

# PATTERNS AND PREDICTORS OF FAST FOOD INTAKE IN PATIENTS WITH ACUTE MYOCARDIAL INFARCTION

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## **BACKGROUND**

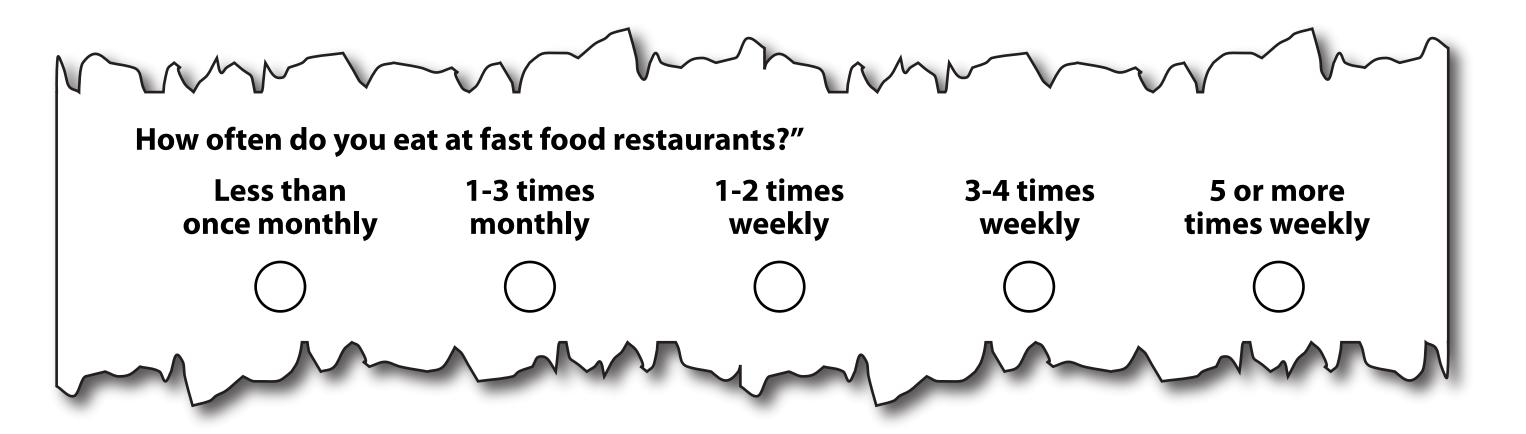
- Fast food is a ubiquitous staple of the American diet
- AMI is a sentinel event, potentially enhancing receptiveness and adherence to diet changes
- AHA/ACC MI guidelines strongly endorse dietary counseling on a healthy, low fat, low sodium diet

# STUDY OBJECTIVES

- Describe the prevalence of fast food intake at the time of AMI
- Describe changes in fast food intake during recovery after AMI
- Identify patient characteristics associated with heavy post-AMI fast food consumption
- Identify relationships between dietary counseling and fast food intake in recovery after AMI
- Describe associations between fast food intake and lipids

## **METHODS**

- 24-center, prospective study of AMI treatment and outcomes
- 4,340 pts between April 2005 and December 2008
- Baseline chart abstractions and interviews followed by repeat interviews at 1, 6 and 12 months after discharge
- 57 patients without baseline responses to the fast food question were excluded



- The two categories of the heaviest fast food consumption were collapsed for baseline comparisons
- For 6-month multivariable fast food analyses, intake dichotomized to infrequent (< weekly) and frequent (≥ weekly) consumption
- Log binomial regression was used to identify independent correlates of frequent fast food intake at 6-month follow-up
- Adjusted for baseline fast food intake and the patient variables in Figure 1

# **RESULTS**

**Table 1: Patient Characteristics by Fast Food Intake** 

	<1x monthly	1-3x monthly	1-2x weekly	≥ 3x weekly	P-Value
	n = 1588	n = 1154	n = 858	n = 683	
Age	62.9 ± 12.6	58.3 ± 11.7	57.8 ± 11.5	53.2 ± 10.8	< 0.001
Male gender	928 (58.4%)	791 (68.5%)	597 (69.6%)	546 (79.9%)	< 0.001
Race		. ,			0.134
White/Caucasian	1045 (65.9%)	781 (67.9%)	602 (70.3%)	455 (67.0%)	
Black/African-American	431 (27.2%)	285 (24.8%)	202 (23.6%)	186 (27.4%)	
Other	109 (6.9%)	84 (7.3%)	52 (6.1%)	38 (5.6%)	
College Education	797 (50.5%)	585 (50.7%)	426 (49.7%)	303 (44.6%)	0.025
Avoid Care Due to Cost	355 (22.7%)	289 (25.4%)	213 (25.1%)	221 (33.0%)	< 0.001
Monthly Finances					0.051
Some money left over	685 (43.7%)	470 (41.1%)	359 (42.8%)	254 (37.6%)	
Just enough to make ends meet	568 (36.2%)	426 (37.3%)	321 (38.3%)	266 (39.3%)	
Not enough to make ends meet	315 (20.1%)	247 (21.6%)	159 (19.0%)	156 (23.1%)	
Work Full or Part Time	609 (38.6%)	539 (47.1%)	466 (54.5%)	463 (68.1%)	< 0.001
REALM-R ( >6)	971 (75.6%)	680 (69.9%)	515 (72.6%)	363 (64.1%)	< 0.001
BMI	28.8 ± 6.3	29.6 ± 6.4	29.9 ± 6.4	30.4 ± 6.8	< 0.001
Diabetes	515 (32.4%)	359 (31.1%)	237 (27.6%)	199 (29.1%)	0.023
Hypertension	1120 (70.5%)	789 (68.4%)	546 (63.6%)	398 (58.3%)	< 0.001
Dyslipidemia	831 (52.3%)	564 (48.9%)	393 (45.8%)	317 (46.4%)	0.001
Chronic Kidney Disease	140 (8.8%)	81 (7.0%)	59 (6.9%)	35 (5.1%)	0.002
Current smoking	506 (32.0%)	449 (39.1%)	360 (42.2%)	359 (52.9%)	< 0.001
History of Alcohol Abuse	149 (9.4%)	132 (11.4%)	88 (10.3%)	89 (13.0%)	0.026
Chronic Heart Failure	169 (10.6%)	101 (8.8%)	62 (7.2%)	34 (5.0%)	< 0.001
PHQ-9 Depression Score	4.9 ± 5.2	5.2 ± 5.4	5.5 ± 5.3	5.6 ± 5.5	0.001
Peripheral Vascular Disease	96 (6.0%)	50 (4.3%)	38 (4.4%)	15 (2.2%)	< 0.001
Prior Stroke	94 (5.9%)	62 (5.4%)	40 (4.7%)	16 (2.3%)	< 0.001
Final MI Diagnosis					< 0.001
STEMI	613 (38.6%)	488 (42.3%)	405 (47.2%)	325 (47.6%)	
NSTEMI	961 (60.5%)	655 (56.8%)	446 (52.0%)	352 (51.5%)	
In-Hospital Revascularization					0.002
PCI	924 (58.2%)	725 (62.8%)	565 (65.9%)	464 (67.9%)	
CABG	154 (9.7%)	109 (9.4%)	79 (9.2%)	56 (8.2%)	
History of Prior MI	377 (23.7%)	252 (21.8%)	168 (19.6%)	107 (15.7%)	< 0.001
History of Prior CABG	205 (12.9%)	140 (12.1%)	95 (11.1%)	51 (7.5%)	< 0.001
Diseased vessels	1.7 ± 1.0	$1.6 \pm 0.9$	$1.7 \pm 0.9$	$1.5 \pm 0.9$	0.007
LV Systolic Function					0.544
Normal	975 (61.4%)	733 (63.6%)	523 (61.1%)	422 (61.9%)	
Mild	312 (19.7%)	195 (16.9%)	183 (21.4%)	134 (19.6%)	
Moderate	178 (11.2%)	127 (11.0%)	83 (9.7%)	87 (12.8%)	
Severe	122 (7.7%)	98 (8.5%)	67 (7.8%)	39 (5.7%)	
HbA1c	6.6 ± 2.0	6.7 ± 1.8	6.6 ± 1.8	$6.7 \pm 2.0$	0.219
High sensitivity CRP	3.9 ± 5.2	3.4 ± 6.1	$4.0 \pm 6.0$	3.7 ± 4.8	0.891
Discharge Diet Counseling	1424 (90.2%)	1036 (90.2%)	776 (91.2%)	611 (89.5%)	0.890

ous variables compared using linear trend test. Categorical variables compared using Mantel-Haenszel trend test

Figure 1: Patient Reported Fast Food Intake at Enrollment and Over 12-month Follow-up

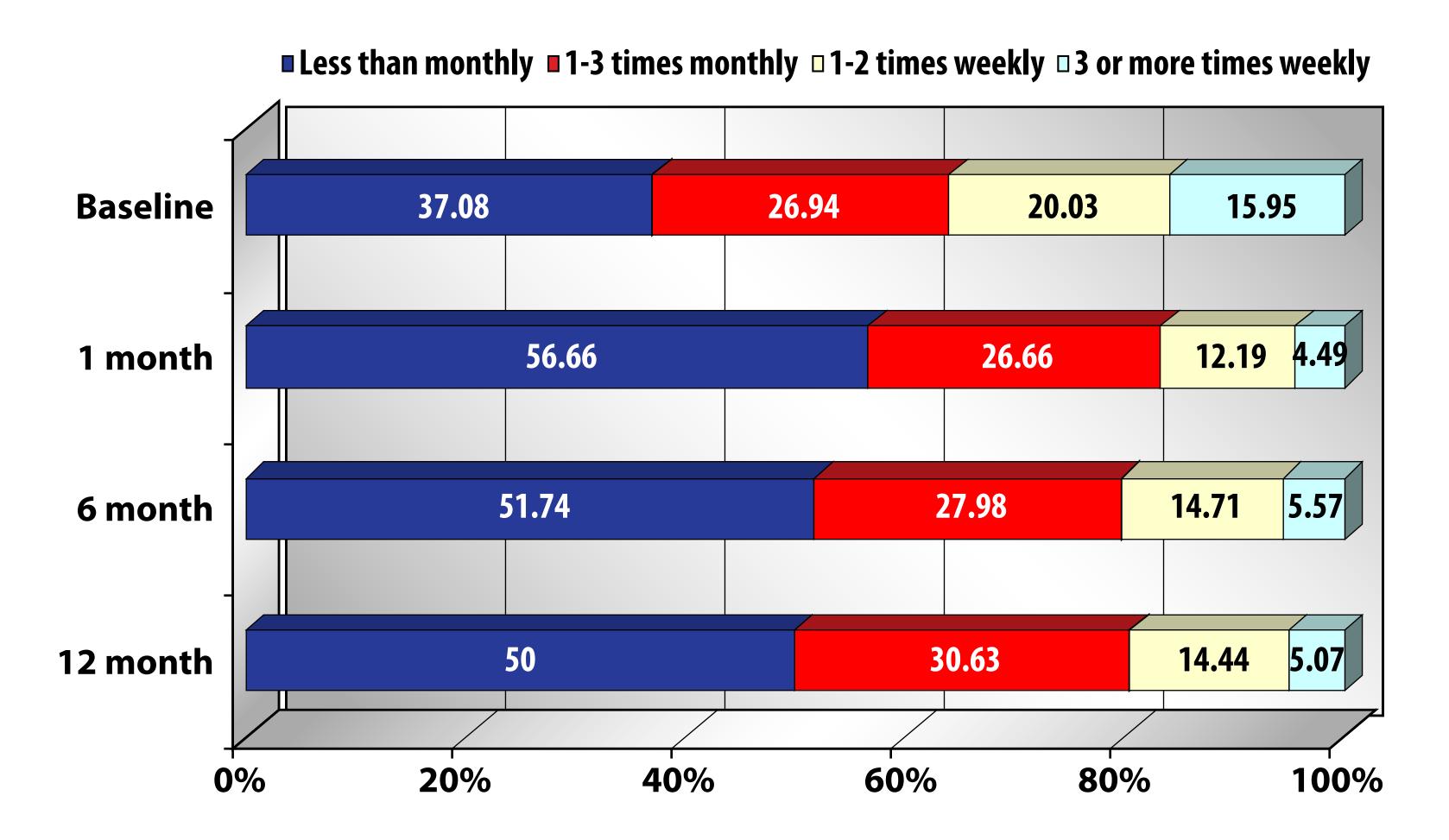


Figure 2: Independent Correlates of Fast Food Intake 6 Months After MI

**RR (95% CI)** 

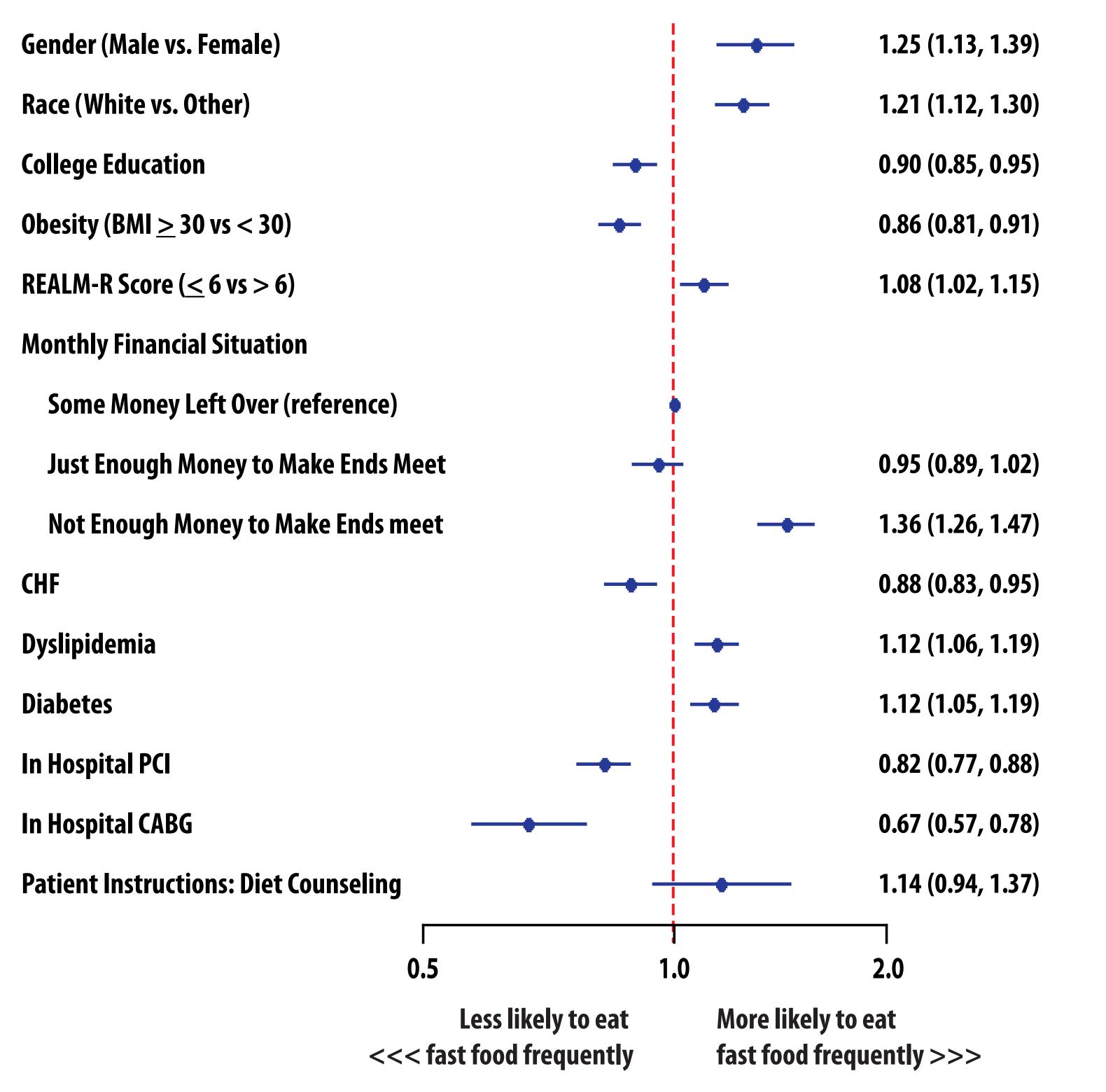


Table 2: Lipids and Omega-3 Levels Across Fast Food Consumption Categories

	<1x monthly	1-3x monthly	1-2x weekly	≥ 3x weekly	p-value
	n = 1588	n = 1154	n = 858	n = 683	
HDL	42.9 ± 13.3	40.5 ± 11.8	39.8 ± 12.8	39.1 ± 10.5	< 0.001
LDL	95.5 ± 35.1	98.9 ± 34.0	98.3 ± 35.3	106.1 ± 39.9	< 0.001
Triglycerides	138.1 ± 105.0	151.0 ± 120.4	157.0 ± 121.6	166.3 ± 116.4	< 0.001
Lp(a)	6.5 ± 4.0	6.4 ± 3.8	6.2 ± 3.6	6.3 ± 4.0	0.232
Total Cholesterol	154.9 ± 39.5	156.2 ± 37.2	154.8 ± 37.8	161.2 ± 40.0	0.016
LDL Pattern					0.002
A	392 (44.5%)	233 (35.4%)	189 (37.4%)	145 (35.5%)	
A/B	235 (26.7%)	199 (30.2%)	137 (27.1%)	124 (30.4%)	
В	254 (28.8%)	227 (34.4%)	179 (35.4%)	139 (34.1%)	
RBC EPA + DHA (%, mean±SD)	5.4 ± 1.7	5.0 ± 1.7	4.8 ± 1.3	4.6 ± 1.4	< 0.001
Omega-3 index > 8%	43 (7.8%)	25 (5.9%)	7 (2.3%)	4 (1.7%)	< 0.001
Omega-3 index < 4%	106 (19.3%)	123 (28.8%)	86 (28.9%)	90 (37.8%)	< 0.001

riables compared using linear trend test. Categorical variables compared using Mantel-Haenszel trend test

## LIMITATIONS

- Fast food was not specifically defined
- Possible misclassification of the exposure variable
- Not all fast food is unhealthy Subway, salads
- Total cholesterol, LDL, and triglycerides rose while HDL and omega-3 fatty acid levels declined as patient reported fast food intake increased
- Supports the validity of our fast food question

#### CONCLUSIONS

- Certain patient populations are at high-risk for reliance on fast food, a dietary source often inconsistent with recommended post-AMI diets
- Younger patients
- Socioeconomically disadvantaged
- —Those with lower educational level and health literacy
- Patients with certain comorbidities (diabetes, dyslipidemia)
- Patients who receive invasive cardiac procedures during AMI hospitalization appear to be less likely to eat fast food after AMI
- Documentation of dietary counseling was not associated with lower fast food intake in follow-up
- Documentation of discharge dietary counseling appears to be an inadequate performance measure in AMI care

#### DIRECTIONS FOR FUTURE RESEARCH

- Identify characteristics of effective dietary interventions
- Study impact of dietary interventions applied in a targeted manner to patients at high risk for non-adherant diets
- Identify associations between fast food consumption and clinical outcomes after AMI

