Author's response to reviews

Title: Breast and Cervical Cancer Screening Among Women in Metropolitan Areas of the United States by Commuting Time to Work and Use of Public Transportation, 2004-2006

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Author's response to reviews: see over
Re: “Breast and Cervical Cancer Screening by County-Level Commuting Time to Work and Use of Public Transportation”

Dear Sir,

Thank you for your email of September 3, 2009 regarding the above-referenced manuscript. We have carefully considered the comments from the editors and anonymous reviewers and have revised the manuscript accordingly. The specific changes made to the manuscript are as follows.

Associate Editor’s comments:

“I suggest changing the title to "Breast and Cervical Cancer Screening .... by county-level commuting time to work and use of public transportation...”

We have changed the title of the manuscript as requested.

“Authors should attempt to consolidate tables 1-3 and tables 4 and 5.”

In response to the Editor’s comments, we have combined tables 2 and 3, and also combined tables 4 and 5 (results of logistic models).

“I don't understand why in all tables commute time >= 30 minutes is categorized as yes/no. Shouldn't it be x% with commute time >= 30 minutes, like all other county level variables?”

The categories for commuting time at the county level are constrained by the way in which the data were presented by the US Census Bureau. County-level data available from Census 2000 SF3 on travel time to work for workers 16 years and over are categorized as: less than 5 minutes, 5 to 9 minutes, 10 to 14 minutes, 15 to 19 minutes, 20 to 24 minutes, and so forth, all the way up to 90 minutes or more. We collapsed these time categories into <30 minutes versus >= 30 minutes and calculated the percent of county residents reporting commute times within those 2 broad categories. We then obtained the median percentages by county and categorized this
variable as “At least MSA median % have commute greater than or equal to 30 minutes” versus “Less than MSA median % have commute greater than or equal to 30 minutes.”

First Reviewer’s comments:

“I suggest the authors provide a more detailed discussion on what they are trying to measure with the county-level commuting variables. Initially, it is suggested that commuting time will be inversely related to getting recommended tests, which implies that the authors view the county-level commuting measures as proxies for individuals’ commuting experiences… Yet, when attempting to explain the results, they seem to suggest that county-level variables are capturing unmeasured characteristics of residential communities. A little more discussion on what exactly is supposed to be captured by these measures would strengthen the manuscript.”

Although ecological measures of commuting time and use of public transportation were primarily used as surrogates of individual-level measures of commuting time and use of public transportation, we also considered the possibility that ecologic measures of commuting time, use of public transportation, and access to an automobile might also be associated with other unmeasured characteristics of metropolitan areas.

Also, I would prefer the wording to more precisely reflect the level of measurement—instead of writing, “having a commute time of 30+…”, it would be better to write, “living in a county with a median/mean commute time of over 30 minutes…”

We have reworded these passages in the manuscript in accordance with the reviewer’s request.

“In general, unmeasured individual and county characteristics are a very large concern in this study, worthy of a little more discussion.”

We have noted in the Discussion section that we cannot rule out the possibility that the weak association observed between residence in a county with less use of public transportation and cervical cancer screening may be accounted for by uncontrolled confounding by unmeasured individual-level variables or county-level characteristics. For example, BRFSS data do not included information about health literacy, knowledge about cancer, or attitudes toward routine cancer screening.

“I do not understand the reasoning behind restricting the sample to those from the largest MSAs. In particular, I am not clear on why reducing the heterogeneity of metro areas is desirable.”

Metropolitan areas in the US vary greatly by population size. We restricted the analysis to MSAs with a population of at least 1.5 million in 2007 in order to ensure that there would be sufficient numbers of respondents in each. In the smaller MSAs, the number of BRFSS respondents is much smaller and the weights used to take into account the complex sampling would be unstable. We reworded this passage in the methods section of the manuscript for clarity.
“How many counties are represented in your sample? Given that you have relatively few counties, it seems that you should say more about which counties have the longest/shortest commute times, even if only be region.”

There are 337 counties in the analysis. We have examined county-level commute times in exploratory analysis but did not add this information to the manuscript since no significant associations with commute time were observed after we also adjusted for employment status and general health status, as recommended by the reviewer.

“I think the age-adjusted estimates are unnecessary. In your multivariable results, you control for age so why not just show crude associations in tables 2 and 3”?

The results shown in tables 2a, and 2b are displayed unadjusted for age and adjusted for age in order to better allow comparisons of the percentages across subgroups.

Second Reviewer’s comments:

“Why did the authors aggregate 2004 and 2006 data together? It is known that BRFSS was conducted annually. Two-year data may overlap to some degree although the percentage may not be that big. Why didn’t the authors only focus on the newer (2006) data? Additionally, the title showed “…2004-2006.” It seems the authors didn’t use 2005 data.”

Data from 2004 and 2006 were combined in order to increase the sample available for analysis. Data on breast and cervical cancer screening were unavailable for 2005. We clarified the title of the manuscript in response to the reviewer’s comment.

“In the multivariate models, the authors introduced individual- and county-level factors. This is a typical multilevel design. Multilevel modeling accounting for random effect among MSAs should be applied to test statistical significance instead of single-level logistic regression.”

We did not perform multilevel modeling while accounting for random effects among metropolitan statistical areas (MSAs) because we felt it was more important to take into account the complex sampling used for BRFSS surveys. All analyses were weighted to take into account the complex sampling of the surveys. In order to adopt the reviewer’s suggestion, it would be necessary to perform unweighted analyses.

“Although the authors considered some individual-level confounders, such as education, income, health insurance, routine check-up, some other factors which have been reported to be important barriers to cancer screening should also be considered including employment, comorbidity of chronic diseases, depression/anxiety, self-reported health status, etc.”

In response to the reviewer’s comment, we have added data on employment status and self-reported health status to the analyses. With individual-level variables for general health status and employment status added to the models, no associations were observed with residence in a
county with a longer median commute time. We have noted this in the abstract and in the results and discussion sections.

Editorial requests:

“Please include a 'Competing interests' section between the Conclusions and Authors' contributions. If there are none to declare, please write 'The authors declare that they have no competing interests'."

This change has been made. The authors have no competing interests.

“Please include an Authors' contributions section before the Acknowledgements and Reference list.”

This change has also been made.

“Please clarify ethical approval. Experimental research that is reported in the manuscript must have been performed with the approval of an appropriate ethics committee. Research carried out on humans must be in compliance with the Helsinki Declaration (http://www.wma.net/e/policy/b3.htm) A statement to this effect must appear in the Methods section of the manuscript, including the name of the body which gave approval, with a reference number where appropriate.”

The BRFSS data used in the analysis are anonymous and included no personally identifying information. Our analysis was considered to be exempt from IRB review according to CDC guidelines.

“Informed consent must also be documented. Manuscripts may be rejected if the editorial office considers that the research has not been carried out within an ethical framework.”

Our analysis consisted of analysis of existing data from an anonymous survey combined with US Census data at the county level. Therefore, we had no contact with human subjects and additional informed consent was not obtained.

Thank you for your kind consideration. I can be reached at: 810 Vermont Avenue, NW, Washington, DC 20420, tel. (202) 266-4656, email steven.coughlin@va.gov.
Sincerely yours,

Steven S. Coughlin, Ph.D.
Environmental Epidemiology Service
Office of Public Health and Environmental Hazards

cc: Jessica King, M.P.H.