Author's response to reviews

Title: The publics' understanding of daily caloric recommendations and their perceptions of calorie posting in chain restaurants

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Author's response to reviews: see over
Response to reviewer comments

Manuscript: MS #2053307352306395: The publics' understanding of daily caloric recommendations and their perceptions of calorie posting in chain restaurants

(responses in italics)

Date Comments Received: (11/05/09)

Reviewer #1 (Carl Lachat)

Major Compulsory Revisions
The study is a descriptive study describing how Americans perceive calorie label and aims to provide a representative picture for the US population. The strength of the study is its national representative character or the United States. It is a timely contribution to the evidence base on the ongoing debates with regard to labeling. In general, this is a well written and focused manuscript but there are a number of important sections (in particular with regard to the Ethics, design) that need to be clarified. The result section should be written more succinctly and the discussion needs to elaborate on a number of weaknesses and potential biases. The quality of the paper would be improved a lot when the data analysis was conducted differently, avoiding multiple testing and internal correlation of variables.

1. Results: Since eating and selection of food was not observed directly, the authors should rephrase and refer to reported behavior instead.

Done. Throughout the manuscript we refer to reported behaviors or reported perceptions.

2. Conclusion: Please restate the conclusion more critically. This study did not assess effectiveness and the findings consequently do provide evidence that the labeling is an effective tool for better dietary choices. (Similar remark for the closing paragraph of the manuscript)

Done

3. Background: The body of literature regarding consumer understanding and labeling/nutrient profiling is extensive. Important studies on this topic have been neglected. It would be good to compare the findings of this study with these. E.g. Consumer understanding and use of nutrition labeling: a systematic review by Gill Cowburn and Lynn Stockley in Public Health Nutrition: 8(1), 21–28 DOI: 10.1079/PHN2004666 One of the main nutritional issues when eating out is energy density of the meals. Unfortunately, this has not been picked up in the manuscript. (eg Obesity reviews 2003 Fast foods, energy density and obesity: a possible mechanistic link by Prentice & Jebb)

We appreciate these references. We have added the Cowburn citation to the discussion section and the Prentice citation to the background section.
4. The manuscript refers to “Fast food restaurants”; how were these defined?

*In the survey instrument, we used the term “chain restaurant” in an effort to be consistent with the calorie labeling legislation efforts in the United States. As we state in the methods section (page 7), “In each of question where we mentioned chain restaurants, we gave respondents’ the examples of McDonalds and Subway.”*

5. Methods
   a. How were the questions with regard to the perceived caloric knowledge obtained? What was the rationale to select these questions? Was there no “I don’t know” or “other” option in the questions. If so, how were these answers treated in the analysis?

   *The questions regarding perceived caloric knowledge were developed by the study authors in consultation with the Harvard Opinion Research Program. (We added this to the text on page 7). We included both open-ended and close-ended questions regarding caloric knowledge. We purposely asked open-ended question first so as not to prime the respondent with the response categories for the closed-ended questions. For the open ended caloric knowledge question there was only one missing value. There were no “Don’t know” or “Refused” responses. For the categorical caloric knowledge questions, there we no missing values and the percentage of respondents who answered “Don’t know” or “Refused” was less than ten percent for each question. So, we treat those responses as missing at random as they would have minimal contribution to any selection bias (Bennett 2001).*

   b. Ethical approval is unclear. The authors need to detail the How was ethical consent obtained, how were the participants informed and to what extent this study was carried out according to the Helsinki Declaration. Was this study approved by an Ethical committee?

   *This study was approved by the Johns Hopkins Bloomberg School of Public Health Institutional Review Board. We have added this to the text.*

   c. What measures were taken to minimize potential interview bias?

   *The survey was administered by International Communications Research – a firm which specializes in public opinion data collection. Standard practices were used to minimize potential interview bias including using staff who are experts in data collection and randomly varying the interviewers used to collect the study data.*

   d. The national representative character of the study is an important asset. More details on the sampling are needed to give the reader insight in how the sampling was carried out.

   *In the methods section (page 6), we state that, “Survey respondents were selected from households across the nation using a fully replicated, stratified, single stage,
random-digit-dialing sampling strategy. Within each sample household, a single respondent was randomly selected.”

e. Please discuss selection bias. The authors state that there is “no response rate for this study”. It is not clear why this is. This is an important limitation of the study and needs to be discussed better. What happened if respondents refused to participate in the survey? How may this have affected the results? It is important to know who refused to participate, who could not be contacted (not registered or no phones) and if this might have introduced a socio-economic bias in the results.

The survey was conducted using a bi-weekly service commonly used by media organizations. Due in part to experiences with election polling, the news media are acutely aware that polling over a long time risks missing changes in attitudes and behavior influenced by specific events [1]. As a result, such surveys are generally in the field for a short period.

Our survey relies on reweighting to help ensure representativeness. Independent studies have shown that the results of statistical reweighting of the data are similar to those of an analysis based on the higher response rate in opinion surveys of long duration [2-6]. The results presented in the paper were statistically reweighted to reflect the actual composition of the adult population of the United States, calculated on the basis of data from the Census Bureau, according to age, sex, education level, region, race or ethnic background, and household size [7]. Because the news media do not rely on response rates as the best way to measure the accuracy of a poll, weekly survey services used mainly by the media do not generally report or even keep track of response rates. Therefore, we are unfortunately unable to provide a response rate for the survey.

The populations which rely entirely on cell phones, are homeless, or which live in homes that cannot afford land lines would be excluded from this survey. Because these groups likely come from different SES brackets, we believe any possible SES bias may be neutralized.

f. Discuss how the self reported BMI may have biased the results The study reports on blacks, white and Hispanics. What happened if other ethnic groups (e.g. Asians, mixed) participated?

We have added the following text to the limitations section (page 13), “Sixth, we relied on self-reported height and body weight which may lead to an underestimation of the obese population.[8] However, research suggests that the self-reported height and body weight bias do not differ by race/ethnicity.[9]

Given that rates of obesity are highest among Blacks and Hispanics, we selected to oversample those groups. Our sample did not have sufficient power to conduct analyses among the Asian population or other ethnic groups.
g. It is unclear why Chi square tests were used and how multiple testing was accounted for. Why not use stronger statistical methods to avoid obvious problems of internal correlation (the household income or education or employment status are potentially highly correlated) or potential confounding variables in the associations between variables? The paper would gain in strength if the analysis was conducted using a stronger analysis framework. A different analysis framework would help to focus the result section.

*Chi square tests were used to examine mean differences overall and by subgroup. Each variable was examined separately, rather than in a multi-regression model, so potential confounding was not an issue in the analysis. We selected the chi square test for this analysis since it is one of the most common and robust methods for examining differences within categorical variables.*

6. Results: The results section is too lengthy need to be focused on the main objectives of the study.

*We have cut and streamlined the results section.*

7. Table 1. Why was the political affiliation asked? What was the rationale for this? The results for this variable are not presented in the results section or the methods.

*We agree that the political affiliation variable can be dropped from Table 1 as it is not mentioned elsewhere in the manuscript.*

8. Table 2 and 3 contain only some of the socioeconomic variables, why were other variables such as household income, employment status etc.. not tabulated?

*The findings for the other socioeconomic variables, such as household income and employment status, were very similar to those for education. So, in the interest of space we chose not to include them in Tables 2 and 3. We do include them in Table 1 so readers can get a good understanding of the characteristics of the study population.*

9. Discussion: A number of limitations of the study are correctly acknowledged. Nevertheless, it is important to discuss the direction of the potential bias resulting from these. Inequalities in diet and health are a challenging problem for nutrition scientists and policy makers; this study potentially sheds light on an important factor why certain population groups eat differently compared to others. Unfortunately however, apart from ethnic differences, this has not been elaborated in the text. It would be interesting if the authors could elaborate on this specifically (eg household income, employment status..).

*Where appropriate we have added the likely direction of the biases in the limitations section. In an effort to tighten the results and discussion sections as requested, we primarily focus our discussion on the key findings. While we do agree that differences in perceptions of calorie posting by household income or employment status are interesting, we believe there is insufficient space in the manuscript for elaboration.*
Minor Essential Revisions
10. The methods section does not state when a finding was considered statistically significant.

   Done

11. Please justify sample size calculation

   Done

12. Rephrase “caloric requirements” into “energy requirements” (same for calorie choices and the similar statements) Please check following sentence for grammar: “Therefore, energy requirements be more effective among women and racial/ethnic groups at higher risk for obesity but less effective among individuals with lower education.”

   We have corrected the grammar. Given that the survey question uses “calories” and we refer to “calorie posting” throughout, we believe it will be least confusing for readers if we stick to “caloric requirements.” However, if the reviewers feel strongly about this, we would be happy to make the change.

Wording
13. Americans or US citizens?

   We prefer American as citizenship status is not assessed by the survey.

14. What is meant with “more education individuals (page 10 )

   This should read, “more educated individuals.” The change has been made.

Discretionary Revisions
15. Last sentence. I am not convinced that this is a relatively low cost policy tool. Mandatory caloric labeling could logistically be quite challenging for smaller operators or eating out establishments that offer ‘à la carte’ menus with recipes that may changes often.

   We have modified the sentence to refer to larger food outlets with standard menus.

Reviewer #2 (Rebecca A Krukowski)

1. The conclusions in the abstract do not appear to be closely tied to the findings; the authors should revise these conclusions to be more closely tied to the findings.

   Among our key findings were that Blacks and Hispanics had lower caloric literacy, that they reported being more likely to eat in a chain restaurant with calorie posting and that they were more supportive of mandating calorie posting. We also found that women were more likely to eat in a chain restaurant with calorie posting and that they were more supportive of mandating calorie posting. We, therefore, concluded that mandating calorie posting in chain restaurants may be a useful policy tool for promoting energy balance, particularly...
among Blacks, Hispanics and women who are at high obesity risk. We believe this conclusion is consistent with our findings, but are happy to revise if the reviewer feels strongly about this.

2. The authors indicate the environment is the primary driver of obesity in the introduction-- I am not sure that all experts would agree on this point. The authors should provide more support for this statement, if they wish to include it

Done

3. It is essential to report the response rate for a survey-- the authors should include this.

As we state above, the survey was conducted using a bi-weekly service commonly used by media organizations. Due in part to experiences with election polling, the news media are acutely aware that polling over a long time risks missing changes in attitudes and behavior influenced by specific events [1]. As a result, such surveys are generally in the field for a short period.

Our survey relies on reweighting to help ensure representativeness. Independent studies have shown that the results of statistical reweighting of the data are similar to those of an analysis based on the higher response rate in opinion surveys of long duration [2-6]. The results presented in the paper were statistically reweighted to reflect the actual composition of the adult population of the United States, calculated on the basis of data from the Census Bureau, according to age, sex, education level, region, race or ethnic background, and household size [7]. Because the news media do not rely on response rates as the best way to measure the accuracy of a poll, weekly survey services used mainly by the media do not generally report or even keep track of response rates. Therefore, we are unfortunately unable to provide a response rate for the survey.

4. Unless someone is preparing food for others, it is only essential that the individual knows how many calories they themselves should eat, rather than how much someone of various characteristics should eat. The authors should address this point in terms of the design of the survey.

The study was designed to assess the public’s understanding of caloric requirements (based on federal recommendations). We, therefore, assessed caloric knowledge for men and women at different levels of activity. The study was not designed to assess how many calories an individual thought they should be eating. If that were the focus, we agree that we would have needed to design a different survey.

5. The range of calories included in the "correct" answers to the survey questions is quite large. The survey only picked up people who had a very inaccurate notion of how many calories should be eaten.

The reviewer raises a good point. We have added this to the limitations section.
6. The survey questions addressed chain restaurants-- chain restaurants can also be sit down restaurants; however, the authors specified calories being provided on menu boards. This specification is only appropriate for fast food and fast casual restaurants, which biases response.

We agree that chain restaurants can also be sit down restaurants. To address this issue, we gave survey respondents’ the example of McDonalds or Subway when we asked them questions about chain restaurants.

7. The respondents were "primed" to think that the answer to the 3rd survey question (inactive adults) would be different from the first two questions. This is a significant limitation to the results.

It is possible that respondents’ assumed that the answer to the question about caloric requirements for inactive adults would be different to moderately active adults. We address this in the limitations section with the following text, “Sixth, the correct answer to the caloric literacy questions was the same for all groups (e.g., moderately active men, moderately active women and inactive adults). Some respondents may have assumed the answer should change across groups which may partially explain our finding of low caloric literacy for inactive adults.”

8. The authors conclude that "mandating calorie reporting in chain restaurants may be an effective tool to promoting [promote] energy balance, particularly among Blacks and Hispanics..." There are others that the authors have reported who would particularly benefit in this article; thus, it seems biased to specifically mention these racial groups. In addition, there is very little research indicating that calorie labeling will change behavior-- which is THE essential component; thus, this conclusion may be overstated, in particular given recently released research indicating the lack of effect of calorie labeling (i.e., Elbel, Kersh, Brescoll, & Dixon).

We agree and have also highlighted the results for women. With respect to the impact of calorie labeling on behavior, the research appears to be mixed. Some studies show no effect [10] while others do show an effect [11]. We have added these citations to the discussion section.

Essential Revisions
9. Information that is both in a table and in the text can be cut to make the manuscript more concise.

We have cut text to make the manuscript more concise. As suggested by the first reviewer, we dropped the political affiliation variable from Table 1.

10. It would be helpful for the authors to guide the reader through some of the results in the tables (e.g., race, gender, and age differences on p. 9)
In an effort to keep the results section short (as was suggested by the first reviewer) we have only highlighted the significant findings in the text.

11. The similarities and differences between the current and previous research should be integrated into the discussion rather than having a separate section for this.

   Done

12. The authors should include the limitation of the study that random digit dialing doesn’t pick up cell phone numbers, which are often the sole phone line for specific demographic groups.

   Done

Discretionary Revisions

13. It may be helpful for the reader for the abstract to include the % of white respondents supported calorie labeling, in order to contrast with the other racial groups.

   To streamline the abstract, we omitted the percentage of Black and Hispanic respondents supporting calorie labeling.

14. It would be helpful for the authors to give examples of how the research may inform legislation.

   Done

15. The authors indicate that "more research is needed to understand whether the most effective mode for presenting consumers with calorie information and whether it varies by sociodemographic characteristics"-- however, what may be more important is finding a modality that transcends most, if not all, sociodemographic characteristics, as public health interventions in this area have limited ability for tailoring. In addition, this sentence is repeated in the last paragraph.

   We have deleted the repeated sentence.
REFERENCES