Reviewer's report

Title: Relationship between tooth loss and mortality in 80-year-old Japanese community-dwelling subjects

Version: 3 Date: 16 February 2010

Reviewer: Joanna Stewart

Reviewer's report:

Major

Table 1 and table 2. The percentages quoted in these tables are very difficult to interpret. Survival status is the outcome, therefore what is of interest is the percentage of the categories of the explanatory variables that have died. This is particularly relevant when looking at variables with multiple categories – it is very difficult indeed to look to see if there was a trend over smoking or alcohol consumption with the percentages presented this way round. The table should be redone, removing the current percentages, adding the second category for the binary variables (eg a line for males as well as females) and adding the percentage died after the died number, (instead of the percentage who had died that were female, etc.)

Before splitting the logistic regression into subgroups it would be helpful to investigate the interactions to see if in fact there is evidence of a different influence of number of teeth depending on the levels of the other explanatory variables. This can not be interpreted from the individual analyses and there is a danger of over-interpreting differences in p values which are more related to power than effect size. For example, as expected, there is little difference in the estimate of the effect size for never smoked males at the 2 follow up times. This needs to be clearer in the text.

The added sentences in the first paragraph of the discussion is confusing. There was nothing in the results section reporting mortality of never smoked at the 2 times so it should not be introduced in the discussion – is this in fact referring to the effect of teeth loss on mortality? If so, as mentioned above, the effect sizes for all the subgroups are very similar after the 2 follow up times, as would certainly be expected so there is no difference to explain. The text needs to be modified to remove any ambiguity about this. It is not clear what the 20% is referring to.

Minor

Results – 1st paragraph, second to last sentence. I am obviously misunderstanding these percentages as the way I read them less had died after 5.5 years than 4 years. Please reword to make it clear what these percentages are.

The p values presented for the chi square tests that were checkable appear to be
about a factor of 2 out. Are these from a simple chi square test? This has no important effect on the interpretation of the results but please check that the values quoted are correct and include an explanation in the methods if something non standard was done.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests