Reviewer's report

Title: UK population norms for the modified dental anxiety scale with percentile calculator: Adult Dental Health Survey 2009 results

Version: 1 Date: 6 March 2013

Reviewer: Arjen J van Wijk

Reviewer's report:

General

In 2009 I was asked to review a similar manuscript from the present first author for BMC Oral Health (The modified dental anxiety scale: UK population norms in 2008). The present manuscript concerns more recent data, is based on a substantially larger sample size, and is presumably more representative for the UK population.

The manuscript describes an interesting study in which UK population based norm scores for the MDAS are reported. The manuscript is valuable in that it provides clinicians with tabulated percentile scores, complemented with confidence intervals round the point estimates, across gender and age. In addition, a software program was written that enables clinicians to directly calculated percentile rank scores for a given MDAS score. The choice to publish this article in an open access journal ensures that clinicians will be able to find and access the norm scores and the respective program.

The manuscript is well written and worthy of publication. However, a number of issues need to be addressed before publication.

Major Compulsory Revisions

1. Again, there are some issues with the sample and selection that took place. A total of 12054 households (HH: out of the 13400) were eligible to be included. From these HH, 7233 HH participated (and not respondents as it says in the manuscript), which is about 60%. In these HH, a total of 13509 adults were available, of which 11382 participated, which is 84%. The latter result is reported in the abstract. However, 13509 adults in 7233 HH implies on average 1.87 adults per HH. If I extrapolate this to the original HH this gives us 1.87 * 12054 = 22513 eligible participants. The 11382 participants are only 50.6% of the eligible (estimated) total. In short, the 84% reported in the abstract seems somewhat misleading. In addition, why did 40% of HH refuse to participate? What were the reasons given? This information is important and needs to be added to the manuscript.

2. A large part of the discussion is focused on Bayesian vs classical interpretation of confidence intervals, and sampling error vs measurement error. Although interesting, I do not think that clinicians will find this discussion useful. It would be more interesting to know to what extent the results found in the present
study, deviate from the results published previously by the same authors (i.e. the article that concerns the norm scores from 2008). That is, since the present sample is assumed to be more representative (than the previous sample) I would expect to find at least some kind of comparison between the present and the previous results.

Minor Essential Revisions

1. I do not understand why or how postcodes were paired together and why it would increase diversity (page 7). Please explain.

2. On page 7 it is reported that “A two-stage cluster sample was used for the survey comprising of 253 primary sampling units (PSU) across England and Wales, and a further 15 PSUs in Northern Ireland. Each PSU consisted of two postcode sectors with 25 addresses sampled from each giving a total sample of 13,400 addresses.”. Indeed: \((253 + 15) \times 50 = 13400\). However, further on the authors continue by saying that 1150 and 750 addresses were sampled in Wales and Northern Ireland. It is not entirely clear that these are part of the 13400 (which I assume).

3. On page 7, it seems as if the sentence “…a total sample of 13,400 addresses. Of these 12,054 were eligible for inclusion (1,346 ineligibles were unoccupied households, business addresses, care homes etc.)” is almost completely repeated a bit further on in the same paragraph: “13,400 households were sampled overall and of these 12,054 were eligible for inclusion (1,346 ineligibles were unoccupied households, business addresses care homes etc). “. Moreover, also given my major comment 1, the sample and procedure section could and should be rewritten in order to improve clarity.

4. Is there any specific reason why age was divided into these specific categories (16-34, 35-54, and 55+)?

5. Abstract, p 2: The font size for the method section is smaller than the other text; the same is true for the section ethical consideration on p 8.

6. A space was omitted on: p 3, last sentence “..and Arabic[23];” p 6, first sentence “..interval estimate[25]”; 

7. p 7, halfway sample and procedure, “Northern Ireland’[28]. The survey”: remove the ‘.

8. P 7, sample and procedure, the sentence “Of the 12,054 eligible households, 7,233 respondents (60% household response rate) the remaining 4,821 households refused to participate.”, I think respondents should read “participated”.

9. P 8, section ethical issues, this section states that a single application was submitted to the NRES, but it does not mention approval?

10. P 12, the section on the computer program does not seem to add much here, since it is not really method related, perhaps a sentence in the introduction would be more appropriate, or just report in the result section that the norm scores are also available via a computer program.
11. P 13, section scale psychometrics, in the sentence “internal consistency coefficient (Cronbach’s) with 95% confidence intervals” alpha should be inserted (i.e. Cronbach’s alpha)

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

**Quality of written English:** Acceptable

**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