Author’s response to reviews

Title: Socioeconomic-related inequalities in oral hygiene behaviors: A cross-sectional analysis of the PERSIAN Cohort Study

Authors:

Moslem Soofi (moslemsoofi@yahoo.com)
Yahya Pasdar (yahya.pasdar@kums.ac.ir)
Behzad Kaerami Matin (bkm_1344@yahoo.com)
Behrooz Hamzeh (behrooz_hamzeh@yahoo.com)
Satar Rezaei (satarrezaei@gmail.com)
Ali kazemi-karyani (alikazemi.k20@gmail.com)
Mehdi Moradi-Nazar (m.moradinazar@gmail.com)
Shahin Soltani (sh-soltani@alumnus.tums.ac.ir)
Mohammad Hajizadeh (m.hajizadeh@dal.ca)
Yahya Salimi (yahya.salimi@kums.ac.ir)
Alireza Zangeneh (ali.zangeneh88@gmail.com)
Hossein Poustchi (h.poustchi@gmail.com)
Maryam Sharafkhah (msharafkhah@gmail.com)
Ali-akbar Haghdoust (haghdoust@gmail.com)
Mahboobeh Shirzad Ahoodashti (Mb111963@yahoo.com)
Vahid Mohammadkarimi (Vahid.mohammadkarimi@gmail.com)
Javad Aghazadeh-Attari (aghaazadeh.j@umsu.ac.ir)
Fariborz Mansour-Ghanaei (ghanaie@yahoo.com)
Abbas Yazdanbod (a.yazdanbod@arums.ac.ir)
Ebrahim Eftekhar (eftekhar19@gmail.com)
Dear Editor

Re: Resubmission of the manuscript ID OHEA-D-19-00677

It is with excitement that we resubmit to you a revised version of the manuscript entitled "Socioeconomic-related inequalities in oral hygiene behaviors? A cross-sectional analysis of the PERSIAN Cohort Study” to MBC Oral Health. The manuscript has certainly benefited from these insightful revision suggestions. We have revised the manuscript according to the two Reviewers’ suggestions. The Reviewers' comments are in bold font, and our responses are in normal font. We thank the reviewers for their suggestions and comments.

Thank you again for the opportunity to revise and resubmit our paper to MBC Oral Health

Sincerely,
Farid Najafi, PhD

Technical Comments:

Editor Comments:

BMC Oral Health operates a policy of open peer review, which means that you will be able to see the names of the reviewers who provided the reports via the online peer review system. We encourage you to also view the reports there, via the action links on the left-hand side of the page, to see the names of the reviewers.

Response: Thank you.

Reviewer reports:

Jagan Baskaradoss (Reviewer 1):

General Comments

* I would like to thank the Editor and the authors for giving me this opportunity to review the manuscript, entitled "What lies behind socioeconomic-related inequalities in oral hygiene behaviors? Evidence from the PERSIAN Cohort Study". The manuscript presents a nationally representative data from an ongoing cohort study. The manuscript is interesting and the topic is important that needs to be better studied. However, the present study is lacking several important pieces of information, especially on how the outcome variable is defined. The methods present some limitations that needs major compulsory revisions. I have questions and suggestions that I hope will improve the paper. The specific comments are listed below:

Response: Thank you

Title

* The title is attractive, but I feel the cross-sectional design of the study may not permit an in depth analysis and presentation of the component "What lies behind..." A more realistic title would suit the paper better.

Response: We thank the reviewer for this feedback. “Socioeconomic-related inequalities in oral hygiene behaviors: Evidence from the PERSIAN Cohort Study” was changed to “Socioeconomic-related inequalities in oral hygiene behaviors: A Cross-sectional Analysis of the PERSIAN Cohort Study”.
Abstract
None

Background

* As per the journal recommendations - the term 'introduction' should be replaced with 'background'.

Response: the term 'introduction' was replaced with 'background'.

* Some of the description of the relationship between SES and oral health behavior should be shifted to the Discussion section. The authors could use this section more effectively to present the background of the study, including the rationale of the study with reference to existing literature and gaps.

Response: Thank you for your suggestion. We revised the Background and Discussion sections based on this comment

Methods

* Pg 8; Ln 7-14: The primary outcome variable is oral health behavior, for which the authors refer to the ADA recommendation. However, the ADA's recommendation for home care, states the following 4 points:

The ADA's has come up with 4 recommendation's on home-care,

1) Brush your teeth twice a day with a FLUORIDE TOOTHPASTE. It is important to recognize that the recommendation of brushing twice daily was based on studies that evaluated the frequency of tooth-brushing with a FLUORIDE TOOTHPASTE rather than tooth-brushing alone. This is not represented in the current study, where the authors have only mentioned tooth-brushing.

2) Clean between your teeth daily - Flossing has been addressed in this study

3) Eat a healthy diet that limits sugary beverages and snacks - This is not addressed in this study

4) See your dentist regularly for prevention and treatment of oral disease - This is also not addressed in this study

Response: We agree with the reviewer, but unfortunately we had no access to data on diet habits at the time of the analysis. In addition, the information about dental visit has not been included in the questionnaire of the PERSIAN cohort. Therefore, we considered only brushing and flossing
as recommended oral hygiene behaviors. Based on your comment, we have made a slight modification on explanation about the definition of outcome measure. In addition, we have added these issues as limitations of the study in the revised version of the manuscript.

* The outcome variable has to be more clearly defined. Did the authors collect data on the current brushing habits of the respondents? If so, would this be influenced by other factors like: pain, recent visit to the dentist etc? The authors need to clarify this very important component of the paper.

Response: We agree with the reviewer. It should be noted that the focus of PERSIAN Cohort study is to identify the risk factors related to the most prevalent non-communicable diseases and unfortunately its questionnaire has not covered all aspect of oral health. Specifically, pain and a recent visit to the dentist have not been included in the questionnaire.

* Pg:9 Line19-20: Negative (Positive) ... needs to be clarified

Response: We revised this section. More explanations have been added in the revised version of the manuscript.

* The authors need to include information on the exact questions that were included in the survey for which the analysis was done in this paper (SES; oral hygiene etc)

Response: Thank you for your suggestion. We have added more explanations about measuring SES and oral hygiene questions.

The questions on oral health behaviors were: “How many times per day do you brush your teeth? Once daily, Twice daily, Three times a day, Four times and more a day and Never”, “Do you use dental floss?” and “How many times per week do you floss?”.

It should be noted that in the initial draft we defined the outcome variable based on these questions: “How many times per day do you brush your teeth? Once daily, Twice daily, Three times a day, Four times and more a day and Never”, “Do you use dental floss? Yes/no”.

We really appreciate the reviewer’s comment. According to the constructive comment of the reviewer, we modified the definition of outcome.

In the revised manuscript we defined outcome variable based on these questions: “How many times per day do you brush your teeth? Once daily, Twice daily, Three times a day, Four times and more a day and Never”, “How many times per week do you floss?”. Participants who reported they flossed 7 times and more per week were considered as those who flossed at least once daily. We reanalyzed the data, the overall results and conclusion were the same as the previous ones. The added-value was that the prevalence of flossing (at least once daily) and that of the two behaviors combined were reported more correctly.
* I assume the data presented are the Self-reported hygiene practices. If so, then the authors did not describe how they tackled social desirability bias which is common in these types of study

Response: We appreciate the reviewer’s comment. We have acknowledged the self-report data on hygiene behaviors as a limitation of the study.

Results

* There seems to be a need for further analysis of the data to adjust for the effects of confounding and interactions. A multivariate logistic model could shed more light on the relationship between the variables.

Response: Thank you for your feedback. We have done a decomposition analysis based on the logistic model. In fact, the first step in the analysis was running the logistic model. Following previous studies [1-4], we used marginal effects derived from a nonlinear (logistic) model. Marginal effects based on the logit model were opted to approximate the decomposition analysis. The marginal effects demonstrate associations between determinants and health outcomes. Those with positive signs indicate positive associations with the probability of reporting a health outcome, while those with negative signs indicate negative associations.

A regression framework is used to decompose the observed inequality in child health into “contributions” from determinants where each contribution is a product of two parts: first, the responsiveness of the health outcome to a determinant, and second, the degree of wealth-related inequality in that determinant.

References:


Discussion
**Overall, our findings indicated a very low prevalence of individuals with recommended oral hygiene behaviors in Iran.** Here it is very important to present information on the use of additional oral hygiene aids that are popular in Iran[1]. In a country where the use of Miswak or similar chewing sticks is popular, I believe this needs to be presented in a National level study. Culturally sensitive oral hygiene aids like there might cut across the socio-economic lines.

Response: We appreciate the reviewer’s comment. To our knowledge, a very small percentage of Iranians use Miswak in only some provinces and its use is not prevalent in the general population and in all provinces of Iran. Particularly, the use of a Miswak is more common in villagers and residents of the southern area of the Baluchestan province (Chabahar and Iranshahr), especially in people with a low socioeconomic status. Because its shrub is a native to the Baluchestan area in southeast Iran and has also religious origins. So, the low prevalence of brushing and flossing may or may not be attributed to the use of Miswak. Unfortunately, there is no prevalence study on the use of Miswak in Iran at the national level. Excising studies have assessed the preventive role of Miswak on oral diseases with an experimental design with a low sample size. We agree with the reviewer and believe that it would be interesting to examine the prevalence of Miswak use in Iran at the national level.

However, based on the reviewer’s comment we noted the possible use of additional oral hygiene aids to justify the low prevalence of brushing and flossing in the discussion section.

* The authors need to construct the discussion more convincingly on the relationship between SES and Oral hygiene behaviors. Is it the cost factor, is it the Knowledge Attitude and practice or is it Oral health literacy or is it a combination of the above???

Response: We thank the reviewer for this comment. Some explanation about the ability to pay had been provided in the first version of the manuscript. We also have added some discussion about health literacy. Fore being concise we had to discuss the main results and relationships.

* The discussion primarily focuses on the relationship between SES and oral hygiene behaviors. However, it is important to discuss the other variables that were also found to be significant like education

Response: We appreciate the reviewer’s comment. As our study is on socioeconomic-related inequalities and to being concise we focused more on the main contributors of the observed inequalities.
Based on the reviewer’s comment we discussed more on education as one of the main determinants.

References


Response: Thank you for your recommended paper.

Sohini Dhar, BDS,MPH (Reviewer 2):

Please include appropriate study design in title.

Response: Thank you for your comment. “Socioeconomic-related inequalities in oral hygiene behaviors: Evidence from the PERSIAN Cohort Study” was changed to “Socioeconomic-related inequalities in oral hygiene behaviors: A Cross-sectional Analysis of the PERSIAN Cohort Study”.

Please clarify the total number of regions and provinces included in your data-set.

Response: In this study we obtained data from 19 cohort centers located in 14 different provinces in Iran. For the purpose of this study, the regional cohort centers located in the same province considered as the province in which they were located. In addition, data on Kohgiluyeh and Boyer Ahmad province were excluded from the analysis. Because at the time of this study, the recruitment phase of its cohort center was ongoing and the sample size was insufficient to include into the model. Particularly, Mashhad and Sabzevar were two separate cohort centers in the same province (Razavi Khorasan) and we considered them as Razavi Khorasan province. There were also three cohort centers in Fars province in the cities of Kavar, Kharameh and Fasa, all of which were considered as Fars province (Appendix 1). In addition, Kohgiluyeh and Boyer Ahmad province data were excluded from the analysis. Because at the time of this study, the enrollment phase of the Khorhout Center was ongoing and the sample size was insufficient to fit into the model. Finally, we used data from 18 cohort center located in 14 provinces of Iran.

In your manuscript you mention that the program was launched in 2014 and data was collected in 2018. Please clarify if the data-set for your study is from the year 2018 only or is it from years 2014-2018? I believe it is from the year 2018 only, but clarification is necessary in the methods section.

Response: We thank the reviewer for this comment. We revised the Method section based on this comment. PERSIAN Cohort is a prospective study aiming to include 170,000 men and women...
throughout Iran. Originally intended to be carried out in 10 geographically distinct areas, the PERSIAN Cohort has now stretched to 20 regions of Iran. We obtained the baseline data of 19 cohort centers from the PERSIAN central office in 2018.

Your sample consisted of middle-aged and older adult individuals. You stratified the middle-aged individuals into 35-44 yrs, 45-54 yrs, and 55-64 yrs. But you did not stratify the older adults in your population into say 65-75 yrs, 75-85 yrs etc. Would you please explain your rationale for such stratification preference?

Response: Since the age group of 75-85 yrs was less than one percent of the sample, we merged this age group with the age group of 65-75 yrs and considered them as the age group of 65 and older.

Please explain why data from Kohgiluyeh and Boyer-Ahmad province were excluded from the analysis?

Response: As mentioned above, at the time of this study, the enrollment phase of the Khorhout Center was ongoing and the sample size was insufficient to fit into the model. So, data on Kohgiluyeh and Boyer Ahmad province were excluded from the analysis and finally, we used data from 18 cohort center located in 14 provinces of Iran

Among the determinants listed, smoking is the only behavioral determinant while the rest are socio-economic determinants. I understand your rationale for including smoking as a determinant, but for the interest and focus of this manuscript, I would recommend that you exclude 'smoking' from the list of socio-economic determinants.

Response: We thank the reviewer for this comment. We excluded smoking from the model and performed analysis again. So, as expected some slight changes was observed in the results.

There are multiple typographical and grammatical errors in the manuscript. Please proofread and correct before re-submission. You may utilize the Language Editing Services offered by BMC Oral Health to address the issue.

Response: the authors thank reviewer for this feedback. The English were rechecked and edited