Author's response to reviews

Title: Inadequate prenatal care and its association with adverse pregnancy outcomes: A comparison of indices

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Author's response to reviews: see over
January 18, 2008

Response to Reviewers’ Comments

Title: Inadequate prenatal care and its association with adverse pregnancy outcomes: A comparison of indices

Dear Dr. da-Silva,

We have made further revisions to the manuscript based on the reviewers’ suggestions, which are detailed under the corresponding suggestions from the reviewers below. I’ve also attached a copy of the manuscript with track changes so you can readily see where changes were made.

I hope these revisions are acceptable, and look forward to hearing from you.

Sincerely,

Maureen Heaman, RN, PhD

Reviewer’s report

Title: Inadequate prenatal care and its association with adverse pregnancy outcomes: A comparison of indices

Version: 4 Date: 30 November 2007

Reviewer: Arden S Handler

Reviewer’s report: The authors have responded to most of the requested changes of both reviewers. However, I still have concerns about the focus on and use of the term gestational age bias.

1) The authors only provide a definition of gestational age bias in the results section of their abstract. If they continue with this focus they will need to include this definition in the Methods section of the paper (this would be a Minor essential revision).

We have removed use of the term “gestational age bias” from the manuscript, and replaced it with the term “effect modification by gestational age.” The last objective of the study has been re-worded as “To assess whether or not and to what extent gestational age modifies the association between inadequate care and LBW and SGA.”

2) The authors state that the association between R-GINDEX and LBW was not significant (Table 6). However, the authors base this on a p-value of .06. even though the odds ratios show very similar trends as the APNCU. I would consider this p value as suggesting a trend towards significance or marginal significance, rather than non-significance. As such, I believe their statement of no association should be changed. (this would be a Discretionary revision.)
We have made this change, as follows, “The association between R-GINDEX and LBW suggested a trend towards significance (p=0.06) and the possibility of non-uniformity across strata.”

3) It is clear that there is heterogeneity (non-uniformity) across gestational age strata for the association between prenatal care adequacy and adverse pregnancy outcomes. While this is the definition provided by the authors of the term, gestational age bias, I am not completely convinced that this non-uniformity across strata represents the presence of gestational age bias. Rather, it suggests there is effect modification by gestational age which Kotelchuck has recognized previously. As such, I think the authors might be better served by focusing less on this issue and focusing more on the fact that the quantitative indices that are available for prenatal care provide somewhat different results and that using one or the other will provide the user with different information. I think the analysis of Canadian prenatal care utilization data is important in its own right. I am not convinced that this article needs to prove the presence of gestational age bias. (this would be a Discretionary revision.)

We have revised the paper to indicate that non-uniformity across gestational age strata suggests there is effect modification by gestational age.

What next?: Accept after minor essential revisions

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

Quality of written English: Acceptable

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

Declaration of competing interests: I declare that I have no competing interests

Reviewer’s report
Title: Inadequate prenatal care and its association with adverse pregnancy outcomes: A comparison of indices
Version: 4 Date: 28 November 2007
Reviewer: Nancy Hessol

Reviewer’s report:
General
The author(s) did a nice job responding to the reviewer’s comments. However a few issues remain, as noted below under major and minor comments.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)
Previous Major comments:
1. Page 5, first objective: what is the rationale for the trend analysis? Was there some significant public policy change that warrants this investigation? I think this specific aim is superfluous to the main focus of the paper and should be removed.
This first objective still stands out as being of lesser importance than the other 3
objectives. If the authors’ feel strongly that this should be part of this paper then they should: 1) give sufficient rationale for this investigation in the introduction section; 2) comment on the findings in the discussion section; and 3) conclude why this was of value. Also please see my response to previous minor comment # 6 below. If the number of singleton live births has declines so precipitously over the ten-year period, might this have affected the adequacy rates of pre-natal care and adverse prenatal outcomes over time?

We have revised the first objective of the paper to read as follows, “To determine rates of PNC utilization in Winnipeg, Canada from 1991 to 2000”, and removed the reference to trend analysis both in the first objective and in other sections of the paper. The other reviewer of this paper indicated that analysis of Canadian prenatal care data is important in its own right, and we concur that reporting on rates of PNC utilization in a Canadian population and comparing those rates to rates in the U.S. is an important contribution of this paper.

2. Page 7, section 1: The Kessner index is old and hardly used anymore. I recommend eliminating this index from the comparative analyses.

This has been adequately addressed.

3. Pages 7-9, methods section: For indices 3 and 4, you need to detail how women with missing data on PNV visit are categorized. In addition, the authors need to specify if they excluded or how they categorized women with missing indices in their analyses.

This has been adequately addressed.

4. Page 9, second paragraph: the analysis of agreement between the various indices adds little to the paper and should be removed from both the methods and results.

This has been adequately addressed.

5. Page 9, third paragraph, sentence on logistic regression: Your outcome is inadequate PNC but what is your reference group? On page 10 in the results section you say that you combined the inadequate care group with the no care group. Did you also combine the intensive, adequate, and intermediate groups together as a reference group? Either way, please specify. If you collapsed the intensive and intermediate group with the adequate group as the referent, this may be problematic as you are likely to dilute the unique characteristics of each of these indices. I would strongly recommend you only use the adequate group as the referent.

Thank you for the additional details. I still have concerns about lumping the intensive prenatal care group with the intermediate and adequate groups. Can the authors run the statistical models excluding the intensive group and see how those results compare with the models that include the intensive group. Perhaps they can then summarize that information in the result and comment upon it in the discussion section.

We are still reluctant to exclude the intensive group from the analysis, because of the vastly different sizes of the intensive group for each index (31.4% vs 12.6%), which would result in reference groups of unequal sizes for the two indices. Our statistician continues to advise against this approach. Our goal was to determine if inadequate/no prenatal care utilization results in
poorer outcomes compared to the remainder of the population, as has been the approach used in most other studies of the association between inadequate prenatal care and adverse outcomes. However, in response to this reviewer’s concern, we have added the following comment to the section on limitations of the study: “We compared the rate of adverse birth outcomes among women with inadequate/no PNC to the remainder of the population. However, Kotelchuck suggests there is a U-shaped relationship between PNC and birth outcomes, in which women with both lesser and extra PNC are at higher risks of having poorer birth outcomes,[39] so perhaps limiting the reference group to women with adequate care should be considered in future research.”

6. Results section: in the United States, race and ethnicity are strongly associated with pregnancy outcomes and utilization of prenatal care. There is no mention of race or ethnicity of this study population nor is any adjustment made for this factor in the analysis. Please explain why.
This has been adequately addressed.

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)
Previous Minor comments:
1. The pages are not numbered. I numbered my copy of the document starting with page 1 as the title page. My comments are base on this numbering scheme. This has been adequately addressed.
2. Page 3, Abstract, last sentence: the term “gestational age bias” is too vague and should be defined.
This has been adequately addressed.
3. Page 6, second sentence: what was the population during the ten years of the study (1991-2000). Why give the statistic for 2001?
This has been adequately addressed.
4. Page 14, second paragraph, first sentence: Avoid absolutes and replace the word “all” with “most”.
This has been adequately addressed.
5. Figure 1: as mentioned under major comments, this trend analysis adds little to the paper and should be removed.
This has been adequately addressed.
6. Table 1: please add the total sample size for each year. Also, please show the percent with missing indices.
This change had been made but the authors should offer an explanation as to why the absolute numbers have declined by over 22% in this ten-year period of study.

We added the following sentences to the Discussion section: “The proportion of women assigned to each PNC utilization category remained fairly stable over the 10 years for both indices, although it is noteworthy that the number of births steadily declined over the 10 years, from 9,093 births in 1991 to 7,124 births in 2000. This declining birth rate is consistent with that reported in a provincial surveillance report for Manitoba, 1989-1998.[29]” The reasons for this decline are not fully known and therefore we do not have a definitive explanation to offer.
7. Table 2: as mentioned under major comments, the analysis of agreement between the various indices adds little to the paper and should also be removed. This has been adequately addressed.

8. Table 5a-c: Please specify the reference groups for all the covariates (the PNC indices, maternal age, and parity). Were maternal age and parity kept as continuous or categorical covariates? If categorical, what was the reference group?
   This has been adequately addressed.

9. References: Several of the reference should be proofread. The last lines of references 1-3 have errors (Ref Type, Author). Also reference 4, JAMA should be all capital letters.
   This has not been done but can be handled by the journal text editors.

10. My version of the document had a duplicate figure 1.
   This has been adequately addressed.

New Minor comments:
1. Page 3, abstract, conclusion, 2nd sentence. Change the word “cannot” and replace with “should not”.
   This change has been made in both places.
2. Page 5, paragraph 2, 3rd sentence. State the time period for the British Columbia study (what years?).
   The time period for the British Columbia study has been added.
3. Page 8, paragraph 2, 2nd sentence. You say that the GINDEX has 6 categories yet you only list 5 (no care, inadequate, intermediate, adequate, and intensive). Please correct.
   Thank you for pointing this out. We have added the 6th category (“missing”).
4. Page 10, 1st sentence. Please double-check the M-H trend test statistic for the R-GINDEX.
   Because we have removed any discussion of trend analysis from the paper, we no longer report on the M-H trend test statistic.
5. Page 10, paragraph 2, 2nd sentence. I believe the authors may have neglected to revise these results. The range for the first set of numbers should be 21.1% to 21.6% and for the second set of numbers 24.3% to 26.4%.
   Thank you for picking up this error! We have reported the correct numbers.

Discretionary Revisions (which the author can choose to ignore)

What next?: Accept after minor essential revisions
Level of interest: An article whose findings are important to those with closely related research interests
Quality of written English: Acceptable
Statistical review: No, the manuscript does not need to be seen by a statistician.
Declaration of competing interests:
I declare that I have no competing interests.