption compared to shopping at independent grocery stores in Detroit.
- Sociodemographic factors such as income, education, and race and type of transportation used are associated with the type of grocery store used by residents of Detroit.
- Qualitative responses highlighted poor food quality, high costs, and limited transportation as barriers exacerbating inequities.

References

1. Zenk SN, Schulz AJ, Hollis-Neely T, Campbell RT, Holmes N, Watkins G, Nwankwo R, Odoms-Young A. Fruit and vegetable intake in African Americans income and store characteristics. Am J Prev Med. 2005 Jul;29(1):1-9. doi: 10.1016/j.amepre.2005.03.002. PMID: 15958245.
 2. Bodor JN, Rose D, Farley TA, Swalm C, Scott SK. Neighbourhood fruit and vegetable availability and consumption: the role of small food stores in an urban environment. Public Health Nutr. 2008 Apr;11(4):413-20. doi: 10.1017/S1368980007000493. PMID: 17617930.
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