Reviewer's report

Title: Alternative regression models to assess increase in childhood body mass index

Version: 1 Date: 28 April 2008

Reviewer: Mary Beth Terry

Reviewer's report:

Abstract

The abstract would benefit from reporting 1-2 key findings - e.g., one example where the risk factor was robust to statistical model and one risk factor where the inference changed based on the statistical model selected.

Intro

- I would remove the medline search - not sure if that makes the point without carefully reviewing the articles
- Third paragraph "comparisons between regression models were discussed but not quantified" - clarify what you mean here - do you mean based on AIC - for these references the point estimates from the different models were presented

Methods

There is more missing data on some of the covariates than others - it would be worthwhile to discuss this in methods and maybe in discussion section discuss whether any of the statistical models are better for using MI methods

Page 8, top reword "its lack in quantile regression"

Results

Paragraph - define 'peak'
Why categorize mother’s BMI?

Paragraph 4 - Clarify which variables are confounders, exposures, and modifiers.

In discussion would be worthwhile to discuss how some of the models being compared are multiplicative models and some are additive - this has implications for interpretation of interaction/cross product terms.

Discussion

Page 13, paragraph 3, last sentence, clarify what you mean - reference 7 and other references compare different approaches for BMI models

Tables 1 and 2
Might be clearer to use 0 to indicate no association - usually conotates an
Many of the risk factors are robust to statistical model in terms of whether or not an association is detected (e.g., mothers BMI, meal frequency, weight gain). This should be mentioned in the abstract and discussion but then clarified that the different models yield different magnitude of associations.

To this end, may be worth adding the magnitude of effect to the tables and also consider modeling interaction terms since the different models have different implications with respect to interactions.

May be more helpful to show quantile plots rather than just the estimates for 0.9 and 0.97

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests