

PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	Knowledge, Attitude, and Current Practice of Pregnant Women towards Group B Streptococcus Screening: A Cross Sectional Study, Al-Madinah, Saudi Arabia
AUTHORS	Alshengeti, Amer; Alharbi, Amjad; Alraddadi, Shahad; Alawfi, Abdulsalam; Aljohani, Bushra

VERSION 1 – REVIEW

REVIEWER	Helen Bedford UCL Great Ormond Street Institute of Child Health
REVIEW RETURNED	23-Jul-2019

GENERAL COMMENTS	<p>As outlined the methods section requires more detail a suggested reference is included study limitations would include an understanding of whether women were provided with information about the dis-benefits of screening for GBS as otherwise they cannot make a fully informed decision about screening strategies document needs careful review for grammar</p> <p>Knowledge, Attitude, and Current Practice of Pregnant Women towards Group B Streptococcus Screening: A Cross Sectional Study</p> <p>An important component of developing policy regarding issues such as screening is to determine views of the public. With the aim of investigating pregnant women's attitudes to and knowledge of screening for Group B streptococcus (GBS) in pregnancy, this study was conducted in one Saudi Arabian hospital. Currently there are no national guidelines for GBS screening in Saudi Arabia.</p> <p>Using a questionnaire used in a previous US study published in 2005, participants were interviewed and their knowledge level assessed. In addition universal and risk based screening strategies were explained to the participants and their attitude to these assessed. Knowledge and awareness of GBS and of GBS screening were found to be poor but most women would prefer universal screening.</p> <p>Methods</p>
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	<p>P4, line 29: How many women were approached and declined to take part?</p> <p>Generally the methods need more detail. For example, how, when and where were the women approached and invited to take part? Were they given any written/verbal information explaining the study and if so what were they told? Where were the interviews conducted? How were the data dealt with?</p> <p>Patient and Public Involvement statement</p> <p>P4, line 36-40: the authors report ethics approval. This is not what is meant by the patient and public involvement statement, please see BMJ Open guidance for authors on the issues that should be addressed here.</p> <p>Study Questionnaire</p> <p>P4, line 45: The authors state that 'each participant was interviewed by one research team'. Does this mean one of the members of the research team?</p> <p>P5, line 16: this would be better phrased 'being screened for GBS after being requested'</p> <p>Results</p> <p>Table 3</p> <p>Page 8, lines 47-50: this question would have benefitted from including a 'don't know' option as some women may not know whether they have had GBS</p> <p>Page 9, line 21-24: 48 women reported they had been requested to have GBS screening. This number should be the denominator for the subsequent questions as they only apply to the women who were requested to have screening.</p> <p>No information is provided on the reasons these 48 women were requested to have screening. For example was this on the basis of risk factors or was it simply that their practitioner advised all patients to have this? There is a difference between screening (or more accurately described here - testing) being indicated and being suggested.</p> <p>General comments</p> <p>Is it not uncommon to find that knowledge about a variety of conditions is sub-optimal among the public. In this study it was reported that the majority of pregnant women lacked knowledge about the GBS infection and about GBS screening. The authors may find it interesting to compare their findings with regard to awareness of GBS with studies that have looked at acceptability of maternal GBS vaccination as these too include an assessment of</p>
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	<p>women's knowledge of the condition (e.g McQuaid, F., Jones, C., Stevens, Z., Plumb, J., Hughes, R., Bedford, H., Voysey, M., Heath, P.T. and Snape, M.D., 2016. Factors influencing women's attitudes towards antenatal vaccines, group B Streptococcus and clinical trial participation in pregnancy: an online survey. <i>BMJ open</i>, 6(4), p.e010790).</p> <p>One important aspect that was not mentioned in this study is whether when asking participants for their view on different screening strategies, the women were provided with information on the potential dis-benefits of screening particularly regarding false positives and false negatives and the risks of over treating. This is an important consideration that should have been included to give the participants the full picture of both advantages and disadvantages of screening.</p>
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REVIEWER	Peng-Hui Wang Taipei Veterans General Hospital, Department of Obstetrics and Gynecology
REVIEW RETURNED	09-Aug-2019

GENERAL COMMENTS	<p>Manuscript No. bmjopen-2019-032487 entitled "Knowledge, Attitude, and Current Practice of Pregnant Women towards Group B Streptococcus Screening: A Cross Sectional Study".</p> <p>This was a cross section study to evaluate the knowledge, attitude, and current practice of pregnant women towards to Group B Streptococcus (GBS) screening in one of university associated hospital of Saudi Arabia. The results showed that Saudi Arabia pregnant women had little knowledge of GBS and in addition, of most importance, many women did not be informed about GBS screening and the potential risk. Some comments are shown below.</p> <ol style="list-style-type: none"> 1. The background of the patients (including social-economic status) should be included in much more detail. The standard prenatal care guided by government had better be introduced. Since the authors had mentioned the limitation of the current study, including their study cannot reflect others in Saudi Arabia, the general policy of the prenatal evaluation should be introduced to provide a better understanding why these pregnant women in this country have so limited knowledge in GBS. 2. The authors wrote that the study is one of the first studies conducted to assess women knowledge, attitude, and current practice about GBS screening in the Saudi Arabia. What does "one of the first studies" mean? What does "clinical practice" mean? Without clarification, I am wondering why the authors could make such a conclusion. 3. In the introduction section, the authors should clarify the following sentence they wrote -- There are no national guidelines on the optimal strategy for GBS screening during pregnancy (i.e. universal culture-based vs. risk-based) in Saudi Arabia. What does "optimal strategy for GBS screening" mean? Is there any manuscript about maternal GBS screening in Saudi Arabia available to show the general data about the GBS screening rate in Saudi Arabia? GBS screening rate in general.
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	<p>4. Who are in charge of pregnant women' care in the antenatal clinics at the authors' hospital? Midwife or doctor? Without basic understanding the strategy or routine of prenatal care in Saudi Arabia, it is hard to understand why the authors performed this study.</p> <p>5. In the table 3, the question " Are you aware of the GBS" and the question "have you ever had GBS?" seemed to be conflicted. If the pregnant women did not know "GBS", they cannot respond to the latter question. It is very interesting to find that 86.7% of studied subjects did not receive any request to undergo GBS screening. Is it possible to say the "medical staffs" are not aware of GBS? If majority of medical staff are not familiar with GBS, it is reasonable to get the little knowledge of GBS in pregnant women. If the authors would like to emphasize the importance of GBS screening, why the authors did not study "these medical staff" to care pregnant women? Based on the authors' reference 16, GBS screening had been done as early as 1991 and before. It is hard to believe that "medical staffs" are not familiar with GBS screening.</p> <p>6. In general, this is a hard work, and the study might be informative. However, the background data for medical staffs" should be introduced at the beginning. Expensive, self pay, absence of facility to perform GBS screening in clinics, hospital or other reason.</p>
REVIEWER	<p>Jane Plumb Group B Strep support</p> <p>I am chief executive for Group B Strep Support, which is the only UK charity dedicated to working to stop group B Strep infection in babies, Group B Strep Support's goal is the eradication of the disease. We support families affected by the devastating consequences of group B Strep infection and campaign for improvements in the prevention and treatment of group B Strep infections in babies. We actively support group B Strep research. I regularly speak for the charity, stating our position that better prevention of GBS infection in babies is needed in the UK, that all pregnant women should be informed about GBS and offered the option of testing with an appropriate test in pregnancy, and supporting expectant mothers being able to make an informed decision about what is right for them and their baby.</p> <p>I'm not sure if this is a conflict, but I'm mentioning it anyway.</p>
REVIEW RETURNED	24-Sep-2019
GENERAL COMMENTS	<p>This is an interesting article and sheds light on the level of awareness and knowledge about group B Strep in one hospital in Saudi Arabia.</p> <p>There are areas where the text is unclear. It would be helpful for the authors to define the general term 'screening' and also specific terms for risk-based and test-based strategies, and then stick to them, rather than using a mixture, or introducing new terms.</p> <p>Suggestion:</p> <ul style="list-style-type: none"> a) Screening strategy: the overall strategy to prevent group B Strep infection in neonates b) Test-based approach: using antenatal tests to identify women whose babies are at raised risk c) Risk-based approach: using risk actors to identify women whose babies are at raised risk <p>Abstract Page 2 Line 8 – "universal" is not explained so, until we read further, we don't know how it is different from risk-based screening.</p>

	<p>Page 2 Line 31 – it's not clear what universal GBS screening strategy means – suggest maybe a test-based strategy</p> <p>Page 2 Line 36 – it's not crystal clear what universal screening strategy means – suggest maybe a test-based strategy</p> <p>Introduction</p> <p>Page 3 Line 36 – it's not immediately clear which of a-c is meant here</p> <p>Page 3 Line 43 – would incidental finding of GBS during the current pregnancy also result in the offer IAP?</p> <p>Page 3 Line 46 – needs to clarify where these data are from and be referenced.</p> <p>Page 4 Line 3-4 – It would be helpful for a brief explanation about how healthcare is structured in Saudi Arabia. It's not clear whether any estimates of how representative the data might be for the whole of Saudi Arabia have been made. A statement around this would be helpful.</p> <p>Methods</p> <p>Study Participants</p> <p>Page 4 Line 29 – It would be helpful to know roughly what percentage of women were excluded for not speaking English or Arabic so we could better understand how representative the sample is.</p> <p>Study Questionnaire</p> <p>Page 5 Line 14 – Not sure what is meant by GBS screening here. Testing?</p> <p>RESULTS</p> <p>Page 6 Line 9-11 – Not clear what the 25th, 50th and 75th percentile scores exactly relate to.</p> <p>Table 2</p> <p>Page 8 Line 10 – We need the full question here</p> <p>Table 3</p> <p>Page 9 Line 24 – What is this relating to? Risk-based or test-based screening?</p> <p>Page 9 Line 30 – What is this relating to? Risk-based or test-based screening?</p> <p>Page 9 Line 35-8 – What is this relating to? Risk-based or test-based screening?</p> <p>Page 9 Line 35-8 – It would be interesting to see the results for those who had been requested to have testing and by whom, to see whether the requester made a difference as to whether the testing was undertaken or not.</p> <p>Page 9 Line 40-49 – It would be interesting to see the results for those who had been tested, rather than the full sample.</p> <p>Page 9 Line 50-53 – What is this relating to? Risk-based or test-based screening?</p> <p>Page 9 Line 50-53 – If this relates to testing, rather than the risk-based approach, it would be interesting to see the results for those who had been tested, rather than the full sample.</p> <p>Table 4</p> <p>Page 10 Line 19 – Please define somewhere what B., S.E. and Wald stand for.</p> <p>Page 10/11 Lines 59-8 – Not sure what this relates to at all.</p> <p>Discussion</p> <p>Page 11 – It's unclear a number of times over when screening overall is meant, or risk-based or test-based</p> <p>Page 11 Line 24 – probably deficit not defect</p> <p>Page 11 Line 29 – probably cared for not followed by</p> <p>Page 11 Line 36 – probably know not agree</p> <p>Page 12 Line 14 – moral? Not sure what is meant here</p> <p>Conclusion</p>
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	<p>Page 12 – Again, clarity over when screening overall is meant, or risk-based or test-based</p> <p>Page 12 Line 26 – is it possible to see what the preferences were for women before information was given to them about GBS and after?</p> <p>Key messages</p> <p>Page 13 – Again, clarity over when screening overall is meant, or risk-based or test-based</p>
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REVIEWER	Edwin Amalraj University of Aberdeen, Medical Statistics, Dept. of Public Health
REVIEW RETURNED	11-Oct-2019

GENERAL COMMENTS	<p>Thank you very much for asking me to review a manuscript entitled on ‘ Knowledge , Attitude, and current practice of pregnant women towards group B Streptococcus Screening : A cross sectional Study’ with an objective find out factors associated with knowledge score related to GBS screening more than 75th percentile. I believe GBS is prevalent in Saudi and such study is needed to control & prevent. However, I have a few statistical points (below) and concern to be addressed by authors before deciding to consider for publication.</p> <p>The summary measures for continuous variables depend on the distribution of the variables. It is advisable to check the distribution of % of knowledge score through histogram. If the distribution is normally distributed summary measures are mean and SD otherwise median and IQR</p> <p>The confirmatory Factor Analysis (CFA) in Appendix I may be presented in a structural format rather than in a table (Schreiber JB etal. 2006. Reporting SEM & CFA results : A review)</p> <p>Section of statistical analysis contains general statement for each test. It is better to state the specific variables used for comparison or to check for statistical association and also specify which specific chi-square test is used. This is because there are many chi-square tests which are applied depending on the assumption of the test and types of data.</p> <p>Table 2 contains results of univariate analyses. There is no clear interpretation for the results of chi-square test .</p> <p>There is no results for the statement related to association between ‘ women’s awareness of GBS screening & speciality of the health care professionals providing antenatal care’ and a p-value of 0.014. Are the authors interpret the results presented in table 3?. Authors may consider to provide the cross tabulation of the these variables if the results lead to conclusion.</p> <p>One third (61.8%, 125) of women were aware of GBS screening . What is the denominator for the statement “ Majority of the women (61.8%) in neonates “ (statement just above table 3).</p> <p>There is no statement in the results to indicate how many there were with knowledge score above 75th percentile</p> <p>In the presentation of multivariable logistic regression (table 4) , authors may avoid to present B, se & wald test results, but consider to present No & (%) of independent categorical variables for the outcome category (below 75th or above 75th knowledge score percentile) , univariate OR (95 % CI), and adjusted OR & 95% CI.</p> <p>The presentation of OR & 95% CI may be limited to 2 decimal places.</p> <p>It is assumed that continuous variables such as past exp to GBS, Age are linearly related to the log odds of knowledge score above 75th percentile. There is no evidence of checking it. If there are</p>
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	not linearly related to please check the functional form of association. Some categorical variables such as educational level, type of clinic, speciality of caring physician were treated as continuous instead of treating these as indicator variables keeping one category as reference and estimate OR for other categories. Finally, it is recommended to consult a statistician to address some of these statistical issues in the manuscript.
REVIEWER	Dr Vrijesh Tripathi University of The West Indies - Saint Augustine Campus, Mathematics and Statistics
REVIEW RETURNED	28-Oct-2019
GENERAL COMMENTS	The study uses a validated questionnaire. It adds to existing knowledge on GBS. It adds data from a different geographical region, the Saudi Arabia.

VERSION 1 – AUTHOR RESPONSE

Reviewer(s)' Comments to Author:

Reviewer: 1

As outlined the methods section requires more detail:

- Revised.

study limitations would include an understanding of whether women were provided with information about the dis-benefits of screening for GBS as otherwise they cannot make a fully informed decision about screening strategies

-This statement was added in the methods: The questionnaire was filled during the interview by interviewers. The interviewers were 3 of the authors. After completing the first three sections of the questionnaire (i.e. demographic data and obstetric history, knowledge assessment questions, awareness and previous experience with GBS screening), information about GBS and GBS screening strategies, including advantages and disadvantages of each, were explained to the participants

document needs careful review for grammar

- Revised

P4, line 29: How many women were approached and declined to take part?

- Methods section (under participants) was edited.

Generally the methods need more detail. For example, how, when and where were the women approached and invited to take part? Were they given any written/verbal information explaining the study and if so what were they told? Where were the interviews conducted? How were the data dealt with?

- These points have been addressed in the Methods section

Patient and Public Involvement statement

P4, line 36-40: the authors report ethics approval. This is not what is meant by the patient and public involvement statement, please see BMJ Open guidance for authors on the issues that should be addressed here.

- This point has been addressed

Study Questionnaire

P4, line 45: The authors state that 'each participant was interviewed by one research team'. Does this mean one of the members of the research team?

- Edited. The questionnaire was filled during the interview by interviewers. The interviewers were three of the authors.

P5, line 16: this would be better phrased 'being screened for GBS after being requested'

- Has been edited

Results

Table 3

Page 8, lines 47-50: this question would have benefitted from including a 'don't know' option as some women may not know whether they have had GBS

- "Don't know" option is included in the original questionnaire. However, as there were only 3 participants who chose this option, we assume that they never had GBS to simplify the analysis.

Page 9, line 21-24: 48 women reported they had been requested to have GBS screening. This number

should be the denominator for the subsequent questions as they only apply to the women who were requested to have screening.

- Corrected. Row data were reviewed.

No information is provided on the reasons these 48 women were requested to have screening. For example was this on the basis of risk factors or was it simply that their practitioner advised all patients to have this? There is a difference between screening (or more accurately described here - testing) being indicated and being suggested.

- We did not assess the reasons for testing among those participants whether it was based on risk factor or universal screening. We didn't get access to participants' files. In addition, this question was not included in the validated questionnaire that we used and adding questions may affect the validity of the questionnaire.

General comments

Is it not uncommon to find that knowledge about a variety of conditions is sub-optimal among the public. In this study it was reported that the majority of pregnant women lacked knowledge about the GBS infection and about GBS screening. The authors may find it interesting to compare their findings with regard to awareness of GBS with studies that have looked at acceptability of maternal GBS vaccination as these too include an assessment of women's knowledge of the condition (e.g McQuaid, F., Jones, C., Stevens, Z., Plumb, J., Hughes, R., Bedford, H., Voysey, M., Heath, P.T. and Snape, M.D., 2016. Factors influencing women's attitudes towards antenatal vaccines, group B Streptococcus and clinical trial participation in pregnancy: an online survey. *BMJ open*, 6(4), p.e010790).

- Addressed in Discussion section

One important aspect that was not mentioned in this study is whether when asking participants for their view on different screening strategies, the women were provided with information on the potential dis-benefits of screening particularly regarding false positives and false negatives and the risks of over treating. This is an important consideration that should have been included.

- It was explained to participants the advantages and disadvantages of both methods. Methods section has been edited.

Reviewer: 2

1. The background of the patients (including social-economic status) should be included in much more detail. The standard prenatal care guided by government had better be introduced. Since the authors had mentioned the limitation of the current study, including their study cannot reflect others in Saudi Arabia, the general policy of the prenatal evaluation should be introduced to provide a better understanding why these pregnant women in this country have so limited knowledge in GBS.

- Description of antenatal care in Saudi Arabia has been included in the introduction section.

2. The authors wrote that the study is one of the first studies conducted to assess women knowledge, attitude, and current practice about GBS screening in the Saudi Arabia. What does “one of the first studies” mean? What does “clinical practice” mean? Without clarification, I am wondering why the authors could make such a conclusion.

- This sentence was edited and referenced. “clinical practice” is written as “current practice”.

3. In the introduction section, the authors should clarify the following sentence they wrote -- There are no national guidelines on the optimal strategy for GBS screening during pregnancy (i.e. universal culture-based vs. risk-based) in Saudi Arabia. What does “optimal strategy for GBS screening” mean? Is there any manuscript about maternal GBS screening in Saudi Arabia available to show the general data about the GBS screening rate in Saudi Arabia? GBS screening rate in general.

-Studies about GBS colonization rate have been included in the introduction. However, we there is no published study about GBS screening rate.

4. Who are in charge of pregnant women’ care in the antenatal clinics at the authors’ hospital? Midwife or doctor? Without basic understanding the strategy or routine of prenatal care in Saudi Arabia, it is hard to understand why the authors performed this study.

- Refer to Comment of question No. 1

5. In the table 3, the question “ Are you aware of the GBS” and the question “have you ever had GBS?” seemed to be conflicted. If the pregnant women did not know “GBS”, they cannot respond to the latter question. It is very interesting to find that 86.7% of studied subjects did not receive any request to undergo GBS screening. Is it possible to say the “medical staffs” are not aware of GBS? If majority of medical staff are not familiar with GBS, it is reasonable to get the little knowledge of GBS in pregnant women. If the authors would like to emphasize the importance of GBS screening, why the authors did not study “these medical staff” to care pregnant women? Based on the authors’ reference 16, GBS screening had been done as early as 1991 and before. It is hard to believe that “medical staffs” are not familiar with GBS screening.

- It is a valuable comment. However, we think if women can recall that she had GBS, most likely will be aware of it. Also, the questionnaire was validated in a previous study (Ref: 14). In the original study, questionnaire was pilot-tested in two focus groups. The first group consisted of four mothers, questioned on the day after delivery, who evaluated the survey for clarity and ease of completion. The second group consisted of five infectious disease specialists, who used a content validity index to evaluate the survey.

- In absence of national guidelines for GBS screening, the practice depends on physicians' preference to screen all women in third trimester or choose risk-based approach. Choosing risk based approach might explain the low request rate. However, we didn't assess health care worker knowledge and awareness regarding GBS.

6. In general, this is a hard work, and the study might be informative. However, the background data for medical staffs" should be introduced at the beginning. Expensive, self pay, absence of facility to perform GBS screening in clinics, hospital or other reason.

- Please, Refer to Comment of question No. 1

Reviewer: 3

There are areas where the text is unclear. It would be helpful for the authors to define the general term 'screening' and also specific terms for risk-based and test-based strategies, and then stick to them, rather than using a mixture, or introducing new terms. Suggestion:

- a) Screening strategy: the overall strategy to prevent group B Strep infection in neonates
- b) Test-based approach: using antenatal tests to identify women whose babies are at raised risk
- c) Risk-based approach: using risk actors to identify women whose babies are at raised risk

Reply 1: - "Universal screening" was changed to "Universal culture-based screening" in the manuscript. "Universal culture-based screening" term has been used in literature as shown in CDC documents (Ref: [9]: Verani JR, McGee L, Schrag SJ. Prevention of perinatal group B streptococcal disease--revised guidelines from CDC, 2010. MMWR Recomm Rep 2010;5:1-36. Definitions of both approaches have been described in the introduction.

Abstract

Page 2 Line 8 – "universal" is not explained so, until we read further, we don't know how it is different from risk-based screening.

Page 2 Line 31 – it's not clear what universal GBS screening strategy means – suggest maybe a test-based strategy

Page 2 Line 36 – it's not crystal clear what universal screening strategy means – suggest maybe a test-based strategy

- Abstract: Please refer to comment reply (1).

Introduction

Page 3 Line 36 – it's not immediately clear which of a-c is mean here

- Please refer to comment reply (1).

Page 3 Line 43 – would incidental finding of GBS during the current pregnancy also result in the offer IAP?

- As explained in universal culture-based screening, GBS screening is recommended during third trimester (35-37 weeks gestation). However, it is recommended by CDC to give IAP if a pregnant woman has UTI GBS at any time during pregnancy. Edited

Page 3 Line 46 – needs to clarify where these data are from and be referenced.

- Edited and referenced

Page 4 Line 3-4 – It would be helpful for a brief explanation about how healthcare is structured in Saudi Arabia. It's not clear whether any estimates of how representative the data might be for the whole of Saudi Arabia have been made. A statement around this would be helpful.

- Description of antenatal care in Saudi Arabia has been included in the introduction section.

Methods

Study Participants

Page 4 Line 29 – It would be helpful to know roughly what percentage of women were excluded for not speaking English or Arabic so we could better understand how representative the sample is.

- Methods and result sections were edited. "During the study period a total of 377 out of 450 women (response rate 83.7%) were enrolled and completed the interview. No women were excluded due to language barriers"

Study Questionnaire

Page 5 Line 14 – Not sure what is meant by GBS screening here. Testing?

- We mean request for testing. Edited

RESULTS

Page 6 Line 9-11 – Not clear what the 25th, 50th and 75th percentile scores exactly relate to.

- Please see appendix 1.

Table 2

Page 8 Line 10 – We need the full question here

- The last 2 Questions are multiple choice questions with one correct answer. No space to include the choices in the table.

Table 3

Page 9 Line 24 – What is this relating to? Risk-based or test-based screening?

- Edited

Page 9 Line 30 – What is this relating to? Risk-based or test-based screening?

-Edited

Page 9 Line 35-8 – What is this relating to? Risk-based or test-based screening?

- Edited

Page 9 Line 35-8 – It would be interesting to see the results for those who had been requested to have testing and by whom, to see whether the requester made a difference as to whether the testing was undertaken or not.

- As edited in table 4: 48 women had request (43 by gynecologists and 5 by General and family physicians) We did not do sub group analysis for as number was small (total number of who did the test 34).

Page 9 Line 40-49 – It would be interesting to see the results for those who had been tested, rather than the full sample. Edited. Table 4

Page 9 Line 50-53 – What is this relating to? Risk-based or test-based screening?

-Edited

Page 9 Line 50-53 – If this relates to testing, rather than the risk-based approach, it would be interesting to see the results for those who had been tested, rather than the full sample.

-Edited. Table 4

Table 4

Page 10 Line 19 – Please define somewhere what B., S.E. and Wald stand:

- Revised and removed as per biostatistician

Page 10/11 Lines 59-8 – Not sure what this relates to at all.

- Revised and edited

Discussion

Page 11 – It's unclear a number of times over when screening overall is meant, or risk-based or test-based:

-Edited and revised

Page 11 Line 24 – probably deficit not defect :

-edited

Page 11 Line 29 – probably cared for not followed by

-edited

Page 11 Line 36 – probably know not agree

-edited

Page 12 Line 14 – moral? Not sure what is meant here

- edited

Conclusion

Page 12 – Again, clarity over when screening overall is meant, or risk-based or test-based

- Revised and edited

Page 12 Line 26 – is it possible to see what the preferences were for women before information was given to them about GBS and after?

- Unfortunately, we did assess the participants' preference before and after.

Key messages

Page 13 – Again, clarity over when screening overall is meant, or risk-based or test-based

-Key messages were omitted from manuscript as per editor's request

Reviewer: 4

The summary measures for continuous variables depend on the distribution of the variables. It is advisable to check the distribution of % of knowledge score through histogram. If the distribution is normally distributed summary measures are mean and SD otherwise median and IQR

- Knowledge scores were normally distributed. The descriptive analysis table and figure were added in appendix 1.

The confirmatory Factor Analysis (CFA) in Appendix I may be presented in a structural format rather than in a table (Schreiber JB et al. 2006. Reporting SEM & CFA results : A review)

- The Structural format was added instead in the appendix.

Section of statistical analysis contains general statement for each test. It is better to state the specific variables used for comparison or to check for statistical association and also specify which specific chi-square test is used. This is because there are many chi-square tests which are applied depending on the assumption of the test and types of data.

-The statistical analysis section has been edited and missing legend has been added to the table 2.

Table 2 contains results of univariate analyses. There is no clear interpretation for the results of chi-square test.

- The method and result sections have been edited. The interpretation has been added.

There is no results for the statement related to association between ' women's awareness of GBS screening & specialty of the health care professionals providing antenatal care' and a p-value of 0.014. Are the authors interpret the results presented in table 3?. Authors may consider to provide the cross tabulation of the these variables if the results lead to conclusion.

-A new Table (Table 5) was added for Multivariate Logistic Regression Analysis of women's demographic and obstetric variables with their odds of being aware GPS screening (Q8). Also univariate analysis using chi-squared test of association and independent groups t-test table was added in the appendix (table-2 in appendix). Order of tables was also was readjusted.

One third (61.8%, 125) of women were aware of GBS screening . What is the denominator for the statement " Majority of the women (61.8%) in neonates " (statement just above table 3).

- Result section has been edited. A total of 377 women have completed the questionnaire.
Denominator (N=377) added to all tables.

There is no statement in the results to indicate how many there were with knowledge score above 75th percentile,

-It is added. Also, table for percentile distribution is added in the appendix.

In the presentation of multivariable logistic regression (table 4) , authors may avoid to present B, se & wald test results, but consider to present No & (%) of independent categorical variables for the outcome category (below 75th or above 75th knowledge score percentile) , univariate OR (95 % CI), and adjusted OR & 95% CI.

- Due to limited space in manuscript, Bivariate Analysis of the women's Knowledge score on GPS across their demographic and gynecological characteristics table is provided in the appendix (Table4-appendix)

The presentation of OR & 95% CI may be limited to 2 decimal places.

- Edited

It is assumed that continuous variables such as past exp to GBS, Age are linearly related to the log odds of knowledge score above 75th percentile. There is no evidence of checking it. If there are not linearly related to please check the functional form of association.

- Age was not measured as a continuous variable; it was rather measured as a categorical variable. To untangle the yielded results from the analysis of the Logistic multivariate regression analysis, model indicated Women's past exposure to GBS screening score converged significantly on their odds of succeeding the knowledge on GBS test well above the 75th percentile on average, for each additional point on the exposure to GBS screening score the odds of women being informed on the GBS rises by 2.4% times, $p=0.001$, well by accounting for the other variables in the model. Too, the model suggested that women's age converged significantly , and negatively, on their odds of Not passing the knowledge test, $O.R=0.289$, it is evident in the (figure-B: added in the appendix)

Some categorical variables such as educational level, type of clinic, speciality of caring physician were treated as continuous instead of treating these as indicator variables keeping one category as reference and estimate OR for other categories.

-Our Multivariate analysis was exploratory , and those factors (educational level, type of clinic, specialty of caring physician) were found to be None-statistically significantly correlated with the dependent outcome variable even when we dummy coded them as categorical variables , in order to reduce the number of degrees of freedom we treated them as categorical variables but did Not request pairwise comparisons for them in the analysis in order to reduce the consumed degrees of the freedom for the model . We decided to keep them in the analysis just to show their Non-statistical significant correlation in the multivariate model , our analysis again was exploratory.

Finally, it is recommended to consult a statistician to address some of these statistical issues in the manuscript.

-The methods and result were done by a biostatistician. However, during manuscript writing misinterpretation occurred. Whole methods and result section were revised. Tables order has been changed.

Reviewer: 5

The study uses a validated questionnaire. It adds to existing knowledge on GBS. It adds data from a different geographical region, the Saudi Arabia.

- Thank you.

VERSION 2 – REVIEW

REVIEWER	Peng-Hui Wang Taipei Veterans General Hospital, Department of Obstetrics and Gynecology
REVIEW RETURNED	07-Dec-2019

GENERAL COMMENTS	congratulation
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REVIEWER	Jane Plumb Group B Strep Support, UK
REVIEW RETURNED	16-Dec-2019

GENERAL COMMENTS	The manuscript is hugely improved by the authors clarifying and adding explanations. There are just a couple of points I'd like to highlight, in the attached (tracked changes/ comments). I look forward to this paper being published.
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VERSION 2 – AUTHOR RESPONSE

Here is the reply for reviewers' comments:

Reviewer: 2

Reviewer Name: Peng-Hui Wang Institution and Country: Department of Obstetrics and Gynecology, Taipei Veterans General Hospital and National Yang-Ming University School of Medicine, Taipei, Taiwan Please state any competing interests or state 'None declared': no Please leave your comments for the authors below congratulation

- Thank you

Reviewer: 3

Reviewer Name: Jane Plumb Institution and Country: Group B Strep Support, UK Please state any competing interests or state 'None declared': None declared

Please leave your comments for the authors below

The manuscript is hugely improved by the authors clarifying and adding explanations. There are just a couple of points I'd like to highlight, in the attached (tracked changes/ comments). I look forward to this paper being published.

- Thank you for your comments.

- The manuscript was edited based on the reviewer's comments. Changes are highlighted in the (Main document-Marked Copy). One reference (newly published findings) was added in the introduction based on the reviewer's comment.