Implausible Results from the Use of Invalid Methods

Dear Editor:

With interest, we began our perusal of the article by Mendez et al. (1), “Shifts in the Recent Distribution of Energy Intake among U.S. Children Aged 2–18 Years Reflect Potential Abatement of Earlier Declining Trends.” Unfortunately, that interest was short-lived given that the methods used to collect the energy intake data were invalid.

The primary flaw was the use of an invalid estimate of energy intake. These authors used self-reported energy intake (SREI), which is not an accurate measure of true energy intake due to widespread reporting errors in children and adults (2–4). They compounded this fatal flaw by inappropriately applying a method published by Huang et al. (5) to filter the SREI data that were never intended for use in measuring energy intake. In fact, the article by Huang et al. demonstrated the method to be invalid for measuring true energy intake. Specifically, the Huang et al. method was developed to reject implausible dietary reports for analysis of nutrient intake other than energy by reducing the percentage of SREI records from the database that were severely under-(or over)-reported with respect to foods consumed. When applied to energy, it was demonstrated that the use of the ≥1.5-SD cutoff for exclusion of SREI data actually resulted in a 15% underestimate, and thus an inaccurate measure, of habitual energy intake (5).

The second flaw was to assume that the subset of SREI values after application of the exclusion method proposed by Huang et al. could be used to compare estimates across ethnic and racial groups. Huang et al. reported that the inaccuracy between the filtered SREI and the criterion measure varied by sex, age, and race/ethnicity. Thus, the bias between SREI and true habitual energy intake varies between subgroups, and thus no inference regarding true differences in energy intake between these subgroups can be made.

Taken together, these demonstrate that SREI methods as used by Mendez et al. are flawed. SREI data were not measurements of energy intake but simply numeric values assigned by the researcher to the respondent’s retrospective perceptions (i.e., memories) of eating behavior. In the case of young children, it is parental memory of the child’s food consumption. In other words, nutrition researchers are not measuring energy intake. They are merely assigning numeric caloric values from invalid words, nutrition researchers are not measuring energy intake. Specifically, the Huang et al. method was developed to reject implausible dietary reports for analysis of nutrient intake other than energy by reducing the percentage of SREI records from the database that were severely under-(or over)-reported with respect to foods consumed. When applied to energy, it was demonstrated that the use of the ≥1.5-SD cutoff for exclusion of SREI data actually resulted in a 15% underestimate, and thus an inaccurate measure, of habitual energy intake (5).

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