Dear Sir:

Fretts et al (1) examined associations between the consumption of various processed and unprocessed red meats and incident diabetes in rural American Indians (AIs). Although their findings were consistent with those of other studies, we have several concerns regarding their methodology and interpretation.

The authors used a modified Block food-frequency questionnaire (FFQ) to assess the diet of their study population but neglected to address critical issues pertinent to the accurate use of this instrument. To begin, this FFQ was not validated for use in AI populations nor for the purpose of assessing protein intake, including processed meats and unprocessed red meats. A previous article (2) issued caution when using an FFQ with a minority population if validity had not been thoroughly tested; Teufel suggested that data quality may be compromised when the assessment approach was culturally unfamiliar, such as being based on a Euro-American reporting and classification system. Although the authors added “commonly consumed” AI foods to the standard foods list, including a single item for spam, they did not describe whether these foods were common for this particular sample or for a general population of AIs. The sample in the study by Fretts et al included 13 communities in 4 states. Distinct regional and cultural characteristics likely influenced the variety and frequency of foods consumed, which suggests that the FFQ may not be appropriate or relevant for the AI respondents (2) and that the FFQ likely missed some foods. Therefore, the FFQ might not have had the precision required to accurately rank respondents on key dietary intake measures. This article could have been strengthened by providing additional evidence on the validity of the FFQ for use in this sample of AIs and for measuring intake of processed and unprocessed red meat.

Moreover, delineating foods as single line items (eg, spam) in an FFQ increases the odds that a respondent will report consuming a food, which leads to an overestimation of meat consumption compared with an FFQ in which the same food is included in a group of food items (3). Particularly, in a nutrient density model, overreporting of spam intake would increase the percentage of the diet composed of spam, relative to unprocessed meats and other foods. This difference would be greater for consumers than for nonconsumers, which may partially explain the observed association between processed meat and incident diabetes, and the null effect of unprocessed red meat.

In addition, we think that the study might be strengthened by some additional analyses. Fretts et al noted that, “observed ORs for processed meats were partly attenuated after additional adjustment for baseline BMI” because BMI may be on the causal pathway between consumption of processed meats and diabetes. However, the authors did not indicate whether BMI was from baseline or follow-up or a cumulative average. If BMI was the baseline measure, it chronologically could not be a mediator. In other words, because food intake and BMI were measured at the same time, the intake of processed meats at baseline could not cause baseline BMI. It might be interesting to see how the results would change if cumulative BMI over 5 y of follow-up were controlled for to see whether the association between processed meats intake and diabetes can be partially or completely attributed to an increase in weight gain. Similarly, a noticeable proportion of respondents reported cardiometabolic indicators of prediabetes or metabolic syndrome (MetS). Results suggested a possible effect of prediabetes or MetS on the outcome of incident diabetes, which was true across exposure levels and may have increased the likelihood of observing a case (of diabetes) during the 5-y follow-up, regardless of processed meat consumption. An exploration of the potential effects of prediabetes or MetS on the association of processed meat consumption with diabetes would provide useful information.

In closing, we think that Fretts et al conducted an important study, but the findings might be made more robust by additional analyses and discussion.

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Diana Allotey
Shannon Grabich
Cassandra M. Johnson
Samantha Kepler
Susan C Kleiman
Lindsey P Smith
Dalia Stern
Emma Tzioumis

Gillings School of Global Public Health
The University of North Carolina at Chapel Hill
260 Rosenau Hall, CB #7461
Chapel Hill, NC 27599-7461
E-mail: cassandj@live.unc.edu

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