

OBSTETRICS & GYNECOLOGY



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- Comments from the reviewers and editors (email to author requesting revisions)
- Response from the author (cover letter submitted with revised manuscript)*

**The corresponding author has opted to make this information publicly available.*

Personal or nonessential information may be redacted at the editor's discretion.

Questions about these materials may be directed to the *Obstetrics & Gynecology* editorial office:
obgyn@greenjournal.org.

Date: Jan 08, 2021
To: "Ayesha Siddiqui" [REDACTED]
From: "The Green Journal" em@greenjournal.org
Subject: Your Submission ONG-20-3007

RE: Manuscript Number ONG-20-3007

Can obesity explain racial disparities in severe maternal morbidity?

Dear Dr. Siddiqui:

Your manuscript has been reviewed by the Editorial Board and by special expert referees. Although it is judged not acceptable for publication in Obstetrics & Gynecology in its present form, we would be willing to give further consideration to a revised version.

If you wish to consider revising your manuscript, you will first need to study carefully the enclosed reports submitted by the referees and editors. Each point raised requires a response, by either revising your manuscript or making a clear and convincing argument as to why no revision is needed. To facilitate our review, we prefer that the cover letter include the comments made by the reviewers and the editor followed by your response. The revised manuscript should indicate the position of all changes made. We suggest that you use the "track changes" feature in your word processing software to do so (rather than strikethrough or underline formatting).

Your paper will be maintained in active status for 21 days from the date of this letter. If we have not heard from you by Jan 29, 2021, we will assume you wish to withdraw the manuscript from further consideration.

REVIEWER COMMENTS:

Reviewer #1:

1. Line 123: What does your analysis show if you include the BMIs greater than 55?
2. Line 131: Although you include several relevant variables, you did not include substance (drug, alcohol) use/abuse. Are you able to include these?
3. What does your data show if you also analyze the overweight category?
4. lines 209-210: You conclude that black women have an elevated risk of SMM in NYC compared to white women even after adjusting for Medicaid insurance and maternal education level. Please make a statement regarding the risk of SMM in black compared with white women when you adjust for the other variables that you studied.
5. Table S 4: I think that the number of Total Hospital Deliveries for Latinas and Asians may be incorrect.

Reviewer #2:

Siddiqui et al performed a population-based retrospective cohort study evaluating the role of prepregnancy obesity as a mediator in the association of race and SMM.

Abstract: Good

Introduction: Authors do a nice job of developing the rationale for their study, and primary outcome to evaluate the role of prepregnancy obesity as a mediator in the association of race and SMM.

Methods: Study design is retrospective cohort using birth records linked with hospital discharge in New York City between 2010-2014 (matching rate 98%). Recommend including month/year dates and range that were used for linkage. Authors provide links to description of data source, which include quarterly quality checks. Is the BMI listed on the NYC birth certificate the prepregnancy BMI? If so, please state. Recommend authors provide a link to algorithm of composite SMM of interest in the methods. Missing data was omitted, and only comprised 0.2% of participants.

Results: Good.

Discussion:

Other than limitations of administrative data, recommend authors theorize the impact of their study design that excludes SMM that occurs postpartum.

Figures and Tables:

Study methods follow STROBE guidelines and authors provide this for review.

Reviewer #3:

This paper on the potential role of obesity in explaining the differences in severe maternal morbidity (SMM) is important in providing real data to the frequently voiced theory that obesity explains such of the racial difference in SMM.. It used a fairly large, well validated dataset to answer the question. The authors thoughtfully designed their study using a DAG analysis to be clear about the independent variable (race/ethnicity) and the mediator, BMI. They chose confounders carefully to be sure they were not including intermediate variables which could lessen the effect they were aiming to measure. The fact that they identified parity groups by prior cesarean status was also good. The authors do an excellent job of explaining their methods for the usual reader of this journal. Choice of a path analysis multivariable regression mediation modeling approach was very appropriate to the study aims. The tables are well formatted and easy to interpret. The text providing the results highlights key findings from the tables.

The authors do a credible job of placing their findings within the context of what is known of this topic which is not a lot of hard evidence. The only constructive comments that I can supply are editorial ones. Line 183 and elsewhere it seems odds to say 'all race/ethnicity groups' compared to Whites. Maybe change to compared to White, other race/ethnicity groups"

STATISTICS EDITOR COMMENTS:

Lines 109-110: If multiple births were not randomly allocated by BMI or race, then this may not be a valid inclusion. Should either separately analyze multiple births or exclude them.

Table 1: Not all of the subsets sum to the column totals (e.g., BMI strata, maternal age, etc). Need to enumerate all missing data, just as was done for race.

Table 2: How were the missing data handled in the analysis? Were those entries omitted, or was there imputation of values?

Table S1, S2: Need to enumerate all missing data, as in comment re: Table 1. If the missing data are distributed unevenly among the racial groups, then need to address how this was handled in the analysis.

Table S3: Although the unknown/other race category was relatively small, the OR was significantly higher than for other racial groups, thus raising potential for imprecise estimates in the known racial groups.

Table S4: Need to include CIs for the SMM rates per 10,000. Again, the rate for the unknown/other is significantly higher, potentially making the other estimates imprecise or biased.

Table S4B: Since this SMM category has fewer adverse events, need to address impact of missing data, unknown/other racial group and lower counts of adverse outcomes (possible over fitting of the model) on the aORs. Also, although the author's point is made that even among the SMM without transfusion, the contribution of obesity appears small compared to race, it is not trivial and I think that this aspect of the analysis deserves more emphasis.

EDITOR COMMENTS:

1. Thank you for submitting your work to Obstetrics and Gynecology. If you opt to submit a revision, please revise the abstract to make your findings more accessible to clinicians (especially in the methods section of the abstract).
2. Also, please be sure to address the comment from the statistical editor related to the contribution of obesity when transfusion alone is excluded from the definition of SMM. The editors feel that this finding warrants more attention in the manuscript.

EDITORIAL OFFICE COMMENTS:

1. The Editors of Obstetrics & Gynecology are seeking to increase transparency around its peer-review process, in line with efforts to do so in international biomedical peer review publishing. If your article is accepted, we will be posting this revision letter as supplemental digital content to the published article online. Additionally, unless you choose to opt out, we will also be including your point-by-point response to the revision letter. If you opt out of including your response, only the revision letter will be posted. Please reply to this letter with one of two responses:

- A. OPT-IN: Yes, please publish my point-by-point response letter.
- B. OPT-OUT: No, please do not publish my point-by-point response letter.

2. Obstetrics & Gynecology uses an "electronic Copyright Transfer Agreement" (eCTA). When you are ready to revise your manuscript, you will be prompted in Editorial Manager (EM) to click on "Revise Submission." Doing so will launch the resubmission process, and you will be walked through the various questions that comprise the eCTA. Each of your coauthors will receive an email from the system requesting that they review and electronically sign the eCTA.

Please check with your coauthors to confirm that the disclosures listed in their eCTA forms are correctly disclosed on the manuscript's title page.

3. For studies that report on the topic of race or include it as a variable, authors must provide an explanation in the manuscript of who classified individuals' race, ethnicity, or both, the classifications used, and whether the options were defined by the investigator or the participant. In addition, the reasons that race/ethnicity were assessed in the study also should be described (eg, in the Methods section and/or in table footnotes). Race/ethnicity must have been collected in a formal or validated way. If it was not, it should be omitted. Authors must enumerate all missing data regarding race and ethnicity as in some cases, missing data may comprise a high enough proportion that it compromises statistical precision and bias of analyses by race.

Use "Black" and "White" (capitalized) when used to refer to racial categories. The nonspecific category of "Other" is a convenience grouping/label that should be avoided, unless it was a prespecified formal category in a database or research instrument. If you use "Other" in your study, please add detail to the manuscript to describe which patients were included in that category.

4. Your study uses ICD-10 data, please make sure you do the following:

- a. State which ICD-10-CM/PCS codes or algorithms were used as Supplemental Digital Content.
- b. Use both the diagnosis and procedure codes.
- c. Verify the selected codes apply for all years of the study.
- d. Conduct sensitivity analyses using definitions based on alternative codes.
- e. For studies incorporating both ICD-9 and ICD-10-CM/PCS codes, the Discussion section should acknowledge there may be disruptions in observed rates related to the coding transition and that coding errors could contribute to limitations of the study. The limitations section should include the implications of using data not created or collected to answer a specific research question, including possible unmeasured confounding, misclassification bias, missing data, and changing participant eligibility over time.
- f. The journal does not require that the title include the name of the database, geographic region or dates, or use of database linkage, but this data should be included in the abstract.
- g. Include RECORD items 6.3 and 7.1, which relate to transparency about which codes, validation method, and linkage were used to identify participants and variables collected.

5. Standard obstetric and gynecology data definitions have been developed through the reVITALize initiative, which was convened by the American College of Obstetricians and Gynecologists and the members of the Women's Health Registry Alliance. Obstetrics & Gynecology has adopted the use of the reVITALize definitions. Please access the obstetric data definitions at <https://www.acog.org/practice-management/health-it-and-clinical-informatics/revitalize-obstetrics-data>

definitions and the gynecology data definitions at <https://www.acog.org/practice-management/health-it-and-clinical-informatics/revitalize-gynecology-data-definitions>. If use of the reVITALize definitions is problematic, please discuss this in your point-by-point response to this letter.

6. Because of space limitations, it is important that your revised manuscript adhere to the following length restrictions by manuscript type: Original Research reports should not exceed 22 typed, double-spaced pages (5,500 words). Stated page limits include all numbered pages in a manuscript (i.e., title page, précis, abstract, text, references, tables, boxes, figure legends, and print appendixes) but exclude references.

7. Specific rules govern the use of acknowledgments in the journal. Please note the following guidelines:

- * All financial support of the study must be acknowledged.
- * Any and all manuscript preparation assistance, including but not limited to topic development, data collection, analysis, writing, or editorial assistance, must be disclosed in the acknowledgments. Such acknowledgments must identify the entities that provided and paid for this assistance, whether directly or indirectly.
- * All persons who contributed to the work reported in the manuscript, but not sufficiently to be authors, must be acknowledged. Written permission must be obtained from all individuals named in the acknowledgments, as readers may infer their endorsement of the data and conclusions. Please note that your response in the journal's electronic author form verifies that permission has been obtained from all named persons.
- * If all or part of the paper was presented at the Annual Clinical and Scientific Meeting of the American College of Obstetricians and Gynecologists or at any other organizational meeting, that presentation should be noted (include the exact dates and location of the meeting).

8. The most common deficiency in revised manuscripts involves the abstract. Be sure there are no inconsistencies between the Abstract and the manuscript, and that the Abstract has a clear conclusion statement based on the results found in the paper. Make sure that the abstract does not contain information that does not appear in the body text. If you submit a revision, please check the abstract carefully.

In addition, the abstract length should follow journal guidelines. The word limit for Original Research articles is 300 words. Please provide a word count.

9. Only standard abbreviations and acronyms are allowed. A selected list is available online at <http://edmgr.ovid.com/ong/accounts/abbreviations.pdf>. Abbreviations and acronyms cannot be used in the title or précis. Abbreviations and acronyms must be spelled out the first time they are used in the abstract and again in the body of the manuscript.

10. The journal does not use the virgule symbol (/) in sentences with words. Please rephrase your text to avoid using "and/or," or similar constructions throughout the text. You may retain this symbol if you are using it to express data or a measurement.

11. ACOG is moving toward discontinuing the use of "provider." Please replace "provider" throughout your paper with either a specific term that defines the group to which are referring (for example, "physicians," "nurses," etc.), or use "health care professional" if a specific term is not applicable.

12. In your Abstract, manuscript Results sections, and tables, the preferred citation should be in terms of an effect size, such as odds ratio or relative risk or the mean difference of a variable between two groups, expressed with appropriate confidence intervals. When such syntax is used, the P value has only secondary importance and often can be omitted or noted as footnotes in a Table format. Putting the results in the form of an effect size makes the result of the statistical test more clinically relevant and gives better context than citing P values alone.

If appropriate, please include number needed to treat for benefits (NNTb) or harm (NNTh). When comparing two procedures, please express the outcome of the comparison in U.S. dollar amounts.

Please standardize the presentation of your data throughout the manuscript submission. For P values, do not exceed three decimal places (for example, "P = .001"). For percentages, do not exceed one decimal place (for example, 11.1%).

13. Your manuscript contains a priority claim. We discourage claims of first reports since they are often difficult to prove. How do you know this is the first report? If this is based on a systematic search of the literature, that search should be described in the text (search engine, search terms, date range of search, and languages encompassed by the search). If it is not based on a systematic search but only on your level of awareness, it is not a claim we permit.

12. Please review the journal's Table Checklist to make sure that your tables conform to journal style. The Table Checklist is available online here: http://edmgr.ovid.com/ong/accounts/table_checklist.pdf.

13. Please review examples of our current reference style at <http://ong.editorialmanager.com> (click on the Home button in the Menu bar and then "Reference Formatting Instructions" document under "Files and Resources"). Include the digital object identifier (DOI) with any journal article references and an accessed date with website references. Unpublished data, in-press items, personal communications, letters to the editor, theses, package inserts, submissions, meeting presentations, and abstracts may be included in the text but not in the reference list.

In addition, the American College of Obstetricians and Gynecologists' (ACOG) documents are frequently updated. These documents may be withdrawn and replaced with newer, revised versions. If you cite ACOG documents in your manuscript, be sure the reference you are citing is still current and available. If the reference you are citing has been updated (ie, replaced by a newer version), please ensure that the new version supports whatever statement you are making in your manuscript and then update your reference list accordingly (exceptions could include manuscripts that address items of historical interest). If the reference you are citing has been withdrawn with no clear replacement, please contact the editorial office for assistance (obgyn@greenjournal.org). In most cases, if an ACOG document has been withdrawn, it should not be referenced in your manuscript (exceptions could include manuscripts that address items of historical interest). All ACOG documents (eg, Committee Opinions and Practice Bulletins) may be found at the Clinical Guidance page at <https://www.acog.org/clinical> (click on "Clinical Guidance" at the top).

13. Authors whose manuscripts have been accepted for publication have the option to pay an article processing charge and publish open access. With this choice, articles are made freely available online immediately upon publication. An information sheet is available at <http://links.lww.com/LWW-ES/A48>. The cost for publishing an article as open access can be found at <https://wkauthorservices.editage.com/open-access/hybrid.html>.

Please note that if your article is accepted, you will receive an email from the editorial office asking you to choose a publication route (traditional or open access). Please keep an eye out for that future email and be sure to respond to it promptly.

If you choose to revise your manuscript, please submit your revision through Editorial Manager at <http://ong.editorialmanager.com>. Your manuscript should be uploaded in a word processing format such as Microsoft Word. Your revision's cover letter should include the following:

- * A confirmation that you have read the Instructions for Authors (<http://edmgr.ovid.com/ong/accounts/authors.pdf>), and
- * A point-by-point response to each of the received comments in this letter. Do not omit your responses to the Editorial Office or Editors' comments.

If you submit a revision, we will assume that it has been developed in consultation with your co-authors and that each author has given approval to the final form of the revision.

Again, your paper will be maintained in active status for 21 days from the date of this letter. If we have not heard from you by Jan 29, 2021, we will assume you wish to withdraw the manuscript from further consideration.

Sincerely,

Torri Metz, MD
Associate Editor, Obstetrics

2019 IMPACT FACTOR: 5.524

2019 IMPACT FACTOR RANKING: 6th out of 82 ob/gyn journals

In compliance with data protection regulations, you may request that we remove your personal registration details at any time. (Use the following URL: <https://www.editorialmanager.com/ong/login.asp?a=r>). Please contact the publication office if you have any questions.

The Editors
Obstetrics & Gynecology
409 12th Street, SW
Washington, DC 20024-2188

January 29, 2021

Dear Editors,

On behalf of my co-authors, I am pleased to submit our revised manuscript, “*Can obesity explain racial disparities in severe maternal morbidity?*” for consideration for publication as original research in Obstetrics & Gynecology. In addition, detailed responses to reviewer comments are provided below.

Our study demonstrates that prepregnancy obesity is not a driver of racial disparities in severe maternal morbidity (SMM) - answering one of the long-standing questions in Black-White and Latina-White disparities in maternal health.

Our investigation used mandatory administrative data from New York State – the Statewide Planning and Research Cooperative System (SPARCS). New York State Department of Health performs audits to check data quality on a quarterly basis. The SPARCS data quantity, quality, and validation protocol can be found at:

https://www.health.ny.gov/statistics/sparcs/training/docs/sparcs_data_quantity_quality_protocol_final.pdf

The study was approved by the Institutional Review Boards of the New York City Department of Health and Mental Hygiene, the New York State Department of Health, and the Icahn School of Medicine at Mount Sinai.

The manuscript has not been previously published or submitted to another journal for publication. It follows the STROBE reporting guidelines. Each author participated actively in conducting the analyses, manuscript preparation, and approval of the submitted version. None of the authors has a conflict of interest. We have read the Instructions for Authors (<http://edmgr.ovid.com/ong/accounts/authors.pdf>).

We look forward to your comments. Thank you in advance for your consideration.

Sincerely,
Ayesha Siddiqui, MD MSc

REVIEWER COMMENTS WITH RESPONSES

Reviewer #1:

1. Line 123: What does your analysis show if you include the BMIs greater than 55?

If we include BMIs greater than 55 and up to 100 kg/m², the sample of obese women increases by 0.1% (n=431). We found no differences in the association with SMM and in the mediation analysis when the higher BMIs were included in the study models as compared to our original analyses. Consequently, we don't believe that the exclusion of women with BMI >55 introduced bias in our results.

2. Line 131: Although you include several relevant variables, you did not include substance (drug, alcohol) use/abuse. Are you able to include these?

We chose not to include substance abuse variables in our analyses because the prevalence was very low (<1%), suggesting that these factors are underreported during pregnancy, as has been shown in previous studies (Jacobson, SW, et al. *Pediatrics* 109.5 (2002): 815-825). Substance abuse underreporting is also more pronounced in administrative datasets. Notably, substance abuse has not been shown to be a major driver of SMM.

3. What does your data show if you also analyze the overweight category?

Mediation analysis using the overweight category found very weak mediation effects which were not statistically significant. These were 0.2% for the mediation effect of overweight between Black race and SMM, and 0.3% for Latina race.

We have included these findings in the results section as follows:

“When the overweight BMI category was tested as the mediator, the mediation effects were very small and not statistically significant (data not shown)”

4. lines 209-210: You conclude that black women have an elevated risk of SMM in NYC compared to white women even after adjusting for Medicaid insurance and maternal education level. Please make a statement regarding the risk of SMM in black compared with white women when you adjust for the other variables that you studied.

In our results section we showed that Black women had a higher risk of SMM as compared to White women when adjusting for all variables studied: aOR 3.02, 95%CI 2.88-3.17 (see table 3).

We specifically highlight Medicaid insurance and maternal education level in our discussion as these social risk factors have commonly been postulated as likely contributing to Black-White disparities in maternal health, whereas the other factors included in our analyses (age and parity) are not. We have clarified the statement in the discussion section accordingly:

“Black women have an elevated risk of SMM in NYC compared to White women even after adjusting for covariables such as Medicaid insurance and maternal education level – social risk factors which are often presumed to be explanatory for racial disparities – as well as age and parity.”

5. Table S 4: I think that the number of Total Hospital Deliveries for Latinas and Asians may be incorrect.

This typographical error has been corrected. We thank the reviewer for noticing.

Reviewer #2:

Recommend including month/year dates and range that were used for linkage.

The entire calendar years from 2010-2014 were included in the study. The months have been added to the methods section. "01/2010 to 12/2014"

Is the BMI listed on the NYC birth certificate the prepregnancy BMI? If so, please state.

Yes. "Pregnancy" has been added to the statement in the methods section.

Recommend authors provide a link to algorithm of composite SMM of interest in the methods.

The algorithm of composite SMM is linked via the two references in the methods section as below:

"The binary outcome of composite SMM was based on a published algorithm from the Centers for Disease Control and Prevention and defined as per specific ICD-9-CM billing codes and hospital length of stay^{22,23}"

The detailed diagnostic and procedure codes used to create the composite SMM outcome are available in the Appendix of Callaghan et al. AJOG. 199.2 (2008): 133-e1.

The CDC has published an updated algorithm using ICD-10 codes which is available online at:

<https://www.cdc.gov/reproductivehealth/maternalinfanthealth/smm/severe-morbidity-ICD.htm>.

The previous algorithm using ICD-9 codes, used in our study, is not directly available online.

Discussion: Other than limitations of administrative data, recommend authors theorize the impact of their study design that excludes SMM that occurs postpartum.

The discussion section has been updated accordingly:

"Our study was limited by the reliability of administrative data. Furthermore, SMM is likely underestimated as events occurring after hospital discharge are not included."

Reviewer #3:

The only constructive comments that I can supply are editorial ones. Line 183 and elsewhere it seems odds to say 'all race/ethnicity groups' compared to Whites. Maybe change to compared to White, other race/ethnicity groups"

The results section has been updated accordingly:

“Socio-demographic differences between participants by race /ethnicity were remarkable for higher levels of education, lower rates of unemployment and lower rates of Medicaid insurance among White mothers as compared to mothers of all other races and ethnicities (table S1)”

STATISTICS EDITOR COMMENTS:

Lines 109-110: If multiple births were not randomly allocated by BMI or race, then this may not be a valid inclusion. Should either separately analyze multiple births or exclude them.

There were no statistically significant differences in multiple births by BMI and race.

Notably, our unit of analysis was deliveries (women) and not births (babies) since we are examining maternal outcomes in our study.

To address the reviewers concerns we re-ran the analyses excluding multiple births and our findings were not different.

Table 1: Not all of the subsets sum to the column totals (e.g., BMI strata, maternal age, etc). Need to enumerate all missing data, just as was done for race.

Missing data is now enumerated for each column. Furthermore, we have separated the race category of “unknown/other” to “other” and “missing” data. We believe this is a more accurate and precise categorization of this variable.

Table 2: How were the missing data handled in the analysis? Were those entries omitted, or was there imputation of values?

This is described in the methods section:

“In the overall dataset, missing data were infrequent; variables with the highest rates were prepregnancy BMI (1.6%), and educational level (0.8%). Among the sub-group of normal weight and obese women included in the model all participants necessarily had values for BMI and missing data for all other variables were omitted from the final analyses. 0.2% of participants were missing in the final model.”

Table S1, S2: Need to enumerate all missing data, as in comment re: Table 1. If the missing data are distributed unevenly among the racial groups, then need to address how this was handled in the analysis.

Missing data is now enumerated for each column. Missing data are evenly distributed among racial groups.

Table S3: Although the unknown/other race category was relatively small, the OR was significantly higher than for other racial groups, thus raising potential for imprecise estimates in the known racial groups.

This is no longer the case once “unknown” (i.e. missing) data is separated from the “other” category.

Table S4: Need to include CIs for the SMM rates per 10,000. Again, the rate for the unknown/other is significantly higher, potentially making the other estimates imprecise or biased.

95% CI for the SMM rates are now included in this table. The rate for “Other” race is no longer significantly higher once the missing (i.e. unknown) data is separated from this category.

Table S4B: Since this SMM category has fewer adverse events, need to address impact of missing data, unknown/other racial group and lower counts of adverse outcomes (possible over fitting of the model) on the aORs. Also, although the author's point is made that even among the SMM without transfusion, the contribution of obesity appears small compared to race, it is not trivial and I think that this aspect of the analysis deserves more emphasis.

The rate of missing data was very low in our study, as described in the methods section as well as enumerated in the updated descriptive tables. These now include rows for all missing data.

The findings for the “Other” racial group are not significant and no mediation effect was found for this category.

The greater importance of obesity as a mediator in the sensitivity analysis as compared with the main analysis is addressed in the discussion:

“As noted by others, the CDC definition likely overestimates the rate of SMM due to the inclusion of any blood transfusion³¹. The sensitivity analysis in which we excluded all cases of blood transfusion addressed this issue, although it is limited in its comparability with the main analysis as it excluded the majority of cases. However it demonstrated a greater mediation effect of obesity giving greater clarity on etiologic mechanisms, that is, obesity is likely a more important mediator of other components of SMM such as hypertensive diseases of pregnancy. These findings are consistent with our previous analysis conducted among immigrant women in France in which we found that 18% of the association between Sub-Saharan maternal place of birth and severe preeclampsia was mediated by obesity⁴⁴. These findings indicate that future investigations should focus on subsets of SMM as opposed to composite SMM in order to better elucidate etiologic mechanisms, including the role of obesity.”

Furthermore, to give more emphasis to this point, a part of the discussion section has been modified as follows:

“The causal pathway between maternal race-ethnicity and SMM remains poorly understood. Our findings suggest that obesity is not the driver of racial and ethnic disparities in SMM, despite the finding that its role as a mediator is not negligible when considering SMM cases without blood transfusions. Specifically, obesity does not play major role most SMM cases which are primarily due to post-partum hemorrhage.”

EDITOR COMMENTS:

1. Thank you for submitting your work to Obstetrics and Gynecology. If you opt to submit a revision, please revise the abstract to make your findings more accessible to clinicians (especially in the methods section of the abstract).

The methods section of the abstract was updated to make it more clear as follows:

“We conducted an analysis on a population-based retrospective cohort study using 2010-2014 birth records linked with hospital discharge data in New York City (n=591,455 live births). A multivariable logistic regression mediation model on a subgroup of the sample consisting of normal weight and obese women (n=409,021) calculated the mediation effect of obesity in the association between maternal race and SMM and the residual effect not mediated by obesity. A sensitivity analysis was conducted excluding the 11,973 SMM cases due to blood transfusion.”

2. Also, please be sure to address the comment from the statistical editor related to the contribution of obesity when transfusion alone is excluded from the definition of SMM. The editors feel that this finding warrants more attention in the manuscript.

Please see response to statistics editor comment above.

EDITORIAL OFFICE COMMENTS:

1. The Editors of Obstetrics & Gynecology are seeking to increase transparency around its peer-review process, in line with efforts to do so in international biomedical peer review publishing. If your article is accepted, we will be posting this revision letter as supplemental digital content to the published article online. Additionally, unless you choose to opt out, we will also be including your point-by-point response to the revision letter. If you opt out of including your response, only the revision letter will be posted. Please reply to this letter with one of two responses:

Affirm response: A. OPT-IN: Yes, please publish my point-by-point response letter.

2. Obstetrics & Gynecology uses an "electronic Copyright Transfer Agreement" (eCTA). When you are ready to revise your manuscript, you will be prompted in Editorial Manager (EM) to click on "Revise Submission." Doing so will launch the resubmission process, and you will be walked through the various questions that comprise the eCTA. Each of your coauthors will receive an email from the system requesting that they review and electronically sign the eCTA.

Please check with your coauthors to confirm that the disclosures listed in their eCTA forms are correctly disclosed on the manuscript's title page.

Acknowledged.

3. For studies that report on the topic of race or include it as a variable, authors must provide an explanation in the manuscript of who classified individuals' race, ethnicity, or both, the classifications used, and whether the options were defined by the investigator or the participant.

As described in the methods section:

“Maternal race-ethnicity was the independent variable of interest in our analysis. We created this variable by combining self-reported race with self-reported Hispanic ethnicity from the birth certificate and coded it in 5 categories: non-Hispanic White (we refer to as White), non-Hispanic Black (we refer to as Black), Latina, Asian, and other.”

In addition, the reasons that race/ethnicity were assessed in the study also should be described (eg, in the Methods section and/or in table footnotes).

Race/ethnicity was the main focus of our investigation. We provide our study rationale in the introduction as follows:

“Racial disparities in severe maternal outcomes are multifactorial and not well understood. Conventional wisdom emphasizes differences in clinical comorbidities. For example, Black women have twice the rate of prepregnancy obesity ($\text{BMI} \geq 30 \text{ kg/m}^2$) as that of White women (40% versus 20%)^{8,9}. Some evidence supports an independent association between obesity and SMM^{10–17}.

Given the scarce existing data on how SMM risks operate within the context of disparities, more robust analytic approaches are needed in order to understand their roles on the causal pathway. Our objective was to elucidate the role of prepregnancy obesity in the association between race and SMM.”

Race/ethnicity must have been collected in a formal or validated way. If it was not, it should be omitted.

The methods section is updated as follows:

“Birth certificate data regarding maternal race and Hispanic ethnicity has been previously validated^{20–22}”

In fact, NYC birth certificate data is considered the gold standard for race and ethnicity in obstetrics. Race and ethnicity is self-reported by the mother at delivery via a standardized worksheet she fills out which can be found on the New York City Department of Health and Mental Hygiene website:

<https://www1.nyc.gov/assets/doh/downloads/pdf/vs/VR203-web.pdf>

Authors must enumerate all missing data regarding race and ethnicity as in some cases, missing data may comprise a high enough proportion that it compromises statistical precision and bias of analyses by race.

Missing data regarding race is enumerated in Table 1. Missing data by race categories is enumerated in Table S1. The rates of missing data are overall low, ranging from 0-1.1% and nearly all are less than 1%. Additionally, there are no significant differences in the proportion of missing data between race categories.

Use "Black" and "White" (capitalized) when used to refer to racial categories. The nonspecific category of "Other" is a convenience grouping/label that should be avoided, unless it was a prespecified formal category in a database or research instrument. If you use "Other" in your study, please add detail to the manuscript to describe which patients were included in that category.

Racial categories are capitalized throughout the manuscript.

The category of “Other” is a pre-specified formal category in the birth certificate worksheet that mothers complete and therefore in the existing administrative database that we used.

4. Your study uses ICD-10 data, please make sure you do the following:

- a. **State which ICD-10-CM/PCS codes or algorithms were used as Supplemental Digital Content.**
- b. **Use both the diagnosis and procedure codes.**

See our responsive to above comment by reviewer 2. We used ICD-9 diagnosis and procedure codes.

- c. **Verify the selected codes apply for all years of the study.**

The codes we utilized apply for all years of the study.

- d. **Conduct sensitivity analyses using definitions based on alternative codes.**

Please note that we used only ICD-9 diagnosis and procedure codes.

- e. **For studies incorporating both ICD-9 and ICD-10-CM/PCS codes, the Discussion section should acknowledge there may be disruptions in observed rates related to the coding transition and that coding errors could contribute to limitations of the study. The limitations section should include the implications of using data not created or collected to answer a specific research question, including possible unmeasured confounding, misclassification bias, missing data, and changing participant eligibility over time.**

Only ICD-9 codes were used. We did not use ICD-10 codes in our analyses.

- f. **The journal does not require that the title include the name of the database, geographic region or dates, or use of database linkage, but this data should be included in the abstract.**

This information is included in the abstract.

- g. **Include RECORD items 6.3 and 7.1, which relate to transparency about which codes, validation method, and linkage were used to identify participants and variables collected.**

6.3: The linkage of Vital Statistics to New York State discharge abstract data was conducted by the Department of Health. They alone had access to all identifiable data to conduct the linkage (e.g. social security number, medical record number, etc).

7.1 The algorithm of composite SMM is available via the two references in the methods section as below:

“The binary outcome of composite SMM was based on a published algorithm from the Centers for Disease Control and Prevention and defined as per specific ICD-9-CM billing codes and hospital length of stay^{22,23}”

The detailed diagnostic and procedure codes used to create the composite SMM outcome are available in the Appendix of Callaghan et al. AJOG. 199.2 (2008): 133-e1.

5. Standard obstetric and gynecology data definitions have been developed through the reVITALize initiative, which was convened by the American College of Obstetricians and Gynecologists and the members of the Women's Health Registry Alliance. Obstetrics & Gynecology has adopted the use of the reVITALize definitions. Please access the obstetric data definitions at <https://www.acog.org/practice-management/health-it-and-clinical->

informatics/revitalize-obstetrics-data-definitions and the gynecology data definitions at <https://www.acog.org/practice-management/health-it-and-clinical-informatics/revitalize-gynecology-data-definitions>. If use of the reVITALize definitions is problematic, please discuss this in your point-by-point response to this letter.

Acknowledged.

6. Because of space limitations, it is important that your revised manuscript adhere to the following length restrictions by manuscript type: Original Research reports should not exceed 22 typed, double-spaced pages (5,500 words). Stated page limits include all numbered pages in a manuscript (i.e., title page, précis, abstract, text, references, tables, boxes, figure legends, and print appendixes) but exclude references.

Acknowledged.

7. Specific rules govern the use of acknowledgments in the journal. Please note the following guidelines:

- * All financial support of the study must be acknowledged.**
- * Any and all manuscript preparation assistance, including but not limited to topic development, data collection, analysis, writing, or editorial assistance, must be disclosed in the acknowledgments. Such acknowledgments must identify the entities that provided and paid for this assistance, whether directly or indirectly.**
- * All persons who contributed to the work reported in the manuscript, but not sufficiently to be authors, must be acknowledged. Written permission must be obtained from all individuals named in the acknowledgments, as readers may infer their endorsement of the data and conclusions. Please note that your response in the journal's electronic author form verifies that permission has been obtained from all named persons.**
- * If all or part of the paper was presented at the Annual Clinical and Scientific Meeting of the American College of Obstetricians and Gynecologists or at any other organizational meeting, that presentation should be noted (include the exact dates and location of the meeting).**

Acknowledged. All above elements are included in the manuscript.

8. The most common deficiency in revised manuscripts involves the abstract. Be sure there are no inconsistencies between the Abstract and the manuscript, and that the Abstract has a clear conclusion statement based on the results found in the paper. Make sure that the abstract does not contain information that does not appear in the body text. If you submit a revision, please check the abstract carefully.

In addition, the abstract length should follow journal guidelines. The word limit for Original Research articles is 300 words. Please provide a word count.

Acknowledged.

9. Only standard abbreviations and acronyms are allowed. A selected list is available online at <http://edmgr.ovid.com/ong/accounts/abbreviations.pdf>. Abbreviations and acronyms cannot be used in the title or précis. Abbreviations and acronyms must be spelled out the first time they are used in the abstract and again in the body of the manuscript.

Acknowledged.

10. The journal does not use the virgule symbol (/) in sentences with words. Please rephrase your text to avoid using "and/or," or similar constructions throughout the text. You may retain this symbol if you are using it to express data or a measurement.

These have been removed from the text.

11. ACOG is moving toward discontinuing the use of "provider." Please replace "provider" throughout your paper with either a specific term that defines the group to which are referring (for example, "physicians," "nurses," etc.), or use "health care professional" if a specific term is not applicable.

Provider has been removed in the one instance it was used and replaced with “healthcare professional”

12. In your Abstract, manuscript Results sections, and tables, the preferred citation should be in terms of an effect size, such as odds ratio or relative risk or the mean difference of a variable between two groups, expressed with appropriate confidence intervals. When such syntax is used, the P value has only secondary importance and often can be omitted or noted as footnotes in a Table format. Putting the results in the form of an effect size makes the result of the statistical test more clinically relevant and gives better context than citing P values alone.

Odds ratios are presented.

If appropriate, please include number needed to treat for benefits (NNTb) or harm (NNTh). When comparing two procedures, please express the outcome of the comparison in U.S. dollar amounts.

Not applicable for the current study.

Please standardize the presentation of your data throughout the manuscript submission. For P values, do not exceed three decimal places (for example, "P = .001"). For percentages, do not exceed one decimal place (for example, 11.1%)."

All data presentation conforms to the above guidelines.

13. Your manuscript contains a priority claim. We discourage claims of first reports since they are often difficult to prove. How do you know this is the first report? If this is based on a systematic search of the literature, that search should be described in the text (search engine, search terms, date range of search, and languages encompassed by the search). If it is not based on a systematic search but only on your level of awareness, it is not a claim we permit.

We have removed this claim from the discussion section.

**12. Please review the journal's Table Checklist to make sure that your tables conform to journal style. The Table Checklist is available online here:
http://edmgr.ovid.com/ong/accounts/table_checklist.pdf.**

Acknowledged

13. Please review examples of our current reference style at <http://ong.editorialmanager.com> (click on the Home button in the Menu bar and then "Reference Formatting Instructions" document under "Files and Resources"). Include the digital object identifier (DOI) with any journal article references and an accessed date with website references. Unpublished data, in-press items, personal communications, letters to the editor, theses, package inserts, submissions, meeting presentations, and abstracts may be included in the text but not in the reference list.

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Acknowledged

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Acknowledged.