

Do occasional fast food customers use calorie labels more than others?



Findings from the New York City DOHMH Calorie/Receipt Follow-up Study 2009

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Obesity and Increased Calories: Parallel Epidemics

- Obesity prevalence in the United States has more than doubled in the last 30 years
- Increased calorie intake thought to play prominent role in obesity epidemic

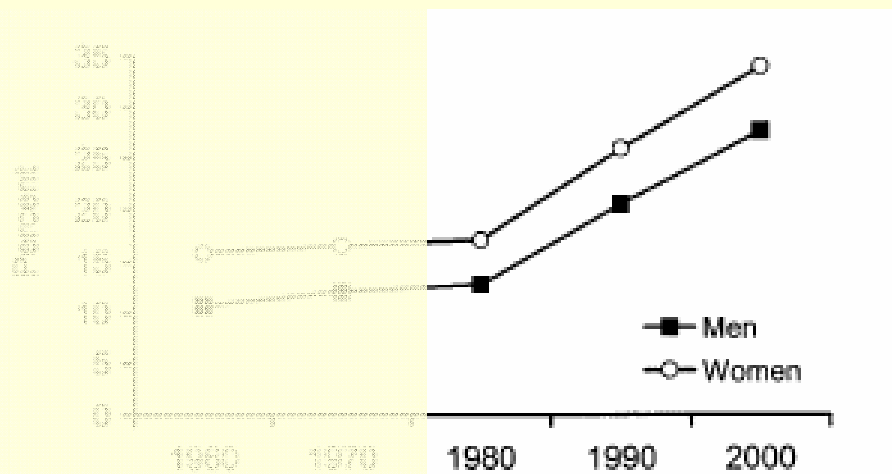


FIG. 2. Prevalence of obesity ($BMI \geq 30 \text{ kg/m}^2$) in U.S. adults, 1960-2000 (ref. 1,2).

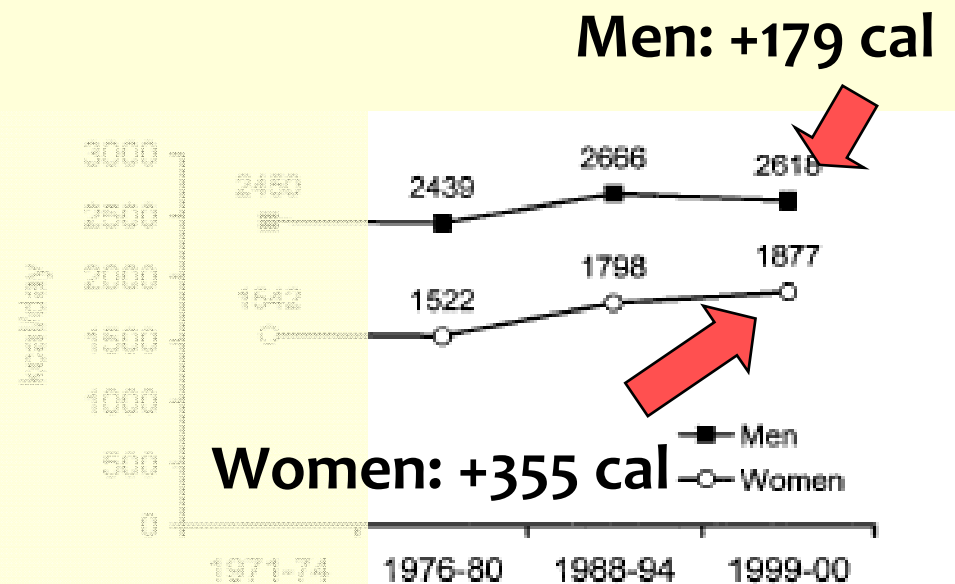


FIG. 6. Age-adjusted mean energy intake (kcal/day) by sex, NHANES 1971-1974 through 1999-2000 surveys (ref. 11).

Figures from Jeffery and Harnack, 2008

Fast Food Intervention in NYC

Rationale:

- Consumption of fast food is steadily increasing (12% of all calories)
- Population calorie increase may be associated with increased consumption of fast food over last 30 years
- Fast food serves large portion sizes
- People aren't able to accurately estimate calorie content of food, especially as portion sizes increase

Fast Food Intervention in NYC

Implemented Summer, 2008:

Calorie labels must be posted on menu boards of chain fast food stores

Fast food store: place where one pays for food immediately after ordering

Chain fast food store: fast food franchise with 15 or more stores



Results from the Calorie/Receipt Study '09*

16% Used labels

84% Didn't see or use labels



Sandwiches & Entrees	
1. Big Mac [®]	540
2. 2 Cheeseburgers	600
3. Quarter Pounder [™] with Cheese	510

Average calories purchased



781 cal.

Average calories purchased



781 + 77 = 858 cal.

*Adjusted for demographics and type of purchase



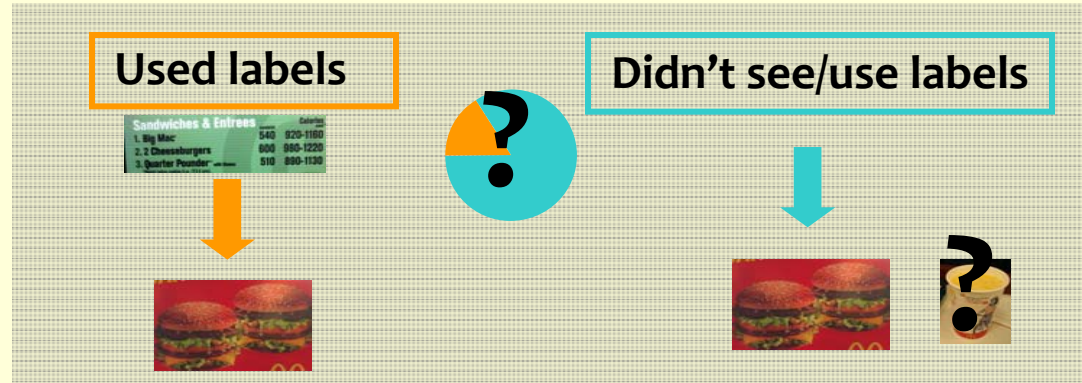
Fast Food Intervention Nationwide:

Calorie labels coming to Michigan:

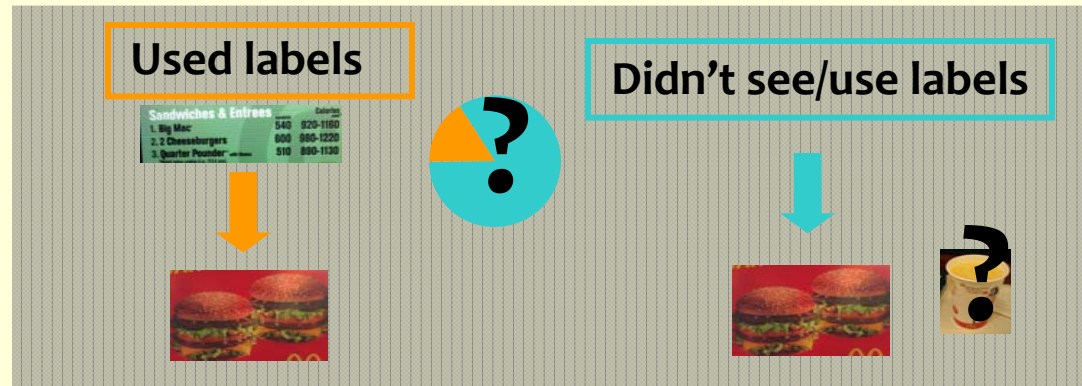
The 2009 Patient Protection and Affordable Care Act mandates that chain fast food stores (20 or more stores) post calorie labels beginning in 2014.

Analysis Aims: Three Frequency Groups

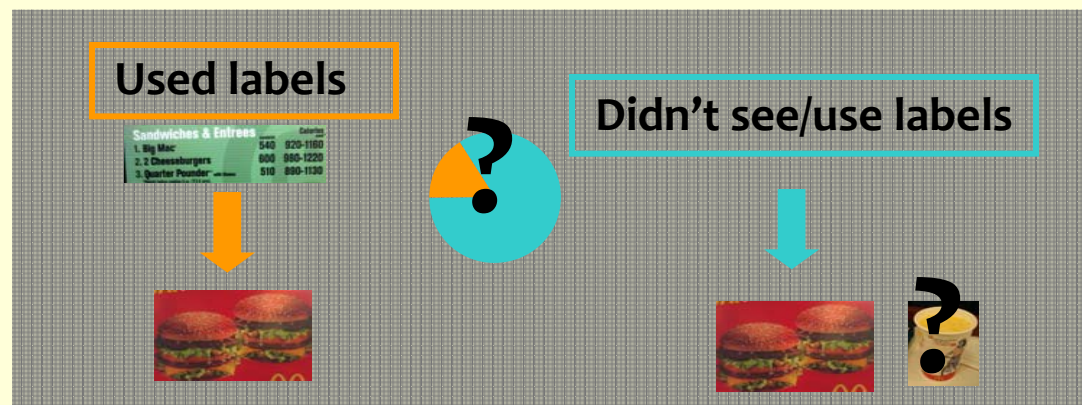
Occasional
(≤ 1 visit/week)



Regular
(2-3 visits/week)



Frequent
(≥ 4 visits/week)



Analysis Aims:

1st Aim: Is label usage constant across fast food frequency groups?

2nd Aim: Is there a calorie difference associated with label usage in all fast food frequency groups?

3rd Aim: Within each fast food frequency group, are there differences in label usage by age, gender or income?

Calorie/Receipt Follow-up Study

- 12,285 fast food customers surveyed at 275 randomly selected chain fast food stores in NYC
- 13 chains represented: McDonalds, Burger King, Wendy's, Subway, Au Bon Pain, KFC, Popeye's, Domino's, Pizza Hut, Papa John's , Taco Bell, Starbucks and Dunkin' Donuts
- This analysis was restricted to meal-purchasing lunchtime customers (n = 5974) at 11 chains (no coffee chains)

Variable used in Analysis

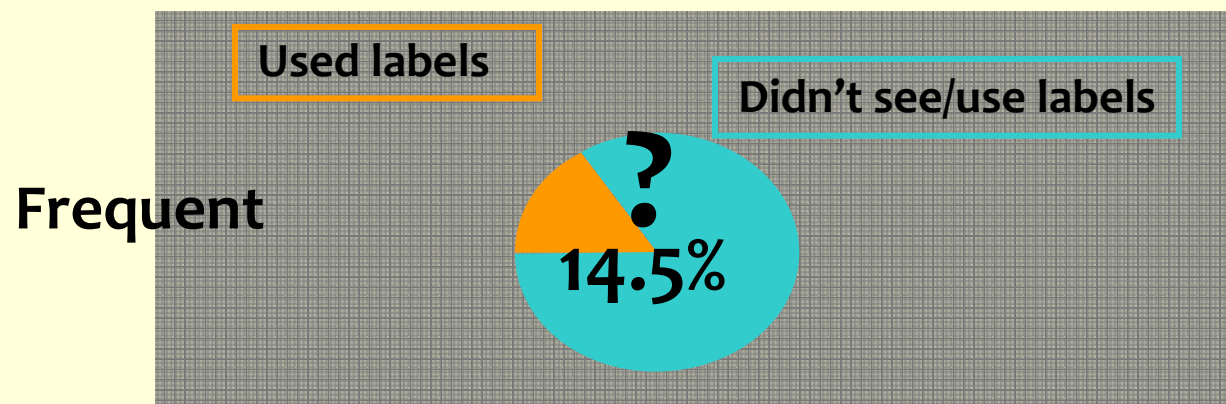
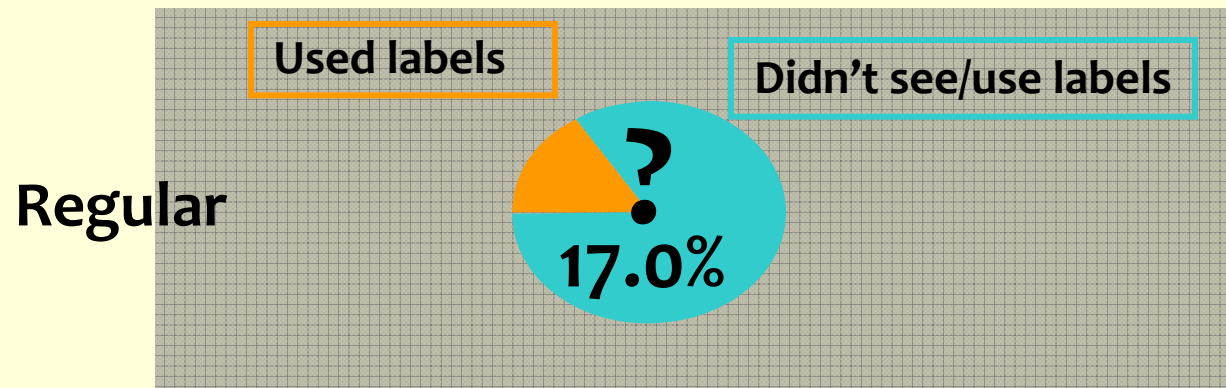
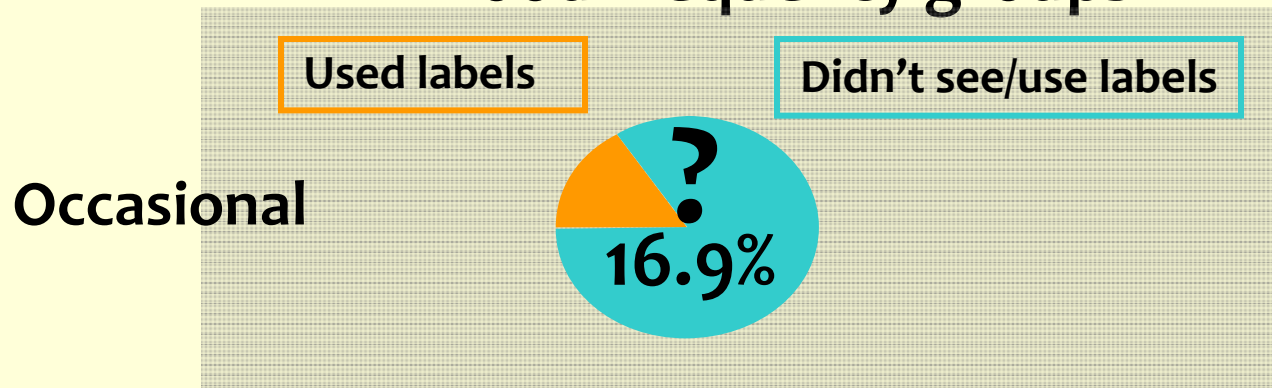
Main Variables of Interest	
Variable	Survey measure
Fast food frequency	“In an average week, how many times do you go to... FAST FOOD CHAINS?”
Label usage	“Did you see calorie information in the restaurant? [If yes] Did the information affect your purchase?”
Total calories purchased	“Can you tell me what you ordered for yourself today?”
Additional Variables of Interest	
Gender	Surveyor observed
Neighborhood income	Home zip code
Age	Five categories: 18-24, 25-34, 35-44, 45-64, 65+

Sample Characteristics

Gender	%
Men	50.1
Women	49.9
Age category	
18-24	17.4
25-34	32.1
35-44	25.8
45+	24.7
Customer neighborhood income level	
High income (<25%)	18.5
Medium income (25-44%)	36.4
Low income (>45%)	45.1

1st aim: Is label usage constant across fast food frequency categories?

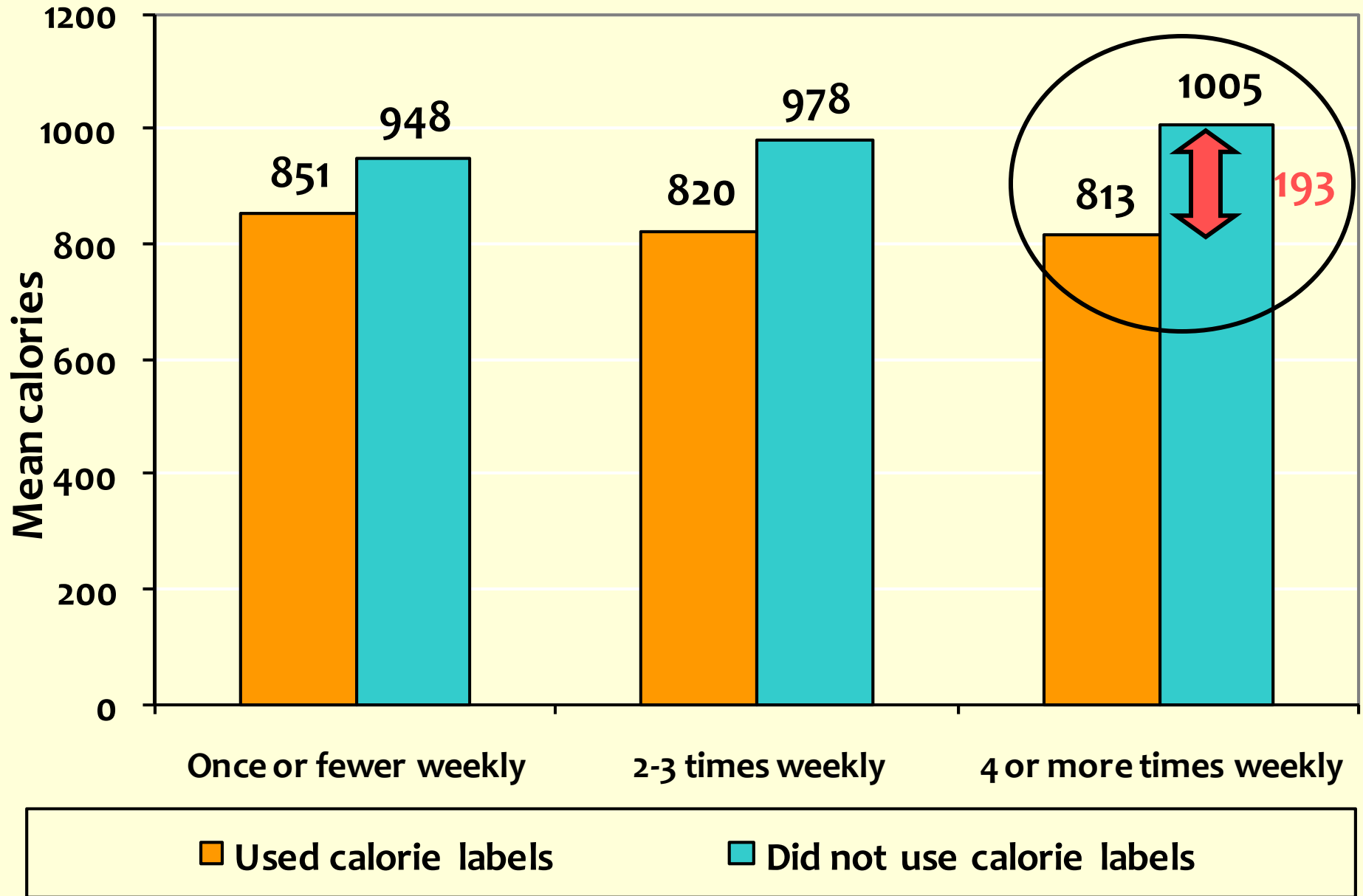
Findings: Label usage is constant across the three fast food frequency groups



2nd aim: Is there a calorie difference associated with label usage?



(Unadjusted) average calories purchased **differs** by label use.



Differences in calories purchased, before and after adjusting for brand of fast food. Non-label users purchase **more** calories.

	Calorie differences between label-users and non-users*	
Type of customer	Unadjusted	Adjusted for brand**
Occasional	-97	-89
Regular	-159	-154
Frequent	-193	-176

*Negative number indicates that non-label users purchased more calories.

**Brand: McDonalds, Burger King, Wendy's, Subway, Au Bon Pain, KFC, Popeye's, Domino's, Pizza Hut, Papa John's and Taco Bell.

Findings: Differences in calories purchased are associated with label usage.

	Estimated difference in calorie intake by label use, fully adjusted*		
Fast food frequency	Parameter estimate (SE)**	95% Confidence interval	p-value
Occasional customers	-60.4(20.7)	-101.2, -19.6	0.004
Regular customers	-135.7(18.6)	-172.3, -99.0	p<.001
Frequent customers	-194.6(24.1)	-242.1, -147.0	p<.001



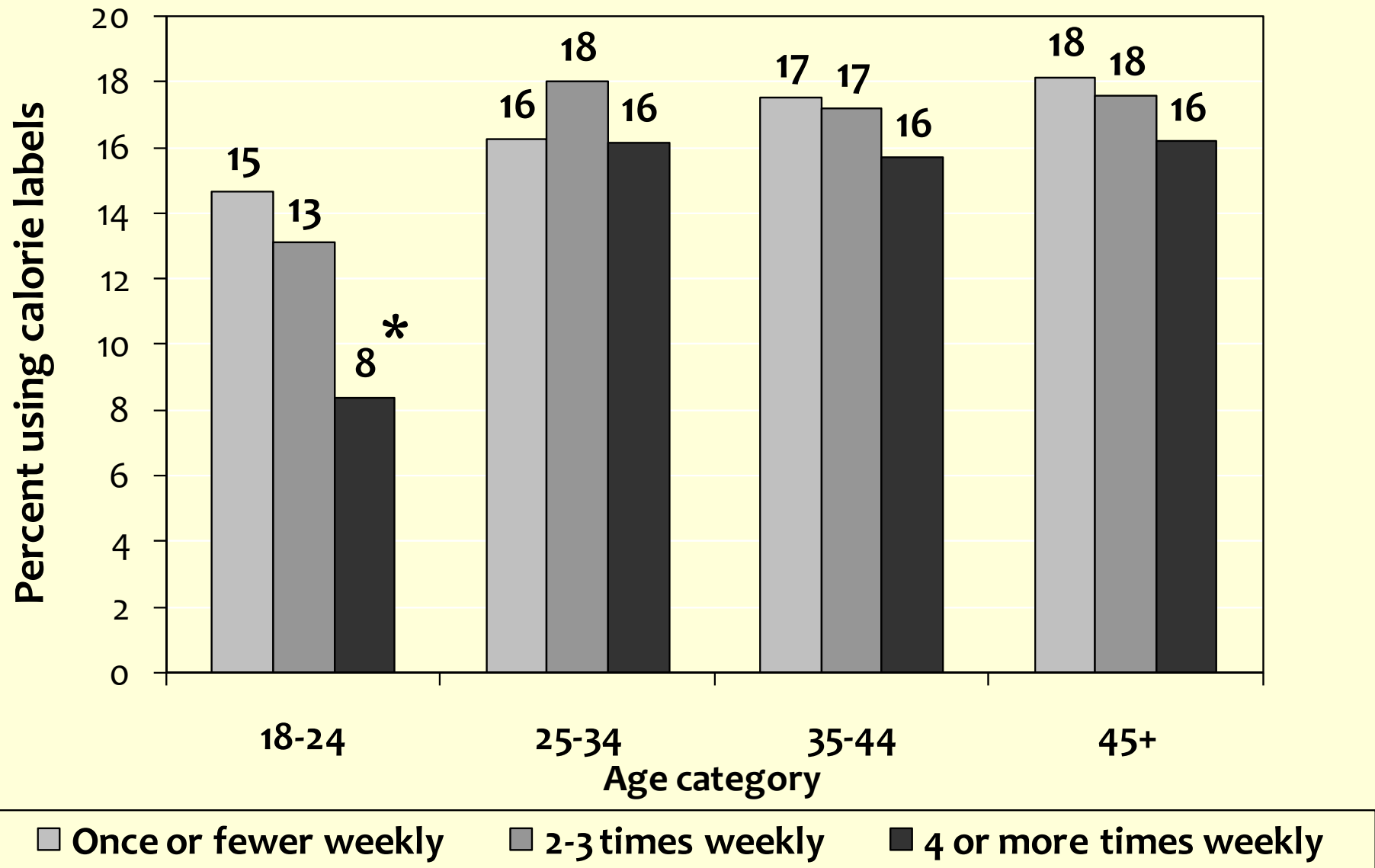
*Adjusted for age, income, gender and brand.

** These are the estimated calorie differences per purchase between people who used calorie labels versus those who didn't.

3rd Aim: Within each fast food frequency group, are there differences in label usage by age, gender or income?

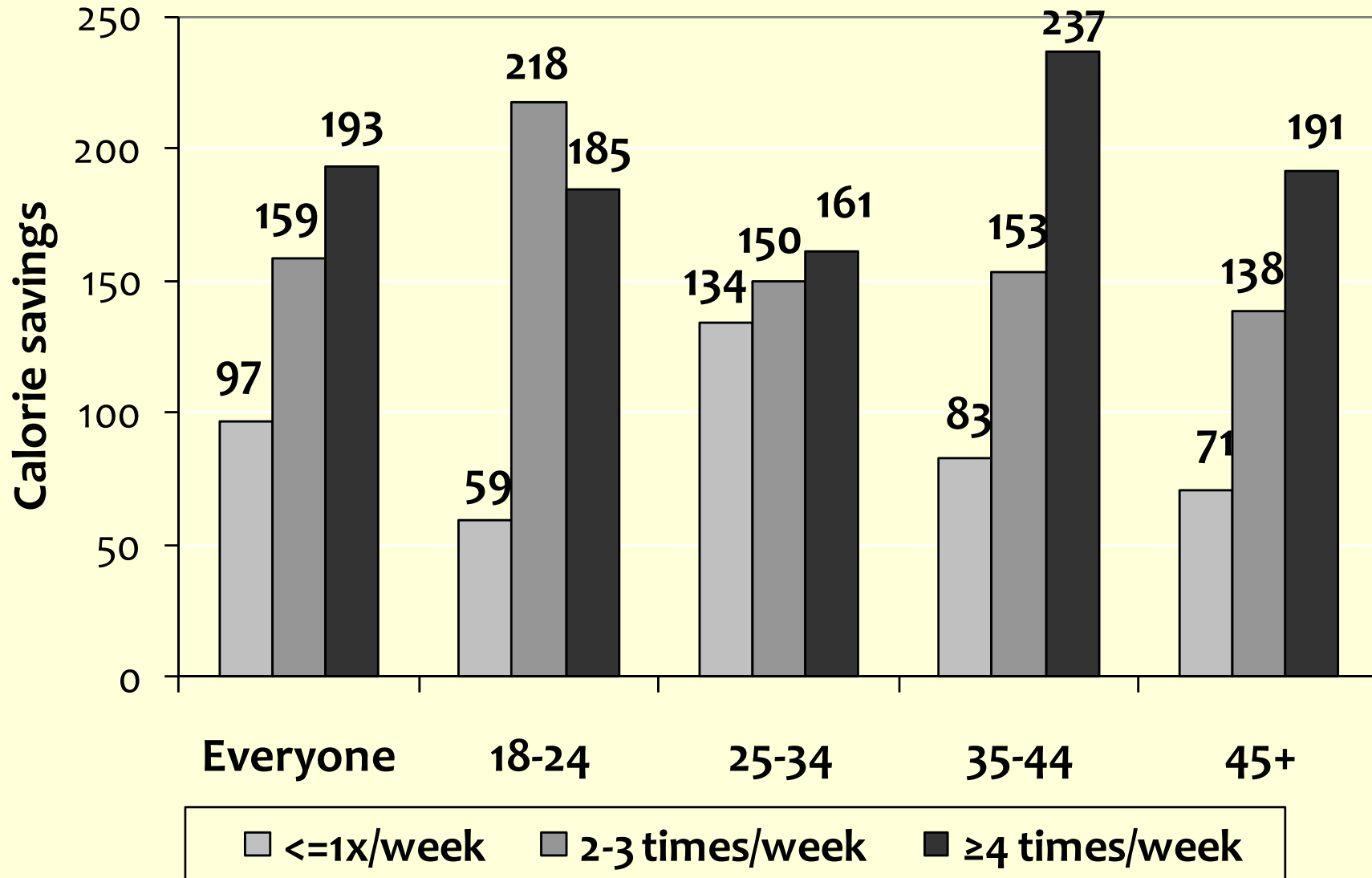


Findings: **50% fewer** young frequent fast food customers use labels (compared with other frequent customers).



* Significant (freq vs. occasional: $p=0.03$, freq vs. regular: $p=0.072$)

Findings: The average calorie purchase difference increases with fast food frequency for everyone **but** 18-24 yr olds



Conclusions:



- **Results – when comparing across frequency category:**
 - Label usage didn't meaningfully differ by fast food frequency category
 - Average calories purchased **decreased** with label usage
 - Average calorie difference was **largest** for **highest** frequency category
 - Young people showed a different pattern of label use and calorie purchases, when compared with other customers
 - No differences seen by gender or income.

Conclusions:

- **Strengths:**

- Largest receipt study of its kind
- Representative of average chain fast food purchase in NYC

- **Limitations:**

- Don't know if there's a healthy people effect
- Health consciousness may not be adequately captured by fast food frequency

Future Directions

- **Implications for future study:**
 - Fewest number of young people (especially) in the high fast food frequency categories used calorie labels
 - Next step is to take these estimates and combine them with a city-wide fast food-eating prevalence to estimate the annual citywide impact of calorie labeling at fast food stores.

Thank you!

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