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OPEN PEER REVIEW

Prevalence of Metabolic Syndrome and Its Determinants in the Middle-aged and Elderly Population in A Southern Coastal Region, Iran (the PERSIAN Cohort Study): A Cross-sectional Study

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About this report

This open peer review (OPR) report shows the public comments made on this article during peer review, by the reviewers, the associate editor and the editor-in-chief, for every revision round, together with the authors' replies. Comments appear only with the consent of the people who wrote them. Reviewers who chose to sign their report are named; the others are shown as "Referee". Comments are edited for language only, and confidential remarks to the editors are not included.

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Contents

1 **Original submission** Referee 1, Associate Editor 2
2 **Revision 1** Associate Editor 3
Authors' reply to reviewers 4
Reviewer and editor comments 10
3 **Revision 2** Associate Editor 11
Authors' reply to reviewers 12
Reviewer and editor comments 14
4 **Revision 3** Associate Editor 15
Authors' reply to reviewers 16
Reviewer and editor comments 18

1 Original submission

2 comments · 25 Jun 2021 – 2 Jul 2021

Referee 1 Reviewer

MAJOR REVISION 25 Jun 2021

Dear authors

Please revise your manuscript according to the comments in the attached PDF.

Associate Editor

MAJOR REVISION 2 Jul 2021

Dear authors
Please revise your manuscript according to the reviewer's comments in the attached PDF and in the empty box.

2

Revision 1

AUTHORS' RESPONSE TO REVIEWERS

Authors' reply to reviewers

The next pages contain the authors' point-by-point reply to the comments of this revision round, as submitted with the revised manuscript. It is published as the authors wrote it.

Response to reviewers

Dear Editor
In response to the reviewers' comments on the manuscript entitled "Relative frequency of metabolic syndrome and its components in a southern coastal region, Iran (the PERSIAN Cohort Study): a cross-sectional study", we addressed every issue as follows (alterations have been highlighted in the manuscript).

Reviewer 1:

Reviwer's comment: rewrite the title Metabolic syndrome and its determinants in 35-70 years population of Kong Seaport in south of Iran: A Report from PERSIAN cohort study

Our response: The title in its current form is correct because we meant the prevalence of metabolic syndrome and its individual components (hypertriglyceridemia, high blood pressure, low high-density lipoprotein, high fasting plasma glucose, and central obesity) and not its determinant. We have evaluated the associated factors as well but that was not the main purpose of this study. We have rearranged the results of the abstract to better demonstrate the main purpose of our study.

Reviwer's comment: Iran
Our response: It should be written "IrAN" and it is correct in its present form. PERSIAN (P for Prospective, E for Epidemiological, R for Research, S for Studies, I for the iniral I in IrAN, and AN as the last two letters of IrAN.

Reviwer's comment: in the lines 174-175 of result you mentioned that marital status,SES, smoking, education were not significant determinants of met.syn.
Our response: What you see in the abstract is the results of Table 2 which shows the prevalence of MetS in different age categories and by various other sociodemographic features. Lines 174-175 refer to the results of the logistic regression model which can yield different results when all variables are included. This is not a discrepancy.

Reviwer's comment: define SES

Our response: There is a word limit for the abstract. Socioeconomic status has been defined in detail in the methods section.

Reviwer's comment: MET.SYN has at least 3 component.
Our response: The sentence is clear enough. Three components should be present for the diagnosis of MetS; however, each single component is of clinical significance. This means that only 15.3% of the subjects were healthy regarding all the 5 components of MetS criteria.

Reviwer's comment: what about associations? (analysis data?)
Our response: As the main purpose of the study was to report the prevalence of MetS and its components and due to the word limit of the abstract, only the main results have been included here.

Reviwer's comment: association (not effect)
Our response: "Effect" was replaced by "association".

Reviwer's comment: Iran
Our response: : It should be written "IrAN" and it is correct in its present form. PERSIAN (P for Prospective, E for Epidemiological, R for Research, S for Studies, I for the iniral I in IrAN, and AN as the last two letters of IrAN.

Reviwer's comment: transfer ethics part to the end of method part.
Our response: The ethics part was transferred to the end of the methods section.

Reviwer's comment: which questionnaire was used for nutrition status?
Our response: The Food Frequency Questionaire (FFQ) was used for nutrition status. This was added to the methods section.

Reviwer's comment: identify related criteria in front of each figure.
Our response: The related criteria was added in front of each figure.

Reviwer's comment: in lines 130 later, you should compare each variable with counterpart group,for example: men with met syn compared to men without met syn or men with met syn compared with women with met syn. please rewrite in all parts.

Our response: We aimed to compare males and females and the arrangement of the table and the associated text is correct as P-values are the comparison between males and females and not between MetS and non-MetS. The comparison between subjects with and without MetS is represented in the last three columns to the right.

Reviwer's comment: Identify full word fir the 1st time.
Our response: The full form of the word was added to the text.

Reviwer's comment: it is obvious that components are more prevalent in met syn!
Our response: Not all of these are MetS components, BMI, WHR, HC, and TC are not included in the MetS criteria.

Reviwer's comment: delete "of'
Our response: "of" was omitted.

Reviwer's comment: unit of measurements?
Our response: Units of measurement were added to the table.

Reviwer's comment: How did you categorize SES as low ,....?
Our response: Details of SES computation were added to the methods section. The socioeconomic status (SES) was separately estimated by multiple correspondence analysis (MCA) of the variables , the counterpart of principal component analysis (PCA) for nominal categorical data. The analysis was constructed for the following variables: access to a freezer, access to a washing machine, a dishwasher, a computer, internet, a motorcycle, access to a vacuum cleaner, color TV type, owning a cell-phone, a personal computer or a laptop, and international trips in a lifetime. According to their total asset score, subjects were ranked and then grouped into five quintiles, where the 1st quintile indicates the very low (the poorest) group and the 5th quintile indicates the very high (richest one). We have combined the two upper and lower quantiles in this study to include enough participants in each category.

Reviwer's comment: transfer this table as supplementary file
Our response: The table was transferred to the supplementary file.

Reviwer's comment: mention only significant variables.

Our response: As it has been described in the methods section, variables with P-values ≥0.2 in univariate analyses have been included in the final regression model and it is incorrect to remove the insignificant variables from the table.

Reviwer's comment: transfer figures 2A ,2B as supplementary file.
Our response: These figures were transferred to the supplementary file.

Reviwer's comment: Mention about it in the text of result is enough,no need to this figure..
Our response: The ROC curve was removed from the manuscript. We only mentioned the results.

Reviwer's comment: 1st paragraph should be limited to the main findings of your study.
Our response: The prevalence of MetS in the study population ***is*** our main finding. It is necessary to mention the related discussion right after this statement.

Reviwer's comment: you mentioned against it in lines 174-175.
Our response: These are results from different analyses and different tables, the results of the regression model can be different from the comparison of frequencies. They are not contradictory.

Reviwer's comment: you mentioned against it in lines 174-175
Our response: These are results from different analyses and different tables, the results of the regression model can be different from the comparison of frequencies. They are not contradictory.

Reviwer's comment: you mentioned against it in lines 174-175.
Our response: These are results from different analyses and different tables, the results of the regression model can be different from the comparison of frequencies. They are not contradictory.

Reviewer 2:

Reviwer's comment: Use "relative frequency" rather than "prevalence" in the title and whole the manuscript.

Our response: We replaced prevalence by relative frequency in the whole manuscript where applicable; however, our methodologist believes that with this number of sample size the use of “prevalence” is also correct.

Reviwer’s comment: Revise keywords. Components and prevalence are not appropriate.
Our response: We omitted components and prevalence from the keywords.

Reviwer’s comment: There was no information about novelty of the current study in the introduction.
Our response: The novelty of the current study is that the relative frequency of MetS and its components has never been investigated in this region and with such a large study population. A statement was added to the introduction to show this.

Reviwer’s comment: How about the other exclusion criteria except pregnant women.
Our response: In fact, there were no other exclusion criteria except for pregnancy and incomplete records.

Reviwer’s comment: Report more information about SES computation and give reference for more investigation.
Our response: Details of SES computation were added to the methods section with its related reference. We have combined the two upper and lower quantiles in this study to include enough participants in each category.

Reviwer’s comment: The daily ingested foods by the participants were recorded using which questionnaire?
Our response: The Food Frequency Questionnaire (FFQ) was used for this purpose. This was added to the methods section.

Reviwer’s comment: There was no information about age standardization in the methods section.
Our response: We used the direct standardization method. This was mentioned in the methods section (the statistical analysis).

Reviwer's comment: There was no information about univariate analysis.
Our response: Details of univariate analyses and how we selected variables for the regression model have been added to the methods section.

Reviwer's comment: Report exact P-values in the findings.
Our response: Exact P-values have been reported. If you mean "P<0.001", the exact P-value was 0.000. It is very common in scientific articles to report such P-values as <0.001.

Reviwer's comment: In Table 2, report row percentages rather than column.
Our response: The sum of percentages of each column should be 100 and not the rows because for instance we are reporting the proportion of Men with MetS in the 35-39-year age group (17.4%). This means that 17.4% of Men with MetS were in this age group.

Reviwer's comment: Method of variable selection is not clear in regression modeling.
Our response: This has been clarified in the statistical analysis subsection of the methods.

Reviwer's comment: You must report separate ROC curves for males and females.
Our response: As it has been recommended by another reviewer to remove the ROC curve and only report it in the results section. We also did this for males and females and only reported the results.

2 Revision 1

1 comment · 30 Jul 2021

Associate Editor

MAJOR REVISION 30 Jul 2021

Dear Authors
Unfortunately, your manuscript has not been revised appropriately. Please consider the remaining points highlighted in the attached PDF.

3

Revision 2

AUTHORS' RESPONSE TO REVIEWERS

Authors' reply to reviewers

The next pages contain the authors' point-by-point reply to the comments of this revision round, as submitted with the revised manuscript. It is published as the authors wrote it.

Response to reviewers

Dear Editor
In response to the reviewers' comments on the manuscript entitled "Prevalence of metabolic syndrome and its determinants in the middle aged and elderly population in a southern coastal region, Iran (the PERSIAN Cohort Study): a cross-sectional study", we addressed every issue as follows (alterations have been highlighted in the manuscript).

Reviewer 1:

Reviwer's comment: When you report factors which were significant in univariate and multivariate,it means that your meant was more than only descriptive report of Met.Syn and its components. your target population was 35-70 years,not all population. This needs its specification in the title.
Our response: We have rewritten the title to include "determinants" and the age of the population.

Reviwer's comment: Result of multivariate analysis should be mentioned in the abstract especially variables which were significant in univariate but not in multivariate.
Our response: The results of the multivariate analysis was mentioned in the abstract.

Reviwer's comment: Rewrite the abstract to include it (SES).
Our response: The definition of SES is now included in the abstract.

Reviwer's comment: Rewrite the abstract to include it. When you report factors which were significant in univariate and multivariate,it means that your meant was more than only descriptive report of Met.Syn and its components.
Our response: The associations and the results of the multivariate analysis is now included in the abstract.

Reviwer's comment: in lines 130 later, you should compare each variable with counterpart group,for example: men with met syn compared to men without met syn or men with met syn compared with women with met syn. please rewrite in all parts.
Our response: We have rewritten this part and the related parts to compare men with MetS to women with MetS as you recommened.

Reviwer's comment: it is obvious that components are more prevalent in met syn! confined it to non-included components.
Our response: Only the non-included component are now mentioned.

Reviwer's comment: mention only significant variables. p=<0.2 not >=0.2
Our response: As it has been described in the methods section, variables with P-values ≤0.2 in univariate analyses have been included in the final regression model.

Reviwer's comment: you mentioned against it in lines 174-175. result of mulitivariate should be considered. when you consider variables with p <0.2 to be included in the multivariabe analysis,it means that you applied a kind of variables reduction. The problem will become more clear,when you compare significant variables in univariable analysis in your study with significant ones which came from multivariate analysis in other studies!

Our response: We only included the results of multivariate analysis and omitted the redundant parts as you recommended.

Reviwer's comment: In Table 2, report row percentages rather than column. Rewrite as it wanted. Comparison of frequency of MetSyn among age groups in this type of table's arrangement is logical.
Our response: We left age groups as they were and rewrote are percentages in rows upon your request.

Sincerely,

3 Revision 2

1 comment · 30 Sep 2021

Associate Editor

MINOR REVISION 30 Sep 2021

Dear Authors,

Thanks for improving the manuscript. However, there are some points that need revision. Please consider them in the next revision of your manuscript. You can see the points in the attached file.

4

Revision 3

AUTHORS' RESPONSE TO REVIEWERS

Authors' reply to reviewers

The next pages contain the authors' point-by-point reply to the comments of this revision round, as submitted with the revised manuscript. It is published as the authors wrote it.

Response to reviewers

Dear Editor

In response to the reviewers' comments on the manuscript entitled "Prevalence of metabolic syndrome and its determinants in the middle aged and elderly population in a southern coastal region, Iran (the PERSIAN Cohort Study): a cross-sectional study", we addressed every issue as follows (alterations have been highlighted in the manuscript).

Reviewer 1:

Reviwer's comment: why did not use "Prevalence" instead of "Relative frequency"? In result and conclusion you remarked the PREVALENCE.

Our response: One of your reviewers had asked to change "prevalence" into "relative frequency". We changed it back into "prevalence" upon your request.

Reviwer's comment: In regression,correlation of obesity according to gender should be presented by one aOR . Therefore, mention also the result based on gender as a single variable.

Our response: As you can see in Table 4, men and women were evaluated separately. Thus, the current results are correct.

Reviwer's comment: 5 lines above you stated education as a protective factor in women!

Our response: Education was protective for women but not for men. We added "in men" at the end of the sentence to clarify this. Again, kindly refer to Table 4: women and men are analyzed separately.

Reviwer's comment: SES also includes education.

Our response: Please refer to the definition of SES in the methods section. In this study, SES does not include education. The socioeconomic status (SES) was separately estimated by multiple correspondence analysis (MCA) of the variables, the counterpart of principal component analysis (PCA) for nominal categorical data. The analysis was constructed for the following variables: access to a freezer, access to a washing machine, a dishwasher, a computer, internet, a motorcycle, access to a vacuum cleaner, color TV type, owning a cell-phone, a personal computer or a laptop, and international trips in a lifetime.

Reviwer's comment: in 5 lines above you resulted different:(here p value was not different) "physical activity were significantly higher in men with MetS compared to their female 148 counterparts."
Our response: You are right. This contradicts the above results and the statement was removed.

Reviwer's comment: are you sure about LDL and Physical activity? in the lines 145-150, different findings were mentioned.
Our response: Please refer to Table 2. These statements, from "In general", are about the last two columns of Table 2 (on the right), comparing participants with and without MetS (regardless of gender). The results are correct. Different findings in lines 145-150 refer to the comparison between men and women (both) with MetS.

Reviwer's comment: in women? refer to abstract! Non-smokers?
Our response: As previously recommended by the reviewers, we have only included the results of logistic regression analysis in the abstract. Here are the results of univariate analysis. They can differ, as in logistic regression analysis there is the adjustment of other variables. The second paragraph of the results refers to Table 2 which shows univariate analysis. Also, beware that the first design of the table was to demonstate the cumulative percentage of 100% in columns. Then again, based on the reviewers' comments we changed it so that the sum of percentages (except for age) be 100 in rows. This has made the results complex and now the percentages do not reflect the proportion of individuals with MetS who were smokers but the proportion of smokers who had MetS! When from the 1436 individuals with MetS only 191 were smoking this means that the prevalence of MetS was higher in non-smokers (1436-191=1245).

Reviwer's comment: SES includes also education! refer to above line!
Our response: Again, in response to your previous comments we have mentioned that SES in this study, as previously explained in the methods section, does not include education.

Sincerely,
The Authors

4 Revision 3

1 comment · 20 Oct 2021

Associate Editor

ACCEPT 20 Oct 2021

Dear Authors
Thank you for revising and improving the manuscript.