Reviewer’s report

Title: Temporary employment and tooth loss: a cross-sectional study from the J-SHINE study

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Reviewer: Lisa Jamieson

Reviewer's report:

This is an interesting article that explores the relationship between temporary employment and tooth loss in a large adult population in Japan. I have a few queries.

1. I am not convinced this is a 'retrospective cohort' study. It looks like a cross-sectional study to me. Is the survey supposed to be representative? Given the efforts gone to for sampling, I would assume so. Then why weren't weights used?

2. To me, the logical causal pathway, and certainly one that the authors themselves describe in both Introduction and Discussion, is that temporary employment leads to tooth loss via a range of pathways. It would be helpful if the authors could provide a DAG (Directed Acyclic Graph) to demonstrate this. But it then means Tables 1 and 2 are inaccurate. Tooth loss, as the outcome variable, should be across the top, while employment (in its various categories) is placed down with the other explanatory variables.

3. Likewise in the Models, it should be tooth loss as the outcome variable. What was the rationale for using the cut-points of 1, 2, 3, 4 and 4+ for tooth loss, then to use as a categorical ordered variable? The functional limitation of 1-2 teeth lost is not likely to be substantial. Why not follow the literature of less than 21 teeth? Or use mean number of teeth lost?

4. What is the clinical validity of self-reported tooth loss in Japan?

5. In the Introduction and Discussion, tooth brushing is mentioned as being linked with tooth loss. Why was this not included as an explanatory variable?

6. Please provide some context of dental service provision in Japan. Is it largely funded out-of-pocket, or do Government-based dental public health clinics serve those who are socially marginalised? What is the role of insurance, and does temporary employment impact on this?

7. Why was household economic status at age 5 years used? How can this be relevant to a population that now has a mean age of 37 years. And why were the cut-points of 'rich', 'fair' or 'poor' used; what do they actually mean? Did the participants themselves provide this, or did the investigators define.
8. The first part of the Discussion repeats much of what was in the Introduction. Please delete, and provide more details of WHY the findings might have been what they are.

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

Yes

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Yes

**Are the conclusions drawn adequately supported by the data shown?**
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Yes

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