

October 27, 2014

Name of journal: *World Journal of Diabetes*

ESPS Manuscript NO: 14120

RE: ESPS Manuscript NO: 14120 entitled "Prevalence of Obesity and Related Cardiometabolic Disease Risk Factors among US Adolescents with Disabilities", submitted to *World Journal of Diabetes*

Dear Editors,

Please find attached a copy of our revised manuscript titled "Prevalence of Obesity and Related Cardiometabolic Disease Risk Factors among US Adolescents with Disabilities" for consideration as an original scientific communication for possible future publication in the *World Journal of Diabetes*. We appreciate the time that the reviewers took to examine our work and to provide excellent suggestions to improve the paper. By following these suggestions we have significantly improved our manuscript. Our responses, highlighted in yellow throughout the text, are summarized as follows:

Reviewer #1:

Comment: As there may not be one uniform definition of cardiometabolic risk, then it would be helpful, if the cardiometabolic risk factors chosen to be studied could be validated against e.g. American College of Cardiology cardiometabolic risk assessments. For instance wouldn't LDL or FPG/Hba1c be a risk factor in addition to those chosen?

Response: The authors appreciate this reviewer's comment and agree there are many more cardiometabolic disease risk factors beyond those we chose to analyze here. We chose our risk factors for consistency purposes, we aligned our definition of the metabolic syndrome with that of previous research and references (#s 11-13) that have used the same definition; this definition is most consistent with the adult definition of the metabolic syndrome as well. Fasting glucose was included as a component of the metabolic syndrome here. Currently LDL cholesterol and

HbA1c are not included in the definitions but as stated are important biomarkers for chronic cardiometabolic disease.

Comment: You chose to exclude patients that were already being treated for dyslipidemia and diabetes. It would be interesting if you could perform a sensitivity analysis to understand if this had any meaningful effect on your conclusions.

Response: We had less than 100 subjects who were excluded for diabetes (type 1 or 2) and/or use of medications out of our sample size of over 5,000. A sensitivity analysis showed there was no effect on our conclusions.

Comment: In addition it would be interesting to understand if there was any heterogeneity in the observed outcomes when using the different disability domains (1-3), beyond the overall domain used.

Response: The authors agree with this comment completely and also recognize that the major limitation to this analysis is not being able to differentiate between actual disability categories. As we state on page 4 “Individual physical functioning data were compiled from the NHANES Physical Function questionnaires¹⁷ to determine disability status. A participant was categorized as having a disability (yes/no) if they answered yes to any of the following questions: 1)“Do you/does child have an impairment or health problem that limits (your/his/her) ability to crawl, walk, run, or play?”; 2)“Is this an impairment or health problem that has lasted, or is expected to last 12 months or longer?”; and 3)“Is (child) limited in the kind or amount of play activities he/she can do because of a physical, mental, or emotional problem?” Participants who did not report a disability were placed in the no disability category, which constituted the reference group for the analyses. Information on specific category of disability (autism, Down’s syndrome) is not available for NHANES participants under the age of 19.”

Comment: Consider if the cross-sectional limitation should be included in the abstract.

Response: We have chosen this as our very first limitation in this section of the paper on page 10 and respectfully decline to include it in the abstract. Instead, we would like the abstract to

highlight the importance of these findings in a group of individuals who have not been previously well studied in terms of cardiometabolic disease risk.

Reviewer #2:

Comment: The authors compared adolescents that were overweight (body mass index [BMI] > 85th -<95th percentile for age and sex), obesity (BMI > 95th percentile) and severe obesity (BMI > 99th percentile). What is the significance of cut-off score in the present study?

Response: Because we analyzed adolescents only, their BMI is generated on a growth curve/percentile based on their age and sex. Our reference #23 is the standard used in the field to support this (Kuczmarski RJ, Ogden CL, Grummer-Strawn LM, Flegal KM, Guo SS, Wei R, Mei Z, Curtin LR, Roche AF, Johnson, CL. CDC growth charts: United States. *Adv Data* 2000;(314): 1-27) methodology that categorizes the weight groups based on these percentiles. Otherwise, there would be no way to determine who was normal weight versus who was not.

Comment: The authors selected all Mexican American, Hispanic, non- Hispanic white, non-Hispanic black, and 'other' boys and girls. Are there any differences between human species and/or boys/girls?

Response: Previous research by this group and others has shown significant ethnic group differences in the United States in the prevalence of both obesity and cardiometabolic disease risk factors. Additionally, there are significant differences when these ethnic groups are stratified by gender. CDC reports (Ogden CL, Carroll MD, Kit BK, Flegal KM. Prevalence of childhood and adult obesity in the United States, 2011-2012. *JAMA*. 2014;311(8):806-814) show that non-Hispanic black girls are significantly more likely to be obese, and have cardiometabolic disease risk present as such versus their ethnic group counterparts.

Comment: Children were excluded from the analysis if they were known to have diabetes, used medication that altered blood pressure, lipid metabolism, or blood glucose. Children who have hypertension and/or hyperlipidemia used medication were not excluded in the present study?

Response: Children who “used medication that altered blood pressure, lipid metabolism, or blood glucose such as insulin, androgens, anabolic steroids, or adrenal corticosteroids” were excluded from the analysis. It can be assumed that those who were using medications for blood pressure and/or lipid metabolism were doing so for hypertension and/or hyperlipidemia control and were excluded as such (and as stated on page 4).

Comment: Individual physical functioning data were compiled from the NHANES Physical Function questionnaires. Is it an objective analysis? Did another analysis perform in the study?

Response: NHANES study personnel asked parents and/or the adolescent themselves the questions stated above and on page 4 to determine disability status. A physical functioning test was not performed to verify these answers.

Comment: The authors described the findings in this study are consistent with previous literature describing higher rates of obesity related conditions in adults with disabilities. It would be better to discuss the similarities and differences between adolescents and adults in greater detail.

Response: Specifically, Froehlich-Grobe et al³ reported that the prevalence of both obesity (41.6%) and extreme obesity (9.3%) among those with disabilities was significantly higher than among those without disabilities (29.2% and 3.9%, respectively). Additionally, those with disabilities at all weight categories were significantly more likely to report being told they had hypertension, high cholesterol, or diabetes and to have been prescribed antihypertensive and lipid-lowering medications.

Reviewer #3:

Comment: Good study.

Response: Thank you!

Editors

COLUMNS SCOPE NOTE. This manuscript can be considered an **Observational Study** because participants received diagnostic tests but were not assigned to specific interventions (as in an interventional study).

Title: Title was reformatted to s less than 12 words.

Running Title: Running title is less than 6 words.

Structured abstract: Abstract was restructured as per the journal's specifications.

Core tip: A summary of less than 100 words to outline the most innovative and important arguments and core contents is now provided.

Word processing: Submission is now reformatted to 1.5 line spacing and in Book Antiqua font of size 10 with ample margins.

We would like to express our gratitude for the opportunity to submit the manuscript. We look forward to your comments, edits and suggestions.

Sincerely,



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