Reviewer's report

Title: A reappraisal of the quantitative relationship between sugar intake and dental caries; the need for new criteria for developing goals for sugar intake.

Version: 2 Date: 13 July 2014

Reviewer: William Murray Thomson

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General comments
Paper reads in parts like more of a polemic than a reasoned scientific analysis. There is some inaccuracy in both writing and terminology which does not help.

DMF scores are not ‘caries prevalence’ – the prevalence of caries is the % of people with 1+teeth having been affected. DMF scores are a summary measure of caries experience, sometimes referred to as caries ‘severity’.

Section-specific comments

Title
I don’t know why the semi-colon is used – surely that should be a colon.

Abstract
Line 21 – ‘incidence’ is too specific, given what the paper contains – the authors are better advised to use the term ‘caries experience’.
Line 28 – change ‘of’ to ‘on’.
For subsequent comments, I will omit the word ‘Line’ and just put the line number.

31 – what age group for adults? That particular sentence has structural problems.
35 – ‘to sugar intakes’? reword so it means something meaningful.

Introduction
43-44 – that 1st sentence is a sweeping statement which deserves some supporting references.
50 – insert a comma after ‘effect’, and do that same in line 56 – after ‘caries’. In line 59, remove that last comma – it does not need to be there.
64 – reword – do not use ‘as’ where you mean ‘because’.
67 – this needs to be a proper sentence – ‘these were’ after the semi-colon, and please add ‘studies’ at the end of the sentence.
70- insert ‘between’ after ‘than’.

74 – hyphenate ‘cut off’, and insert a comma after ‘(<5%E)’.

85-86 – might be useful and informative to frame a research question or two here.

Methods

89 – change ‘data’ to ‘studies’.

94-96 – that is not a proper sentence.

97 – data providing data – huh?

99 - (and onwards) – change ‘caput’ to ‘head’. What is the source for those assumptions? Ref needed.

104 – insert ‘had’ before ‘changed’, and ‘under’ before ‘sanctions’.

107 – I do not agree with the term ‘dose-response’ relation here – it is my belief that the authors should use a more appropriate phrase such as ‘biological gradient’ (or ‘epidemiological gradient’. While on that section, exactly HOW was the re-analysis done? More details of the methodology are needed.

111 - Name those 3 countries here.

112 – change ‘of’ to ‘that they had’, and insert a comma after ‘fluoridation’.

113 – change ‘As’ to ‘Because’.

114-115 – you cannot use the term ‘increase’ here – you need to say something like ‘a proportionally greater caries experience with greater sugar intakes’.

117 – analyses? Details? Should we take it on faith?

Results

123 – surely 13-19-year-olds (note the hyphenation – please do this in the other such instances in the paper) are adolescents, not children.

124 – change ‘those’ to ‘adults’.

125 – are you talking about permanent or deciduous caries?

128-129 – ‘does not occur at any age’? But you just told us that it does affect 2% - that statement is not accurate and smacks of the polemical…

130-131 – ‘Most’ is followed by reference to 2 studies....

131-133 – in what way? Be more specific about that wartime stuff.

135 – insert a comma after ‘II’.
138 – we need more detail on that study – we are left to rely on these authors’ interpretation of those data.

141 – ‘Dose – response’ – close it up to ‘Dose-response’ (although it is the wrong term to use anyway!). There are a couple of other examples of this in the paper and those should be fixed.

146 – Fig 2 – uses the term ‘incidence’ – should that be ‘increment’?

151 – where? Who reported it?

155 – confounders – more details please. Explain this further.

158 – the ‘rate of caries’ – what, exactly, do you mean by that? Be more specific.

159 – hyphenate ‘sugar caries’.

160 – ‘reduces’ is the wrong term, and what do you mean by ‘prevalence’, exactly? And age-specific prevalence... We know from Griffin et al (JDR 2007; 86: 410-415) that the DMF score among adults is lower by about 27% among those in fluoridated areas, but we cannot say form that that fluoridation ‘reduces’ caries experience by 27%. Thus, the statement in this paper should be along the lines of ‘is associated with about 25% lower caries experience’...

163 – insert ‘relatively’ after ‘becomes’.

166 – ‘a comparison of a country’ should be ‘comparison within a country’.

169 – change ‘16 – 24’ to ‘16-24’. Why am I having to point out these elementary clangers?

169-170 – what is meant by ‘had some dental caries experience in 4.6 teeth’? Sloppy writing.

170 – ‘35-44 year olds’ should be ’35-44-year-olds’.

171 insert ‘,eam’ before DMFT and get rid of that awful ‘compared to’.

174-175 – you cannot say that it ‘increased 10-fold’ from 15-24 to 65+ - those were different people – all you can do is assume that that would occur. There are all sort of age, period and cohort effects operative which mean that you cannot make that simplistic statement. It needs rewording.

176 – delete the second ‘countries’; it is not needed.

178 – what is meant by ‘widescale’? Is that some sort of neologistic conflation of ‘widespread’ and ‘large-scale’?

181 – there are 148 possible surfaces – we usually do not count occlusals for anteriors. If we include possible root surfaces as well, there are 276 surfaces at risk.
184 – there is an awful compound word there (‘high sugar and fluoride intake’ – this is being used as a single adjective…) which needs to be hyphenated – it is preferable to reword that sentence so that this does not need to happen.

197 – change ‘confectionary’ (adjective’) to ‘confectionery’ (noun).

198 – hyphenate ‘short term’. And put a comma after ‘Nevertheless’.

200 – ‘Cunhans’…

204 – need a citation after ‘life course’ – I suggest Broadbent et al 2008.

207 – ‘Dose – response’ should be ‘Dose-response’, but see my earlier concerns about using that term… and ‘sugars intake’ should be ‘sugar intakes’.

216 – comma needed after ‘Clearly’.

221 - I would put ‘in practice’ in parentheses, given that it is a parenthetical statement/comment.

222 – ‘caries-free one-year’…

228 – ‘decreased’ is inappropriate – see above; ‘are lower’ is a more appropriate term.

240 – ‘and then into adulthood’ needs a supporting reference.

247 – the sentence beginning ‘Although it..’ is not a stand-alone sentence.

251 – ‘the final year’ is incorrect. I know that they did another assessment at age 38 and another is planned. That study is to continue into old age.

255 – comma after ‘life’ should not be there.

267 – comma needed after ‘Thus’.

270 – ‘non – milk’ should, of course, be ‘non-milk’!

271 – comma needed after ‘intakes’.

281 – delete ‘in 1982’ – it is redundant.

282 – ‘12 year old’ should be ‘12-year-old’ – it is a compound word.

283 – insert ‘a mean’ after ‘of’.

288 - ‘6-12 year olds’ should be ‘6-12-year-olds’.

289 – the ‘, i.e.’ is very clumsy – I would change it to ‘(that is, 50g/d [33])’.

307 – ‘reliable’ is inappropriate – I assume you mean ‘valid’.

309 – you cannot begin a sentence with ‘But’. Change to ‘However,’ or
something. Do not begin a sentence with a conjunction.

337 – ‘Acknowledgments’ needs fixing. Check the spelling of ‘Fumiaka’ – I recollect it as ‘Fumiako’. I may be wrong, but it is best to check…

346 – ectopic bracket…

Fig 2 – y axis label – should that be ‘increment’?

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

**Quality of written English:** Not suitable for publication unless extensively edited

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests