PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Incidence and risk factors of gestational diabetes mellitus in Goba town, Southeast Ethiopia: a prospective cohort study
AUTHORS	Atlaw, Daniel; Sahiledengle, Biniyam; Assefa, Tesfaye; Negash, Wogene; Tahir, Anwar; Regasa, Tadele; Tekalegn, Yohannes; Mamo, Ayele; Enegeda, zinash; Solomon, Damtew; Gezahegn, Habtamu; Bekele, Kebebe; Zenbaba, Demisu; Desta, Fikreab; Tasew, Alelign; Nugusu, Fikadu; Beressa, Girma; Shiferaw, Zerihun; Feleke, Zegeye; Regassa, Zegeye; Duguma, Negesso; Chattu, Vijay Kumar

VERSION 1 – REVIEW

REVIEWER	Seghieri, Giuseppe Agenzia Regionale Sanita Toscana
REVIEW RETURNED	25-Feb-2022

GENERAL COMMENTS	This is a well written paper. Conclusion and limitations appear adequate. I just would like to address some points: 1. Definition of GDM as from figure 1 should be added in Methods 2. What is PIH in table 3 4. dtat shoudl be given with percentages only in GDM+ cases: this would add more clarity 4. What variables are adjusted for in Table 4 %. It would be interesting to add information about pregnancy outcomes in these women. 5. In flow-chart total number of pregnancies should be added and number of excluded women. 6. Were only singleton pregnancies included?

REVIEWER	Popova, Polina Almazov National Medical Research Centre
REVIEW RETURNED	15-Mar-2022

GENERAL COMMENTS	The manuscript describes the incidence of GDM assessed by fasting capillary blood glucose and GDM predictors among pregnant women in Goba town, Ethiopia. Abstract It should be clearly stated in the abstract that GDM was diagnosed only by fasting capillary blood glucose. Line 48 The phrase «Firist prospective study in the study setting gestational diabetes mellitus» is unclear. Line 49 The term «fasting plasma glucose» is misleading. The term «Fasting capillary blood glucose» should be used instead. Background

The definition of GDM is outdated. The current definition recommended by WHO 2013, ADA and FIGO should be used (eg., PMID: 26433807., doi: 10.1016/S0020-7292(15)30007-2).

Line 14 The phrase « Gestational diabetes mellitus diagnosed in pregnancy» sounds strange, as GDM can be diagnosed only in pregnancy. The prevalence of GDM according to WHO 2013 criteria is usually reported much higher than 3-5 %.

It would be appropriate to mention that depending on guidelines used, GDM can be diagnosed either at any time during pregnancy, or in 24-28 weeks (eg., as reviewed in PMID: 26824326).

Among the risk factors of developing GDM, the importance of combination of risk factors could be mentioned (eg., PMID: 25288096), as well as the utility of first trimester fasting glycemia (eg., PMID: 27600641) and genetic risk score (eg., PMID: 33953693).

Line 54 The terms «inactive physical activity», and «risky behaviors» are unclear.

Page 4 line 3 The term «magnitude of GDM» is not appropriate. Maybe «risk of GDM»?

Methods

Why the gestational age of 20 weeks was selected? Was it an inclusion criterion? Were all women included at the 20th gestational week?

Why was the sample size calculated based on the proportion of stillbirths? Study outcomes are not reported and the aim of the study was to assess the incidence of GDM.

Page 5 Lines 53-54 Please describe how GDM was diagnosed in the reported study. It seems that 1-h and 2-h glucose levels were not recorded.

The phrase «Fasting blood glucose was performed for all pregnant women by plasma glucose testing, using a standard plasma-calibrated glucometer … following new recommendations by WHO for GDM diagnosis» is not correct. First, it is capillary blood glucose. Second, using capillary blood glucose for GDM diagnosis is not recommended by WHO. Third, reference 31 is not about WHO 2013 criteria.

However, the authors could write that though the sensitivity of capillary blood glucose is lower than venous blood glucose, the international consensus is that it is acceptable in resource-poor settings for GDM diagnosis (doi: 10.1016/S0020-7292(15)30007-2).

Results

Please provide p-values for all the comparisons in tables 2 and 3.

There seem to be a mistake in the phrase «Low physical activity was reported to be higher among non-GDM than GDM pregnant women». It contradicts the numbers in table 3.

Table 5. Please unfold abbreviations «aRR» and «aRR». Please describe the variables used in the adjusted model.

Discussion

The phrase «…other chronic medical conditions, which have been increasing with lifestyle modification» sounds unclear. Usually, we mean some positive changes in lifestyle under «lifestyle modification».

Page 14, line 33. Plasma glucose should be substituted by capillary blood glucose.

Line 46 It should be «high» instead of «higher».

English language use

There are a lot of grammar mistakes which require English editing by a native speaker.

Reviewer: 1

Dr. Giuseppe Seghieri, Agenzia Regionale Sanita Toscana

Comments to the Author:

Author response: Dear Dr. Giuseppe Seghieri, thank you very much for your detailed comments provided, on behalf of authors I would like to tell that we have learned a lot from you.

This is a well written paper. Conclusion and limitations appear adequate.

I just would like to address some points:

1. Definition of GDM as from figure 1 should be added in Methods

Authors response-Thank you very much for your comments. We have added statement that explain how the GDM was ascertained in the method section.

2. What is PIH in table 3

Authors response-Thank you very much for your comments. We have added full phrase for pregnancy induced hypertension (PIH)

3. Data should be given with percentages only in GDM+ cases: this would add more clarity

Authors response-Thank you very much for your comments. We have revised the tables for clarity by removing total number and percentages. We have added p-value to make it clearer.

4. What variables are adjusted for in Table 4

Authors response-Thank you very much for your comments. We have added statement that explain variable adjusted in the result section "After adjustment for maternal age, employment status, family history of diabetes, hemoglobin status, physical activity, antenatal depression, and dietary diversity. The adjusted log-binomial regression model has indicated………"

%. It would be interesting to add information about pregnancy outcomes in these women.

Authors response-Thank you very much for your comments. We have not followed pregnant women until delivery due to limitation of resource, but it was very interesting if we were able to include the pregnancy outcome.

5. In flow-chart total number of pregnancies should be added and number of excluded women.

Authors response-Thank you very much for your comments. We have added the total number of pregnant women invited and excluded on the figure as well as in result section please see figure 1

6. Were only singleton pregnancies included?

Author response: thank you very much, yes only singleton pregnancies were included we have mentioned this in inclusion criteria.

Reviewer: 2

Dr. Polina Popova, Almazov National Medical Research Centre

Author response

Dear Dr., Polina Popova, thank you very much for your detailed comments and very critical concerns you have raised. On behalf of authors, I would like to appreciate your expertise on GDM and we have got an excellent lesson from you. Once again thank you for helping to improve our manuscript significantly.

Comments to the Author:

The manuscript describes the incidence of GDM assessed by fasting capillary blood glucose and GDM predictors among pregnant women in Goba town, Ethiopia.

Abstract

It should be clearly stated in the abstract that GDM was diagnosed only by fasting capillary blood glucose.

Authors response-Thank you very much for your comments. we have clearly stated that GDM was diagnosed by fasting capillary blood glucose, and it is mentioned as a limitation of the study.

Line 48 The phrase «Firist prospective study in the study setting gestational diabetes mellitus» is unclear.

Authors response-Thank you very much for your comments. We have rephrased as "To our knowledge, this is the first prospective cohort study conducted on GDM in the southeast Ethiopia."

Line 49 The term «fasting plasma glucose» is misleading. The term «Fasting capillary blood glucose» should be used instead.

Authors response-Thank you very much for your comments. We have rephrased fasting plasma glucose with Fasting capillary blood glucose.

Background

The definition of GDM is outdated. The current definition recommended by WHO 2013, ADA and FIGO should be used (eg., PMID: 26433807., doi: 10.1016/S0020-7292(15)30007-2).

Authors response-Thank you very much for your comments. We have amended the definition using suggested references. Please See page 3 line 19-24

Line 14 The phrase « Gestational diabetes mellitus diagnosed in pregnancy» sounds strange, as GDM can be diagnosed only in pregnancy. The prevalence of GDM according to WHO 2013 criteria is usually reported much higher than 3-5 %.

Authors response-Thank you very much for your comments. We have paraphrased and amended the background. Please see page 3

It would be appropriate to mention that depending on guidelines used, GDM can be diagnosed either at any time during pregnancy, or in 24-28 weeks (eg., as reviewed in PMID: 26824326).

Authors response: thank you very much for your comment, we have mentioned the time of diagnoses in our study as suggested. Please see page 3 line 20-23

Among the risk factors of developing GDM, the importance of combination of risk factors could be mentioned (eg., PMID: 25288096), as well as the utility of first trimester fasting glycemia (eg., PMID: 27600641) and genetic risk score (eg., PMID: 33953693).

Authors response: thank you very much for your comment, we have revised, and we have included points raised using suggested reference. Please page 4 line 11-24

Line 54 The terms «inactive physical activity», and «risky behaviors» are unclear.

Authors response: thank you very much for your comment, we have revised the phrases to make clearer.

Page 4 line 3 The term «magnitude of GDM» is not appropriate. Maybe «risk of GDM»?

Authors response: thank you very much for your comment, yes, it is risk of GDM corrected

Methods

Why was the gestational age of 20 weeks selected?

Authors response-Thank you very much for your comments. Normally we need to contact pregnant women for baseline data assessment at 20 weeks, so that we can appoint them after a month for fasting blood sugar level and usually, pregnancies after twenty weeks are considered to be viable. The risk of developing GDM increases after 20 weeks of gestation and picks at 24-28 weeks of gestation.

Was it an inclusion criterion?

Authors response: thank you very much for your comment. Yes, it was our inclusion criteria

Were all women included at the 20th gestational week?

Authors response: thank you very much for your comment. Yes all women at 20 weeks of gestation were included until maximum sample size reached.

Why was the sample size calculated based on the proportion of stillbirths? Study outcomes are not reported and the aim of the study was to assess the incidence of GDM.

Authors response-Thank you very much for your comments. We calculate sample for incidence and for predictors since predictors are our second objective. We used previous history of still birth because this factor was identified as risk factors in previous studies, and it has provided as the maximum sample size and to safe side we used this maximum sample size.

Page 5 Lines 53-54 Please describe how GDM was diagnosed in the reported study. It seems that 1-h and 2-h glucose levels were not recorded.

Authors response-Thank you very much for your comments. We have revised the definition and outcome ascertainment "GDM-defined as Fasting capillary blood glucose between 92 to 125 mg/dl"
The phrase «Fasting blood glucose was performed for all pregnant women by plasma glucose testing, using a standard plasma-calibrated glucometer … following new recommendations by WHO for GDM diagnosis» is not correct. First, it is capillary blood glucose. Second, using capillary blood glucose for GDM diagnosis is not recommended by WHO. Third, reference 31 is not about WHO 2013 criteria.
Authors response: thank you very much for your comments. We have amended the section as recommended and we have mentioned that capillary blood glucose as a limitation. Reference 31 which was wrongly cited was removed.
However, the authors could write that though the sensitivity of capillary blood glucose is lower than venous blood glucose, the international consensus is that it is acceptable in resource-poor settings for GDM diagnosis (doi: 10.1016/S0020-7292(15)30007-2).
Authors response: thank you very much for your comments. We cited the recommended reference and we have clearly described that international consensus to diagnose GDM using capillary blood glucose as follows "Fasting capillary blood glucose was performed for all pregnant women by capillary blood glucose, using a glucometer (Hemo Cue Glucose B-201+ (Sweden)). Even though, the sensitivity of capillary blood glucose is lower than venous blood glucose, the international consensus is that it is acceptable in resource-poor settings for GDM diagnosis"
Results
Please provide p-values for all the comparisons in tables 2 and 3.
Authors response: thank you very much for your comments. We included p-values for all comparisons in table 2,3 and 4.
There seem to be a mistake in the phrase «Low physical activity was reported to be higher among non-GDM than GDM pregnant women». It contradicts the numbers in table 3.
Authors response: thank you very much for your comments. Yes it contradicts, that was wrongly written we have revised to correct statement.
Table 5. Please unfold abbreviations «aRR» and «aRR». Please describe the variables used in the adjusted model.
Authors response: thank you very much for your comments. We have unfolded abbreviation adjusted relative risk (aRR), we have also listed variable used in the adjusted model.
Discussion
The phrase «…other chronic medical conditions, which have been increasing with lifestyle modification» sounds unclear. Usually, we mean some positive changes in lifestyle under «lifestyle modification».
Authors response: thank you very much for your comments. Lifestyle modification was revised as "lifestyle shifts such as consuming fast food and increasing sedentary lifestyle".
Page 14, line 33. Plasma glucose should be substituted by capillary blood glucose.
Authors response: thank you very much for your comments. Plasma glucose was substituted by capillary blood glucose.
Line 46 It should be «high» instead of «higher».
Authors response: thank you very much for your comments. We have revised higher to high.

VERSION 2 – REVIEW

REVIEWER	Seghieri, Giuseppe Agenzia Regionale Sanita Toscana
REVIEW RETURNED	08-Aug-2022

GENERAL COMMENTS	The Autors have now properly addressed all my points.limitations of the study appear now clearly stated

REVIEWER	Popova, Polina
	Almazov National Medical Research Centre
REVIEW RETURNED	26-Aug-2022

GENERAL COMMENTS	The authors have significantly improved the manuscript.
	Minor comments:
	The explanation of the sample size calculation is still unclear. It would be better even to remove this part.
	Please add the list of variables used to adjust the model for the relative risk in table 5.
	Please correct some grammar mistakes, eg. women were undergone (should be without «were»), have excluded (should be «were excluded» on page 7), risk factors OF GDM (page 2), History OF alcohol intake and Number OF cups (table 4).

VERSION 2 – AUTHOR RESPONSE

Reviewer: 1

Dr. Giuseppe Seghieri, Agenzia Regionale Sanita Toscana

Comments to the Author:

The Authors have now properly addressed all my points. Limitations of the study appear now clearly stated.

Author response: Dear respected reviewer once again we need to say thank you very much, for your generous help in improving our manuscript. We have learned a lot from you.

Reviewer: 2

Dr. Polina Popova, Almazov National Medical Research Centre

Comments to the Author:

The authors have significantly improved the manuscript.

Author response: Dear respected reviewer once again we need to say thank you very much for your unrelenting endeavor to improve our manuscript. Frankly speaking we are extremely happy to have you as a reviewer.

Minor comments:

The explanation of the sample size calculation is still unclear. It would be better even to remove this part. [NOTE FROM THE EDITORS: Please refer to the editorial requests above]

Author response- Thank you very much we have revised the sample size determination part once again. Please see page 5-last paragraph.

Please add the list of variables used to adjust the model for the relative risk in table 5.

Author response- Thank you very much for your comment, we have listed variable used to adjusted model under table 5. Please see page 13.

Please correct some grammar mistakes, eg. women were undergone (should be without «were»), have excluded (should be «were excluded» on page 7), risk factors OF GDM (page 2), History OF alcohol intake and Number OF cups (table 4).

Author response- Thank you very much for your comment, we have made thorough proofread to improve quality of English.

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VERSION 3 – REVIEW

REVIEWER	Popova, Polina Almazov National Medical Research Centre
REVIEW RETURNED	01-Sep-2022

GENERAL COMMENTS	The authors have properly addressed my comments. The manuscript is ready for publication.