Author’s response to reviews

Title: Prevalence and relevant factors of halitosis in Chinese subjects: A clinical research

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Author’s response to reviews:

Dear Editors and Reviewers:

On behalf of my co-authors, we would like to express our gratitude for giving us the opportunity to revise our manuscript. We appreciate editor and reviewers very much for their positive and constructive comments and suggestions on our manuscript entitled ‘Prevalence and relevant factors of halitosis in Chinese subjects: A clinical research’ (OHEA-D-18-00486). Those comments are all valuable and very helpful for revising and improving our paper, as well as of great guiding significance to our researches.

We have studied editorial and reviewers’ comments carefully and have made correction which we hope could be approval. Revised parts are marked in red in the paper. The main corrections in the paper and the responds to the reviewer’s comments are as flowing:

Responds to the reviewer’s comments:

Reviewer 1: Overall good concept. However this study displays some significant limitations which haven't been appropriately addressed.

1. Although the sample size is adequate, there is an inherent population bias, as the inclusion criteria includes participants that already complain of halitosis. This should be mentioned in the discussion, as risk factors for halitosis that may have been highlighted in this study may also be present in populations who do not complain of halitosis. Ideally, both populations should have been investigated to assess reliable risk factors for halitosis.
Thank you for your comment. We added one paragraph in discussion to explain the limitations. Page 12 line 3-21.

Although the participants were the patients who complain of halitosis, the control groups were subjects without halitosis actually (OS<2). The same research sample can be found in paper such as [11]. Lu HX, Tang C, Chen X, Wong MC, Ye W. Characteristics of patients complaining of halitosis and factors associated with halitosis. Oral Dis. 2014; 20: 787-95.[13]. P. Younghan-Piboonratanakit and T. Vachirarojpisan. Prevalence of Self-Perceived Oral Malodor in a Group of Thai Dental Patients. J Dent (Tehran). 2010; 7(4):196-204.

2. More detailed specifications are required in methods pertaining to participant preparation for organoleptic testing. There is mention of patients who consumed garlic and onions on the day being excluded - were other odorous foods/drinks considered? e.g coffee, alcohol. Were participants advised to avoid the use of chewing gum, mouth freshener etc on the day of the test? This can impact the outcome of the organoleptic test.

Thank you for your comment. The exclusion criteria included consumption of alcohol, coffee and tobacco, and we informed the participants of avoiding to use chewing gum, mouth freshener and perfume on the examination day. We have added these criteria to the “study participants” section, page 4 line 24-25 and line 27-29.

3. Results demonstrated a significant correlation with dry mouth. I would advise the term xerostomia to be used, as this study did not quantitatively measure salivary flow and appropriately assess dry mouth. This is a significant limitation, as salivary gland hypofunction is another risk factor for halitosis and should also be a tested variable. Salivary gland hypofunction has been associated with a change in oral microflora and anaerobic environments, which can further add to halitosis. Furthermore, salivary gland hypofunction can also contribute to thickness of tongue coating (another significant finding from the study).

Thank you for your comment. We have changed “dry mouth” to “xerostomia”.

In this study the xerostomia was associated with VSC level by chi-square test, but it was not found to be a risk factor for halitosis finally by logistic analysis. Maybe the relationship of xerostomia and halitosis need to be more researched and we will quantify it in future study. We discussed this issue in the limitation paragraph as well. Page 12 line 3-21.

4. Results indicate that 34.1% were diagnosed with pseudo-halitosis or halitophobia. Please specify how these diagnosis were made as no psychological assessments were made during the study.

Thank you for your comment. The 34.1% of the participants came to the clinical with subjective halitosis, but they were found without halitosis finally by organoleptic test. Therefore we considered that they were pseudo-halitosis or halitophobia. Pseudo-halitosis and halitophobia are
caused by psychological factors of patients. These kinds of patients need psychotherapy. But psychological assessment can't be used as a diagnostic method for Pseudo-halitosis and halitophobia because the genuine halitosis patients also avoid the society and have unhealthy emotions such as anxiety, depression.

5. There is inadequate discussion on established risk factors for halitosis from the literature in the background section.

Thank you for your comment. We have added one paragraph to discuss the related risk factors in the background section. Page 3 line 20-28.

Reviewer 2: This is an interesting study about halitosis and related factors. The manuscript is well written and merits publication.

Minor revisions:

1. In the title, I recommend to replace the word "patients" with "subjects".

Done.

Furthermore, we changed “patients” to “subjects” in page 2 line 5 and 18, page 4 line 20, page 7 line 24 as well.

2. The title of the manuscript should be consistent with the aim of the study. Please indicate in the aim of the study that you aim also to study the prevalence of halitosis among Chinese subjects.

Thank you for your comment. We have added this in page 2 line 1. We added “the prevalence of halitosis among Chinese subjects” and deleted “the general characteristics of patients who complain of halitosis”

3. In Table 5, I think that the statistical comparison in the following systemic conditions is not adequate in this sample due to the imbalance between the number of subjects who have the systemic disease and those who are free of the same condition:

- Gastroesophageal reflux
- Belching
- Trachitis
- Nephropathy
- Diabetes

It is recommended to consider this point in the discussion. The results in Table 5 show no association between diabetes, for example, and halitosis. However, this is inappropriate conclusion due to the low number of subjects with diabetes in the study population (2%).

Thank you for your comment. The sample size needs to be increased in the later research. We have discussed this issue in limitation paragraph. Page 12 line 15-18.

Special thanks to you for your good comments.

Other changes:
-1. Page 1 line 8: “Q” was changed to “q”, “z” was changed to “Z”
-2. We added the classification of halitosis. Page 3 line 4-8.
-3. Page 3 line 14: we deleted “As a result of the current improvement in our quality of life, halitosis is receiving increasingly more attention.”
-4. Page 9 line 29: we added the prevalence of halitosis in China: 27.5% [34]
-5. Page 10 line 1: we delete “and Beijing, China (62.8%)” as its reference is Chinese.
-6. References: we deleted 7 previous references No. 10, 16, 21, 29, 37, 38 and 44. Added 13 new references No. 2, 13, 14, 16, 17, 18, 19, 21, 34, 47, 48, 49, and 50. So all papers’ serial number were changed as follows:

Page 3:
Line 4: we added “[2]”;
Line 13: “[2]” was changed to “[3]”;
Line 16: “[3-5]” was changed to “[4-6]”; “[6-8]” was changed to “[7-9]”;
Line 19: “[9]” was changed to “[10]”;
Line 22: “[25]” was changed to “[11]”; “[32]” was changed to “[12]”; we added “[13], “[14]”; “[39]” was changed to “[15]”;
Line 23: we added “[16]”;
Line 25: we added “[17]”, “[18]”;  
Line 26: we added “[19]”; “[30]” was changed to “[20]”;  
Line 28: we added “[21]”;  
Line 33: “[11, 12]” was changed to “[22, 23]”;  
Page 4:  
Line 3: “[13]” was changed to “[24]”;  
Line 7: “[14, 15]” was changed to “[25, 26]”;  
Ling 9: “[17]” was changed to “[27]”;  
Page 5:  
Line 29: “[13]” was changed to “[24]”;  
Line 30: “[18]” was changed to “[28]”;  
Page 6:  
Line 16: “[19]” was changed to “[29]”;  
Line 25: “[20]” was changed to “[30]”;  
Line 28: “[22]” was changed to “[31]”;  
Page 9:  
Line 28: “[23]” was changed to “[32]”; “[24]” was changed to “[33]”; we added “[34]”.  
Page 10:  
Line 2: we added “[13]”;  
Line 4: “[25]” was changed to “[11]”;  
Line 7: “[26]” was changed to “[35]”;  
Line 18: “[27, 28]” was changed to “[36, 37]”;  
Line 20: “[30]” was changed to “[20]”;
We would like to express our great appreciation to you and reviewers for comments on our paper. Looking forward to hearing from you.

Thank you and best regards.

Yours sincerely,

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