Author's response to reviews

Title: Associations between follow-up screening after gestational diabetes and early detection of diabetes - a register based study

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Author's response to reviews: see over
Dear Editor

Thank you for considering our paper and for the invitation to submit a revised version. We would also like to thank the reviewers for their extremely helpful comments.

In the revision of the paper we have considered the reviewers comments and made a strong effort to meet the recommendations and at the same time taken into account differences between the two reviewers’ comments. Special attention has been directed to the issue raised about;

*Major revision regarding references, emphasizing and clarification on arguments at key points in the manuscript and needs of language corrections.*

Further suggestions on improvement of the paper are however of course very welcome. Our detailed response is outlined below.

Yours sincerely

**Reviewer's report 1:**
**Title:** Associations between follow-up screening after gestational diabetes and early detection of diabetes - a register based study, **Version:**1 **Date:**17 April 2014

**Reviewer:** Seshiah V

- **Reviewer 1:** The aim of this article is pertinent but the manuscript runs into a number of pages. The manuscript if possible needs to be abridged without compromising, the information that would sustain the reader’s interest.

  **Our comment:** Thank you for your suggestion. We have tried to accommodate this throughout the manuscript. However reviewer 2 has recommended elaboration of certain issues and we have tried to accommodate this as well.

- **Reviewer 1:** Authors have convincingly established the lacuna in the postpartum follow up of GDM and complications that are likely to occur if diagnosis is delayed or not made in time.

  **Our comment:** We highly appreciate, at the reviewer finds our description of the problems regarding low participation in follow-up screening of satisfactory.
**Reviewer 1:** The conclusion needs to be written in simple sentences as I found it difficult to comprehend what the following sentence means “Women who did not attend follow-up screening had a lower risk of diabetes diagnosis or treatment and early detection of diabetes”.

**Our comment:** We agree with the comment and have rephrased the conclusion as follows:

Before:

Women who did not attend follow-up screening had a lower risk of diabetes diagnosis or treatment and early detection of diabetes

Revised sentence:

Women attending follow-up screening had a higher possibility of early detection of diabetes regarding both diagnosis and treatment than non-attending women.

We have made further changes in the conclusion to meet the reviewers point regarding simplicity. An example: In the relation to the sentence mentioned above it this has been clarified: The higher possibility of detection of diabetes among women attending follow-up screening reduces their risk of late complications.

**Reviewer 1:** Authors could have given suggestion how to improve the postpartum follow up of women who had GDM.

**Our comment:** We included the following text: Such efforts could include reminder systems, which have been shown to improve participating in follow-up screening significantly.

**Reviewer 1:** If a highly developed country like Denmark is facing the problem of deficiency in follow up, then what could be the situation in the rest of the world.

**Our comment:** Comment noted. To highlight the reviewers point, we have included the following text in the discussion: In low-income countries, women with pregnancy complicated by gestational diabetes face greater barriers in availability, affordability and access to follow-up screening.

**Reviewer 1:** Level of interest: An article of importance in its field Quality of written English: Needs some language corrections before being published. Statistical review: Yes, and I have assessed the statistics in my report. Declaration of competing interests: No

**Our comment:** Thank you for your acknowledgement of our manuscript and helpful suggestions. The paper will undergo additional language review before resubmission.

**Reviewer's report 2:**

Title: Associations between follow-up screening after gestational diabetes and early detection of diabetes - a register based study, Version:1 Date:12 May 2014

Reviewer: Charlotte Jeppesen
Reviewer 2: A very relevant and needed study. Research is indeed lacking studies as this with long term follow-up after gestational diabetes. This could and be stronger emphasized by the authors. It is a great strength of the manuscript.

Our comment: Thank you so much for your acknowledgement of the relevance of our study. To meet the comment we have revised the following text in the background section:

Before:

A better understanding of the association between screening after gestational diabetes and the subsequent risk of type 2 diabetes is necessary to determine the importance of the screening.

This following sentence has been added:

Studies regarding participating in follow-up screening in a European context such as Denmark are lacking which emphasizes the importance of this study.

Reviewer 2: Major revision regarding references. However, the article needs some further corrections and improvements; especially the sloppiness regarding the references leaves a bad impression of the writing. Please go through every reference to see if they are cited correct. I here provide some examples, not a complete list of reference mistakes. In general for the online references: insert hyperlinks for ALL internet reports ect. and write when they were cited. It is important since internet pages are under constant development. Another general comment: All non-English titles should be translated and written in (English title). Non-Danish readers are chanceless and are in an unfair situation by your Danish citations. More specific to the references: Ref 11. Something is wrong here. Where are page numbers, issue and volume? And it goes for ref 29 as well. Ref 3 looks strange too – what does the “2” stand for? Ref 4 to 6: These are reports....please provide further information such as links or publisher.

Our comment: We apologize for the imperfection of the references and have carried through a careful and critical revision of all references regarding to guidelines from BMC. Regarding internet-references these are still listed along with other references since we read the instructions for authors as requiring this.

The following is minor but very essential revision needed:

The text:

Reviewer 2: General comment: I would appreciate if the authors would provide further information on the registries they included. For non-Danish researchers it is unknown what registries are included and what kind of information every registry provides. Alternative, references for further description could be inserted such as the supplement in Scandinavian Journal of Public Health, which is cited.

Our comment: We acknowledge the reviewers point and would like to include more information. As the other reviewer has however recommended a shorting of the paper, we have slightly edited the text
and included references for further information, thus following the alternative suggested by the reviewer.

We have made the following changes:

Before:

However, the National Patient register enabled detailed information regarding hospital admissions in Denmark.

It has been added to the sentence:

... and further description of the register can be obtained from Lynge et al.

We have made similar references regarding the National health service register and the National prescription registry, when appropriate in the manuscript.

• **Reviewer 2:** The abstract: Please emphasize, that this study is only for a population living in the Region Nord. As it stands here you would think it is a national study.

  **Our comment:** We have added it in the abstract that the context of the study is the region of North Jutland.

Before:

This study investigated the extent of participation in follow-up screening and the possible consequences of nonattendance.

Revised sentence:

This study investigated the extent of participation in follow-up screening and the possible consequences of nonattendance in the North Denmark Region.

This has also been changed in the conclusion part of the abstract.

Before:

Participation in follow-up screening after gestational diabetes is low.

The revised sentence:

Participation in follow-up screening after gestational diabetes is low The North Denmark Region.

• **Reviewer 2:** Method part. You write that you adjust for income. Is the income variable included as a categorical variable (shown in table 1) or as a continuous variable? I would strongly recommend that you make these adjustments using income as continuous. Even though I agree with your choice of confounders, I still need some arguments for your choice.
Our comment: We appreciate this comment and apologize that it was not made entirely clear how income was used in models. We also agree that more information is preserved in variables when they are entered into models as continuous variables. For the current analyses income violated the linearity assumption and we could then have choose between various transformations or include income as a discrete variable. We have not tested transformations since this would make the interpretation difficult. We finally chose to include income as tertiles because substantial information is preserved and since the risk between highest and lowest tertile of income makes biological sense. We hope the journal can accept this choice.

Regarding argument for choice of confounders, we have now clarified this in our manuscript:

Before:

Tertiles were used for dividing data on age and income. To allow for differences in the risk of developing type 2 diabetes, three ethnicity categories were created: Caucasian (Danish/other), Asian/Middle Eastern, and African [6,23]. Income was consumer-indexed (2009), and determined on the basis of data for the year before birth, to ensure the best possible representativity of the women’s socioeconomic status.

After:

Clarification regarding income:

Income was included as a possible confounder since low income is associated with a higher prevalence of diabetes (RABI). Income was consumer-indexed (2009), and determined on the basis of data for the year before birth, to ensure the best possible representatively of the women’s socioeconomic status.

Clarification regarding age:

Age was also included as a possible confounder since older women has a higher risk of development of diabetes after gestational diabetes (NICE).

Clarification regarding ethnicity:

To allow for differences in the risk of developing type 2 diabetes, three ethnicity categories were created: Caucasian (Danish/other), Asian/Middle Eastern, and African (6,23). The categories were constructed because women with Asian, Middle Eastern and African ethnicity has different risk’s of developing both gestational diabetes and diabetes than Caucasian women (NICE, Launborg). The three variables was included to control for possible confounding regarding diabetes diagnosis or treatment.

Reviewer 2: Result part: Text for table 2, there are numbers in the text that I cannot find in the table. This is very confusing.

Out comment: We apologize for this inaccuracy and have remedied the table to include all numbers.
• **Reviewer 2:** Another confusing part is the part belonging to table 3 and 4. The description for the two tables is collapsed, but I would really prefer if you split it into two separate descriptions. Alternative, you have to be more careful in guiding your reader when to look at table 3 and when to look at table 4.

**Our comment:** We agree that this can cause confusion and we have met the reviewers comment and have separated the description of the results for table 3 and 4 (page 9)

• **Reviewer 2:** The figure text for figure 2. You have to revise this. As it stands now it does not make sense.

**Our comment:** The reviewers comment regarding correction of the text for figure 2 has been met:

Original text:

*Women appearing as missing were censured by either new pregnancy or birth, death or end of registration in the Danish National register (31.12.2011)

** Data on blood samples at biochemical departments are only available for women giving birth after 2006

Revised text:

*Women appearing as missing in the table were censured by either new pregnancy or birth and death

** Data on blood samples at biochemical departments are only available for women giving birth after 2006

Furthermore we have moved the text further down in the manuscript.

• **Reviewer 2:** Discussion part: In general for the discussion: A recent review came out in beginning of February this year focusing on barriers among women for gestational diabetes screening and barriers for type 2 diabetes postpartum screening. It would be relevant both at page 13 and 14 in the discussion. Full reference is given below.

Nielsen KK, Kapur A, Damm P, de Courten M, Bygbjerg IC. From screening to postpartum follow-up - the determinants and barriers for gestational diabetes mellitus (GDM) services, a systematic review. BMC Pregnancy Childbirth. 2014. 22;14:41.

**Our comment:** We have become aware of the recent review listed above after the submission of the manuscript and have sought to include this in our discussion, since we agree with the reviewer regarding it’s relevance.

As a consequence, we have edited a part of the discussion as follows:

Before:
While we found high participation rates in the first control after gestational diabetes, other studies have reported rates varying from 14 to 61% for this control.

After elaboration:

While we found high participation rates in the first control after gestational diabetes, other studies have reported rates varying from 14 to 61% for this control. A recent review also finds that screening for diabetes after gestational diabetes generally is low (Nielsen, Damm, reference number 34).

And

Before:

The decreasing participation in later controls may have been caused by a number of factors, such as the women’s lack of awareness of the risk of diabetes after gestational diabetes, the pressures related to caring for children, and general practitioner failure to perform the test or refer the women to biochemical departments [8-10,26]. The fragmentation of care may also account for low participation since this often leads to confusion about responsibility for follow-up screening [8-10,26].

After:

The low participation in follow-up screening can be related to healthcare providers, health systems and patient related barriers. Barriers related to healthcare systems concerns different practices between countries. Healthcare providers can be unaware of the guidelines and there can be lack of communication between healthcare providers. The patient related barriers are lack of time and concerns about future health (Nielsen, Damm reference number 34).

To meet the recommendation of the other reviewer, a general condensation of the discussion has also been carried out.

- **Reviewer 2:** The two lines just after ref 29 and before the heading “interpretation” starting with “A higher Proportion....” What are you basing this assumption on? Meijer et al? I would compare my study population with national statistics on socioeconomic status. And this issue needs further elaboration. What does it mean in relation to your results?

**Our comment:** We appreciate the suggestion and have accommodated it by comparing our study population with national statistics on socioeconomic status further more we have clarified the meaning of this in relation to our result.

Before:

A higher proportion of socioeconomically disadvantaged women may have led to an overestimated risk of diabetes related outcomes in relation to non-attendance in follow-up screening.

After:
A higher proportion of social economic disadvantageous women in our population may have led to an over estimated risk of diabetes related outcomes in relation to non-attendants since socioeconomic status is a determinant for diabetes. Results regarding the risk of diabetes can be higher in our study population, and the relatively high risk’s has to been interpreted with caution. However a previous mentioned meta-analysis finds the risk of diabetes among women with pregnancy complicated by gestational diabetes 7-fold higher compared to women with normoglycaemic pregnancies [1,2]. Only at the later controls our risk estimates exceeds the risk found in the meta-analysis.

**Reviewer 2:** Please elaborate on your point regarding fragmented care (down on page 14).

**Our comment:** We have elaborated the point as follows:

Before:

Fragmented care is another possible factor [8-10].

After:

Fragmented care is another possible factor since the care of women is organized between obstetricians and general practitioners. The fragmentation can contribute to lack of communication regarding the recommendations for follow-up screening and the women’s future risk between the providers.

**Reviewer 2:** Despite my critical comments, I find the manuscript very interesting. 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

**Our comment:** Thank you for your acknowledgement of our manuscript. We have tried to accommodate all your points raised and has found your suggestions on how to improve the manuscript extremely helpful.