Reviewer's report

Title: Sleep duration of underserved minority children in a cross-sectional study

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Reviewer: Paul Veugelers

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Title: Sleep Duration of Underserved Minority Children in a Cross-sectional Study

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Synapse:

The objective of this study is to assess sleep duration among underserved minority children residing in disadvantaged urban settings in the US. Sleep duration has been identified as a determinant of childhood obesity and thus it is important to study sleep duration in subgroups at increased risk for childhood obesity such as underserved minority children.

Whereas the title of the manuscript suggests and the abstract states that the objective is to assess sleep duration, the closing paragraph of the introduction-section states that this study also describes the effects of BMI, SES, gender and ethnicity. These effects are presented in the results-section along with those of weekday/weekend day and of MVPA.

The authors report that their study participants slept 8.8 hours/day and gather that this is less than the 10 to 11 hours/day that is recommended by the National Sleep Foundation. Sleep duration differentials were reported for weight status, gender, and weekday versus weekends – all consistent with the existing literature. The absence of sleep differentials was reported for SES and MVPA.

This contribution is original as no earlier study examined sleep duration among underserved minority children. An asset of the study is that sleep duration is measured seemingly objective by using accelerometers.

Commends:

The manuscript addresses the study objective, is clearly written but provides various entries for improvement. These are listed below:

I recommend that the authors seek clarity about the study objective. If the associations with SES, BMI, MVPA, and others factors are included, the study objective should reflect that and the discussion section should discuss each of
these factors.

The methods section is somewhat short of details: What was the objective of the Healthy Kids Houston Study? I would assume more than assessing sleep duration. Was this an intervention study? What is the rational of selecting the 14 communities? Why was the data collection spread out over two years? The methods section mentioned that a 'single qualified technician' determined sleep duration. I believe it is essential to provide the exact criteria that were used by this technician to determine sleep duration, so that other investigators can replicate the approach. More to this, were the sleep diaries kept by children and parents used as well? And used for validation?

A concern that comes to mind is that sedentary time before sleep is counted as sleep time. Sedentary behavior is not a positive health behavior whereas sleep time is, so it seems essential to distinguish the two. Or should we value as sedentary behavior before sleep view as 'positive behavior'? The National Sleep Foundation recommends ‘quiet time’ before sleep.

Further, counting sedentary behavior as sleep time would mean that the ‘true’ sleep time is even shorter – and thus the public health problem bigger. I encourage the authors to discuss this issue in dept.

GEE is an appropriate statistical approach to analyze the associations of the various factors with sleep duration. However, as participants were recruited as 14 centers, clustering of observations within centers should be considered as well.

The vertical axes of Figure 1 needs to be clarified. Also, does the figure present ‘child averages', or ‘night averages’? Please clarify.

One may wonder why it is important to study the effect of SES in a study that was targeting underserved subjects – subjects of low SES.

The last paragraph on page 7 comes ‘out of the blue’. Why MVPA? Why not other quantities of physical and sedentary activity? Where these regression analyses adjusted?

The authors could seek a bit more depth in their Discussion section. This section has parts that are redundant with the introduction, and seems to focus on comparisons of devices that measure sleep duration. In light of the fact that the paper is submitted to BMC Public Health, the reader may appreciate a discussion that has more focus on public health matters. For example: We know that sleep duration among children has declined steadily over the past decades and that currently a substantial proportion is not meeting sleep recommendations. How does this proportion relate to the proportion among underserved minority children? I encourage the authors to add this and to discuss this difference. Further: Could this difference account for the difference in BMI seen in the general population and in underserved minorities? What is causing the difference? Where are the solutions? Are there any messages for public health practitioners arising from this study?
In brief, this study represents original and important work. I hope the above considerations are helpful in strengthening the manuscript.

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

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests