Author's response to reviews

Title: Socio-demographic inequalities across a range of health status indicators and health behaviours among pregnant women in prenatal primary care: a cross-sectional study

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Author's response to reviews: see over
Dear editor,

We thank the reviewers for their helpful comments, feedback and suggestions. We have provided more information and clarifications based on their comments and suggestions, and believe this has improved the paper. Please find in the attachment the reviewers’ comments and authors’ responses. Each reviewer comment is addressed one by one by the authors and our responses are indented. The adjustments that have been made to the paper are underlined and are indicated by a line number. We hope you will now consider the paper suitable for publication.

Kind regards,
Ruth Baron

Reviewers’ reports and authors’ responses

Reviewer 1

Title: Socio-demographic inequalities across a range of health status indicators and health behaviours among pregnant women in prenatal primary care: a cross-sectional study

Version: 1 Date: 24 April 2015

Reviewer: Debbie Smith

Reviewer’s report:
This is a packed paper with lots of information about health inequalities in one European Country. I think it should be published but have a few comments regarding the current form.

Major compulsory revisions
- The introduction is very short and could outline health inequalities in relation to education and ethnicity better to show why you focus your analysis on these two variables.

Authors’ Response: We thank the reviewer for the positive comments on the introduction. We agree that more information could be given as to why we focused on health inequalities in terms of education and ethnicity. We have therefore reworded and added some lines to the introduction (lines 34-44):

Suboptimal health conditions and behaviours are consistently found to be more prevalent among people from lower socio-economic status – for example as indicated by lower levels of education and immigrant status. Such differences are important determinants of health inequalities in general [13, 14] and during pregnancy [15, 16]. Additionally, pregnancy-related conditions such as nausea, and pelvic pain, generally considered normal in pregnancy, may increase depression in women [17, 18] and could potentially lead to isolation and decreased social support in some migrant groups [19]. Social inequalities in health conditions during pregnancy (such as nausea, back pains and pelvic pains) and health behaviours (such as skipping breakfast and dinners) have previously had little attention. In order to inform and to better tailor and target interventions to promote positive maternal
health and pregnancy outcomes, it is important to gain a better insight into the differences in prevalence of suboptimal maternal health indicators and behaviours across social groups.

The discussion needs to have some mention on implications of these findings, what can primary care do with these findings? what can be done to reduce these health inequalities?

Authors’ response: In order to discuss the implications of our results we have reworded or added the following lines to the discussion.

Awareness of social inequalities in health has been present for decades, and although efforts carried in the Netherlands have made progress in reducing the gap between social groups in general [13], our findings confirm that social inequalities in health continue to persist in pregnancy.

As pregnancy may be the only time that many women have regular contact with health care providers, such as midwives, this is an opportunity to help increase the quality of life for women and their families beyond the care of their pregnancies.

A greater understanding by prenatal health care providers of the non-medical risks of adverse pregnancy outcomes may benefit those social groups at greater risk. Continued training in cultural differences, assessing and responding to different levels of health literacy in clients, building empathic and trusting relationships, conveying to clients a sense of personal control over their health, and keeping up-to-date with research on health and health promotion, may help to reduce health inequalities [44-47]. Additionally, increased strategies should be employed to target the social determinants of health inequality, such as forming stronger relationships with other relevant branches in housing, employment, social work and working in multidisciplinary teams with other health fields such as nutrition and physiotherapy [45, 46].

Why was a validated self-efficacy measure not used to measure 'Health control beliefs'?

Authors’ response: This question is an adaptation of the internal/external locus of control items developed by Rotter (1966), and was designed to assess ‘health locus of control’ rather than self-efficacy (i.e. to what extent they believe they can control their health by their own behaviours, as opposed to- to what extent they believe they can control their own behaviours).

Authors’ response: The aims have been reworded as follows (lines 4-8):

Our first aim was to give an overview of the self-reported health status and health behaviours of pregnant women under midwife-led primary care in the Netherlands. Our second aim was to identify potential differences in these health status indicators and behaviours according to educational level (as a proxy for socio-economic status) and ethnicity (as a proxy for immigration status).

The abstract has a lack of detail - eg., ‘what questionnaires?’ and what are the 10 health behaviours and what are the confounders?
**Authors’ response:** We agree that it is useful for the reader to be given more information on the questionnaires and variables. Given the maximum word limit of the abstract and the extensive number of variables in this study, we needed to make choices regarding the amount of information. The results of the main health behaviours and status variables have been described in the results of the abstract, we hope you agree that these are sufficient for the abstract.

We have now clarified the questionnaires and confounders further in the abstract by adding the following phrases to the text:

- **Questionnaires about maternal health and prenatal care** (Lines 10 and 11)
- **adjusted for age, parity, number of weeks pregnant and either education or ethnicity** (lines 13 and 14)

**Method**

- Page 4, lines 102-3 - what does this mean that they had the possibility to mention any chronic diseases that they had?

**Authors’ response:** We agree this sentence could be clearer. This sentence has been changed into the following:

*Those who had indicated having a chronic disease were then asked by means of an open-ended question to report any chronic diseases they had.* (lines 111 and 112)

Page 5, line 117-118 - is this perceived or actual?

**Authors’ response:** The EuroQol questions assess health-related quality of life as perceived by respondents.

To make this clear we have added **on self-perceived health** to the description of the EuroQol questionnaire. (line 119)

Lines 132-133 - do you not need to know the units of alcohol consumed?

**Authors’ response:** We agree it would be useful to know the amount of alcohol that had been consumed, but this item asks whether they consumed any alcoholic drink since knowing they were pregnant. We have added ‘drink’ to clarify this somewhat. (line 141). This item was designed to distinguish those who followed the recommendations (i.e. complete abstinence) from those who did not.

**Results**

- Page 6, why was there only a small percentage of women who overlapped in the first and second questionnaires?

**Authors’ response:** The study spanned a period of 1.5 years and the recruitment of women continued only throughout this period. Usually new respondents were just starting their pregnancy and were therefore invited to complete questionnaire 1 (till 34 wks of pregnancy). Women who were recruited nearer to the start and middle of the study had the opportunity to complete the second questionnaire as well when they were ≥35 weeks pregnant, as they were still within the time span of the study. Women who were recruited later in the study period, however, were not far enough in their pregnancies to be able to complete questionnaire 2 as well. This resulted in a relatively small percentage of women who completed both
questionnaires 1 and 2. This has been described under the heading Recruitment and study population (lines 67-73).

- page 7, what do you mean by highly educated?

Authors’ response: Highly educated means college, university or postgraduate education. This has been described in the methods under study measures (lines 92-95).

- It is hard at points of the results section to picture the true number of women you are mentioning as you tell us a lot of proportion information in close proximity.

Authors’ response: This information has been substituted by reporting the actual percentages and frequencies in the text which may make the findings easier to picture.

(Lines 196-199) Almost one third (29.6%, N=1667) of women were overweight or obese at the start of their pregnancy, 20.3% (1219) had some difficulty walking or were bedridden and 19.9% (1194) currently felt somewhat to very depressed or anxious. Having a chronic disease or handicap was reported by 10.1% (605) of women;

(Lines 231-237) More than half of all women (54.3%, N=1812) did not attend an antenatal class. Regarding nutrition, 18.6% (1116) of women reported not eating fresh vegetables daily, 14.7% (879) not eating fruit daily, 11.1% (666) not having breakfast daily and 3.2% (189) did not eat a hot meal daily. The pregnancy was unplanned for 17.6% (1057) of women. Smoking was reported by 9.2% (553) of women and passive smoking by 5.2% (285) of non-smoking women. Folic acid was not taken at all during the current pregnancy by 8.6% (515) of women and an alcoholic drink was consumed at least once by 11.0% (659) of pregnant women.

Discussion
- Reference needed on page 10, lines 268-270 regarding lower incomes of migrant groups

Authors’ response: Thank you for this observation, the following reference has been added:

(Reference no. 19) Renzaho, Oldroyd JC. Closing the gap in maternal and child health: a qualitative study examining health needs of migrant mothers in Dandenong, Victoria, Australia. Matern Child Health J, 2014

Discretionary revisions

Abstract
- first line ‘maternal’ and ‘pregnancy’ do not both need to be used.

Authors’ response: We agree: the term ‘maternal’ has been omitted from the first line.

- What are the rates of nausea, back pain and passive smoking?
**Authors’ response:** Due to the word limits of the abstract and wanting to restrict ourselves to focusing on the most important results, we chose not to present the odds ratios for nausea, back pain and passive smoking (and skipping breakfast daily, being obese, underweight, depressed or anxious) which all showed significant relationships but smaller effects. To clarify this a bit more, we have added the term *somewhat* to give the reader an idea of the magnitude of these relationships (lines 18 and 21).

- Explain what you mean by the classification ‘non-western women’?

**Authors’ response:** We believe this information is best given in the main body of the manuscript. We have now added a short description of what is considered ‘western’ and ‘non-western’ (lines 97-100):

Women were considered to be of western ethnicity if at least one of their parents was born in North America, Europe (except for Turkey), Oceania, Japan or Indonesia; women were considered to be of non-western ethnicity if at least one of their parents was born in Turkey, Africa, Asia (except for Japan and Indonesia) or South America.

**Keywords**

- Why is ‘midwifery’ featured?

**Authors’ response:** In the Netherlands, most pregnant women (84.9%) start their pregnancy under midwife-led care, so a large part of the social inequalities described occur within the context of midwifery and are relevant for midwives.

**Background**

- There are quite a few bits in the background that need to be reworded - e.g., line 33, line 35, line 38 (immigrant status rather than 'being an immigrant') and 45 (how does this 'facilitate research')?

**Authors’ response:** Being an immigrant has been changed to immigrant status.

Line 33 (now 32) has been reworded:

Suboptimal maternal health conditions (such as obesity, underweight, stress and depression [3-8]) and health behaviours (such as smoking, alcohol consumption and unhealthy nutrition [9-12]) have been associated with adverse pregnancy outcomes.

The sentence on facilitating research has been reworded (lines 50-51): This division into primary and secondary care makes it possible to focus research on a relatively similar population without serious medical complications at the start of pregnancy.

**Method**

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

Quality of written English: Needs some language corrections before being Published

**Authors’ response:** We hope with the adjustments we have made, we have now adequately addressed all language issues.

Statistical review: Yes, and I have assessed the statistics in my report.
Reviewer 2

Title: Socio-demographic inequalities across a range of health status indicators and health behaviours among pregnant women in prenatal primary care: a cross-sectional study

Version: 1
Date: 5 May 2015
Reviewer: Sian Smith

Reviewer's report:
This is a well written and interesting paper examining socioeconomic and ethnic differences in health status and health behaviours among pregnant women in primary care. I feel it will make an important contribution to the literature, and be of interest and relevance to the wide readership of BMC Pregnancy and Childbirth. Some sections require further clarification; I hope the following comments and suggestions will be useful.

The title and abstract accurately convey what has been found.

Introduction - The introduction was clear and well written, but could benefit from some additional information/explanation as to why this research is novel and what gap it aims to fill in the literature

Authors’ response: We thank the reviewer for the positive comments and feedback. We have reworded and added the following lines to the introduction to show why this study is needed and what it hopes to contribute (lines 34-44):

Suboptimal health conditions and behaviours are consistently found to be more prevalent among people from lower socio-economic status – for example as indicated by lower levels of education and immigrant status. Such differences are important determinants of health inequalities in general [13, 14] and during pregnancy [15, 16]. Additionally, pregnancy-related conditions such as nausea, and pelvic pain, generally considered normal in pregnancy, may increase depression in women [17, 18] and could potentially lead to isolation and decreased social support in some migrant groups [19]. Social inequalities in health conditions during pregnancy (such as nausea, back pains and pelvic pains) and health behaviours (such as skipping breakfast and dinners) have previously had little attention. In order to inform and to better tailor and target interventions to promote positive maternal health and pregnancy outcomes, it is important to gain a better insight into the differences in prevalence of suboptimal maternal health indicators and behaviours across social groups.

Methods - The methods were clearly described. The authors state that the data is derived from the DELIVER study. What does the DELIVER acronym stand for? It would be useful to know a little more about the aim of the DELIVER project. At times, I found it difficult to follow what measures were assessed in the two questionnaires and wondered if a flow diagram illustrating the overall study procedure (recruitment, data collection etc...) might help to clarify this. This figure could possibly replace the existing Figure 1.
Authors’ response: We thank the reviewer for the useful comments on clarifying the methods more. It is correct that DELIVER is an acronym. We have now explained this in the text:

DELIVER is an acronym for the Dutch terms Data Eerste LIjns VERloskunde, which is translated as Data Primary Care Midwifery (lines 60 & 61)

Table 1 shows which variables were measured in each questionnaire. Through an error of my own (first author), I had omitted this table in my first submission and sent it later; however, the reviewer may not have received this table. I hope you will find the information in table 1 clear enough, making it unnecessary to replace figure 1.

Just a minor comment, the authors could perhaps remind the reader of the time periods in which Questionnaire 1 and 2 were conducted throughout the methods.

Authors’ response: We agree that it may be difficult to remember when each questionnaire was completed during pregnancy, so in the study measures when referring to questionnaire 1 we added (before 35 weeks of pregnancy) and when referring to questionnaire 2 (between 35 weeks of pregnancy and birth). (lines 107, 125, 134, 148)

Results - The results were clearly written and interesting, with appropriate headings.

Authors’ response: Thank you for your positive feedback

Discussion/conclusion - The discussion and conclusion sections were balanced and adequately supported by the data. The discussion considers why socioeconomic and ethnic differences in health continue to exist among pregnant women. Possibly more discussion is important integrating the use of theory to explain socio-economic and ethnic differences. I also think the discussion would benefit from further discussion on how to tackle socio-economic and ethnic differences in pregnancy health (interventions that might be effective, how health professionals can better support women from lower education and ethnic minority groups during pregnancy). The limitations of the study are clearly stated.

Authors’ response: Thank you for your helpful feedback. To give more information about the persistence of inequality and possible implications, we have reworded or added the following lines to the discussion:

(lines 312-314) Awareness of social inequalities in health has been present for decades, and although efforts carried in the Netherlands have made progress in reducing the gap between social groups in general [13], our findings confirm that social inequalities in health continue to persist in pregnancy.

(lines 318-320) As pregnancy may be the only time that many women have regular contact with health care providers, such as midwives, this is an opportunity to help increase the quality of life for women and their families beyond the care of their pregnancies.

(lines 323-330) A greater understanding by prenatal health care providers of the non-medical risks of adverse pregnancy outcomes may benefit those social groups at greater risk. Continued training in cultural differences, assessing and responding to different levels of health literacy in clients, building empathic and trusting relationships, conveying to clients a
sense of personal control over their health, and keeping up-to-date with research on health and health promotion, may help to reduce health inequalities [44-47]. Additionally, increased strategies should be employed to target the social determinants of health inequality, such as forming stronger relationships with other relevant branches in housing, employment, social work and working in multidisciplinary teams with other health fields such as nutrition and physiotherapy [45, 46].

Minor comment
Reference 40 is not in English

Authors’ response: We thank the reviewer for the observant remark. The English translation of the title of that document has been added to reference 40 (reference 43 now) (A good beginning; safe care during pregnancy and birth), as well as to another Dutch reference: no. 27.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare that I have no competing interests