Author’s response to reviews

Title: Prevalence of and Factors Associated with Dental Caries among Institutionalized Residents with Schizophrenia in Taiwan- A Cross-sectional Study

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Author’s response to reviews: see over
Dear Prof. Titmus:

Thanks for your letter with the reviewers’ comments. We appreciate the Editors and reviewers for useful comments and suggestions. We have substantially revised the manuscript “Prevalence of and Factors Associated with Dental Caries among Institutionalized Residents with Schizophrenia in Taiwan- A Cross-sectional Study” which merged from MS: 8899253593491398 and MS: 5142042334096116 as requested. The important issues raised by the reviewer have been clarified, corrected, and elaborated. We hope the correction of the revised manuscript will be satisfied and meet the requirement of BMC Public Health. Please find the files of the revised manuscript. We would be glad to make any further change as required.

Sincerely Yours

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Reply to Reviewer Georgios Tsakos:

1. Keeping the Introduction focused on the more generic issues.
   [Rewriting] We revised the Background section. (page 4, line 6)
   “Female psychiatric patients were reported to have significantly higher scores of decay, missing, and filled teeth (DMFT) scores compared with male residents. Age is significantly emphasized, especially in the discussion on the relationship between characteristics and oral health of psychiatric patients admitted in long-term care units. Age and the length of stay (LOS) in psychiatric institutions are both significantly associated with poor oral health. Certain psychotic medications producing xerostomia can lead to increased risk of dental caries. LOS in long-term units also likely contributes to high DMFT and less number of remaining teeth.”

2. The aim of the study needs to be re-articulated to clearly express.
   [Rewriting]: We revised the Abstract and Background section.
   “This article aims to investigate the prevalence of dental caries of schizophrenic patients, and the association between some potential factors and the dental caries indexes.” (page 2, line 3)
   “This study aims to identify the relationship between the characteristics (i.e., individual and treatment factors) and the dental caries index (i.e., DMFT, care index (CI), and NRT) of the identified subjects, who are among the institutionalized residents with schizophrenia in Taiwan.” (page 5, line 1 from bottom)

3. Is this the only long-term care institution that accepts patients with schizophrenia?
   [Addition]: We added the statement about the sample hospital.
   “This hospital admits the most number of patients among all public psychiatric institutions in the country.” (page 7, line 2)

4. Basing any categorizations on conceptual grounds and also considering the distribution of their outcome variables.
   [Addition]: The description has been stated in the Methods section.
   “The oral health survey involved 2,660 subjects 18 years old and above who have completed oral health examinations using World Health Organization (WHO) oral health survey basic methods (4th Edition). Statistical analysis of the survey was weighted in terms of area, gender, and age distribution of the general population.” (page 6, line 6 from bottom)

5. Have any other oral health data been collected (e.g. periodontal status etc)?
[Rewriting]: Yes, but this present study focused on dental caries index among subjects with schizophrenia. We have corrected the title of this study.

“Prevalence of and Factors Associated with Dental Caries among Institutionalized Residents with Schizophrenia in Taiwan”

6. Avoid making the claim that both the selected variables (length of stay and type of ward) are socioeconomic status indicators.

[Rewriting]: We rewrite the claim about the selected variables in Methods section.

“The individual factors (i.e., sex, age, educational level, marital status, grade of disability and economic status) and treatment factors (i.e., typical antipsychotic medication use and LOS) of the subjects were considered as potential explanatory (independent) variables.” (page 8, line 6)

7. Did education not allow for more than two categories?

[Explanation]: The study classified the studied subjects’ education level into three categories according to the domestic education system in Taiwan.

“Educational level was stratified into three categories: high school level and higher (high+, 7 years or more), elementary school (1–6 years), and no schooling (zero years).” (page 9, line 2)

8. It is worth looking at marital status separately, providing that numbers permit.

“Marital status was stratified into three categories: single, married, and separated (or divorced/widowed).” (p.9, line 4)

9. The authors need to provide a description of the distributions of the outcome variables before dichotomizing them.

We added the description of the distributions of the outcome in the Subjects of Method section. [Please see page 11, line 3, and Table 1].

“The mean age of the 1,108 residents with schizophrenia is 50.8 years (standard deviation/SD=10.8; range: 20–101 years). Of the total number, 73% are men. The patients have stayed the hospital for 8.4 years on the average (SD=5.7). The mean score of DMFT is 13.9 (SD=8.5), CI is 14.3 (SD=26.5), and the mean NRT is 17.7 (SD=8.8). The values for DMFT, CI, and NRT per sex and age stratum were shown in Table 1."

10. The authors mention that apart from age, DMFT was not related with other explanatory variables, but then do not discuss this lack of associations.

[Addition]: We added the discussion about this mention.
“Age is a strong confounder to the DMFT score, overcoming the effects of other explanatory variables. This is reasonable because the co-linearity was evaluated between educational level, grade of disability, length of stay, and age (all at p-value<0.001 for the Pearson correlation test).“ [page 14, line 3 from bottom]

11. The authors use the cut-off points to claim that lower educational attainment was related to having fewer teeth than those of the general population. Such claims should not have been made and most of the Discussion, as well as parts of the Conclusion, is misleading in this respect.
[Rewriting]: We rewrite the parts of Discussion and Conclusion section which were about above claims.
“Lower educational level and longer stay in hospital were related to CI and NRT.”
(page 13, line 5 from bottom)
“Patients in older age groups and with elementary schooling for educational level and LOS of over 10 years, are more likely to have NRT<24.” (page 17, line 3)

12. The authors claim that this study assessed the reason why the oral health status of schizophrenic patients was worse than that of the general population. As already explained, this is not an appropriate statement.
[Deletion]: Thanks for reviewer’s sound comments. We have corrected the inappropriate statement.

13. On page 1, the authors should provide references to back up their statement that “a growing number of students have recently …”.
[Deletion]: Thanks for reviewer’s useful suggestions. We deleted the sentence after rewriting Background section.

14. On page 3, there is a good critique of previous relevant studies, but the authors need to provide references to specific studies for each of the points they make.
[Rewriting]: We rewrite the Background section and cited references to specific studies for each of the points. (Reference 1, 6 and 16 to 20)

15. On page 15, the word “impressive” is used to describe the comparability between this study and a previous one in terms of the association of age and number of teeth. This association is very much expected, so would refrain from using this word.
[Deletion]: Thanks for reviewer’s useful comment. We deleted the inappropriate term after rewriting Discussion section.
Reply to Reviewer Alexander Ponizovsky:

1-1. The Introduction is poorly focused, with many repetitions, and must be substantially shortened.
[Rewriting]: Thanks for reviewer’s important comment. We rewrite the Background section and corrected the errors.

1-2. The aim of the investigation varies throughout the abstract and text.
[Rewriting]: Thanks for the reviewer’s valuable comment. We rewrite the abstract and text which were the about aims.

2-1. Although the study was conducted in 2006, diagnosis of schizophrenia was made according to ICD-9. It requires an explanation, because ICD-10 was introduced in 1993 and since has been used worldwide.
[Explanation]: Thanks for reviewer’s sound suggestions. However, the disbursement system of National Health Insurance is still based on the ICD-9-CM in Taiwan, and the diagnosis criteria used the ICD-9 in this hospital 2006. We therefore selected sample with the criteria (ICD-9 code=295).

2-2. There is a non-traditional categorization of marital status into single and non-single categories, with the latter including married along with separated, divorced and widowed subjects.
[Rewriting]: Thanks for reviewer’s useful suggestions. We rewrite the categorization of marital status and analyzed the data again. (page 9, line 4, and Table 2)

3. The Descriptive Results section should be moved to the Subject section.
[Moving]: Thanks for reviewer’s important opinion. The Descriptive Results section has been moved to the Subject section of Method.

4-1. References updated (see for review, Sjögren and Nordström, 2000; Rai 2008; Muijen 2008, Ponizovsky et al, 2009; Zusman et al, 2010).
We have updated the References
[Additions]: Thanks for reviewer’s useful suggestions. Those references have been cited. Please see reference 11, 14, 15, 30, 31.

4-2. The limitations of the study should be emphasized.
[Additions]: Thanks for the reviewer’s valuable comment. We have added the
“However, the present study still has some limitations. First, the enrolled cases were not randomly sampled from the general population in Taiwan. This perhaps resulted in a selection bias. Second, some potential confounders, such as general health condition, smoking habits, and body weight of the subjects were not considered due to insufficient information.”

5. The main problem of the manuscript is the low quality of written English, with multiple typos, grammatical, stylistic and spelling errors, which impede perception and understanding.

[Rewriting]: Thanks for the reviewer’s sound comment. A native English-speaker has edited this revised manuscript.