Author’s response to reviews

Title: Triglycerides and total Cholesterol concentrations in Association with IFG/IGT in Chinese Adults in Qingdao, China

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Author’s response to reviews:

Dear Editor of BMC Public Health,

Thank you very much for your decision letter and advice on our manuscript (PUBH-D-17-03021R1) entitled “Triglycerides and total Cholesterol concentrations in Association with IFG/IGT in Chinese Adults in Qingdao, China”. We greatly appreciate your efforts and consideration of our manuscript for possible publication. We also thank the reviewers for the constructive and positive comments and suggestions. Accordingly, we have revised the manuscript. All amendments are highlighted in red in the revised manuscript. In addition, point-by-point responses to the comments are listed below this letter. Detailed responses to their comments and questions are provided below.
Reply to the reviewers’ comments

Based on editorial evaluations and reviewer comments, your manuscript cannot be accepted in its present form. However, I am willing to reconsider the manuscript if the reviewers comments and editorial requirements are addressed and well justified. Accordingly, I invite you to revise the manuscript based on the following reviewer comments and editorial concerns:

Compulsory editorial requirements to be addressed:

Comment 1: Please mention the full name of your ethical committee, ethical approval number and date of ethical approval in your manuscript. A separate sub-section called "Ethical Consideration" should be placed in the methods part. These issues should be addressed as well: potential benefits and risks, confidentiality, anonymity to the study subjects.

Response: Thank you very much. The contents of ethical consideration are added in the methods of revised manuscript.

Comment 2: The methods part should be further sub-sectioned accordingly: Study population, setting, sampling methods and size, ethical issues, study instruments, procedure, baseline parameter definitions, statistical analysis.

Response: Thanks for your insightful suggestion. We had amended the methods part in the revised manuscript. And the revised methods part included the following sub-sectioned: study population, setting, sampling methods and size, ethical considerations, data collection, variable definitions and statistical analysis.

Comment 3: Please justify your statistical modelling. You may employ stepwise regression, or backward elimination technique in your logistic regression to get the best possible model. This eliminates potential confounders.

Response: We thank you very much for your comments. We justified our statistical modelling, and employed backward regression in revised model in the revised manuscript.
Reviewer reports:

Hematram Yadav, MBBS, MPH, MBA (Reviewer 1): Please include all comments for the authors in this box rather than uploading your report as an attachment. Please only upload as attachments annotated versions of manuscripts, graphs, supporting materials or other aspects of your report which cannot be included in a text format.

Please overwrite this text when adding your comments to the authors.

Comment 1:

Methods

The way the participants were selected form the three provinces is not clear. Was it a cluster sampling, random sampling or convenience?

For weight and height measurement there would have been many different scales used. Was calibration done on the instruments used and was the BP digital or mercury and was all this standardised in all the provinces.

Response: Thank you very much. We adopted a stratified random sampling in our study, and the sampling method was revised in our revised manuscript. The instruments for weight, height and BP were calibrated by specialized metering institutions according to the uniform standard of measurement in China. And, the measure of BP was adopted BP mercury.

Comment 2:

Results

Statistical methods used are slight confusing.

In Table 2 there were many variables that were significant and in the multiple regression it would have been better using the stepwise regression or taking the significant variables in the multiple regression. After the multiple regressions ROC could have been done using those variables.

Response: We conducted our whole team meeting and discussed the methods of stepwise and backward regression. Finally, we employed the backward regression in our revised multiple
regression model adjusted all significant variables in univariate logistic regression. And the same time, we employed the ROC using significant continuous variables according to multiple regression models.

Comment 3:

Since the authors separated the findings to males and females was it the intention to develop 2 predictive models using all the significant variables (one for males and the other for females?)

Response: Thank you. Due to biological and biochemical features of men and women, we developed 2 predictive models for men and women.

Comment 4:

What was the purpose of the 4 models in Table 3? The AUROC took into consideration of only the TG and TC. Could we have taken into consideration more variables in the AUROC to get a better predictive model?

Response: The purpose of 4 models was to find to impact on triglycerides and total cholesterol adjusted different variables in original manuscript. Now, we employed the backward regression in our revised multiple regression in revised Table 3 according your comments now.

Thank you very much for your advices about ROC. Our manuscript was intention to study on the association triglycerides and total Cholesterol concentrations with IFG/IGT. And we will take into consideration more other significant variables in the AUROC in our next study.

Comment 5:

A correlation could have been done between TG and TC and if the correlation was high maybe one variable could have been used?

Response: Thank you. In both gender, the level of serum TG was positively associated with TC (P<0.001) according to spearman correlation. TG and TC both are a kind of lipid, however, the differences are in chemical structure, source, function, metabolism. For example, TG is responsible for the bidirectional transference of adipose fat and blood glucose from the liver, and
TC builds and maintains membranes and modulates membrane fluidity over the range of physiological processes. So, it is necessary to study on TG and TC at the same time.

Dawit Getnet ayele, P.hD. (Reviewer 2):

Comment 1: Are there any similar studies conducted in the area? Please summarize and present it in the introduction section

Response: as per your comment we try to read some similar studies. We only found studies about TG, TC and diabetes, one study on TG and IFG/IGT, and no study about TC and IFG/IGT in Chinese population. The detail about TG, TC and diabetes, TG and IFG/IGT has been summarized and presented in the revised introduction.

Comment 2:

What are the motivations for this study? Please specify the research questions very clearly.

Response: The main intention of our study was to investigate the association of TG and TC concentrations with IFG/IGT in Chinese adults. We simply revised the aims in the introduction, and made it easier and clearer.

Comment 3: What are the gaps this study tries to fill?

Response: There are very little studies about TG, TC and IFG/IGT in worldwide. While we did not find any study about the association of TG, TC with IFG/IGT in China. Therefore here for the first time, we assess the association between TG, TC and IFG/IGT, and further to investigate whether TG and TC could be potential clinical markers of IFG/IGT in China.

Comment 4: Please state the outcome variables and explanatory variables before result section

Response: Thank you. We checked and stated the outcome variables and explanatory variables before result section in our revised manuscript.

Comment 5: As I understand, you have fitted the model separately for men and women. Have you thought of combining the two data sets for men and women and fit one model? In this case you can consider interaction effects between gender and other explanatory variable.
Response: Thank you very much for your suggestion. We thought primarily the differences of biological and biochemical features in different gender, when separated men and women in the models. In next study, we will employ the interaction effects between gender and other explanatory variable.

Comment 6: Please include interaction effects between explanatory variables and see the result. Sometimes, there might be combined effects if the independent variables are not significantly related to the outcome variable separately.

Response: Thank you. We found that TG was positively correlation with TC (P<0.001) according to spearman correlation in both gender. Therefore, we didn’t employ the interaction effects in this study. We will use interaction effects in the next research.

Comment 7: Discuss your result in comparison to previous studies.

Response: Thank you. We checked and revised the discussion, and compared with the previous studies in the revised manuscript. We added the detail in the discussion section of the revised manuscript according to the revised result.

Comment 8: What are the limitations of this study?

Response: Thank you. There are some weaknesses in our study. Firstly, the current study was from two cross-sectional studies, it is enormous challenges to evaluate the association between TG, TC and IFG/IGT. Secondly, only PFC, 2h PG, TG and TC were performed once in the current study. The weaknesses were listed in the manuscript.

Comment 9: What are the future directions?

Response: Thank you. First, we will investigate the association of the significant variables (Alanine amino transferase, et al) and pathoglycemia employing ROC and interaction effects. Second, we will be further research the association and pathoglycemia using gene and other methods in the future.

I revised my manuscript according to referee’s recommendations. However if still there is any mistake please inform me I will make it correct. Thank you again for your attention on these revisions. I look forward your last decision.
Sincerely Yours,

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