Author’s response to reviews

Title: Accuracy of Parent-Reported Information for Estimating Prevalence of Overweight and Obesity in a Race-Ethnically Diverse Pediatric Clinic Population Aged 3 to 12

Authors:

Nancy P Gordon (nancy.gordon@kp.org)
R. Grant Mellor (r.grant.mellor@kp.org)

Version: 3 Date: 29 August 2014

Author’s response to reviews: see over
31 August 2014

Re: BioMed Central Pediatrics ms # 1188470133119001 (“Accuracy of Parent-reported information for estimating prevalence of overweight and obesity in a race-ethnically diverse pediatric clinic population aged 3 to 12”)

Dear Editors:

We are re-submitting a revised version of our manuscript titled “Accuracy of Parent-Reported Information for Estimating Prevalence of Overweight and Obesity in a Race-Ethnically Diverse Pediatric Clinic Population Aged 3 to 12”. This manuscript was originally submitted on 8 January 2014.

Per the suggestion of the BMC Pediatrics editorial staff and the reviewers, we have had a copyeditor review the revised manuscript in order to improve the reader experience.

On the pages following this please find the detailed responses to the very helpful critiques of the two reviewers. We indicate the changes we made to the manuscript based on their comment or in cases where we did not make a change, explained why not.

We hope that the reviewers and editors will find this revised manuscript acceptable for publication and look forward to hearing your back from you.

Sincerely,

Nancy P. Gordon, ScD
Research Scientist
Kaiser Permanente Division of Research
2000 Broadway, Oakland, CA 94612
ph: (510) 891-3587
fax: (510) 891-3606
e-mail: Nancy.Gordon@kp.org
Detailed response to Reviewer 1:

**Old Page 2, Results:** We revised wording; “X percent of the time” taken out

**Old Page 4, Statistical Analysis:** Clarification and reference added to statement about use of post-stratification weighting factor to create prevalence estimates based on sample that more accurately reflects the age, sex, and race-ethnic composition of full sample.

**Inconsistency of number of decimal places:** Decimals are now rounded to one decimal place in all instances except for the Kappa statistics

**Non-inclusion of statistics for “Other” group in the tables:** The “Other” group is included in statistics presented for the full sample and two age groups. However, there were too few children in the “Other” group with parent-reported height, weight and BMI percentile data to warrant presenting data for them as a race-ethnic group. Further, because “Other” is a catch-all for Middle Eastern, Pacific Islander, Native American, and non-specified race/ethnicity, it is not a meaningful group.

**Use of one-sided Fisher’s exact test in Table 1:** We have dropped use of one-sided tests and mention of any differences that are not statistically significant by two-sided tests at the p<.05 level.

**In Table 2, would be interesting to see if overall mean or median of height and weight are different from corresponding EHR height and weight.** We have added to Table 2 the means (with SDs) of individual-level differences between the parent-reported and EHR-based height, weight, and calculated BMI percentile.

**In Table 3, what is the C-statistic (AUC) of the logistic regression model?** The original Table 3 has been dropped from the manuscript and we are now just reporting highlights of the logistic regression models. But to answer the question, the C-statistic (range 0.5-1.0) is used to compare the goodness of fit of logistic regression models. A value of 0.5 indicates that the model is no better than chance at correctly classifying individuals with regard to the outcome variable (e.g., parent-reported height matches or doesn’t match EHR height). Models are typically considered reasonable when the C-statistic is higher than 0.7 and strong when C exceeds 0.8 (Hosmer & Lemeshow, 2000)

**Separate Figure 1 into three side-by-side panels for All, “Age groups”, and “Race-Ethnic groups”:** Done
Detailed response to Reviewer 2

Major compulsory revisions:

1. **Missed opportunity to look at selective non-response by weight status of child and other potential sources of bias:**

   Per Dr. Buttenheim’s suggestion, we conducted some additional analyses to look at whether there was selective non-response bias overall and for different demographic subgroups. To do this, we compared the EHR-based prevalence of overweight and obesity for groups of children who had and did not have a weight classification based on parent-reported data. For the group of children who had a parent-reported weight classification, we also produced estimated prevalence of overweight and obesity using parent-reported data weighted to the distribution of child sex, age (3 to 5, 6 to 9, 10 to 12), and race-ethnicity (non-Hispanic White, Black, Latino, Asian, Other/Unknown) in the full study sample and compared these estimates to the unweighted prevalence estimates. We also examined factors associated with missing weight classification data by comparing children with and without parent report-based weight classification (full sample and demographic subgroups) on parent perception that their child was overweight, length of time since child’s most recent height and weight measurements, parent who completed the questionnaire, and where relevant, child’s sex, age group, and race-ethnicity. The results of these analyses are found in the section “Do missing parent-reported data introduce bias into estimated prevalence of overweight and obesity?” and Tables 4 and 5.

2. **Concern about use of difference in height greater than ± 1 inch and difference in weight greater than ± 2 lbs. as measures of accuracy of parent-reported height and weight as compared to the electronic health record (EHR).** Dr. Buttenheim recommended using a percent threshold difference rather than absolute difference between inches and pounds and asked what the rationale was for our choice. In re-reviewing previous studies, we found that the comparisons of parent-reported and study- or clinic-measured height and weight were done in many ways, most often reporting mean differences in parent-reported vs. clinic/study measured height and weight or comparing group mean based on self-report and group mean based on clinic/study measurement; no one used % difference between height and weight measures as a marker for accuracy. One study (O’Connor & Gugenheim) used ± 2.5 cm (1 inch) and ± .45 kg (1 lb) for assessing accuracy. Since we suspect that most home scales won’t measure weight as precisely as clinic scales, we have decided to stick with our measures of ± 1” and ± 2 lbs. However, in Table 2, we are now also reporting mean height and weight errors and also accuracy of BMI percentile (with ± 5 percentile pts considered accurate).

3. **Request that data on refusal to participate in the survey be presented.** Unfortunately we do not have counts of how many parents refused to participate, nor ability to identify which children who were seen in the clinic on the days the survey was happening do not have any survey data. As part of our agreement with the clinic managers, at times when they were short-staffed or the clinic was extremely busy, they had permission to suspend the survey; in this case, the parents would not have been offered the survey and as such wouldn’t be refusals. Also, clinic staff were told that parents for whom language barrier was a problem (the questionnaire was only available in English and Spanish) should not be asked to participate, and we also told them to discard the survey of any parent who hadn’t turned in a completed survey before going into the room where their child was going to be weighed and measured. That said, to study the issue of potential response bias due to missing parent-reported data, we now include data (Table 5) comparing children for whom no classification of overweight and obesity could be calculated.
based on parent-reported data on a number of factors, including EHR-based weight classification, parent perception of whether the child is overweight, whether mother, father, or other relative completed the questionnaire, and how long ago the child’s height and weight were last measured.

**Minor Essential Revisions**

4. **Old Page 4, second paragraph:** Please indicate whether parents could provide height in inches/cms and weight in lbs/kgs. We have made it clear that parents could provide these measures either way. The questions were asked as follows:

<table>
<thead>
<tr>
<th>How tall is your child (without shoes)?</th>
</tr>
</thead>
<tbody>
<tr>
<td>____ feet ___ inches <strong>OR</strong> ____ meters ___ cm <strong>OR</strong> [] Don’t know</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How much does your child weigh (without shoes)?</th>
</tr>
</thead>
<tbody>
<tr>
<td>____ pounds <strong>OR</strong> _____ kilograms ____ grams <strong>OR</strong> [] Don’t Know</td>
</tr>
</tbody>
</table>

If desired, we could include a copy of the questionnaire in English and Spanish as supplemental material.

5. **Old Page 4, second paragraph:** Is there any prior research on the validity of parent report of having scale/tap measure at home? No, we could not even find studies which asked parents these questions, which is why we included them in our brief survey. We wanted to provide information about what percentage of parents would be able to weigh and measure their child at home if asked to do so for purposes of surveys, research, or clinical care so that people planning studies or requiring this information for clinical care (e.g., medication dosing) would have a better understanding of the resources of the population they were working with.

6. **The discussion of medication dosing is underdeveloped.** We decided to delete references to this issue rather than lengthen an already long paper.

7. **Table 2 appears to have some missing footnotes.** The footnotes are there, can’t fit on the same page as the table. Please look on the page following Table 2.

8. **Please add Ns in Table 3.** Done.

9. **Figure 1 is very challenging to read as currently formatted in black and white.** The legend in the original version was in color. We have now changed it to shading and pattern to make it easier to interpret in black and white.

**Discretionary Revisions**

10. **What is a produce extender disk?** We decided just to say we gave a small thank you gift to parents who completed the questionnaire rather than go into details about what the gift was. But just in case Dr. Buttenheim is curious, it is a 4” diameter disk that you can put in the fruit/vegetable bin of a refrigerator or plastic bag/box that contains non-toxic material which slows “ripening” of produce so that it doesn’t start rotting as fast as normal due to ethylene release.

11. **Old Page 5, second paragraph:** I have a strong preference for not reporting “borderline” or “marginally” significant results. We dropped mention of results that were reported this way.
12. Old Page 4-5: A flow chart diagram showing exclusions from 1,119 surveyed to 1053 analytic sample and then the breakdown by which parent-reported anthropometry was available would be helpful. In the first paragraph of section “Completeness of parent-reported data” we summarize the numbers of children excluded from the starting sample of 1119, and in Table 1 we provide percentages and numbers of children in the different age and race-ethnic groups who had parent-reported data on height, weight, and both height and weight. Since we already have 6 tables and one Figure, and since we are able to present more detailed subgroup information in the table than we would in a flow chart, we have chosen not to take this recommendation even though it might be helpful to some readers. If it moves to a compulsory revision, we will reconsider.

13. Old Page 5, 3rd paragraph: Not clear what the 4 percentages in parentheses are at end of that paragraph. We have tried to clarify this by modifying the introductory sentence to: “As the length of time since last known measurements increased (in past seven days, in past month, in past six months, more than six months ago), there were statistically significant declines in the percentages of parents who reported child weight …”

14. Suggestion for strong edit for syntax and clarity. We hope the current version of the manuscript reads better.