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: Jun 18, 2019
To: "Jasmine Johnson" [redacted]
From: "The Green Journal" em@greenjournal.org
Subject: Your Submission ONG-19-944

RE: Manuscript Number ONG-19-944

Using the Electronic Medical Record to Identify Racial-Ethnic Disparities in Postpartum Pain Management

Dear Dr. Johnson:

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 Jul 09, 2019, we will assume you wish to withdraw the manuscript from further consideration.

REVIEWER COMMENTS:

Reviewer #1:

1. Title. The study is about racial disparities in the evaluation and treatment of postpartum pain. Data were obtained from an electronic medical record, but the study is not about "using the electronic medical record" per se. The EMR is not mentioned in the results. Would consider revising the title.

2. Precis. Suggest summarizing what you found rather than writing that you found something.

3. Abstract. This is a faithful summary of the manuscript.
a. Might include a sentence in the results about the number of women studied (1751), and something about the number of times pain was assessed, as there were > 31K pain scores.
b. Line 59. Would define OTE.
c. Lines 62-63. Would delete or revise this sentence, because the reader may infer that your study is not novel, e.g. convey that the previous studies were not postpartum women.

4. Introduction.
a. Lines 67-68. Higher perinatal morbidity and mortality among fetuses and infants of black women, or higher morbidity and mortality among black women?
b. Lines 82-84. This appears to be the objective, but it is not a complete sentence. Minor, but the authors aren't comparing EMR data with other data, so does this merit being part of the study objective?
c. Lines 84-87. The authors hypothesized that black women would undergo fewer pain assessments and receive less pain medication. That is fine, but if perhaps the authors (instead) didn't think they were denying women needed pain medication but thought it would be an important question to investigate, could rephrase accordingly.

5. Methods.
a. Generally the inclusion and exclusion criteria go in the methods. The Ns are considered results.
b. Line 103. What is the Carolina Data Wearhouse?
c. Line 118-129. Were the EMR data (pain scores and other variables evaluated) recorded per protocol in a table or other method of data-entry that was readily searchable in aggregate, or did investigators need to sort through individual patient records to obtain data? Minor, but why use OTEs rather than MMEs?

6. Results.
a. Unless the authors include the EMR in the results, suggest de-emphasizing EMR and focusing on the racial disparity assessment.

b. It appears that 236 women (12%) were excluded. Might include this.
c. Lines 151-153. Might include something about the number of times pain was assessed (e.g. distribution of values) and the number of times medication was administered, to help put the 31K and 26K into context. The data in the figure are listed as adjusted values.
d. Line 177. Do the authors mean figure 1 rather than figure 2?

7. Discussion.
a. Lines 211-220. Might state that these are limitations of the study.
b. Lines 227-228. The authors mention benefit of flowsheet data. Were flowsheets used for their study?
c. Line 230. Might explain a little more about Critical Race Theory and Racial Equality Lens, topics that may not be familiar to the readership.
d. None of the studies that the authors discuss are about postpartum pain. Suggest performing a search, e.g. Pubmed. If no other studies are identified, might include the search criteria and explain that yours may be the first.

Reviewer #2: ONG-19-944: Using the Electronic Medical Record to Identify Racial-Ethnic Disparities in Postpartum Pain Management.
The authors report a study of 1981 records of women after a cesarean birth. They studied the frequency of the determination of pain scores and medications use according to race/ethnicity (as declared by the parturient, I presume).

NH Black and Hispanic women were more likely to be younger, multipara, obese, and have a NICU newborn. Compared to Whites, these women had higher pain scores, were evaluated for pain less frequently, and received less analgesics, including epidural blocks.

This report confirms previous findings about difference in management of minority groups compared to Whites. The authors note that preconceived ideas about women of different race/ethnicity among clinicians might affect how they evaluate, communicate, relate, and treat these patients. Do they have any suggestions to improve this condition that affect clinical outcomes?

Reviewer #3: This is manuscript from a multidisciplinary group at a single institution investigated racial and ethnic disparities in postpartum pain and pain management. The authors aimed to measure the extent to which frequency of pain assessment, scores, and medications differed by patient race and ethnicity. They used their institution's electronic medical record to review the records of nearly 2000 women who delivered via cesarean birth and compared differences in pain scores recorded, mean scores, and medication administration. They identified that non-Hispanic black women had the highest prevalence of severe pain but fewer documented assessments of pain and less narcotic pain medication received. They concluded that EMR data identified differences in assessment of postpartum pain. Overall, this manuscript is interesting and important, though I have several areas for potential improvement and clarification.

1- Overall, I was perplexed by the emphasis - eg in the title, and in the text - on use of the EMR for obtaining the data. This is a fairly standard way to access retrospective cohort data of this degree of granularity, and so the emphasis on it in the title almost leads the reader to think, "what's special about EMR use here?" or wonder if there is a comparison group with a different strategy. Although the Discussion does review some of the particular issues about EMR use, I actually think the more interesting Discussion points would be about issues of racism and some of the interventions mentioned in the conclusion.

2- The abstract implies they only evaluated differences in black versus white women (the Introduction and Methods also have this focus). It's not until the Results that the reader realizes more groups were analyzed, though they are only superficially mentioned - this should be clearer.

Abstract:

3- Well written, but would suggest that the objective state this is only among women who underwent cesarean.

4- Total N should be in the 1st sentence of the results. I believe it should be 1751, not 1981 as in the Methods.

5- Uses the phrase "severe pain" in the results, but it isn't clear in the methods what pain score is considered "severe" (state it was >7)

6- Clarify all abstract abbreviations (eg OTE).

7- Abstract should mention results for the other racial groups besides black women.

Introduction

8- First paragraph is clear, but I would also suggest that inequity is due to factors that extend beyond institutional

racism and also include other aspects of structural / societal racism.

9- Would consider the use of inequity rather than disparity in most cases, as you are largely talking about inequities with regard to outcomes and care delivery, not just mere differences/disparities.

10- Note that the capitalization of "black" and "white" varies throughout the paper.

11- Intro would benefit at some point from a brief comment on why studying postpartum pain medication use is of clinical and/or public health relevance - i.e., linking the issue of disparities to the opioid epidemic.

12- 3rd paragraph - 1st sentence is a sentence fragment. Needs something like "the objective was" after "using data from our hospital's EMR"

Methods

13- Although certainly women who undergo cesarean delivery receive more attention in the literature on postpartum opioid use, there are other data to show that up to a third of women who undergo vaginal delivery will be given opioids. The methods should include a brief rationale for only studying women who underwent cesarean.

14- Note that the paper varies between using phrase "cesarean delivery" and "cesarean birth" - recommend editing for consistency

15- Line 92- states "approval for this trial" - this was not a trial

16- The first paragraph provides numbers of women who were in the population, number excluded, and number in final sample - this all belongs in the first paragraph of the Results, not in the Methods

17- Line 92 states there were 1981 women in this period, whereas line 95 states it was 1987.

18- Was race/ethnicity from the EHR by maternal self-report? If so, this should be stated.

19- The manuscript sometimes uses "EHR" and sometimes "EMR"

20- The description of where data were obtained from is a bit confusing, specifically with regard to race/ethnicity, which is commented on twice (line 106 and line 112) - was it obtained from 2 different databases?

21- Greater information is needed about the context in which this study is performed. What are the protocols for pain assessments after birth at this institution? What order sets are in place (or not) to standardize pain medication provision? Are women offered medications around the clock, or must they request them? What types of providers write orders and round on patients? Greater information about this context would be helpful to readers to understand generalizability and which point in the care processes is a possible source of inequity.

22- Are pain scores normally distributed? Maybe median (IQR) is more appropriate.

23- NSAID dosing needs to be discussed (how was it categorized?). It is hard to tell if the findings related to NSAIDs are clinically significant, since the dosing categorization schema is unclear.

24- Line 129 - I think this should say "for ease of interpretation"

25- Line 142-144 - this sentence is a bit unclear. I don't think the point of the analysis was to examine factors associated with severe pain generally, it was to examine the association of race with severe pain. If my understanding is correct, then I'm having a hard time understanding why all the different sociodemographic/clinical characteristics associated with severe pain were analyzed/reported (Table 2).

26- Lines 146- was this an a priori decision to adjust for this clinical and demographic characteristics, or was this decision based on some sort of finding from bivariable analyses? Lines 142-148 probably belong in the prior paragraph, in line 136 - ie, restructure the paragraphs so that all discussion of MV analyses are grouped together, rather than talking about the MV analyses in 2 different places.

27- Methods needs a sentence about how the exposure groups (the racial/ethnic groups) were categorized - ie, it's not until line 153 that the reader realizes groups other than White and Black were examined. A sentence like "Race and ethnicity were categorized as one of 5 groups: X, X, ..."

Results

28- As above, statement about population inclusion/exclusion should be here.

29- I'm not sure I understand how the 1st sentence, about total scores and medication administrations, is helpful.

30- Table 1 - "missing" seems like it shouldn't be a category for marital status, but rather the values should drop out of the chi-square calculation, and a footnote can clarify the N included in the analysis for marital status. Same with missing/unknown language. Also, for simplicity, marital status could be displayed as one row, just for the married individuals.

31- Table 1 - footnote should clarify whether classical cesarean delivery is referring to this pregnancy or a prior delivery

32- Paragraph 1 - recommend the order of results in the text mirror the order of the table

33- Table 2 - see comment above. I think the only relevant part of this analysis is the first section, with the differences by race/ethnicity, which is the exposure of interest (and which is already shown in Figure 1). Or, perhaps the authors just need to clarify their thinking around these analyses and why they are shown. Lines 159-162 and 169-171 say the same thing, and the latter really is what we're interested in.

34- In paragraph 3, multiple multivariable comparisons are described - It would be helpful to see this in tabular format, as the text description of the odds ratios and effect sizes gets confusing.

35- I see 2 versions of Figure 1 but did not see Figure 2 uploaded

36- Lines 177-182 are the only descriptions of non-black women - recommend this be in its own paragraph, and that the discussion be expanded to include the multivariable analysis, which I assume was done, but I don't see any tables (maybe it was in Figure 2 that isn't available). Also, it seems like here the methods switch from pairwise comparison (black v white, like in the prior sentences) to a whole group comparison (line 177-9 parenthetical lists Asian, Hispanic, and white, with a single p-value for each time point), and then lines 180-182 uses 5 groups - changing the comparison strategy multiple times is confusing. Or maybe all bivariable comparisons were for all racial groups but this is unclear in the text - one way to clarify this confusing text would be to take the bivariable numbers out of the text and simply refer the reader to Figure 1, where all the raw data and p-values are located.

Discussion

37- Paragraph 1 needs a comment on the non-black women. Or, if the authors prefer, make the whole paper about the black vs white differences - but it's only telling part of the whole story if you actually did analyze the other groups but then don't discuss them. It might make sense to reframe the paper around these 2 groups, since the Introduction and Discussion also focus on black vs. white differences.

38- Line 207-9 - The idea that staffing will solve inequity seems a bit naïve. It might address the one issue described in the preceding sentence, but the greater issue is intrinsically about addressing racism, which requires much more complex approaches.

39- The Discussion could use a comment on what is "appropriate" treatment - ie, which group was being under vs. over-treated? A discussion of this concept in the context of the opioid epidemic would help frame the results with greater clinical relevance.

40- Greater comment on the NSAID findings is warranted

41- Lines 222-229 discuss the EMR concept. While the points are all accurate, I think the more interesting discussion points are those brought up in lines 229-232, which could be reviewed in more depth (and need citations).

STATISTICAL EDITOR'S COMMENTS:

1. Tables 1, 2: Need units for maternal age, BMI. In addition to the overall stats test for difference, should identify the stats differences compared to the NHW referent, similar to the Figures.

2. Fig 1: The adjustment for 8 variables makes the model somewhat tenuous for the Asian group (total n = 85). Should (either in Table format or included within the figure, also include the unadjusted values with CIs to contrast with the adjusted. The second group of columns appears to be labelled incorrectly. Should be "24-48h postpartum", not "4-48h postpartum"

3. Fig 1 is repeated after Table 2 in my version of the manuscript.

4. For the most part, the study sample is large enough in subsets to justify use of an adjustment model, but it would strengthen the Authors's conclusions if there were corroboration with a matching algorithm, since the racial/ethnic groups differed in so many baseline characteristics (Table 1). Strong suggest this, could be in supplemental if proves to be entirely confirmatory.

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. As of December 17, 2018, Obstetrics & Gynecology has implemented an "electronic Copyright Transfer Agreement" (eCTA) and will no longer be collecting author agreement forms. 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.

Any author agreement forms previously submitted will be superseded by the eCTA. During the resubmission process, you are welcome to remove these PDFs from EM. However, if you prefer, we can remove them for you after submission.

3. In order for an administrative database study to be considered for publication in Obstetrics & Gynecology, the database used must be shown to be reliable and validated. In your response, please tell us who entered the data and how the accuracy of the database was validated. This same information should be included in the Materials and Methods section of the manuscript.

4. Responsible reporting of research studies, which includes a complete, transparent, accurate and timely account of what was done and what was found during a research study, is an integral part of good research and publication practice and not an optional extra. Obstetrics & Gynecology supports initiatives aimed at improving the reporting of health research, and we ask authors to follow specific guidelines for reporting randomized controlled trials (ie, CONSORT), observational studies (ie, STROBE), meta-analyses and systematic reviews of randomized controlled trials (ie, PRISMA), harms in systematic reviews (ie, PRISMA for harms), studies of diagnostic accuracy (ie, STARD), meta-analyses and systematic reviews of observational studies (ie, MOOSE), economic evaluations of health interventions (ie, CHEERS), quality improvement in health care studies (ie, SQUIRE 2.0), and studies reporting results of Internet e-surveys (CHERRIES). Include the appropriate checklist for your manuscript type upon submission. Please write or insert the page numbers where each item appears in the margin of the checklist. Further information and links to the checklists are available at http://ong.editorialmanager.com. In your cover letter, be sure to indicate that you have followed the CONSORT, MOOSE, PRISMA, PRISMA for harms, STARD, STROBE, CHEERS, SQUIRE 2.0, or CHERRIES guidelines, as appropriate.

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 and gynecology data definitions at https://www.acog.org/About-ACOG/ACOG-Departments/Patient-Safety-and-Quality-Improvement/reVITALize. 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, 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. Provide a short title of no more than 45 characters (40 characters for case reports), including spaces, for use as a running foot.

9. Provide a précis on the second page, for use in the Table of Contents. The précis is a single sentence of no more than 25 words that states the conclusion(s) of the report (ie, the bottom line). The précis should be similar to the abstract's

conclusion. Do not use commercial names, abbreviations, or acronyms in the précis. Please avoid phrases like "This paper presents" or "This case presents."

10. 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 limits for different article types are as follows: Original Research articles, 300 words. Please provide a word count.

11. 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.

12. 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.

13. 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.

14. The Journal's Production Editor has the following to say about the figures in your manuscript:

"-The manuscript is a bit confusing – they mention an “appendix figure 1” and a “figure 2” in the text, but at the end of the manuscript there is only one figure, “figure 1,” and there is no “figure 2.” The author included “figure 1” in the manuscript and also uploaded it as a separate file in EM. The only figure they uploaded was “figure 1,” the same figure that is in the manuscript.
-Fig 1: Is the author able to upload the original editable file for this? The text in the figure may need to be edited (font change, etc.) and it would be easier to have the original file to edit."

When you submit your revision, art saved in a digital format should accompany it. If your figure was created in Microsoft Word, Microsoft Excel, or Microsoft PowerPoint formats, please submit your original source file. Image files should not be copied and pasted into Microsoft Word or Microsoft PowerPoint.

When you submit your revision, art saved in a digital format should accompany it. Please upload each figure as a separate file to Editorial Manager (do not embed the figure in your manuscript file).

If the figures were created using a statistical program (eg, STATA, SPSS, SAS), please submit PDF or EPS files generated directly from the statistical program.

Figures should be saved as high-resolution TIFF files. The minimum requirements for resolution are 300 dpi for color or black and white photographs, and 600 dpi for images containing a photograph with text labeling or thin lines.

Art that is low resolution, digitized, adapted from slides, or downloaded from the Internet may not reproduce.

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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.

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If you choose to revise your manuscript, please submit your revision via Editorial Manager for Obstetrics & Gynecology at http://ong.editorialmanager.com. It is essential that your cover letter list point-by-point the changes made in response to each criticism. Also, please save and submit your manuscript in a word processing format such as Microsoft Word.

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 Jul 09, 2019, we will assume you wish to withdraw the manuscript from further consideration.

Sincerely,

The Editors of Obstetrics & Gynecology

2017 IMPACT FACTOR: 4.982
2017 IMPACT FACTOR RANKING: 5th out of 82 ob/gyn journals

_____

[redacted]

July 9, 2019

Editorial Board
Obstetrics and Gynecology

Dear Editors,

We greatly appreciate the opportunity to re-revise and re-submit our article, “Racial-Ethnic Inequities in Postpartum Pain Evaluation and Management” for publication in *Obstetrics & Gynecology*. We hope you find it acceptable for publication.

The authors have no conflicts of interest to disclose.

Below are the comments from the reviewers (not in bold) and our responses (in bold).

REVIEWER #1:
1. Title. The study is about racial disparities in the evaluation and treatment of postpartum pain. Data were obtained from an electronic medical record, but the study is not about "using the electronic medical record" per se. The EMR is not mentioned in the results. Would consider revising the title.
This has been revised.

2. Precis. Suggest summarizing what you found rather than writing that you found something.
This has been revised.

3. Abstract. This is a faithful summary of the manuscript.

a. Might include a sentence in the results about the number of women studied (1751), and something about the number of times pain was assessed, as there were > 31K pain scores.
The number of women studied and number of pain scores was added.

b. Line 59. Would define OTE.
This has been defined.

c. Lines 62-63. Would delete or revise this sentence, because the reader may infer that your study is not novel, e.g. convey that the previous studies were not postpartum women.
Added “non-obstetric” to specify prior study populations

4. Introduction.
a. Lines 67-68. Higher perinatal morbidity and mortality among fetuses and infants of black women, or higher morbidity and mortality among black women?
This sentence was revised.

b. Lines 82-84. This appears to be the objective, but it is not a complete sentence. Minor, but the authors aren't comparing EMR data with other data, so does this merit being part of the study objective?
This sentence was revised.

c. Lines 84-87. The authors hypothesized that black women would undergo fewer pain assessments and receive less pain medication. That is fine, but if perhaps the authors (instead) didn't think they were denying women needed pain medication but thought it would be an important question to investigate, could rephrase accordingly.
Based on the published literature, our a priori hypothesis was that pain would be undertreated among black women.

5. Methods.
a. Generally the inclusion and exclusion criteria go in the methods. The Ns are considered results.
The exclusion and inclusion criteria are in the methods. I have removed the Ns and the number of women who were excluded is noted in the results.

b. Line 103. What is the Carolina Data Wearhouse?
This has been defined.

c. Line 118-129. Were the EMR data (pain scores and other variables evaluated) recorded per protocol in a table or other method of data-entry that was readily searchable in aggregate, or did investigators need to sort through individual patient records to obtain data? Minor, but why use OTEs rather than MMEs?
We have clarified that these data were extracted in spreadsheet tables for analysis. We chose to present results in OTEs for ease of clinical interpretation, as obstetric providers more commonly prescribe oxycodone than morphine.

6. Results.
a. Unless the authors include the EMR in the results, suggest de-emphasizing EMR and focusing on the racial disparity assessment.
The EMR has been de-emphasized.

b. It appears that 236 women (12%) were excluded. Might include this.
It has been added how many women met inclusion criteria.

c. Lines 151-153. Might include something about the number of times pain was assessed (e.g. distribution of values) and the number of times medication was administered, to help put the 31K and 26K into context. The data in the figure are listed as adjusted values.

From 0-48 hours after delivery, patients underwent a median of 18 pain assessments (IQR 14-22), received 13.2 OTEs of opioids (IQR 8-19), and 7 doses of NSAIDs (IQR 6,7). This information has been added to the manuscript.

d. Line 177. Do the authors mean figure 1 rather than figure 2?
This has been changed to Table 1

7. Discussion.
a. Lines 211-220. Might state that these are limitations of the study.
This has been stated.

b. Lines 227-228. The authors mention benefit of flowsheet data. Were flowsheets used for their study?
Clarified that flowsheets are where pain scores are documented during a hospitalization.

c. Line 230. Might explain a little more about Critical Race Theory and Racial Equality Lens, topics that may not be familiar to the readership.
This has been better defined.

d. None of the studies that the authors discuss are about postpartum pain. Suggest performing a search, e.g. Pubmed. If no other studies are identified, might include the search criteria and explain that yours may be the first.
We searched Pubmed using the criteria "Pain"[All Fields] AND ("Cesarean"[All Fields] or "postpartum"[All Fields]) AND "Disparities"[All Fields]

We found no prior publications on racial inequities in postpartum pain symptoms or treatment. This has been added to the manuscript.

REVIEWER #2:
ONG-19-944: Using the Electronic Medical Record to Identify Racial-Ethnic Disparities in Postpartum Pain Management.
The authors report a study of 1981 records of women after a cesarean birth. They studied the frequency of the determination of pain scores and medications use according to race/ethnicity (as declared by the parturient, I presume).

NH Black and Hispanic women were more likely to be younger, multipara, obese, and have a NICU newborn. Compared to Whites, these women had higher pain scores, were evaluated for pain less frequently, and received less analgesics, including epidural blocks.

This report confirms previous findings about difference in management of minority groups compared to Whites. The authors note that preconceived ideas about women of different race/ethnicity among clinicians might affect how they evaluate, communicate,

relate, and treat these patients. Do they have any suggestions to improve this condition that affect clinical outcomes?
One suggestion has been added to the discussion section.

REVIEWER #3:
This is manuscript from a multidisciplinary group at a single institution investigated racial and ethnic disparities in postpartum pain and pain management. The authors aimed to measure the extent to which frequency of pain assessment, scores, and medications differed by patient race and ethnicity. They used their institution's electronic medical record to review the records of nearly 2000 women who delivered via cesarean birth and compared differences in pain scores recorded, mean scores, and medication administration. They identified that non-Hispanic black women had the highest prevalence of severe pain but fewer documented assessments of pain and less narcotic pain medication received. They concluded that EMR data identified differences in assessment of postpartum pain. Overall, this manuscript is interesting and important, though I have several areas for potential improvement and clarification.

1. Overall, I was perplexed by the emphasis - eg in the title, and in the text - on use of the EMR for obtaining the data. This is a fairly standard way to access retrospective cohort data of this degree of granularity, and so the emphasis on it in the title almost leads the reader to think, "what's special about EMR use here?" or wonder if there is a comparison group with a different strategy. Although the Discussion does review some of the particular issues about EMR use, I actually think the more interesting Discussion points would be about issues of racism and some of the interventions mentioned in the conclusion.
The EMR has been de-emphasized overall instead to focus on the outcome of the study.

2. The abstract implies they only evaluated differences in black versus white women (the Introduction and Methods also have this focus). It's not until the Results that the reader realizes more groups were analyzed, though they are only superficially mentioned - this should be clearer.
This is clarified in the hypothesis.

Abstract:

3. Well written, but would suggest that the objective state this is only among women who underwent cesarean.
This is now clarified that is a study about women who had a cesarean birth.

4. Total N should be in the 1st sentence of the results. I believe it should be 1751, not 1981 as in the Methods.
This is corrected.

5. Uses the phrase "severe pain" in the results, but it isn't clear in the methods what pain score is considered "severe" (state it was >7)
This is now stated.

6. Clarify all abstract abbreviations (eg OTE).
This is defined.

7. Abstract should mention results for the other racial groups besides black women.
The abstract has been revised.

Introduction

8. First paragraph is clear, but I would also suggest that inequity is due to factors that extend beyond institutional racism and also include other aspects of structural / societal racism.
This is a good point. I have added the influence of society racism as well.

9. Would consider the use of inequity rather than disparity in most cases, as you are largely talking about inequities with regard to outcomes and care delivery, not just mere differences/disparities.
“Disparities” has been replaced by “inequities” where appropriate.

10. Note that the capitalization of "black" and "white" varies throughout the paper.
Corrected.

11. Intro would benefit at some point from a brief comment on why studying postpartum pain medication use is of clinical and/or public health relevance - i.e., linking the issue of disparities to the opioid epidemic.
A comment on the clinical relevance of studying postpartum pain management has been added to the introduction.

12. 3rd paragraph - 1st sentence is a sentence fragment. Needs something like "the objective was" after "using data from our hospital's EMR"
This has been revised.

Methods

13. Although certainly women who undergo cesarean delivery receive more attention in the literature on postpartum opioid use, there are other data to show that up to a third of women who undergo vaginal delivery will be given opioids. The methods should include a brief rationale for only studying women who underwent cesarean.
A sentence was added to address this.

14. Note that the paper varies between using phrase "cesarean delivery" and "cesarean birth" - recommend editing for consistency

This has been revised.

15. Line 92- states "approval for this trial" - this was not a trial
This has been revised.

16. The first paragraph provides numbers of women who were in the population, number excluded, and number in final sample - this all belongs in the first paragraph of the Results, not in the Methods
This has been revised.

17. Line 92 states there were 1981 women in this period, whereas line 95 states it was 1987.
This was a typographical error that has been corrected.

18. Was race/ethnicity from the EHR by maternal self-report? If so, this should be stated.
This is now stated.

19. The manuscript sometimes uses "EHR" and sometimes "EMR"
This was revised for uniformity with the standard abbreviation EMR.

20. The description of where data were obtained from is a bit confusing, specifically with regard to race/ethnicity, which is commented on twice (line 106 and line 112) - was it obtained from 2 different databases?
Data collection was better clarified in line 174.

21. Greater information is needed about the context in which this study is performed. What are the protocols for pain assessments after birth at this institution? What order sets are in place (or not) to standardize pain medication provision? Are women offered medications around the clock, or must they request them? What types of providers write orders and round on patients? Greater information about this context would be helpful to readers to understand generalizability and which point in the care processes is a possible source of inequity.
This has been clarified.

22. Are pain scores normally distributed? Maybe median (IQR) is more appropriate.
Both the 0-24 and 24-48 hour pain scores are slightly right skewed. However, the median and mean are quite similar. Given that we present linear regression results for mean pain score in our adjusted analysis, we favor presenting means for the unadjusted analyses.

	Skewness	Mean (std)	Median (IQR)
Mean pain score, 0-24h pp	0.44	2.69 (1.56)	2.50 (1.55-3.71)
Mean pain score, 24-48h pp	0.40	3.70 (1.41)	3.61 (2.75-4.56)

23. NSAID dosing needs to be discussed (how was it categorized?). It is hard to tell if the findings related to NSAIDs are clinically significant, since the dosing categorization schema is unclear.
NSAID dosing is defined as the number of distinct times that an NSAID was administered, according to the medication administration record. A total of 10,474 doses of NSAIDs were administered to patients in the study sample from 0-48 hours postpartum. NSAIDs administered for pain included IV ketorolac, ibuprofen and naproxen. We quantified an NSAID dose as a distinct time that an NSAID was administered. The most common dose of NSAID in the data set was 30 mg of IV Ketorolac (6005 doses, 57.3%), followed by 800 mg ibuprofen (2907 doses. 27.7%) and 600 mg ibuprofen (1499 doses, 14.3%). This information has been added to the manuscript.

24. Line 129 - I think this should say "for ease of interpretation"
This typographical error has been corrected.

25. Line 142-144 **182-184**- this sentence is a bit unclear. I don't think the point of the analysis was to examine factors associated with severe pain generally, it was to examine the association of race with severe pain. If my understanding is correct, then I'm having a hard time understanding why all the different sociodemographic/clinical characteristics associated with severe pain were analyzed/reported (Table 2).
The sentence structure was moved around for clarity and focus on the study objectives.

26. Lines 146- was this an a priori decision to adjust for this clinical and demographic characteristics, or was this decision based on some sort of finding from bivariable analyses? Lines 142-148 probably belong in the prior paragraph, in line 136 - ie, restructure the paragraphs so that all discussion of MV analyses are grouped together, rather than talking about the MV analyses in 2 different places.
This was an a priori decision. The analysis section has been reorganized to address these concerns.

27. Methods needs a sentence about how the exposure groups (the racial/ethnic groups) were categorized - ie, it's not until line 153 that the reader realizes groups other than White and Black were examined. A sentence like "Race and ethnicity were categorized as one of 5 groups: X, X, …"
This sentence has been added.

Results

28. As above, statement about population inclusion/exclusion should be here.

This has been revised.

29. I'm not sure I understand how the 1st sentence, about total scores and medication administrations, is helpful.
This has been revised.

30. Table 1 - "missing" seems like it shouldn't be a category for marital status, but rather the values should drop out of the chi-square calculation, and a footnote can clarify the N included in the analysis for marital status. Same with missing/unknown language. Also, for simplicity, marital status could be displayed as one row, just for the married individuals.
Marital status has been reported as "yes" or "no," with missing as a footnote. For language, the third category is "other language", and thus is not be excluded.

31. Table 1 - footnote should clarify whether classical cesarean delivery is referring to this pregnancy or a prior delivery
This has been added

32. Paragraph 1 - recommend the order of results in the text mirror the order of the table
The results are reported to mirror the table.

33. Table 2 - see comment above. I think the only relevant part of this analysis is the first section, with the differences by race/ethnicity, which is the exposure of interest (and which is already shown in Figure 1). Or, perhaps the authors just need to clarify their thinking around these analyses and why they are shown. Lines 159-162 and 169-171 say the same thing, and the latter really is what we're interested in.
This summary and table have been revised. The duplicate summative sentences have been revised – line 319-323. Table 2 has been replaced by a new table 2 presenting unadjusted and adjusted differences in outcomes of interest by race/ethnicity.

34. In paragraph 3, multiple multivariable comparisons are described - It would be helpful to see this in tabular format, as the text description of the odds ratios and effect sizes gets confusing.
The results have been revised to present propensity-score adjusted means, and data are presented in tabular form in table 2.

35. I see 2 versions of Figure 1 but did not see Figure 2 uploaded
Uploading error. This will be corrected in the revised upload, which will include a single Figure 1.

36. Lines 177-182 are the only descriptions of non-black women - recommend this be in its own paragraph, and that the discussion be expanded to include the multivariable analysis, which I assume was done, but I don't see any tables (maybe it was in Figure 2 that isn't available). Also, it seems like here the methods switch from pairwise comparison (black v white, like in the prior sentences) to a whole group comparison (line

177-9 parenthetical lists Asian, Hispanic, and white, with a single p-value for each time point), and then lines 180-182 uses 5 groups - changing the comparison strategy multiple times is confusing. Or maybe all bivariable comparisons were for all racial groups but this is unclear in the text - one way to clarify this confusing text would be to take the bivariable numbers out of the text and simply refer the reader to Figure 1, where all the raw data and p-values are located.
The results for Non-Black women have been made into its own paragraph (line 329).

Discussion

37. Paragraph 1 needs a comment on the non-black women. Or, if the authors prefer, make the whole paper about the black vs white differences - but it's only telling part of the whole story if you actually did analyze the other groups but then don't discuss them. It might make sense to reframe the paper around these 2 groups, since the Introduction and Discussion also focus on black vs. white differences.
A comment was added to address all women studied.

38. Line 207-9 - The idea that staffing will solve inequity seems a bit naïve. It might address the one issue described in the preceding sentence, but the greater issue is intrinsically about addressing racism, which requires much more complex approaches.
Agreed. This is developed more in the discussion.

39. The Discussion could use a comment on what is "appropriate" treatment - ie, which group was being under vs. over-treated? A discussion of this concept in the context of the opioid epidemic would help frame the results with greater clinical relevance.
A comment was added about this.

40. Greater comment on the NSAID findings is warranted
A comment was made regarding this in Line 402 of the discussion.

41. Lines 222-229 discuss the EMR concept. While the points are all accurate, I think the more interesting discussion points are those brought up in lines 229-232, which could be reviewed in more depth (and need citations).
Great point. These points can be addressed in future studies focused on improvement initiatives.

STATISTICAL EDITOR'S COMMENTS:

1. Tables 1, 2: Need units for maternal age, BMI.
This has been revised.

In addition to the overall stats test for difference, should identify the stats differences compared to the NHW referent, similar to the Figures.

2. Fig 1: The adjustment for 8 variables makes the model somewhat tenuous for the Asian group (total n = 85). Should (either in Table format or included within the figure, also include the unadjusted values with CIs to contrast with the adjusted. The second group of columns appears to be labelled incorrectly. Should be "24-48h postpartum", not "4-48h postpartum"

In response to concerns that the adjustment for 8 variables is potentially problematic, we used multinomial regression to create propensity scores for race/ethnicity group. We used multinomial regression to model probability of belonging to each race/ethnicity group as a function of maternal age, body mass index, gestational age at delivery, nulliparity, primary vs. repeat c-section, classical vs. not classical hysterotomy, and infant admission to the NICU. We estimated the propensity for each subject to belong to each of the five race/ethnicity groups, following Spreeuwenberg[1]. Because the 5 propensity scores add up to 1 and are complementary, we included 4 scores in our propensity-score adjusted model. These results were materially unchanged from the multiple regression models, as shown below. However, given these concerns about adjustment for 8 variables, for the resubmission, we have revised our analysis approach to use propensity scores, rather than multivariable regression.

	Propensity-score adjusted			Multiple regression adjusted		
	Predicted Mean	SE	p vs. White	Predicted Mean	SE	p vs. White
Mean pain / 0-24h pp						
American Indian/Other/Refused/Unknown	2.47	0.14	0.05	2.45	0.17	0.05
Asian/Pacific Islander	2.15	0.17	<.01	2.11	0.20	<.01
Black	2.92	0.08	0.09	2.91	0.12	0.08
Hispanic	2.53	0.08	0.03	2.52	0.14	0.03
White	2.76	0.06		2.74	0.12	
Pain assessments / 0-24h pp						
American Indian/Other/Refused/Unknown	9.76	0.35	0.31	9.62	0.45	0.27
Asian/Pacific Islander	8.36	0.45	<.01	8.21	0.53	<.01
Black	9.51	0.20	0.01	9.39	0.32	0.01
Hispanic	9.52	0.22	0.02	9.42	0.36	0.02
White	10.15	0.15		10.05	0.32	
OTE / 0-24h pp						
American Indian/Other/Refused/Unknown	6.98	0.42	0.01	6.98	0.54	0.01
Asian/Pacific Islander	5.07	0.54	<.01	5.04	0.64	<.01
Black	7.46	0.24	0.01	7.46	0.39	0.01
Hispanic	6.63	0.26	<.01	6.64	0.43	<.01
White	8.25	0.18		8.25	0.38	

NSAID Doses Any / 0-24h pp						
American Indian/Other/Refused/Unknown	3.63	0.10	0.59	3.42	0.13	0.52
Asian/Pacific Islander	3.73	0.13	0.73	3.51	0.15	0.83
Black	3.48	0.06	<.01	3.28	0.09	<.01
Hispanic	3.60	0.06	0.29	3.40	0.10	0.28
White	3.68	0.04		3.48	0.09	
Mean pain / 24-48h pp						
American Indian/Other/Refused/Unknown	3.58	0.12	0.70	3.49	0.15	0.51
Asian/Pacific Islander	3.26	0.15	0.02	3.16	0.18	0.01
Black	3.98	0.07	<.01	3.92	0.11	<.01
Hispanic	3.63	0.08	0.94	3.58	0.12	0.99
White	3.63	0.05		3.58	0.11	
Pain assessments / 24-48h pp						
American Indian/Other/Refused/Unknown	8.78	0.28	0.18	8.78	0.35	0.14
Asian/Pacific Islander	7.82	0.35	<.01	7.86	0.42	<.01
Black	8.13	0.16	<.01	8.18	0.26	<.01
Hispanic	7.87	0.17	<.01	7.92	0.28	<.01
White	9.19	0.12		9.23	0.25	
OTE / 24-48h pp						
American Indian/Other/Refused/Unknown	6.05	0.31	<.01	5.91	0.40	<.01
Asian/Pacific Islander	4.58	0.40	<.01	4.50	0.47	<.01
Black	5.94	0.18	<.01	5.86	0.29	<.01
Hispanic	5.51	0.19	<.01	5.44	0.32	<.01
White	7.17	0.14		7.08	0.29	
NSAID Doses Any / 24-48h pp						
American Indian/Other/Refused/Unknown	2.57	0.09	0.50	2.44	0.12	0.46
Asian/Pacific Islander	2.38	0.12	0.03	2.24	0.14	0.02
Black	2.54	0.05	0.15	2.42	0.08	0.14
Hispanic	2.40	0.06	<.01	2.27	0.09	<.01
White	2.64	0.04		2.51	0.08	

Based on the suggestion from Reviewer 3, we have replaced Table 2 with a table that presents the adjusted and unadjusted values for each of the outcomes in the figure. This new table includes p values comparing predicted values with the referent group

3. Fig 1 is repeated after Table 2 in my version of the manuscript.
We will upload this correctly.

4. For the most part, the study sample is large enough in subsets to justify use of an adjustment model, but it would strengthen the Authors' conclusions if there were corroboration with a matching algorithm, since the racial/ethnic groups differed in so many baseline characteristics (Table 1). Strong suggest this, could be in supplemental if proves to be entirely confirmatory.
As noted in response to comment 2, we have reformulated our analysis plan to use a propensity score model, rather than an adjustment model. We felt that propensity scores were a more feasible approach for adjustment than matching across 5 groups. We further conducted a sensitivity analysis excluding the Asian group, and our results were materially unchanged.

We look forward to your response; please do not hesitate to contact us with any questions or concerns.

Sincerely,

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