Topic: Measurement errors in nutritional epidemiology

Title: Association Between Intake of Added Sugars and Discretionary Fats with Nutrient Intakes for Children and Adolescents Ages 4-18 years old

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Abstract:

The term “empty calories” has been in use for many years, and refers to the calories that are contributed by some starchy foods, saturated fats, alcohol, and refined sugars (Jenkins, 2004). The effect of empty calories on a person's diet is at odds with the goals of individuals who are trying to maintain a healthy lifestyle. Data for children and adolescents aged 4 to 18 years old in the United States from NHANES 2003-2004 (the latest survey for which intakes of added sugar and discretionary fat are available) were used to estimate the association between intake of added sugars and discretionary fats with intake of essential nutrients. We fit a regression model that allows for non-independent measurement error between the dependent and the response variables, to account for the fact that observed daily intakes are noisy measurements of usual intakes. The response variable in our models is the nutrient density (units of the nutrient per 100 calories). Calories from added sugar and from discretionary fat were expressed as percent of total energy as well. Other covariates in the model (e.g., BMI and age) are assumed to be measured with no error. For certain age-sex groups, added sugars and discretionary fats are found to be negatively associated with intake of some nutrients, suggesting that intake of foods with high content of added sugar and fat displace consumption of some nutrients.

Keywords: Measurement error model, empty calories, added sugar, discretionary fat