Author’s response to reviews

Title: Sedentary lifestyle and Framingham risk scores: A population-based study in Riyadh city, Saudi Arabia

Authors:
AlJohara AlQuaiz (jalquaiz@yahoo.com)
Amna Siddiqui (amnarehana@gmail.com)
Ambreen Kazi (akamran@ksu.edu.sa)
Muhammad Batais (drmohammed34@gmail.com)
Ali AlHazmi (aalhazmii@ksu.edu.sa)

Version: 1 Date: 01 Nov 2018

Author’s response to reviews:

Reply to comments “BCAR-D-18-00485”

Manuscript titled “Sedentary life style and Framingham risk scores: a population based study in Riyadh, Saudi Arabia”

Dear Editor,

We shall like to thank the Editorial office and reviewers for their comprehensive and helpful comments. We have made a number of revisions to the manuscript and table to address the comments/suggestions and believe that the paper is much improved. We wish to express our appreciation for the efforts of the Editor and reviewers to improve the manuscript. Please find the point-to-point responses to the comments as follows:

Reply to Reviewers comments

Reviewer 1:
Comment 1. Statistical analysis: Page 9, Line 170, it is not clear to me what are the hypothesized variables and what is the outcome. It is neither clear what variables were entered into the multiple logistic regression modeling. I assume this analysis is directly related to the results in Table 4. Can I assume that the odds ratios in Table 4 were adjusted for these variables? Please add these variables in footnote of Table 4.

Reply: Thank you for the suggestion. The required information related to hypothesized and outcome variable added under “statistical analysis”. Please refer to page 10, line number 190 – 198.

Yes, the odds ratios were adjusted for education level and housing type. The adjusted variables have been mentioned as footnote Table 4.

Comment 2. Table 4: the authors combined physical activity and sitting time. Based on the objectives of the study, I believe you want to look at the independent association of physical activity, sitting time with FRS. So I suggest that you enter physical activity and sitting time as separate variable in the multiple regression model.

Reply: Suggestion taken, we have explored the association by taking physical activity and sitting time separately. Please refer to revised Table 4.

Comment 3. Table 4: it will be better to provide the numbers and outcomes in each cell. For example, how many men were normal WC, among these normal WC men, how many were having a FRS >=10. It helps understand the power of these analyses.

Reply: The information related to the numbers and outcomes are mentioned in each cell in Table 3. We think mentioning the numbers again in Table 4 will be duplication.

Comment 4. If you want to show the joint association between physical activity and sitting time with FRS, I think you should provide an additional table or figure to present a joint analysis result after adjusting the confounding factors.

Reply: Suggestion taken, and the required information is presented as Figure 1, showing the percentage of Saudi males and females reporting together low physical activity and sitting time for >6 hours. Please refer to page 11, line no 220-224.
Comment 5. Abstract: Page 2, Line 28, Multivariate is wrong here. The analysis that the authors performed is Multivariable regression which is very different from Multivariate regression.

Reply: Thank you for correcting us. The required correction has been made, please refer under “Abstract” (page 2, line 31) and “Statistical Analysis” (page 10, line 193) and “Results” (page 12, line 241) section.

Comment 6. The English needs to be proofreading by a Native English speaker. Many places are hard to understand.

Reply: Suggestion taken. The manuscript was sent for English correction to the Nature research editing services. Please find the attached certificate along with the revised files.

Reviewer 2:

Comment: I understand the rationale for measuring Framingham risk score (FRS) in the Middle East but do not appreciate the second part of the hypothesis. It is not clearly argued. Why would you want to examine sitting time with FRS? It is likely to be associated.

Reply: We have revised the write up and have tried to mention the rationale clearly. Studies from elsewhere have established that long duration sitting time contributes towards CVD. There is limited information available from Saudi Arabia. Please refer to page number 4 & 5, lines 68 - 81.

Comment: What is the rationale of examining marriage status and FRS? What is the rationale of examining style of housing and FRS? What is this paper actually really trying to achieve? It needs a stronger focus or perhaps just some rewriting. In this current state, it is difficult to see what is really going on.

Reply: we have taken the suggestion and have rewritten the introduction. Information related to marital status, education, occupation, housing are basic sociodemographic information. These variables were assessed using the univariate method and were not included in the multivariable model.

Saudi Arabia has a high burden of CVD risk factors, and this is further increasing due sedentary life style. The association has been explored in several countries using cross-sectional and
longitudinal study designs. There is limited information from Saudi Arabia on gender differences. The objective of this study was to measure the gender differences in the FRS and to assess the association between FRS and sedentary lifestyle.

In the final multivariable model, adjusted factors included housing type and education, that were considered as proxy indicator for socioeconomic status.

Comment: The FRS risk score used was derived on middle class white Americans from many decades ago. Has it been validated on a Saudi population? This is a key point which needs addressing with care. Perhaps there is a risk score of greater relevance to this population.

Key: FRS has been validated in several countries across the world. FRS method has been used by previously published studies from Saudi Arabia. A recently published study from Saudi Arabia compared three CVD scoring systems (reference no 61) and FRS had comparable results. In addition, it is recommended by the consultants working at King Khalid University hospital KKUH, Riyadh, Saudi Arabia to regularly calculate the FRS for each patient visiting the primary care clinics in KKUH.

Specific comments:

Comment Abstract: the methods of the abstract should describe the FRS score. ie: what variables were included and how they were coded. The authors also need to define what high obesity means somewhere in the abstract. That is a FRS > 10. FRS gives a 10 year probability of developing CVD. What are the units? This needs to be more explicit.

Reply: Suggestion taken, and we have added the variables and their coding under the Abstract section, please refer to page number 2, line number 28-31.

We have added the cut-offs for high obesity, please refer to page 2, line no 40.

FRS >10 signify those with intermediate and high CVD risk, we have added the required explanation. Please refer to page 2, line 37-39.

FRS are continuous scores based on computer generated program which include information on age, gender, smoking, HTN and DM treatment, systolic blood pressure, blood cholesterol and HDL levels, hence there is no unit for FRS.

Comment: The sentence about interaction does not make sense to me. Did you perform a statistical interaction? Please consider rewording. What is the rationale for doing this interaction?
Reply: Suggestion taken. According to the Reviewer 1 suggestion, we have included physical activity and sitting time as separate variables in the multivariable model (Table 4). We have added Figure 1, that represents the percentage of participants with both low physical activity and sitting time >6 hours by age categories to identify the age groups showing more number of males and female with sedentary life style. The younger age category adults are spending sedentary life style and this is more significant in the males. Please refer to Table 4 and Figure 1.

Main methods:

Comment: The paragraph describing recruitment of men and women is not clear. Also, you have recruited men and women from different sources which would lead to a selection bias. This should be discussed as a limitation.

Reply: We have corrected the phrasing, as both males and females were recruited from primary health care centers and the private organizations, however the males were almost half the number compared with females. Please refer to page 6, line 109-112.

In addition, we have mentioned this as our limitation. Please refer to page number 16, line no 337-341.

Comment: The authors need to explain that they calculated the FRS on the participants first and then categorized them into a binary outcome. The methods need to be clearer.

Reply: Suggestion taken, and we have revised the respective information under Methods (FRS) and the (statistical analysis). Please refer to page 10, line no 190-193.

Comment: The authors need to report the results of the interactions that were performed. The authors have stratified the results for sex but I don't see the evidence for doing so. Given how the odds ratios overlap, I do not think that the interaction will be positive and if it isn't, the results should be presented in the total population only.

Reply: The stratification based on gender was done because the objective of this study was to measure the gender differences related to CVD risk in males and females and further to measure the association with sedentary life style including physical activity and sitting time. Sitting time was significant in females and was only marginally significant in males.
Results:

Comment: Table 3 needs a better heading. It is does not describe what is in the table.

Reply: The heading has been revised accordingly. Please refer to Table 3.

Discussion:

Comment: There is a lot of restating of results in discussion. This should be avoided. I would disagree with low education being causal for high CVD risk as measured by Framingham Risk Score. It is likely to be mediated through CVD risk factors. Mediation analysis may be warranted. There is no evidence for this statement and it should probably be deleted.

Reply: Suggestion taken and the discussion has been revised according to the comment.

In addition, as suggested we have deleted the mentioned sentence.

ADDITIONAL REQUESTS/SUGGESTIONS:

Comment: The main problem is the lack of clarity in what is being done and why. Also the methods are poorly described.

Reply: we have revised the manuscript according to the comments to have tried our best to make it clear and explicit.