Daily caloric recommendations (messages and calculating) aide in reducing overall calories chosen from a mock lunch menu

California State University Northridge

Ashley C. Baker, B.S. **Nathaly S. Pacheco-Santivañez, B.A.** **Jill L. Quilici, Ph.D.**

Psychology Department, California State University, Northridge

GΨE General Experimental Psychology

Background

- Obesity has steadily plagued the United States over the last several decades. According to the Center for Disease Control (CDC), more than one third of adults (35.7%) and almost one fifth (17%) of youth were obese in 2009–2010.
  - In the United States, no state had less than a 20% prevalence of obesity (CDC, 2012).
- Some of the leading causes of preventable death can be attributed to obesity-related conditions such as heart disease, stroke, type 2 diabetes and certain types of cancer.
- Policy-makers, nutrition advocates, and researchers have attempted to implement interventions in order to reduce the obesity epidemic.

Purpose

- In addition to US law requiring chain restaurants and other establishments that serve food to put caloric content on menus, this study aims to capture the effectiveness of menu labeling, and daily caloric recommendations on individuals' healthy eating goals and/or abandonment of those goals.
- Because of the strong correlation between fast-food eating and obesity, many nutrition advocates view labeling as an important public policy instrument in reducing obesity at a population level (Elbel, Kersh, Brescoll, & Dixon, 2009).
- However, mixed evidence regarding menu labeling and recommendation messages
  - Research examining calorie labeling on a printed menu reported fewer calories chosen, however only when paired with a "2,000 calorie daily recommended calorie message" (Roberto, Larsen , Agnew, Baik, & Brownell, 2010).

Hypotheses

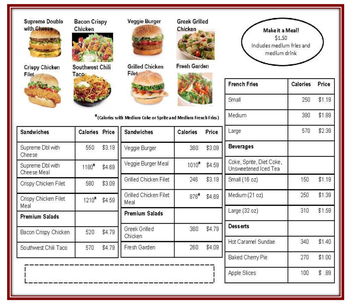
- Participants who complete the daily caloric recommendation calculator will subsequently select fewer calories on the mock lunch menu compared to participants who don't.
- Participants who are in the 2,000 calorie message condition will select fewer total calories than those in the no-message condition.
- After accounting for nutritional knowledge and healthy meal choices, the effects of the caloric messages and calculator condition will still be captured.

Methods

Procedures

- Participants (N=231, 54.5% males, M_{age} = 19.7) from a multi-ethnic West Coast university participated in the study in exchange for course credit.
- Half of the participants were randomly selected to complete a calculator that estimates calories needed daily to maintain current body weight at the very beginning of the session.
- Participants were then asked to select a hypothetical meal from mock menus that included calorie information, and afterwards completed a battery of questionnaires.

Materials



Measurements

- Maintenance Calorie Calculator
  - Adapted by Mayo Foundation for Medical Education and Research.
- Total Calories Chosen:
  - sum of all menu items' calorie content chosen by the participant as a mock lunch meal
- Nutritional Knowledge (1-7 Likert Scale)
  - *How knowledgeable do you think you are about nutrition*?" (1= not knowledgeable to 7= very knowledgeable)
- Typical Lunch Selection (1-7 Likert Scale)
  - *How often do you make food selections similar to what you just ordered? (*1= never to 7= always)

Results

- Statistical analysis:
  - Between-subjects ANCOVA
- Dependent Variable
  - *Total calories chosen*
- Independent Variables
  - *Gender*
  - *Menu message* (2,000 recommended daily caloric intake vs. no message)
  - *Calorie Calculator Condition (*completed vs not completed)
- Covariates
  - *"How knowledgeable do you think you are about nutrition*?"
  - "*How often do you make healthy meal choices?"*

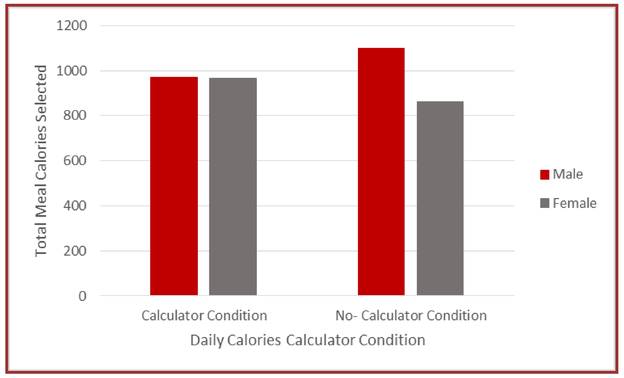


Figure 1: The interaction of *calculator-condition* by *gender* on *total meal calories selected*.

Results cont.

- The covariates were significantly related *to total calories chosen*, p<.001.
- In support of our hypotheses, significant main effects of *gender* and *menu message* were revealed, p<.05.
  - Overall, participants who received the 2,000 recommended daily caloric intake message consequently selected fewer calories from the menu than those who received no message, p<.05.
- An interaction between *calorie calculator* and *gender* was also significant, p <05.
- A post-hoc analysis revealed that men in the calculator condition selected fewer calories than men who did not complete the calculator.
  - However, women who calculated their maintenance calories before selecting their hypothetical lunch actually selected more calories than women who did not calculate their calories.

Discussion

Implications

- Our results provide preliminary support for menu regulation, although providing calorie information on menus may have limited influence, since it is only one factor in a realm of many contributors to obesity.
  - Research suggests some consumers would prefer a labeling of how long it would take to expend the energy they consumed in order to make lower-caloric decisions (Bleich & Pollock, 2010).
- Perhaps one reason why females exhibit the opposite effect of males in the calculator condition is because females already believe that their calorie consumption should be low and thus after calculating their calories those females realized they could actually consume more and still maintain their weight.
- Further research needs to be conducted in actual restaurant settings compared to hypothetical situations as consumers' exposure to menu labeling laws increases over time to determine the reliability of the effects.

Limitations

- This study is limited to the college population, who are notorious for having little time and ability to prepare meals at home/dorms and are regularly exposed to large portion sizes and high caloric foods, (Brownell, Schwartz, Puhl, Henderson, and Harris, 2009).

Please contact Ashley Baker: ashley.baker.701@my.csun.edu for more information regarding this study.