Reviewer's report

Title: Validation and reproducibility of a new iodine specific food frequency questionnaire for assessing iodine intake in Norwegian pregnant women

Version: 0 Date: 01 Aug 2019
Reviewer: Sara Wuehler

Reviewer's report:

Overall:

Paper is generally well written with a topic of interest to Norway and potentially for other areas where primary iodine sources are iodine intrinsic to food (vs iodised salt), and supplemental iodine. However, the text could use some slight shifts in how things are presented to better clarify to the reader the most valuable lessons and comparisons the authors are trying to express. The suggested changes are minor, but substantial in number.

Recommendation:

Publication with minor clarifications

Feedback:

Please clarify in the abstract and background that this paper is describing methods of estimating dietary iodine content in a situation in which most iodine in the diet is from essentially intrinsic iodine, not iodine added through salt that is iodized. Thus, this method is only relevant for other countries where the primary sources of iodine are this type of food and supplements, not general addition of salt.

Line 78: clarify the type of recommendation is being described; this appears to be the local 'estimated average requirement' (EAR) vs the recommended nutrient intake (RNI, if using FAO/WHO recommendations). The EAR is a different cutoff than the RNI, so should be specified, and why this is the cutoff being applied here.

Line 79: are you implying that the recommendation was instituted because of this study, or just happened to come for other reasons… and what is the implication of this recommendation relative to your findings? Do you think that women who are getting sufficient iodine - based on I-FFQ could avoid taking iodine supplements?

Line 87: what other biomarkers? Are you referring to the TSH, etc that you included? Please either drop this sentence or make sense out of it.
Lines 90-95: you don't seem to take this into account at the end when you conclude to use I-FFQ... if dietary methods are so bad, why are you proposing them over biochemical? The reader is left not really getting to the salient point of why I-FFQ is preferred over diet diary or 24 hour or UIC or blood TSH...

Correct the multiple mismatched plural vs singular verbs

Lines 125 & 128: please reference how many diets are considered sufficient for validation studies (diet to diet vs diet to biomarker)

Line 145: "the participants were asked to report"... how? Was this an online questionnaire, with an enumerator, on paper?...

Lines 150-151: confusing for non-local readers. Why only spreads, and list all potential responses for each set of questions, perhaps in a table or annex?

Somewhere in methods: clarify the overall number of foods in the I-FFQ vs in the food diary; are they the same categories? Perhaps a table comparing the two? This shows up slightly in discussion, but that is too late.

Line 175+: clarify the order of the different collection methods: simultaneous, sequential, ... inconsistent? Later you imply the 6 days of diary are the exact same as the 6 days of UI, but please make this clear

Line 176: "handed out" is that all? No instructions on how to complete?

Line 181: to make the pancakes and waffles more understandable, consider this shift: ; 19 questions regarding milk and dairy products, including foods made with milk, such as pancakes, waffles and others mixed dishes with milk; and

Line 200: mean daily iodine from supplements assumes the absorption of a bolus on one day is equal to daily smaller amounts, is that true of iodine? Please clarify why you felt it was okay to estimate this way

Line 245: what is meant by "compliance"? Compliance usually refers to a person's choice, but this appears to look at analyses of data. Perhaps choose another description

Lines 296-297, please clarify which numbers are "similar", mean/ median/ similar based on regression...

I keep reading this statement in comparison to the numbers in Table 2 and wondering if the data descriptions are flipped.

The means of 134 and 202 (IFFQ, diet and diet+supplements) are closer to 135 and 220 (estimated by UIC) than the means of 116 and 171 (food diary) …
Please explain this to the reader

Table 3 (line 336+) food diary seems to be higher correlation, but actual values (table 2) seemed to be closer between FFQ and UIC estimates…

Much of what is in the text of the results is already in the tables… please reduce somewhat to just highlight the most important points. Pg 18 starts to be better because the text clarifies the figures, and provides some numbers that are not present in the figures.

Discussion

Line 412, authors bring up ranking, but seemingly as an after-thought. Is ranking important?

The fact that both dietary methods only include certain high iodine foods makes it clear that these estimates are likely going to be underestimates, but the authors should emphasize why estimates and why ranking would be important or how these would actually be used in programs. There isn't enough emphasis on how much value these tools could be!, particularly for pregnant women to identify those who are potentially at risk of IDD.

Line 432, can't find it, but it seems there was a comment in the intro saying that this was the first time this type of validation was done…

Paragraph starting line 434, please try to reorganize this paragraph, wanders around and seems to repeat some things

Lines 455-456: it is obvious that inclusion of supplements would provide higher iodine estimates, instead what is important to bring up about the contribution of the supplements to the iodine intakes of these women?

Line 481: what can you say about intra-individual variability across these 6 days? (results) … Is it likely another 4 days of data would have altered your findings?

Line 486 says UIC and diary were collected same days, but this was not in the methods. Also, the authors said previously that UIC was not a good measure if only one time point, please clarify why you are now saying UIC would be a good comparison… actually this should be clarified previously - why you are taking one spot urine in the evening each day. You explain 6 days vs 10, but before that please explain why 6 days * 1 spot would be appropriate.

Line 489: "which gives a realistic intake of iodine" this is sort of thrown in there… what do you mean by "realistic" and there are also limitations to the dietary methods as well as the biomarkers. Further, UIC also gives a good estimate of iodine status at population level and
could be much easier to collect (less training required, etc), so please choose a reason for this recommendation other than realistic intake. For example, would you be recommending practitioners send out these recommendations digitally to pregnant women, or with their first ANC visit or be administered during their visits,…?

Line 497: if an association is not expected, why did you include the costly and invasive TSH etc tests? Please clarify, perhaps in methods, why this was included at all.

Line 512: include above in methods how many interviews are considered adequate for validation, don't wait until discussion to add this.

Please consider organizing the strengths and weaknesses differently, either all strengths and all weaknesses, or each assessment method with its related strengths and weaknesses or another system to help the reader recognize when you are shifting between strength and weakness.

Lines 531-532, as above about 'estimate and rank'

Line 532: "association" please explain what you mean - use the full appropriate statistical terms.

Line 536: "need for tools" tools are already available, explain more of what type of tools are needed that you believe you have identified. 'non-invasive', 'low-cost', 'self-administered' ...

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