Choosing the Light Meal

Real-time Aggregation of Calorie Information Reduces Meal Calories

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SUMMARY

Although numeric calorie labeling of individual items on restaurant menus has been implemented nationwide under an FDA mandate, prior research has generally not found significant effects of calorie labeling on calories ordered. Whereas past research testing calorie labeling has only applied the labels to individual items, the present research tests the impact of an innovation that can easily be implemented in online ordering: **dynamic aggregation of calorie content** to provide dynamic feedback about total calories in a meal.

Across four preregistered online studies and a field study (total N = 9048) we show that real-time, dynamic feedback about the total calorie content of meals guides consumers to order both fewer items and lower-calorie items, even when static guidelines and item-level calorie labels are already present. The reduction of calories is particularly strong when feedback is presented as dynamically updating **traffic lights, prompting consumers to revise their orders more frequently**. This type of dynamic aggregation with traffic lights is significantly more effective in reducing calories than any other type of calorie labeling, featuring item labels, dynamic numeric aggregation, or text guidance with calorie recommendations.
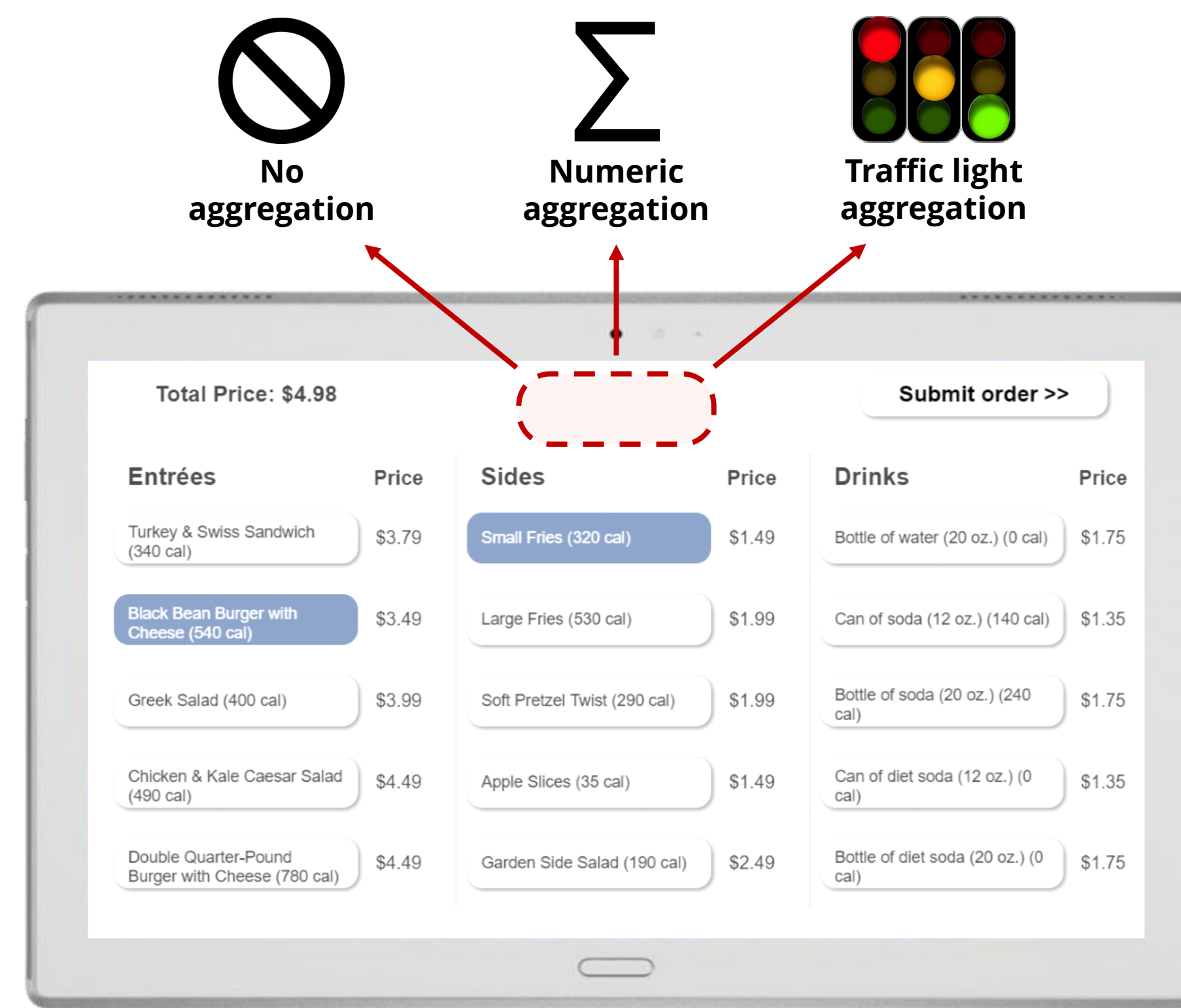
The results also suggest that **aggregation requires dynamic presentation** to achieve calorie reductions, because this type of feedback uniquely drives consumers to take actions: to reconsider their selections and choose lower-calorie alternatives. We propose that this revision process represents a decision-making step that is unlikely in the absence of dynamic aggregated labels (i.e., static labels only), and that real-time feedback before purchase represents a novel intervention to guide consumer choice.
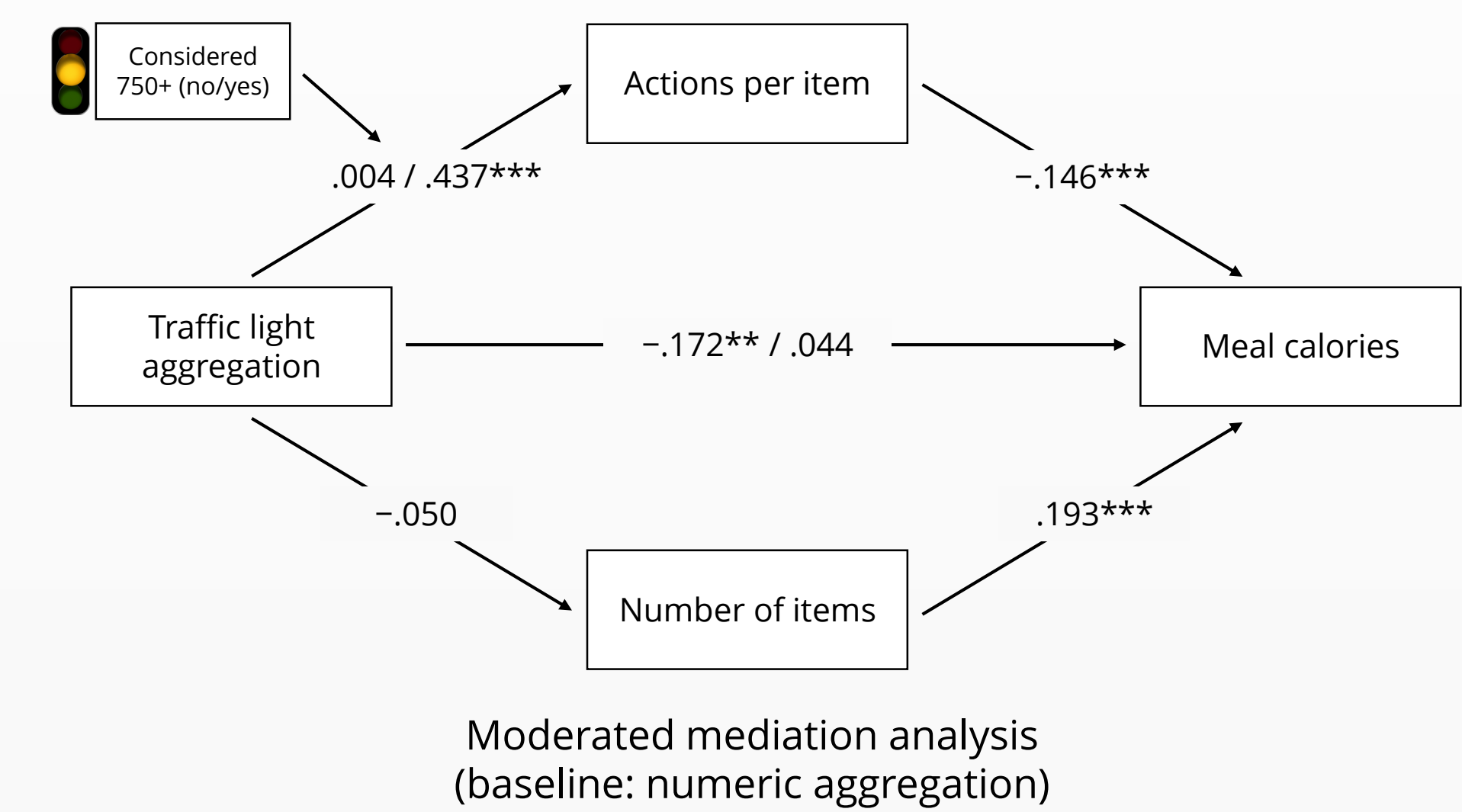
OVERVIEW OF STUDIES

STUDY	CHOICE TYPE	SUBJECT POOL	TOTAL SAMPLE	No label	Traffic light item	Traffic light item + Traffic light meal	Numeric item	Numeric item + Numeric meal	Numeric item + Traffic light meal
1A	Hypothetical	MTurk	2820	●	●	●	● (red)	●	
1B	Hypothetical	University alumni	1372	●	●	●	● (red)	●	
2	Hypothetical	MTurk	1823				● (red)	●	●
3	Hypothetical	MTurk	2524	●			● (red)*	●*	●*
4	Real	University participants	509				● (red)		●

*Note: these conditions also featured a static numeric guideline on the screen

METHODS (STUDY 2)

No aggregation / Numeric aggregation / Traffic light aggregation

RESULTS (STUDY 2)

Total calories ordered

Items ordered

Average calories per item

Actions per item

MECHANISM (STUDY 2)

Considered 750+ (no/yes) → Actions per item

.004 / .437***

Traffic light aggregation → −.172** / .044 → Meal calories

Actions per item → −.146*** → Meal calories

−.050 → Number of items → .193*** → Meal calories

Moderated mediation analysis
(baseline: numeric aggregation)

ROBUSTNESS & META-ANALYSIS

Results are robust to:
• Demographic characteristics (age, gender, income)
• Different subject pools (Study 1A vs. Study 1B)
• Presence / absence of normative numeric guideline (Study 3)
• Hypothetical vs. real choice (Study 4)

Reference: numeric item labels only

No labels

Traffic light item only

400 cal 300 cal 200 cal + Σ900
Numeric item + numeric aggregation

Traffic light item + traffic light aggregation

400 cal 300 cal 200 cal + Σ
Numeric item + traffic light aggregation

Cohen's d (relative to numeric item only)