Author's response to reviews

Title: Knowledge and acceptability of Chlamydia trachomatis screening among pregnant women and their partners; a cross-sectional study

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Dear Editor,

Thank you very much for the expert review of our manuscript entitled ‘Knowledge and acceptability of Chlamydia trachomatis screening among pregnant women and their partners; a cross-sectional study’ (Manuscript ID: MS: 5718974871254043).

We have used the referees’ comments to further improve our paper and we are pleased to hereby send you our revised manuscript. We were able to address all comments and hope that the revised paper is acceptable now for publication in your journal.

Hereafter we provide more detailed information on how we addressed the comments made by the two referees. We have copied the referees’ comments and provide our reaction after each comment in italics.

Referee 1

The paper is relevant and well conducted. Chlamydia in pregnant women is a significant concern to suggest screening of all pregnant women rather than women deemed ‘at risk’. I only had a few points of clarification.

We thank the reviewer for her observations and comments.

1. There were points in the paper where it wasn't clear which population was
being discussed – the women who were pregnant and the total population, make sure this is clear

We made the differences between the general population and pregnant women more clear throughout the manuscript.

In the Introduction section of the manuscript (page 6, line 86 to 90):

“High chlamydia prevalence rates have been described among pregnant women varying from 3.2% to 5.9%, with even higher rates among pregnant teenagers (14%)[1, 6-9]. In general, approximately 80% of infected women and 50% of infected men are asymptomatic or minimally symptomatic.”

We removed the word “pregnant” in a sentence in the introduction section of the manuscript (page 6, line 106 to 108):

“Only few studied the knowledge of chlamydia, attitudes towards chlamydia infection screening and experiences of being offered a chlamydia test among pregnant and non-pregnant women, and their partners [20, 21].”

In the Discussion section of the manuscript we improved a sentence to make it more clear in which population we are referring to (page 15, line 309 to 313):

“These facts may have led to an overestimation of the knowledge scores and an overoptimistic view on screening for chlamydia in pregnancy and explain the differences with other studies among pregnant women and non-pregnant young women in which lower awareness levels and knowledge scores for chlamydia infection were found[20, 27].”

In addition, we added information on the population in the Discussion section of the manuscript as the sentence referred to the Australian study among pregnant women and to an Australian study among non-pregnant women (page 15, line 318 to 321):

“However, studies from Australia showed that chlamydia infected women, both pregnant and non-pregnant, did not differ from uninfected women concerning their attitudes towards testing, and most of them felt relieved and grateful that chlamydia was diagnosed and treated [20, 28].”

And finally we added a few words (page 15 line 331 to page 16 line 333):

“These findings are indirectly comparable with the differential uptake of chlamydia screening programs in the general population, as these subgroups often have lower participation rates[29].”

2. In the abstract, why do the participants indicate that 54% of pregnant women should be tested, but 78% of partners – this is interesting – maybe I am misreading but why would this be?

These results are derived from two different questions. The first question was whether or not participants thought pregnant women should be tested for chlamydia in pregnancy. The majority of pregnant women and their partners
indicated that all pregnant women should be tested for chlamydia infection during pregnancy (54%). A second question was about whether or not respondents thought that the partner of the pregnant women as well as the woman should be tested for chlamydia during her pregnancy. On this question 78% of the pregnant women and partners participating in this study indicated that partners, together with their pregnant partner, should be tested as well.

To clarify this comment in the manuscript, we changed the Abstract section (page 4, line 72 to 74):

“In total, 78% of respondents indicated that when pregnant women are tested for chlamydia, their partners should also be tested; 54% believed that all women should routinely be tested”

In addition, we changed a sentence in the Methods section of the manuscript (page 9, line 178 to 181):

“In addition, we asked pregnant women and partners whether or not they thought partners of pregnant women should also be tested for chlamydia during antenatal care if the pregnant woman was tested.”

Finally, we clarified this comment in the Result section of the manuscript (page 13, line 270 to 273);

“In addition, 512 (78.3%) of the participants indicated that the partners should also be tested for chlamydia during pregnancy if the pregnant women was tested; 48 (7.3%) indicated it was not necessary to test also the partner, and 94 (14.4%) did not have an opinion about whether partners of pregnant women should be tested.”

3. What was the participation rate? How many women were invited into the study and refused? Also, considering it as part of the DHC guidelines to test women ‘at high risk’ for chlamydia do you think that you missed some of these women who might have been tested elsewhere already? For example if they had been a contact of someone with chlamydia or had symptoms etc? This might change your outcomes slightly although your prevalence is consistent with other studies.

As we described in the Discussion section of the manuscript (page 15, line 316 to 318), we, unfortunately, are not able to provide a participation rate, as midwives did not record the numbers of refusals for both pregnant women and their partners. In addition, we do not know if midwives invited all eligible pregnant women and their partners to participate in this study.

Furthermore, it may be possible that some pregnant women were tested elsewhere for chlamydia prior this study, which may have influenced their participation, and for participants, their answers to the questions. However, we assume that the latter number is very limited.

4. In the Discussion, two different Australian studies demonstrated that women were relieved and grateful that chlamydia was diagnosed and treated – one study was in pregnant women [ref 20] and one in young women [ref 28].
“As described above at the first comment, we added information about the study populations referred to in the references.

5. Slight typos:

a. age has been categorized #20 then 20-25 years old – these are not mutually exclusive

We changed this typo in the Method section of the manuscript (page 8, line 148 to 150):

“Age was defined as the age at enrolment and categorized into three groups for women: #20 years, 21-25 years, 26-30 years. For partners we used the same age groups as well as an additional group of #31 years.”

b. line 343 ‘ti’ is meant to read ‘to’

We corrected this sentence accordingly (page 16, line 345 to 347):

“Partners are often seen as a psychosocial support for the pregnant woman, but the biological health risks of transmitting an STI to the women and their unborn offspring are usually neglected[30].”

c. lines 362 and 363 should read ‘… as the infection causes symptoms in only 20% of women…’

“Hence, many cases of chlamydia remain undetected and untreated, as chlamydial infection causes symptoms in only 20% of women[2].”

d. use the word chlamydia consistently – CT and Chlamydia are also used in the text

We changed the words “CT” and “Chlamydia” throughout the manuscript into “chlamydia”, or where appropriate, into Chlamydia trachomatis.

Page 11, line 223 to 225:

“Vaginal swabs and urine samples were available from 627 participants (94.3%), of which 14 (2.2%) tested positive for chlamydia; seven women (1.9%) and seven partners (2.6%).”

Page 17, line 377 to 379:

“Because chlamydia can be easily treated, such a program would lower transmission of chlamydia, maternal disease, adverse pregnancy outcomes and neonatal disease.”

Page 18, line 388 to 389:

“SAM analysed the C. trachomatis samples.”

Page 18, line 395 to 396:

“We thank Roel Heijmans (technician, Laboratory of Immunogenetics, VUmc,
Amsterdam, the Netherlands) for C. trachomatis detection.”

Referee 2
This is an interesting study on a relevant topic. I agree with the authors that pregnant women are a good target group for Chlamydia trachomatis screening and that primary midwifery care practices are a good setting to offer the Chlamydia tests. This can be of help in order to control the spread and adverse sequel of the disease.

We thank the reviewer for his observations and comments.

Major compulsory revisions
1. As the authors point out in their Discussion, selection bias could well have been presented in this study. One point that is not addressed that could point to a selected group, is the lower chlamydia prevalence among the pregnant women (1.9%) in comparison with previous studies, such as the ones given in the Background section (range 3.2% to 5.9%, line 87). This point should be added to the Discussion.

We have added a sentence in the Discussion section of the manuscript about the fact that we found lower chlamydia prevalence rates in pregnant women compared to previous studies on this topic (page 15, line 313 to 315):

“In addition, our respondents were higher educated than the general Dutch population. This may also explain why we found lower prevalence rates of chlamydia in pregnant women compared with previous studies.”

2. I am wondering whether the questionnaire used in this study has been validated. Have you performed a pilot study prior to this study? Could you say anything about the validity and reproducibility?

We used questions that have been used in previous studies, but to our knowledge they have not been validated. We did conduct a small pilot study in order to determine the acceptance of the questionnaire. We added a sentence in the Methods section of the manuscript that a small pilot study was conducted prior the main study (page 8, line 137 to 143):

“The questionnaire was developed to obtain data on demographic characteristics, knowledge of the infection, and attitudes towards testing for chlamydia in antenatal care. Questions were based on previous studies and the literature[8, 19, 22-24]. Questionnaires were provided with a prepaid return envelope. The informed consent forms and questionnaires were provided with an unique anonymized identification number. We conducted a small pilot study and confirmed the acceptance of this relatively personal questionnaire among women and their partners.”

3. In the statistical tests performed, no adjustments have been made for other factors, like age, educational level and ethnical origin, in which the two groups compared could differ. Is there a reason why this has not been done?
The aim of our study was primarily to describe the knowledge and attitudes of pregnant women and their partners about chlamydia and not to explain possible differences between these two groups. We therefore limited ourselves to bivariate analyses. In addition we do not expect that the differences between the pregnant women and their partners will change substantially when conducting a multivariate analysis, since pregnant women and their partners will not differ a lot with regards to their characteristics: they often will be of similar age, educational level and ethnic origin.

4. Effect sizes (for example odds ratio’s) are more helpful to interpret results than P values. If it is possible, I would prefer that the effect sizes can be included, where possible.

Our data on the knowledge scores was not normally distributed, and because we did not use a validated questionnaire, we found ourselves unable to dichotomize the outcome into two groups (knowledge/no knowledge). Therefore, we used the non-parametric Mann-Whitney U test and the Kruskal-Wallis test to compare the different subgroups. In addition, non-parametric tests are based on ranks rather than raw scores, and therefore one cannot interpret the effect sizes. This is the reason why we present the results of the descriptive analysis.

Minor Essential Revisions

5. The abstract gives a chlamydia prevalence of 2.2% among the pregnant women (line 68) and in the Result section a prevalence of 1.9% is stated (line 221). This discrepancy should be resolved.

We changed this discrepancy in the Abstract section of the manuscript (page 4, line 66 to 67):

“In total, 383 pregnant women and 282 partners participated in the study of whom 1.9% women and 2.6% partners tested chlamydia positive.”

6. Although the comparisons are being given in Table 1, I think it would be helpful to state the effect sizes in the text in lines 235-237.

See the description described above at the fourth comment.

7. I am not surprised that a very high percentage (92.8%) of the participating pregnant women and their partners had heard about chlamydia before they participated in this study and knew that the infection was an STI (lines 226-227). The authors give one reason in the Discussion: the possibility: the possibility to search the Internet for correct answers (lines 309-311). Another reason could be in the way the question was asked: the answer was already included. I wonder whether such a question accurately investigates the awareness about chlamydia being a STI. This might be the reason for the discrepancy with the results from the Australian study, mentioned in the Discussion (lines 324-325). Perhaps the authors can comment on this.

We derived this question from the Australian questionnaire. However, we agree
that we can't be sure if the awareness levels are actually as high as we measured. Therefore, we added a sentence in the Discussion section of the manuscript (page 15, line 324 - 238):

“The majority of the pregnant women and their partners included in this study were aware about chlamydia being an STI, unlike the study among pregnant women in Australia[20]. Again, these results may be an overestimation of the actual level of awareness among pregnant women and their partners, as the correct answer was given as one of the answer options.”

8. ‘…it may be necessary to test all pregnant women in the Netherlands for chlamydia, and…’ (lines 349-350). In the previous sentence it is stated that a pregnant women can be infected by her partner during pregnancy. For this reason, isn’t it recommendable that partners should be tested too?

We added a sentence in the Discussion section of the manuscript about the recommendation to test partners of women as well during pregnancy (page 16, line 353 to 356):

“Midwives in the Netherlands provide only care to pregnant women and not to their partners. However, women and partners showed positive attitudes towards partner testing during pregnancy, which may offer an opportunity to add this screening to the midwifery scope of practice or to arrange for testing by a general practitioner or an STI clinic.”

Discretionary Revisions
9. ‘for also partners’ in line 146 should be rephrased.

We rephrased this sentence accordingly (page 8, line 148 to 150):

“Age was defined as the age at enrolment and categorized into three groups for women: #20 years, 21-25 years, 26-30 years. For partners we used the same age groups as well as an additional group of #31 years.”

10. What is meant by ‘five did not have a unique participation code’ (lines 211-212)?

All participants received an unique identification number in order to link the informed consent form with the questionnaire and the chlamydia test results. To clarify this in the manuscript we added two sentences in the Method section of the manuscript (page 8 line 14 to 141, and page 10 line 198 to 199):

“The informed consent forms and questionnaires were provided with an unique anonymized identification number.”

“Data from the informed consent forms and the questionnaires were linked with chlamydia test results using anonymized identification numbers.”

11. What could be the reason that compared to the partners, pregnant women indicated more often that testing partners for chlamydia during pregnancy was
not necessary (lines 270-272)?

We added a sentence about a possible explanation for this result in the Discussion section of the manuscript (page 16, line 341 to 345):

“These results are comparable with a study from Sweden in which most of the interviewed men showed positive attitudes towards testing for HIV and chlamydia during antenatal care and that this would make them feel more involved in the pregnancy[30]. This may also explain that partners indicated more often than pregnant women that testing the partners for chlamydia during pregnancy was necessary.”

12. ‘ti’ in line 343 should be corrected to ‘to’ and, in the same line, ‘babay’ should be corrected to ‘baby’

We corrected this sentence accordingly (page 16, line 345 to 347):

“Partners are often seen as a psychosocial support for the pregnant woman, but the biological health risks of transmitting an STI to the women and their unborn offspring are usually neglected[30].”

13. Chlamydia has not been abbreviated to CT in the manuscript, but is given as CT in line 374. In the rest of the manuscript the term ‘chlamydia’ has been used, so I would do the same here.

As described above at comment 5d of the first referee, we changed this throughout the manuscript.

In addition to the above, we modified the conclusion section of our manuscript, which is why the Abstract, Discussion and Conclusion section are slightly changed.

Abstract (page 4, line 78 to 80):

“Conclusion: Pregnant women and their partners were knowledgeable about chlamydial infection, found testing, both pregnant women and their partners, for chlamydia acceptable and not stigmatizing.”

Discussion (page 14, line 289 to 290):

“This study shows that pregnant women and their partners think that testing women for chlamydia during antenatal care is acceptable and not stigmatizing.”

Conclusion (page 17, line 374 to 379):

“This study showed that pregnant women and their partners were knowledgeable about chlamydia infection and that testing was highly acceptable and not stigmatizing. These results provide a good basis for introducing a chlamydia screening programme during pregnancy in the Netherlands. Since chlamydia can be easily treated, such program would lower transmission of chlamydia, maternal disease, adverse pregnancy outcomes and neonatal disease.”
Furthermore, we made some textual changes throughout the manuscript, and presented the p-values with 2-decimals instead of three.

Sincerely yours,

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