Author's response to reviews

Title: Paternal Race/Ethnicity and Very Low Birth Weight

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Response to Reviewers

Thank you for reviewing our manuscript and for providing an opportunity to respond to the reviewers’ suggestions. Please find our point by point responses below.

Reviewer: Rebecca Helmreich

Comment:
What is the question that you want answered? Were you able to make any predictions or assumptions prior to beginning the study? To be a scientific paper with impact, even qualitative studies will have a well-worded research question and a specific prediction about the nature of the relationship identified in the question - it is this specific prediction that leads to the advance of nursing sA science.

Response:
We did not initiate the analysis with any expectations on how paternal race/ethnicity would be associated with VLBW when stratified by maternal race/ethnicity. We did expect to see differences in how paternal race/ethnicity is associated with VLBW among the different maternal groups, but we did not have a prediction for which maternal group(s) this association would be present. We also did not speculate which paternal group would be association with VLBW for each maternal group. Everything was analyzed using two tailed tests; therefore, we did not present a directional hypothesis.

We included the following statement at the end of the introduction. “We hypothesized that paternal race/ethnicity would be associated with VLBW differently for each maternal race/ethnicity.”

Comment:
Where was data analysis done? How was data entered?

Response:
Data were obtained from the Texas Department of State Health Services (DSHS) Vital Statistics Bureau. This is included in the first paragraph of the methods section. We have added “Vital Statistics Bureau” in the official name of the Texas Department of State Health Services. We requested live birth data from DSHS, and they sent us a cleaned database. We used official data from the state that have already been entered and cleaned using processes that the state of Texas uses for all of their vital statistics such as births, deaths, etc. Data are checked and cleaned by personnel in the DHSH Vital Statistics Bureau before they are released to anyone. We performed recoding on variables for which we collapsed categories. Data analysis was done in a university setting in collaboration with the Tarrant County Public Health Department.
Comment:
How many researchers analyzed the data and how was data entry checked?

Response:
Data analysis was performed by the PI in collaboration with the Tarrant County Public Health Department. Data are already checked and cleaned by the DSHS Vital Statistics Bureau before they are released to anyone.

Comment:
What are the social constructs that you suggest need investigation and how would you plan a future study to collect data on this?

Response:
Thank you for asking us to clarify our comments. We have reorganized and included additional information in the Conclusions section.

Reviewer: Ashalatha Shetty

Comment:
However I think the main problem with the data set analysed is that there is an absolute cut off for birth weight (<1500 or > 1500gms) without adjusting for the gestational age at all. So it is very difficult to be sure if the authors here are talking about an increased risk of preterm labour and therefore VLBW or a genuine growth restriction; these two are very separate and different problems.

Response:
We agree that there is a difference between low birth weight (LBW) caused by preterm labor and growth restriction. We would have included gestational age in the analysis if we were looking at LBW, but the occurrence of having a full term birth with a VLBW (defined as < 1,500 grams) birth is infrequent in our dataset. This is reflected within our data. Of the 145,054 live births in our dataset, only 39 (0.02%) were full term birth (≥ 37 weeks) and VLBW. When we tried to include a variable to indicate full term birth vs preterm birth in the regression models, the numbers were so small the confidence intervals were unstable. For example, the percent of mothers with a full term birth that were also VLBW was 8/60,150 (0.01%) for non-Hispanic Caucasian mothers, 18/22,306 (0.08%) for non-Hispanic African American mothers, 10/54,553 (0.02%) for Hispanic mothers, and 3/8,039 (0.04%) for non-Hispanic Other mothers.

Comment:
From what gestation were live births included in the dataset? 24 weeks? 22 weeks or any other

Response:
We did not have a limitation on gestation age. The data included all live births. 10.8% of our births were preterm (< 37 weeks), but only 0.02% were full term and VLBW.
Comment:
What is the actual difference between race and ethnicity - would it not be possible to use one or the other through the text after an explanation at the beginning

Response:
According to US vital statistics and the US Census Bureau, ethnicity is defined as Hispanic or non-Hispanic. Race is defined as Caucasian, African American, and Other in our analysis. There are other recognized races by the Vital Statistics and Census Bureaus such as Asian or American Indian. In Texas, we have a very high Hispanic population. It is common for data to be categorized as non-Hispanic Caucasian, non-Hispanic African American, and Hispanic as in the case of our analysis. This would be labeled as combining race and ethnicity. Data can be presented separately, but in our birth outcomes, we find that ethnicity is important in addition to race. These data are also presented to us this way by the Texas Department of State Health Services Vital Statistics Bureau. We are obligated to present the data in the same manner as it is defined by our regulatory agencies.

Comment:
There is no account taken or adjustments made for the other maternal conditions that might account for VLBW - PET, APH, diabetes, sickle cell disease, even preterm delivery in the current pregnancy etc. being some.

Response:
We agree that including these conditions in the analysis may provide additional information. However, we are limited to the data available on birth certificates for the proposed analyses. Changes were made to the birth certificates in Texas in 2005. These changes included removing maternal risk factors such as anemia, cardiac disease, renal disease, premature rupture of membranes, etc. As a result, most of the data you are requesting were not available to us. Our birth certificates do still include pre-pregnancy diabetes and gestational diabetes. In our preliminary analysis we found that pre-pregnancy diabetes was reported in 0.6% of the women with VLBW and 0.4% of women without VLBW births. This difference was not statistically significant (p=0.160). Additionally, gestational diabetes was reported in 3.5% of women with VLBW births and 4.2% of women without VLBW births. This was also not statistically significant (p=0.110). We added a sentence about this in the limitations. This is in addition to the sentence already included in the third paragraph of the discussion section.

Comment:
Parity, maternal BMI etc. are also not considered for the outcome of BW, and multiple pregnancies are also included in the dataset who could be considered a separate problem group in terms of complications. In fact with the multiple gestations the OR for VLBW is shown to be high (but different. Table 3) in the various maternal groups and this has the potential to skew the other results.
Response:
We chose to include multiple pregnancies in the analysis to control for the potential confounding effects of this variable since we know it is associated with VLBW. By including it in the model, we are accounting for its potential effects on the relationship between paternal race/ethnicity and VLBW. Not including it in the model would allow for a potentially biased outcome. Other variables were either not included in the birth certificate data, were only included as self-report data so may not be reliable, or had mixed findings in the literature.

Comment:
The numbers of smokers in the dataset is very low (< 6%, ?unsure if that is a true reflection) and a previous history of preterm labour is also very low at 1.3%. Can the authors present any other stats from other groups to back these findings in their own data. Also what gestation did they define as preterm?

Response:
Our numbers for previous preterm births and smoking are reflective of our county data. The percentage of previous preterm births in our dataset was 1.3%. This is only slightly lower than the US national average of 2.1%. Additionally, the percentage of smoking among our mothers is 5.1% for 2006-2010 combined data. This is close to our Texas state average which has been the following for 2006 – 2010. (6.0% in 2006; 5.6% in 2007; 5.4% in 2008; 5.1% in 2009; and 4.9% in 2010) Preterm birth was defined as < 37 weeks.

Comment:
While the Kotelchuck Index is a measure of care received it can be argued that the small for dates babies would be expected to have more antenatal visits for care, and this is reflected in the results, which shows a higher index in the small babies.

Response:
Thank you for your comment. We agree that the adequate plus group may be indicative of babies that require additional care based on need. We have, therefore, chosen the adequate category as the reference group in the analysis instead of the adequate plus group. To further provide clarification, we have included information about the Kotelchuck Index in the paragraph with the limitations. The following information was included.

“Additionally, the Kotelchuck Index, also called the Adequacy of Prenatal Care Utilization (APNCU) Index, does not measure the quality of prenatal care. While it is preferable to other indices because it includes a category for women who receive more than the recommended amount of care (adequate plus), the adequate plus category may include complex pregnancies that required more visits. For the current analysis, the adequate category was used as the reference group as opposed to the adequate plus.”

Comment:
There is no explanation as to why some findings are different in some groups - eg. why is maternal age > 40 not associated with adverse outcome in non African American mothers, and
again with maternal smoking and previous history of preterm labour why might the results be different

Response:
We agree that these findings are interesting, and we suspected that we would find different risk factors for the different maternal racial/ethnic groups. Since these other factors were not the primary interest of our study, we limited our discussion to the primary variable of interest which is the paternal race/ethnicity. The other factors were included to ensure we controlled for factors that may confound the relationship between paternal race/ethnicity and VLBW.

Comment:
It would be interesting to do the analyses in table 2 for all the pregnancies not just the VLBW babies, the results might not be that different? In Table 3 while it states that the associations are 'adjusted' it does not state what variables were adjusted for in each of the calculations.

Response:
We included only the VLBW babies in Table 2 since this was the primary focus of our analysis. Table 1 presents the characteristics of all births and for VLBW and not VLBW overall, regardless of maternal race/ethnicities. We did not provide the overall characteristics by maternal race/ethnicity, but rather we presented the characteristics of VLBW births by maternal race/ethnicity.

Table 3 adjusts for all variables listed in the table. A statement has been added as a footnote.

Comment:
Overall if a more homogenous group eg all singleton pregnancies in primiparous women, with some more maternal variables that might affect BW included and adjusted for, and with gestation specific birth weights available, the results would be more credible.

Response:
The population in Tarrant County, Texas and Texas as a whole is very diverse. We wanted to understand how paternal race/ethnicity is associated with VLBW among our total population of live births. This allows us to take the first step and look at the big picture of what is going on in our community and gives us the ability to generalize our findings to the county. Delving into what is occurring in subgroups of our population could be a next step in the process of understanding this complex relationship.