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Commentary:

THINKING ABOUT THINKING ABOUT FOOD: A REPLY TO BEATRICE'S COMMENTARY

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Abstract

The present article is a reply to Beatrice's (2020; see this present issue of JISS) commentary regarding our recent publication, "Thinking About Food: An Analysis of Calorie Estimation Accuracy" (Mixon & Davis, 2020; see this present issue of JISS). In our reply we engage in what we feel is a productive dialogue centered around a few of Beatrice's suggestions. We primarily focused our response on her suggestions of using a subjective numeracy measure and her recommendations for future research. We also agreed with Beatrice in a number of areas and were enthused by her interest in our work.

Keywords: obesity, food choice, calorie estimation, numeracy

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COMMENTARY

In her commentary, Beatrice (2020; see this present issue of JISS) provides a great summary of our work. Among other observations, she noted the relevance and concerning reality of the obesity epidemic and the ways cognitive factors, stereotypes, categorization, and numeracy warrant further examination in this context. She also correctly articulated the troubling nature of our finding that underestimation appeared most pronounced for those items under 500 calories and further noted how numeracy appeared to influence our results for entree estimation, with lower numeracy participants being more likely to underestimate the calories in the entrees. We would like to start our reply by simply thanking Dr. Beatrice for her interest in our work and this line of research. In the following reply, we may disagree at times, but we are happy to have this productive dialogue so that we can all continue this discussion and outline ways we might better utilize Nutrition Fact Panels (NFPs) and inform decision making such that we can have a positive impact on the obesity crisis.

One interesting point that Beatrice (2020) made centered around our finding that on average, women underestimated the calories in the entree selections. Women also had marginally lower estimates relative to males for the other food categories as well (fruits, vegetables, and desserts), but as these were above the mean, a lower estimate in this case is actually more accurate, however none of these comparisons by gender were significant for these categories. Interestingly, Beatrice (2020) suggested that stereotypes and the relationship women have with food might have a role to play here. As she writes, "…females may inadvertently underestimate calories or serving sizes in an unconscious attempt to rationalize the type or amount of food being consumed" (Beatrice, 2020, p. 127). Her logic appears to stem from the idea that societal pressures and continual scrutiny surrounding their appearance may drive this effect. This is an interesting point for additional discussion and follow-up studies. Are women more likely to rationalize the amount of food they eat in response to these societal pressures? If that is correct, how does that inform the structure of future NFPs? Much of our discussion was centered around the notion that NFPs need to be crafted such that consumers get the information they need in a way that informs their decision making. Thinking about next steps in this line of research, if more attention needs to be given to gender to ensure that NFPs are not biased against women, that would be a fruitful and worthy endeavor.

Beatrice (2020) also made an interesting point regarding our finding that numeracy impacted the accuracy of the entree estimations. As a reminder, we found that lower numeracy participants were more likely to underestimate the calories in the entrees in our study. Beatrice (2020) made a point that, "The use of a subjective numeracy scale might provide more accurate predictors of an individual's ability to perform tasks that may be numerically insensitive" (p. 128). Fagerlin et al. (2007) provide a good starting point for our discussion with their Subjective Numeracy Scale (SNS). With eight questions in total, the SNS contains items such as "How good are you at working with fractions [or

percentages]?", "How good are you at calculating a 15% tip?", and "How often do you find numerical information to be useful?" (Fagerlin et al., 2007). Interestingly, the SNS has been found to be correlated with the Lipkus et al. (2001) measure (Fagerlin et al., 2007). While this is an interesting scale to consider using as a supplement to the traditional objective scale offered by Lipkus et al. (2001), we prefer the objective version for two reasons. One, while we did not find that cognitive reflection influenced our present results, our interest in this measure stems from a broader interest in the mismatch between one's intuition and their objective performance. So while we see value in the SNS, we also approach this question with an inherent skepticism of an individual's ability to accurately assess their own performance. Second, while the SNS offers some interesting items, the objective measures enable us to obtain an accuracy value for numeracy that the SNS does not allow. This accuracy may prove useful in future studies that seek to investigate the interactions between numeracy and variables measuring cognitive reflection, decision making, and understanding or comprehension of numeric health information.

Within the conclusion, Beatrice (2020) offered a number of sound recommendations for further studies. For instance, she suggested future research incorporate the Weight Control Behavior Scale, explore the impact of stereotypes and gender roles, consider implementing a mixed-method approach, and extend this line of research more directly to the present NFP and the Traffic Light panel. To continue this discussion, we do wish to highlight our reservations on the idea of the mixed-method approach and offer more in the way of future research plans regarding NFP comparisons. While we agree that mixed-method approaches are valuable for social sciences and can be especially useful and informative where more quantitative approaches may fall short, we do want to push back on how this would have impacted the present study. We favored a quantitative approach for the present study, given the ways in which open-ended questions and corresponding answers would likely not have been able to tease apart these small estimation differences that were allowed with a quantitative approach. We agree that a mixed-method approach can be fruitful for research seeking to better understand the dietary decision making process, however we worry that such an approach would not have allowed us to make comparisons such as the ones we made in the present study, or to see the exact range of the misestimations. That said, we can see how a mixed-method approach with follow-up studies would allow us to obtain a more robust understanding of the thought process that occurs when individuals make selections while at a store or restaurant and can certainly see their value if we pursue follow-up studies that are more focused on selections rather than estimations.

We also want to follow-up on the recommendation that Beatrice (2020) provided when she offered that "Future studies should explore the differences in calorie estimation between the tradition [sic] NFP and the Traffic Light method to support this effort" (p. 129). Simply, we agree. Currently, a follow-up study is underway investigating the traditional NFPs in comparison to ones that utilize color in select areas (calories, total fat

grams, sodium, etc.) to see if simply adding color informs decision making. Using color on existing panels would represent a quick and easy step that could facilitate a change in dietary habits until more comprehensive changes are made to the overall structure of NFPs. We had not considered doing the same type of comparison with the Traffic Light panels simply because they are not yet utilized in the U.S., but that is a great idea for another follow-up study.

We want to once more thank Dr. Beatrice for her interest in our research. We appreciate that she offered valuable insights regarding societal pressures on women when it comes to dietary selections, the suggestion to consider a subjective scale to measure numeracy, and some great ideas for future studies. We are glad to have this continued dialogue and want to conclude by offering that when fellow researchers engage in this productive and positive back and forth we all benefit.

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