Author’s response to reviews

Title: Misclassification of diagnosis and mistreatment of prolonged labour

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Author’s response to reviews: see over
Dear Editor

Thank you for your valuable comments on our paper MS: 2887050101098130 The paradox of classification of prolonged labour, Research article
We have revised the manuscript based on suggestions made by the referee The following revisions has been made to answer the comments.

Comments to reviewer 1, Isabella Neri.

The authors do not reported if the women received during labour unconventional treatment in order to reduce the length of labour and the pain intensity and if the one to one assistance was applied.

We did not study unconventional treatment nor one to one care. This will be a very interesting issue to investigate but in this study only standard care was included and that means that the midwives at the different hospitals (included in the study for recruitment of women) followed the guidelines of prolonged labour. Our aim was to explore the prevalence of prolonged labour and to compare birth outcome and women’s experiences of prolonged and no prolonged labour, so far we classified prolonged labour according to the code of diagnosis of prolonged labour noted in the medical records and by retrospective check of all partograms for the progress of labour when women were in active labour.

**page 5, Headings Method new Section Setting**

In the Method section we have inserted a new heading “Settings” and in order to clarify the context we have made a short description of the intrapartum care at the three different hospitals when women are in active labour. The section “Design” has been deleted. We also describe how midwives work independently when labour is normal and that the midwife collaborates with an obstetrician when complications occur.
Comments reviewer 2 Susan McDonald

There is reference to possible misuse of oxytocin in labour in the absence of prolonged labour. This needs to be explored more, as augmentation with oxytocin can be for a wide range of reasons other than correction of prolonged labour. So you would need to identify the reason for its use to be able to discuss its appropriate application or not.

We do study the prevalence of prolonged labour, the diagnosis and classification of prolonged labour and argue that the definition of prolonged labour varies. We also want to highlight the treatment of prolonged labour. In Sweden the guidelines for using oxytocin are labour inductions, augmentation of labour and are also given to all women after birth to prevent hemorrhage. Therefore we could not see in our study that the use of oxytocin was applied for other reasons than the correction of prolonged labour since women with inductions were excluded.

We carefully followed the guidelines and the definitions of prolonged labour according to international classification for diseases (ICD10). The strict inclusion criteria were chosen to avoid a misclassification of prolonged labour. If there had been some misclassification of prolonged labour we do not think it could flaw the result because women were recruited from three different hospitals covering the population of all pregnant Swedish speaking women during the year 2007-2008.

A fairly low percentages of women related their negative feelings toward the mode of birth or length of labour per se and the questionnaire does not investigate women's views of the use of oxytocin augmentation as a cause or contributor to a negative birth experience. Would you be able to identify from your 2 month survey, the actual reasons women gave as being the greatest contributing factor for their dissatisfaction?

We have done a binary logistic regression which presents the most important feelings and factors associated with a negative birth experience among women following a prolonged labour. The result of this analysis has been added to the result see (Table 5) and we also present the findings in the abstract.

Page 9 Paragraph 2

Table 5 presents the results from a multiple regression analysis of the most important feelings and factors associated with a negative birth experience among women following a prolonged labour (n=180). The analysis shows that women with a negative birth experience of prolonged labour reported more often that they experienced emergency cesarean. They agreed with the statements that it was a pain to give birth and that my birth experience made me decide not to have any more children.

Page 2 Abstract The factors that contributed most strongly to a negative birth experience in women with prolonged labour were: emergency caesarean section (OR 9.0 05% CI 1.2-3.0) and to totally agree with the following statements ‘It was a pain to give birth’ (OR 6.1, 95% CI 1.2–30.3) and ‘My birth experience made me decide not to have any more children’ (OR 41.3, 9 5% CI 4.9–349.6).
Also, as the survey was undertaken at 2 months post birth, did you ask women whether they had engaged in any debriefing, either formally or informally regarding their birth experiences and whether this may have affected their responses (more positively or negatively)?

We asked women if they had been engaged in debriefing regarding their birth experience. We did not present this result since there were no statistically differences between women following prolonged labour with a positive or a negative birth experience.

Quality of written English: Not suitable for publication unless extensively edited
We have used an online service Edit My English for proofreading http://www.editmyenglish.com done by professionals editors with good experience of academic and scientific writings.

Reviewer 3

1.1 It would seem to be sensible to reframe the question to be about the prevalence and consequences of the diagnosis of prolonged labour:

Page 2 Abstract and Page 5 last sentence before Heading Method
We have changed the aim to explore the prevalence and consequences of the diagnosis of prolonged labour and to compare birth outcome and women’s experiences of prolonged and no prolonged labour.

3.1 It is not clear what % of those recruited actually took part in the study, or if the final sample is representative of either this initial sample, or, indeed, of the local population (a statement is made to this effect in terms of the population, but no data are presented) – no info is given on the numbers recruited at the time of the scan, or the demographics of this sample.

Women were recruited during the year 2007-2008, from three different hospitals. The sample is representative of the population in terms of background characteristics as the numbers of women included in the sample cover the population of all pregnant Swedish speaking women in the region. We also know from national statistics that age, parity and education of the population in this regional sample are similar to national samples of the same kind of population in Sweden.

Page 5
In the Method section we have inserted a new heading “Settings” and in order to clarify the context we have made a short description of the intrapartum care at the three different hospitals when women are in active labour. The section “Design” has been deleted. We also describe how midwives work independently when labour is normal and that the midwife collaborates with an obstetrician when complications occur.

3.2 The numbers in the tables don’t always add up to 100% where it is implied that they should. It is not clear if this is just a transcription error, or if correcting these data would make a difference to the analysis. This is the case for the mode of birth data
for both groups, and for the ‘birth experience data for the ‘no diagnosis of prolonged labour’ group

We have made corrections in table 3 and 4, we have also inserted notes:
In Table 3, one note: b Number may not add to 100% due to missing internal values,
In Table 4, two notes: b Number may not add to 100% due to missing internal values and d Adjusted for number of children’.

3.3 It would be useful to know if women’s beliefs that their labour was prolonged always correlated with the official diagnosis. The % of women who had no diagnosis but still had oxytocin needs to be reported in the abstract as a headline finding. Indeed, this variation between clinical data, diagnosis, and treatment, and the associated strikingly large difference between intention to have more babies in the future are among the most interesting findings in the study, and more could be made of these findings.

We have revised the abstract

Page 2 Abstract
The majority of women with prolonged labour (93%) were treated with oxytocin augmentation. A striking finding was that 7 % of women following prolonged labour were not treated with oxytocin augmentation and nearly every third woman with no prolonged labour (28%) received oxytocin augmentation, (P <0.00).

4.1 The report of the demographics of the sample should go before the report of the findings

Page 7 last paragraph
We present now the demographics of the sample before the findings

4. 2 Outcomes - it might be useful to add an analysis if this is possible, looking at those with clinically prolonged labour who did or who did not perceive the labour as long/difficult - is it the actual length of labour or the associated interventions that women don’t like?

Table 2
We have added a new analysis of length and pain in women with and without diagnosis following a prolonged labour and with no prolonged labour (Table 2)

Page 8 paragraph 3
Length of labour and experience of pain are shown in Table 2 which includes two groups of women with prolonged labour, one with diagnoses of prolonged and the other group included women that had experienced a prolonged labour according to the partogram but they had no diagnoses of prolonged labour. Both groups of women following a prolonged labour reported longer births (measured in hours), and they themselves also viewed the length as prolonged and they experienced labour pain more negatively compared to women with no prolonged labour.
4.3 In the tables: the following data are presented as %, but the measure is a seven point scale – it is not clear what the % means in the table (though I think this is explained in the text):

Table 2. We have made a correction

Experienced labour length (and check spelling here)

The spelling has been corrected

4.4 For the following two items, the scores are statistically significant, but are they really clinically significant?
Pain intensity (1=No pain-7=Worst pain imaginable) 5.63 (1.25) 5.40 (1.24) 0.032,
Pain experience (1=Very negative-7=Very positive) 4.31 (1.58) 3.64 (1.52) 0.000

Table 2.
We have added a new analysis of length and pain in women following a prolonged labour with and without diagnosis and no prolonged labour (Table 2)
We only present result of the differences in pain experience and we have deleted the item intensity because there was no significant difference between the groups.

4.5 A birth weight of 2500-3500 gram was associated with less prolonged labour when adjusted for parity. > compared to what? Bigger babies? Smaller babies?
Also, I think the accurate phasing is ‘less likely than (xxx) to be associated with a diagnosis of prolonged labour’

Page 8, last paragraph, the sentence has been changed
Women who gave birth to babies with a birth weight 2500-3500 gram were less likely to have a prolonged labour compared to women who gave birth to babies between 3500-4500 gram. All analysis were adjusted for parity.

4.6 The text says that <<The major findings of this study were that more than every fifth woman was diagnosed with prolonged labour;>>.... but this isn’t reported in the abstract?

Information about prevalence had been added to the description of result in the abstract.

Page 2 Abstract.
The prevalence of prolonged labour with a diagnosis was (13%) and without diagnosis (8%). Every fifth woman experienced a prolonged labour.

4.7 The text says <<When divided by parity, 35.6% of primiparous women and 10.2% of multiparaous women had a prolonged labour, which is fairly similar to findings from a Danish prospective study of nulliparas, where 37% were diagnosed with prolonged labour [14] and from a Swedish study by Selin (2009) which found a prevalence of 33% in first-time mothers and 7% of women with previous children>>>.... but I don’t think either study is cited in the introduction, and if we already know this why do the current study?
We have inserted the studies in the background to describe that the prevalence varies among first-time mothers compared to mothers with previous children.

**Page 3, second paragraph last sentences**
In a Swedish study by Selin (2009), a prevalence of prolonged labour was 33% in first-time mothers and 7% in women with previous children and a Danish prospective study of nulliparas, 37% were diagnosed with prolonged labour.

We do also cite Kjaergaard and Selin in the discussion when comparing our result with other studies of prevalence of prolonged labour among first-time mothers.

**Page 10 first paragraph**
When divided by parity, 35.6% of primiparous women and 10.2% of multiparaous women had a prolonged labour, which is fairly similar prevalence that Kjaergaard (2009) reported in her study, where 37% of first-time mothers were diagnosed with prolonged labour and in the study by Selin (2009) the prevalence was 33% in first-time mothers and 7% in women with previous children.

4.8 In the discussion, there is the following text: Another explanation could be that women used an epidural to a high extent. A post hoc analysis, however, showed that in the ‘normal group’ 11.7% used an epidural without receiving any augmentation, 16.9% received augmentation without an epidural, and 10% in this group both had an epidural and received augmentation. This is data – it should be in the results and not in the discussion.

**Page 8, a new second paragraph has been inserted under heading result**
Generally women used an epidural to a high extent in both of the groups. A post hoc analysis, showed that in the group of no prolonged labour’ 11.7% used an epidural without receiving any augmentation, 16.9% received augmentation without an epidural, and 10% in this group both had an epidural and received augmentation.

We discuss this result; we have deleted the presentation of the result under the heading Discussion.

**Page 10 under Heading Discussion the second paragraph**
Another explanation could be that women used an epidural to a high extent also in the group of no prolonged labour as shown in a post hoc analysis. These findings suggest that women within the group of no prolonged are exposed to unnecessary interventions and treatments.

4.9 I think there is much more in the data than this paradox of under/over treatment, so I do wonder if this is the right title to capture the data fully?

We have changed the title.

**Page 1 Misclassification of diagnosis and mistreatment of prolonged labour**

4.10 Also, I think it is worth reframing the statement 'this is a common obstetric problem' to 'this is a common obstetric diagnosis' for the reasons stated above.
We have revised and clarified the data of the study

**Page 10-11**
When dealing with issues related to obstetric care, e.g. prolonged labour, which is a common obstetric diagnosis, women’s feelings and experiences must be taken into account, as it was shown that these more ‘soft variables’ had a strong impact on women’s experiences of the length labour and emergency cesarean as well as their future reproduction two months after birth.

4.11 The really interesting and meaningful findings in the data are a) that so many women even with no diagnosis of prolonged labor were given oxytocin – why? And 2) that women with a diagnosis of prolonged labour are far less likely to plan a future baby. These are hardly touched on, though, in the abstract and the discussion. I’m not clear why this is underemphasized, when the far less interesting and probably far less clinically significant data on labor pain is highly trailed?

Under Heading Discussion, we have added to the major findings the following paragraph to clarify the result of the study

**Page 9**
There was also a mistreatment of oxytocin augmentation among the groups. Approximately every third women in the normal group received oxytocin. For women belonging to the prolonged labour group 7% did not receive oxytocin for labour augmentation. Women with prolonged labour consisted of more primiparae and had a worse labour outcome and less positive experiences of birth. The consequences of their negative birth experiences were two months after birth that they had negative attitude towards having more children which reflects their responses to the statement that their birth experience had made them to decide not to have any more children.

4.12 Given that there are antenatal data, are there any data on initial number of children desired, to see if intentions for future pregnancy is a confounder, or a true outcome?

No we do not have any such data on number of children desired, we asked participants how many children they had when they responded to questionnaire two months after the given birth.

7.1 No, as noted above. It is not clear why the paper presents a paradox, as suggested in the title. What is particularly paradoxical about the findings, as presented?

The title has been chaged

**Page 1** Misclassification of diagnosis and mistreatment of prolonged labour

7.3 It is interesting that half of the women with diagnosis of prolonged labour didn’t see the labour as complicated and 20% without this diagnosis did see their labour as complicated – might this be to do with very short labours? It would be very
interesting to look at this aspect, which is almost always overlooked – the assumption seems to be that labour can never be too short, which is very clearly not the case – women with very short labours can be deeply traumatised by the intensity of the pain in this situation.

This is an interesting issue and could be an aim for another project; in this study we only have scanned birth records for defining prolonged labour according to ICD 10. Our data illuminates the differences (measured in hours) between prolonged labour with and without diagnosis and no prolonged labour, see Table 2.

7.4 In the abstract, if 6% of primiparous women in Sweden have prolonged labour and 14% of all women have it, this implies that there is a higher diagnosis of prolonged labour in multips than primips. Is this really true? These data are contradicted in other parts of the paper, and the findings of the study are very different from these rates. It would be helpful for these differences/discrepancies to be reflected on in the discussion.

That is written under the Heading Background. We thought that this was interesting to present, the variations of proportions in the prevalence of prolonged labour. We have inserted a short reflection why the proportion of prevalence may differ in the Swedish national statistics

We have added to the second paragraph

Page 3

The different proportion of prevalence among first-time mothers and all Swedish women giving birth may not reflect the actual proportion of prevalence of prolonged labour but it may indicate that the codes of diagnosis and the prevalences of prolonged labour can vary in the different regions in Sweden.

7.5 The text in the results section in the abstracts suggests that nearly 100% of women in the study had a prolonged labour – I think this is meant to say that 9x% of women with a prolonged labour had oxytocin 7.5 The text in the results section in the abstracts suggests that nearly 100% of women in the study had a prolonged labour – I think this is meant to say that 9x% of women with a prolonged labour had oxytocin

We have revised the sentences:

Abstract, Resul

The majority of women with prolonged labour (93%) were treated with oxytocin augmentation. A striking finding was that 7% of women following prolonged labour were not treated with oxytocin augmentation and nearly every third women with no prolonged labour (28%) received oxytocin augmentation, (P <0.00).

REVISIONS REQUIRED (compulsory)

Item 1-6 has been taken into account and changes have been done except for item 3
3. Change ‘prolonged labour’ to ‘diagnosis of prolonged labour’ in the text, and for the column headings of the tables (‘diagnosis of prolonged labour’ versus ‘no diagnosis of prolonged labour’)

It is a critical issue to make the change from prolonged labour to diagnosis of prolonged labour, since we have merged women with and without diagnosis of prolonged labour in the same group. In figure 1, we present the different groups of women, so it would be wrong to change the text in the tables; prolonged labour to diagnosis of prolonged labour. Instead we have added a note under the tables 1 and 3-5 an explanation that is ‘Prolonged labour includes women who experienced a prolonged labour with and without diagnosis’.

**Quality of written English:** Needs some language corrections before being published

We have used an online service Edit My English for proofreading [http://www.editmyenglish.com](http://www.editmyenglish.com) / done by professionals editors with good experience of academic and scientific writings.