Reviewer's report

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

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Reviewer: Trilby Coolidge

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Review of BMC
Humphris et al. UK population norms for the Modified Dental Anxiety Scale with percentile calculator: Adult Health Survey 2009 results

It is important to understand and to convey how to interpret the questionnaire scores that individuals obtain on them to the individuals themselves as well as those (such as dentists) who would make treatment decisions/recommendations based on these scores. One very important way of understanding obtained scores is to be able to compare them with population norms via percentiles. Since the MDAS is a commonly-administered questionnaire, it makes sense that the authors would propose to create UK percentile norms for this questionnaire. With this information, a patient (or his/her dentist or researcher) could learn how to contextualize his/her level of dental anxiety compared with his/her peers. Thus in general I welcome these authors' work towards developing UK percentile norms on this questionnaire. However, there are many aspects of this manuscript which make it unacceptable for publication in its present form.

Major Compulsory Revisions

1. Since it is usually not possible (or feasible) to assess an entire population, norms are usually developed on samples. Because the norms will then be used to assess individual members of the population, it is essential that the norming sample be typical of that population. Therefore, it is important for the authors to convince us that their sample is, in fact, typical of the UK population aged 16 and over. Did the PSUs and the addresses sampled from them result in individuals who are representative of the UK population aged 16 and older? (e.g., were students eligible? Individuals in nursing homes? Renters, lodgers or others who are not in single family homes? Individuals from different racial and ethnic backgrounds? etc.) Given the use of postal addresses as the enumeration method, what proportion of UK residents do not have postal addresses? Are the frequencies for the different demographic variables presented in Table 1 typical of the UK population aged 16 and older? If not, would it be wise to weight the data to account for any under-represented group(s)?

2. The 40% household refusal rate heightens the difficulties in assessing the representativeness of the sample as it is currently described. In thinking about why a household would refuse to allow the interviewers to administer the 5-item
MDAS, one wonders if these were households where the gatekeeper (person answering the door to the interviewer) him- or herself was high on dental fear, which implies that there may be considerable higher dental fear in the UK than this sample revealed. Do the authors have any information about the households which refused to allow the interviewer access to the individuals living there? At a minimum, they should acknowledge this high refusal rate as problematic.

3. The authors enumerated 13,400 addresses. Presumably they selected this sample size in order to enroll a target number of people to be interviewed. What was this target number, and how was this sample size determined?

4. I realize that one of the primary aims was to develop percentile norms for the measure. Nevertheless, the authors could certainly test and comment on other aspects of their results (e.g., gender differences, age differences, probable lack of difference between different SES levels). To the extent that such findings are consistent with those reported in the literature, this also lends credence to the argument that the sample was appropriate.

The additional points are more minor:

5. Reading between the lines on page 5, the ADHS appears to be a larger endeavor than what is reported here, and possibly has also occurred (without the MDAS) in previous years? It would be helpful to read a description of this larger endeavor, when it has occurred, how it is carried out (e.g., are households notified in advance of the visit, do interviewers make more than one attempt when no one answers the door at their first visit, do interviewers interview household members in a particular order, are the interviews private, etc.), what types of data are gathered, etc. Perhaps the history of this larger endeavor is related to the sample size described and/or the methods of using postal addresses and travelling to households to interview members living there. If the authors had access to additional data (e.g., dental status), then the MDAS scores could be subjected to additional analyses.

6. On page 7, it is not clear what is meant by the pairing of the post codes. Also, what is the “design effect” that the authors wanted to reduce? In the same paragraph, the authors state that there were 11,382 individual participants, but in Table 1 the number is 10,086.

7. In the last paragraph on page 7, the authors should describe the MDAS items more accurately. For example, the first item does not ask about “emotional reaction”, which is a general term, but anxiety in particular. Also, the item asks about how anxious one feels the day before a dental appointment, rather than the visit they had on the previous day. One option would be to include the wording of the 5 items in what is currently called “Box 1”, provide a brief description on page 7, and then direct the reader to “Box 1” for the complete text.

8. On page 8, under Procedure, the authors mention the MDAS, the demographic questions, “and other dental-related issues”. Further down on the same page, the authors mention “self-reported visiting”, and this is likely to be the
variable listed in Table 1 as “Visiting the dentist”. The item or items assessing this should be described under Procedure, so that the reader can see what the participants were asked. This allows readers to compare the data presented here with other studies examining the relationship between dental fear and dental attendance. If any of the other items regarding “dental-related issues” were analyzed in this study, then they also need to be described under Procedure. If none of them were, then the sentence in Procedure needs to be revised to clarify this.

9. With regards to dental attendance, the authors can help readers who are outside the UK further understand this variable by describing (in Background) why this item was included in this study. For example, is dental care free and easily accessible to individuals in the UK who are 16 and older? If so, then the authors can mention this and point out that, despite free/accessible care, many individuals do not visit a dentist regularly and this has been found to be related to their level of dental fear.

10. Under Ethical issues, the authors write that they applied for permission to do the study. Since it is assumed that they were given permission for the study, it is not necessary to indicate that an application was made. It is sufficient to state that the appropriate agency approved the study. Also, the authors need to state that the participating adults gave consent, while parents/guardians gave consent for minors aged 16 and 17, followed by the minors giving assent. Since we don’t yet have all of the details of the interview methodology, it is not yet clear when consent/assent was given (e.g., if households received a letter in advance of the in-person visit, perhaps they were asked to sign consent and return a card to the researchers? Or perhaps consent was obtained in person at the onset of the visit?)

11. The Tables need to be numbered in the same order with which they are presented in Results. Typically, demographics would be presented first. Thus, Table 1 should be described in Results before any information from any other Table is described. Following this, the sample statistics currently in “Box 1” would be described, and presented in a Table 2. Then the percentiles can be presented in Tables 3 and 4.

12. On page 9, the authors state that cross tabulation was performed with the categorical variables, but no corresponding chi squares are presented in Results.

13. Finally, in addition to the redundant sentence pointed out in #17 below, there are other areas where the authors need to edit their writing more carefully. For example, in the Abstract the authors include a hyphen (in Methods) where it would be preferable to write “…in the survey and 11,382…”. On page 5, they should include the acronym “ADHS” in parentheses immediately after first giving the full name. On page 7, towards the end of the first paragraph it would be preferable to write: “…(60% household response rate), while the remaining…” On page 17, there is a paragraph which contains only a single sentence. Since it is often hard for any of us to spot such things in our own writing, I would suggest that the authors enlist the aid of a colleague to read a revised manuscript.
Minor Essential Revisions:

14. Towards the end of the paragraph spanning pages 7-8, the authors should indicate the minimum and maximum total score possible on the MDAS, together with what the low and high scores mean. This will help the reader understand the means presented in Table 1 and the raw scores presented in other Tables.

15. On page 11, the authors need to include the reference number for “Crawford et al. (2009)”.

16. The last sentence in the first paragraph on page 7 is redundant with what appears just before the sentence.

Discretionary revisions:

17. On page 4, third sentence from the end, the authors refer to “this unpleasant feeling”. While I agree that dental anxiety is unpleasant, this phrase is jarring here, and I think “dental anxiety” would be preferable.

Level of interest: An article of importance in its field

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

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.