Author's response to reviews


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Prof. Alan Lopez

Editor-in-Chief

PHM

Dear Prof. Lopez

It is my pleasure to submit to PHM our manuscript “Prevalence of Physical activity and obesity in US counties 2001-2011: A Road Map for Action” for consideration for publication. This paper analyzes trends in obesity and two measures of physical activity from 2001 to 2011 and explores the relationship at the community level between these two critical risk factors. We would like to expedite the review and possibly publish by July 10th if the reviews were favorable. We have been working with the White House on a major health event to release these findings and to call for preventive actions in the US with the First Lady. We would like to be able to use the findings and results of this manuscript after they are peer-reviewed.

We find that obesity levels have been rising in essentially all counties but increases over the period 2001 to 2009 have ranged from minimal to as large as 13.1%. The percentage of individuals with no physical activity has barely changed over the decade but the fraction of individuals getting sufficient physical activity has increased substantially. These increases also range from minimal to as large as 28.3% of the population moving into the category sufficient physical activity. Perhaps most important for policy strategies for obesity control, obesity has been increasing even in counties with quite substantial increases in physical activity.

Our analysis of obesity has several advantages over previous reports on obesity by counties including those by the CDC. First, we use BRFSS data and NHANES data to develop a correction for BRFSS self-reported weights and heights so that our estimates from the BRFSS are adjusted for self-reporting bias. Second, our approach to small area estimation for obesity (and physical activity) tests in counties with large samples the validity of the small area estimates. This is done by sampling down the large samples that have been conducted in some counties in the BRFSS to small sample sizes, running the small area estimation models and evaluating model performance against the full samples that have been excluded from the analysis. In this way, we can both select the best performing small area model from a large number of models tested and also characterize the precision of the estimates. Third, we have analyzed the trends in obesity through to 2011 which makes the results more relevant to current policy discussions. 2011 is the most recent available data from BRFSS but we are willing to include 2012 if it becomes available before the second round of submission or even before we receive our final galleys.
Our analysis of physical activity at the county level is unique to our knowledge for several reasons. We use responses on multiple questions (some are fielded every alternative year in the BRFSS) to compute the fraction of the population reporting no physical activity and we compute the fraction of the population reporting sufficient physical activity according to CDC guidelines. The distinction turns out to be substantively important because while the fraction with no activity remains stable overtime, there is a marked increase in some counties in selected states in the fraction of the population with sufficient physical activity. By examining county trends in both obesity and physical activity using consistent statistical methods, we are also able to demonstrate that while there is some protective effect of increased physical activity on obesity levels at the population level, the increase in physical activity is associated with lower rates of increase in obesity not declines in obesity. Further, the relationship while statistically significant is quite weak; in other words the causes of increasing obesity seem mostly due to factor other than physical activity levels.

Because of the importance of both obesity and physical activity as major risk factors for premature mortality and disability in the US as demonstrated by our GBD2010 findings for the US, we believe this study on the local patterns of both would be an important input into a policy debate on which strategies should be emphasized in the US to improve health.

Thank you again for your willingness to consider our manuscript.

Regards,

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