Reviewer's report

Title: Factors Associated with Worse Oral Health of the Institutionalized Schizophrenic Residents Compared to the General Population in Taiwan

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Reviewer: Georgios Tsakos

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This is a study on schizophrenic patients in long-term care in Taiwan and aims to assess the sociodemographic and clinical correlates of their oral health status. This is a relatively neglected research area, so the study has potential to contribute to the literature on the topic. However, there are a number of important concerns that need to be addressed.

Major Compulsory Revisions

1. The rationale for the study needs to be made more clearly. In the Introduction it is mentioned that “a growing number of studies” on the oral health of psychiatric patients, but they fail to provide “information on factors associated with oral health among institutionalised schizophrenic residents in Taiwan”. There are two issues here. The first is that, as acknowledged later in the Discussion, some of these studies have already provided some evidence about these associations. This should be recognised and in effect this study attempts to provide further evidence on these associations, which is enough justification for carrying it out. Second, this study assesses associations and while the choice of setting (Taiwan) undoubtedly plays a role, the key issue for this publication is not whether there is available information for Taiwan; instead it is about whether there are studies on the associations between oral health and sociodemographic and clinical potential risk factors in general. So, would suggest keeping the Introduction focused on the more generic issues rather than identifying the lack of studies in Taiwan as a justification for this study.

2. The aim of the study (p.4) needs to be re-articulated to clearly express that the study’s main aim is to assess the associations between oral health status of schizophrenic patients and potential risk factors in terms of their demographic, socioeconomic and clinical characteristics.

3. The sample is rather large and was selected from one long-term care hospital. Is this the only long-term care institution that accepts patients with schizophrenia? This is important in terms of assessing the representativeness of the sample and the generalisability of the findings.

4. Throughout the text the authors seem to constantly refer to the comparability of their findings with the national population. And they claim to have achieved this by selecting to dichotomise their main outcome variables according to the average estimates from “an oral health survey for the adult and elderly
population” in Taiwan. It is not clear to me why they opted to categorise their
outcome variables according to the results of the other oral health survey. The
main aim of this study is to assess the relationship between oral health and
potential risk factors therefore cannot see what the choice of the specific cut-off
points adds. Instead, I would suggest basing any categorisations on conceptual
grounds and also considering the distribution of their outcome variables.

5. The study used the WHO Oral Health Surveys form to collect clinical oral
health status. This is a form that allows for the collection of data on oral health
status and treatment needs for a variety of oral conditions. However, the
manuscript contains information only in relation to the caries status. Have any
other oral health data been collected (e.g. periodontal status etc)? If so, then it is
worth presenting it here. The authors have put a sentence in the Discussion to
indicate that future studies should follow a similar approach in relation to the
dental treatment needs of schizophrenic residents (p.16), therefore it is
appropriate to present such analysis –if available- in this paper.

6. It is difficult to understand how length of stay in the hospital can be a marker of
socioeconomic status (p.6). In addition, while economic status is an important
variable in this respect, but there are serious concerns about the derivation of
this variable for this study. The authors have used a proxy measure for economic
status according to the type of wards the schizophrenic patients were
hospitalised in. Clearly, this is a very indirect and rather crude measure of the
patients ability and willingness to pay for their hospitalisation and can be
influenced by many factors, both personal but also linked to benefits they may
receive etc. All this indicates that while this variable presents useful information,
it is not an appropriate measure of economic status. So, I would suggest that the
authors seriously consider avoid making the claim that both the selected
variables (length of stay and type of ward) are socioeconomic status indicators.

7. The authors have dichotomised the variable on years in education into those
that had up to 6 years and those that had more than that. While this is an
important cut-off point, it is not clear why they did not additionally used a second
relevant cut-off point, in essence categorising their sample in more groups and
potentially providing more information about the association between oral health
and education. How was the continuous variable distributed? Did it not allow for
more than two categories?

8. On another methodological issue, the marital status categorisation meant that
married participants were in the same group with the separated and widowed.
However, married participants are expected to have much different oral health
from some of the other marital statuses grouped under the same category. It is
worth looking at them separately, providing that numbers permit.

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

10. The Discussion is long but fails to provide potential explanations for some of
the key findings. For example, the authors mention that apart from age, DMFT
was not related with other explanatory variables (p.12), but then do not discuss this lack of associations.

11. The previous point about the so-called “comparability” with estimates from another study in a general population seems to have affected the Discussion in its entirety. The authors use the cut-off points to claim that, for example, lower educational attainment was related to having fewer teeth than those of the general population. This is just an example and such issues appear again and again in the text. However, this is not really appropriate. What the study has shown is that schizophrenic patients with lower educational attainment had higher probability to have fewer than 23 teeth, compared to their counterparts with higher education. This figure (23 teeth) is equivalent to the mean number of teeth in the general population, but the comparison is not between means of two different samples. The authors did not compare their estimates with the general population mean; they just showed the association between explanatory variables and the oral health of two groups of schizophrenic patients, using values that are close to the general population mean in order to classify these groups. Such claims should not have been made and most of the Discussion, as well as parts of the Conclusion, is misleading in this respect.

12. In highlighting the contribution made by this study, the authors claim (first) that this study assessed the reason why the oral health status of schizophrenic patients was worse than that of the general population (p.13). As already explained, this is not an appropriate statement. The study does contribute to assessing the associations between the oral health status of schizophrenic patients and their demographic and clinical risk factors. Similarly, the third contribution (p.13) is not correct for the reasons explained in the previous point.

Minor Essential Revisions

13. On page 1, the authors should provide references to back up their statement that “a growing number of students have recently …”.

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.

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.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Needs some language corrections before being published

Statistical review: Yes, and I have assessed the statistics in my report.
Declaration of competing interests:

I declare that I have no competing interests