Reviewer’s report

Title: Food Access and Perceptions of the Community and Household Food Environment as Correlates of Fruit and Vegetable Intake among Rural Seniors

Version: 1 Date: 19 March 2010

Reviewer: Peter Hannan

Reviewer’s report:

Summary:
The authors use data from the Brazos Valley Health Assessment (BVHA), Brazos Valley Food Environment Project (BVFEP), coupled with the 2000 US Census to examine fruit and vegetable intake in 589 rural seniors in 6 counties of Texas. They use GIS to code home addresses and food store addresses, together with on-site evaluation of the availability of fresh (or processed – canned, frozen) fruit, and vegetables to examine the association of distance to a suitable store and the intake of fruits/vegetables. Rural seniors form an understudied population. The results indicate the need to consider access to good nutrition in such a sub-population.

Overall, the question is well-defined and the data used is appropriate. The analytic methods are reasonable. Previous work by these authors or others are presented in detail. Writing and presentation need improvement.

Major problems:

1 First, these mainly arise through lack of clarity in the writing. The text has not been scrutinized for convoluted sentence structure, for redundancies, or simply for inaccuracies or for ambiguities. As an example, in the Abstract Results we find “The inclusion of canned and frozen fruit changed the median distance for a good selection of fruit to 3.6 miles, and 3.3 miles.” We have a singular “distance” but two values. The reader can work out what is meant, but the writing should be correct. Numerous other examples of poor writing occur in the text, some of them making for confusion.

2 Page 4 onto page 5 starts with a floating participle! The term “shopping opportunities” is introduced, and never again used. Aim a) uses “neighborhood access” while aim c) uses “neighborhood characteristics”, but the reader has no clear idea of the difference at this stage of the article.

3 Redundancies occur. The Methods (page 5) begin with what was introduced in the paragraph immediately above! As another example of loose writing, at the bottom of page 13 the authors have a paragraph comparing their results to the Brooklyn findings. Then they digress with the sentence “Perception of community and household food resources, which were not included in the urban regression analyses …” to repeat results. And the bottom of the next page (15) comes another similar summary of results. In the first paragraph of Results (page 9) the authors intrude a sentence that belongs in the methods: “Using a previous
determination … residence.”

4 Convolution, confusion. The first sentence of the Methods is convoluted. After mentioning the BVFEP, the text runs on about the CBG, until finally, after an “and”, comes the Census. At the end of the third sentence in the Results the connective “, as well as…” leaves the meaning unclear.

5 Inaccuracies. Page 5 (fourth last line) says “all data were geocoded.” This is absurd. Does the “All data” include the “complete nutrition data” which ends the previous sentence! An egregious example is on page 13 at the top of the third paragraph of the Discussion where it is said “2) gender, age and education were positively associated with intake;”, but the data is that LOW education (<HS) was positively associated with fruit and vegetable intake. The authors know what they mean to say, but do not say it accurately, leading to great confusion.

6 Lack of clarity occurs when different terms are used in different places for the same concept. As an example, in the Results (page 9, line -5) the authors use “high deprivation neighborhood”, whereas on page 7 (line -5) the term is “high socioeconomic deprivation” as it is in Table 1.

7 Second, the text could be simplified which would reduce the need for complex terminology and verbiage, as well as allowing for a simplified Table 4 (and its description, pages 8/9). The results show no difference in the separate analyses of fruits and vegetables so everything would be much clearer and simpler if fruits and vegetables are a single combined item. Indeed, the data at the bottom of Table 1 shows (from the standard deviations of the individual items, and the standard deviation of the combination) that the two individual items cluster. I use \[ \text{Var}(F+V)=\text{Var}(F) + \text{Var}(V)+2\text{COV}(F,V) \] to get \[ 2.56=1.81+2\text{Cov}(F,V) \] whence \[ \text{Cov}(F,V)= 0.38. \] The pooled variance of F or V is 0.9, so the intraclass correlation of F,V within respondent is estimated as \( 0.38/0.9= 0.42. \)

8 Simplify by dropping the supermarket measure – only 11 exist, for 589 seniors and Model 2 does not really add to the picture. Simplify Results – Objective measures of potential food access – first 4 lines, by restricting the food stores to 185 in the methods section. Further, separating into parallel analyses for “fresh” versus the equally nutritious, and likely used as frequently by seniors, “fresh/canned/frozen” would simplify the presentation without jeopardizing the interpretation. The distinction between the categories could be handled with a single sentence in the presentation of the results. And the messy description of the models (Statistical Analyses, pages 8/9) and in the footnote to Table 4 would be avoided.

9 “Environmental press” is introduced (page16) but the concept can be used without burdening the reader with newly introduced terminology entering into the very end of the paper.

10 The base model shows an R2 of 14% which is increased to 16% with the inclusion of the measured distance to the nearest food store source of quality fruit/vegetables. The coefficient (labeled merely “b” in the Table 4) is marked ** which I presume is to represent \( p<0.01 \) but nowhere is that stated. Further, with a simplified set of variables it would be easy to replace the asterisks with printed p-values with 3 digits much more in accord with modern statistical practice. This
table is in great need of reformatting to make it cleaner and clearer. Begin by reducing the number of models and the number of rows; the footnote will benefit also, and can be arranged much more informatively.

11 Nowhere in the text is the magnitude of the regression coefficient brought back to real units (approximately half a serving of F/V between a senior close to a food source, versus a senior at the 75th percentile of the distance to the nearest food store for quality vegetables). What are the implications of a difference in F/V intake of half a serving?

Minor problems:

1 Organization of the section Measures (page 6) is confusing. The formatting of italicized test presumably is to note major measures. But then underlining is used in three places, for what purpose. In many journals the major measure (italicized) commences each new paragraph which is then very clear.

2 Numerous sentences introduce a clause with variants of “There is”, “There was”, “There were” which is careless writing.

Abstract- Results line 6 in two phrases

page 4 line -6
page 10 line -5, line -3

Results page 19
page 13 line 2
page 14 at “…major strengths …”

3 In presenting results from a table (page 10 bottom) it is easier on the reader if the order follows the table rather than jumping around.

4 Reference 53 has no source

Discretionary items, typos…:

1 No reference is given for the measure of fruit/vegetable intake – was it some form of a food frequency?

2 page 9 Results fourth line – no need for the decimal .2 in 28.2%

3 page 9 line -3 include “only” before 14.3% to emphasize concern.

4 page 10 line -4: Text says “For many seniors…” but I see a 45% for concerned about price, with 10% (variety) and 13% freshness. It is likely that these are the same people (you cannot just add up the percentages). Better might be to include numbers with no concerns, 1 concern, 2, or 3 concerns.

5 A similar approach might be taken with the “food insecurity” variables as they also are likely to show high overlap.

6 page 11 line 4 “Bivariate correlations ..” might become “Bivariate correlations with fruit/vegetable intake …”

7 page 13 line 8: need to insert “low” before “education”.

8 page 17 line -5 of text – an extraneous “:” occurs after “in rural areas”.
Table 1: Instead of “Length of residence” why not “Years of residence”?

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

**Quality of written English:** Not suitable for publication unless extensively edited

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

**Declaration of competing interests:**

I declare that I have no competing interests