PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (**http://bmjopen.bmj.com/site/about/resources/checklist.pdf**) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

ARTICLE DETAILS

TITLE (PROVISIONAL)	Risk Factors and Glycemic Control in Small for Gestational Age Infants Born to Mothers with Gestational Diabetes Mellitus: A Case-Control Study Utilizing Propensity Score Matching Based on a Large Population
AUTHORS	Li, JiaNing; Pan, Yu-qing; Zheng, Qingxiang; Chen, Xiao Qian; Jiang, Xiu Min; Liu, RuLin; Zhu, Yu; Huang, Ling

VERSION 1 – REVIEW

REVIEWER	Daisuke Sugawara Jichi Ika University Saitama Medical Center
REVIEW RETURNED	11-Sep-2023

GENERAL COMMENTS	In this manuscript the authors investigated the risk factors during pregnancy associated with SGA infants born to mothers with GDM by case-control study in large population. The results suggest that a history of low birth weight, gestational hypertension, oligohydramnios, short maternal height, underweight pre-pregnancy BMI, inadequate weight growth, and glucose levels (2h postprandial glucose, 0 h and 2 h 75g OGTT in third trimester) are associated with SGA infants born to mothers with GDM. Low birth weight, gestational hypertension, oligohydramnios, short maternal height, underweight pre-pregnancy BMI, and inadequate weight growth were risk increasing factors for SGA while 2h postprandial glucose, 0 h and 2 h 75g OGTT in third trimester were risk decreasing factors. This study is interesting because it describes a risk factor for SGA in GDM that is underreported. However, some revisions are required to be published in this journal. Specific recommendations for revision 1. Macrosomia or Large for gestational age, the opposite of SGA which is the subject of this study, is a common complication of diabetic pregnancies including GDM. It would be helpful to add a little more discussion of the relationship between glycemic control and birth weight based on the results of this study to further the reader's understanding of the relationship. 2. Related to comment 1, have you considered the relationship of SGA to blood glucose control indices such as HbA1c and/or glycated albumin? Complications of infants with GDM are not a one-point blood glucose measure, but the presence or absence of blood glucose control is a major influencing factor. Therefore, it would be good to analyze the relationship between blood glucose control indices and SGA. 3. It is difficult for me to understand how there is a causal relationship between cesarean section and SGA as described in the discussion session.

REVIEWER	Dilek Menekse Beser Turkish Ministry of Health Ankara City Hospital
REVIEW RETURNED	30-Sep-2023

GENERAL COMMENTS	The risk factors and glycaemic control in SGA fetuses are important conditions. The authors used a well-designed methodology and I think this study will contribute to the literature. However, this study needs some minor revisions. 1. Could you explain in more detail how the HAPO study found that higher glucose levels affect? 2. The distinction between FGR and SGA intrauterine is complex definitions. While taking the groups as SGA, were there anyone who suspected intrauterine FGR? Review the exclusion criteria based on the FGR-SGA distinction. 3. Where abbreviations appear for the first time, such as GWG and EMR system, write them down clearly. 4. FBG or FPG? I recommend using common terms. 5. The sentences on lines 178-183 contain a lot of word repetition and complex content. I suggest that you correct the sentences. 6. Please specify the reason for choosing 2nd hour glucose in the 3rd trimester. 7. Give more examples of the relationship between multiparity and SGA in the Discussion section.

VERSION 1 – AUTHOR RESPONSE

For Reviewer: 1
Dr. Daisuke Sugawara, Jichi Ika University Saitama Medical Center

1. Macrosomia or Large for gestational age, the opposite of SGA which is the subject of this study, is a common complication of diabetic pregnancies including GDM.
It would be helpful to add a little more discussion of the relationship between glycemic control and birth weight based on the results of this study to further the reader's understanding of the relationship.
Response: Thanks for the reviewer's comments. Thank you for the reviewer's comments. We have incorporated a more detailed discussion of the relationship between glycemic control and birth weight based on the study results. (Page 14; Line 292-298).

2. Related to comment 1, have you considered the relationship of SGA to blood glucose control indices such as HbA1c and/or glycated albumin? Complications of infants with GDM are not a one-point blood glucose measure, but the presence or absence of blood glucose control is a major influencing factor. Therefore, it would be good to analyze the relationship between blood glucose control indices and SGA.
Response: Thanks for the reviewer's comments. We have supplemented the manuscript with the relationship between HbA1c and SGA (Table1 and Table2), and discussed the results in this regard. (Page 16; Line 328-339).

3. It is difficult for me to understand how there is a causal relationship between cesarean section and SGA as described in the discussion session.

Response: Thanks for the reviewer's comments. We appreciate the feedback regarding the perceived difficulty in understanding the causal relationship between cesarean section and SGA in the discussion. We have revised and provided a more detailed explanation to address this concern in revised manuscript. (Page 12-13; Line 258-268).

For Reviewer: 2
Dr. Dilek Menekse Beser, Turkish Ministry of Health Ankara City Hospital

1. Could you explain in more detail how the HAPO study found that higher glucose levels affect?
Response: Thanks for the reviewer's comments. we have expanded our discussion to provide a more thorough explanation of how higher glucose levels affect outcomes, drawing insights from the HAPO study in the revised manuscript. (Page 14; Line 292-296).

2. The distinction between FGR and SGA intrauterine is complex definitions. While taking the groups as SGA, were there anyone who suspected intrauterine FGR? Review the exclusion criteria based on the FGR-SGA distinction.
Response: Thanks for the reviewer's comments. Because our study primarily aimed to investigate the relationship between gestational diabetes mellitus (GDM) and overall small for gestational age (SGA), rather than specific cases of intrauterine growth restriction (FGR), we prioritized the association between gestational age and birth weight during the grouping process. We did not employ more specific diagnostic criteria for FGR. This choice of grouping strategy was made based on considerations related to the research question and objectives. However, it introduced limitations in gaining a thorough understanding of the differences between FGR and SGA, as described in the limitations section. ()

3. Where abbreviations appear for the first time, such as GWG and EMR system, write them down clearly.
Response: Thanks for the reviewer's comments. The manuscript has been updated to clearly spell out abbreviations upon their first occurrence.

4. FBG or FPG? I recommend using common terms.
Response: Thanks for the reviewer's comments. It was indeed an oversight on my part. The term has been corrected from FBG to FPG in the manuscript. (Page 17; Line 246-250).

5. The sentences on lines 178-183 contain a lot of word repetition and complex content. I suggest that you correct the sentences.
Response: Thanks for the reviewer's comments. I have revised and simplified the sentences on lines 178-183 to reduce repetition and improve clarity. (Page 9; Line 184-187).

6. Please specify the reason for choosing 2nd hour glucose in the 3rd trimester.
Response: Thanks for the reviewer's comments. I apologize for mistakenly referring to 2nd trimester as 3rd trimester. The error has been corrected. The rationale for selecting the 2nd-hour glucose measurement in the 2nd trimester is discussed in the corresponding section of the manuscript, where its significance in assessing glycemic control during pregnancy is elaborated upon. (Page 15-16; Line 315-318 and Line 322-324).

7. Give more examples of the relationship between multiparity and SGA in the Discussion section.
Response: Thanks for the reviewer's comments. We have revised the Discussion section to include more examples illustrating the relationship between multiparity and small for gestational age (SGA) outcomes in pregnant women with gestational diabetes mellitus (GDM). The expanded discussion provides a more comprehensive exploration of how multiparity influences the risk of SGA, considering factors such as uteroplacental circulation, physiological adaptations, and variations in risk perception

and prenatal care practices. We hope these additions enhance the clarity and depth of our findings. (Page 12; Line 240-256).

VERSION 2 – REVIEW

REVIEWER	Daisuke Sugawara Jichi Ika University Saitama Medical Center
REVIEW RETURNED	03-Dec-2023

GENERAL COMMENTS	The authors responded appropriately to my comments and revised the paper well. I recommend that it be accepted for publication.

REVIEWER	Dilek Menekse Beser Turkish Ministry of Health Ankara City Hospital
REVIEW RETURNED	14-Dec-2023

GENERAL COMMENTS	I think the manuscript is suitable for publication in this form.